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SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "B," Bureau of Investigation, "E," Editorial, "C," Correspondence, "ML," Medical Economics. "ab," abstract, the star (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." State board examinations are entered under the general heading State Board Reports, and not under the names of the individual states. Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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Acad—Academy
Am—American
A—Association
Coll—College
Conf—Conference
Cong—Congress
Con—Convention
Dist—District
Hosp—Hospital
Internat—
Internat—
M—Medical
Med—Medicine
Nat—National
Phar—Pharmaceutical
Phys—Physicians
Ket—Ketchikan
Ky—Kentucky
S—Surgical
Soc—Society
Surg—Surgery
Surgs—Surgeons

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THE RÔLE OF PHARMACOLOGY IN THE DEVELOPMENT OF IDEAL ANESTHESIA

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SAN FRANCISCO

Since no drug is quite ideal for its purpose stimulus exists for commercial as well as scientific efforts to develop better drugs than any now in use for a particular clinical effect. Scientifically, such an effort is usually based on some phase of what may be called biochemorphology,¹ i e, the relation between chemical constitution and biologic action. A chemist, after considering, for instance, the biochemorphic aspects of hypnotics synthesizes a new substance which is found to have hypnotic action. Commercially there now exists a strong temptation to introduce the new agent clinically without furnishing physicians sufficient comparative scientific data to enable them to judge whether or not it has advantages recommending it over hypnotics already in common use. One would be naive indeed to believe that the pharmaceutical concern developing the new hypnotic could give unbiased judgment on this point. But it is thus that the hopeful good humor of physicians is too often exploited with unnecessary harm or expense to their patients.

Four years ago, before the Portland session of the American Medical Association, I tried to outline in a general way the position of pharmacology in the appraisal of drugs suggested for general use in medicine.² It was pointed out that clinical trial of a new chemical should be made only after disinterested pharmacologic study has estimated in comparison with related agents (a) its possible harmful effects, (b) its type or mode of action and (c) the reasonableness of its replacing existing drugs in application to human beings. It was further indicated that the new agent should not be offered for general use to physicians until favorable reports on it had been published from reliable chemical, pharmacologic and clinical sources. Pharmacologic data are more readily accepted from university laboratories than from commercial labora-

tories, and clinical information is usually relied on when it comes from a university or independent research hospital. Physicians might place greater confidence in commercial concerns if they would cooperate with such institutions rather than supplant them with their own. While it is to be hoped that Sir Henry Dale's pious good wishes for American pharmaceutical houses may come true,³ past experience indicates that American physicians must support more fully the judgment of the Council on Pharmacy and Chemistry of the American Medical Association and insist more strongly on adequate and reliable pharmacologic and clinical data in connection with new drugs if they are to free themselves from exploitation. One need only think of the current situation in local anesthesia and preanesthetic medication to realize the significance of these remarks. It is yet to be satisfactorily demonstrated, not only pharmacologically and clinically but also from the standpoint of expense, that for infiltration and spinal anesthesia or nerve block a better local anesthetic is available than procaine, that any of the many modifications of barbitol surpass it for ordinary preanesthetic hypnosis⁴ or that tribrom-ethanol ("Avertin") is better than paraldehyde for rectal narcosis.⁵

RATIO OF TOXICITY TO EFFICIENCY

In the pharmacologic evaluation of new chemicals for various uses in anesthesia as elsewhere, the essential proposition is the critical quantitative estimation of the ratio of the toxicity of the substance to its efficiency in comparison with related agents. Both the toxicity and the efficiency must be thoroughly investigated. It is not enough to estimate an average lethal dose (M L D). This gives no information regarding the minimal dosage, either single or total cumulative, at which harmful effects may be encountered in the susceptible organism, which in the case of the human being is just the one to protect. For some drugs the toxic dose range is wider than for others because there may be a greater individual variation in response to it.⁶ The physician should have this full information. If the toxic dose range overlaps the effective dose range, the drug is not a safe one. In appraising a series of drugs giving a satisfactorily intense and prolonged effect, the one that has the greatest margin of safety between the effective dose range and the toxic dose range will be best in general. Too seldom are full data on this essential matter in anesthesia given to physicians.

Some of these propositions may be illustrated to advantage in connection with problems of current

¹ From the Pharmacological Laboratory of the University of California Medical School.

² Read before the Section on Miscellaneous Topics Sessions on Anesthesia at the Eighty Fourth Annual Session of the American Medical Association Milwaukee June 15 1933.

³ The adjective biochemorphic has been coined to connote that pertaining to the relationship between chemical constitution (including physical properties) and pharmacologic (physiologic or biologic) action. Such a term is badly needed especially when the restricted term chemotherapy (Ehrlich) is becoming loosely employed to cover this whole field (e g Dyson G M The Chemistry of Chemotherapy London 1928). The noun indicating the study of the relationship between chemical constitution and biologic activity would be biochemorphology. The literal meaning of the term knowledge of living chemical structure really implies the fundamental objective of investigations on the relationships between chemical constitution and biologic activity so that there is no essential conflict with its technical meaning.

⁴ Leake C D The Pharmacologic Evaluation of New Drugs, J A M A 93 1632 (Nov 23) 1929.

⁵ Dale H H Academic and Industrial Research in the Field of Therapeutics Science 77 521 (June 2) 1933.

⁶ Leake C D Some Pharmacologic Aspects of Preanesthetic Medication Northwest Med 29 561 (Dec.) 1930. Grabfield G P Observations on the Efficiency of Commonly Used Hypnotics J A M A 96 1865 (May 30) 1931.

⁷ Stewart J D Rectal Paraldehyde Before Operation Brit M J 2 1139 (Dec 24) 1932.

⁸ Burn J H Errors of Biological Assay Physiol Rev 10 146 (Jan) 1930.

interest in anesthesia. For general inhalation anesthesia, although a number of substances are commonly used, not one is ideal. Partly by accident and partly by deliberation,⁸ the anesthetic properties of the unsaturated hydrocarbon ethylene ($\text{CH}_2=\text{CH}_2$) were rediscovered in 1922, although they were known to Richardson fifty years before.⁹ This revived interest in the search for better general anesthetics since ethylene, in spite of its explosibility, was found to have many physiologic advantages over its competitors.¹⁰ It was found that further unsaturation as in acetylene ($\text{CH}\equiv\text{CH}$), or increasing the number of carbon atoms, as in propylene ($\text{CH}_3-\text{CH}=\text{CH}_2$), does not seem to improve the anesthetic qualities but may introduce undesirable ones. The careful studies of Prof. V. E. Henderson and his associates on the cyclohydrocarbons, however, are most promising and have led to

the demonstration of cyclopropane $\begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{CH} \quad \text{CH} \\ \diagdown \quad \diagup \\ \text{CH}_2 \end{array}$ is a

relatively nontoxic and powerful inhalation anesthetic worthy of clinical trial.¹¹ Rather than discuss this I hope I may be pardoned for the seeming egotism of using as an illustration work with which I am more directly familiar.

DIVINYL OXIDE AND VINYL CHLORIDE

A consideration of the biotransformation aspects of general anesthetics led to the prediction that a compound incorporating the structural characteristics of ether ($\text{CH}_3-\text{CH}_2-\text{O}-\text{CH}_2-\text{CH}_3$) and ethylene ($\text{CH}_2=\text{CH}_2$) would be a general anesthetic and further that this unsaturated ether ($\text{CH}_2=\text{CH}-\text{O}-\text{CH}=\text{CH}_2$, divinyl oxide) would be better than any unsaturated ether with a greater number of carbon atoms in the side chains. When this prediction was made, divinyl oxide, although theoretically known to chemists did not exist. When I requested this specific compound with other unsaturated ethers from Prof. Lauder Jones of Princeton University, his associates, Drs. Randolph Major and W. T. Ruigh, sent me an impure sample which was found, however, to have the properties predicted of it.¹² Later Drs. Major and Ruigh¹³ became associated with the Laboratory of Pure Research of Merck & Co. and prepared for the first time pure divinyl oxide, which they were kind enough to furnish in amounts large enough for pharmacologic study and later for clinical trial when its advantages had been demonstrated.¹⁴ Pure divinyl oxide, although explosive like ether and ethylene, is more powerful and rapid in its anesthetic action. It is more volatile than ether (boiling point

28.3 C) and less irritating locally, and its general physiologic effects are less severe. It has no significant pathologic effect when administered without anoxemia. Its minimal certain anesthetic concentration, like ether, is about one-third its minimal toxic concentration when allowed to act for ten minutes, but greater circulatory reserve remains when respiration fails. Recovery is more prompt than from ether or ethylene and less attended with nausea or other complications. A great practical advantage revealed by animal experimentation is that abdominal relaxation, without intercostal muscular paralysis may more easily be obtained with divinyl oxide than with other common general anesthetics. Following our pharmacologic studies, Gelfan and Bell¹⁵ of the University of Alberta demonstrated its safety in anesthetic concentrations for man. At its first surgical use with Dr. Dorothy Wood as anesthetist at the University of California Hospital, San Francisco, in an operation on an obese patient for removal of the gallbladder its practical advantages were clearly evident. These have now been independently confirmed.¹⁶

But divinyl oxide is not of course an ideal inhalation anesthetic. In addition to its explosibility and probable expense, it may polymerize or decompose with the appearance of such dangerous irritants as formaldehyde and formic acid. Difficulty with such impurities has already been experienced.¹⁷ But so far results justify the hope that similar biotransformation studies may lead more closely to an ideal general anesthetic.

Further steps in this direction are being taken in our laboratory. Dr. S. A. Peoples is investigating the anesthetic properties of the halogenated unsaturated hydrocarbons. These were suggested by the fact that the union of a halogen with an unsaturated carbon atom is more stable than otherwise, so that such compounds might not be expected to decompose in the body causing untoward effects, as seems to be the case with saturated halogenated hydrocarbons.¹⁸ Vinyl chloride ($\text{CH}_2=\text{CHCl}$) which may most appropriately be compared to ethyl chloride ($\text{CH}_3-\text{CH}_2\text{Cl}$), is a gas (boiling point -13.9°C) heavier than air and with an ethereal odor. Its narcotic action has already been noted.¹⁹ Dr. Peoples²⁰ found that although it is not quite as powerfully anesthetic as ethyl chloride, it has a wider margin of safety between its anesthetic range and its toxic range. It is very rapid in its action and recovery from it is prompt with no apparent untoward effects, even after prolonged anesthetization. It is, of course, much more powerful than ethylene as a general anesthetic, and significantly it is not explosive. It is also very cheap. The chlorine in it is split off only with difficulty, so that physiologically it seems relatively free from many of the untoward effects of ethyl chloride. It remains for further pharmacologic study to indicate whether or not it is worthy of use in human beings. Dr. Peoples is also studying higher halogenated unsaturated hydrocarbons, such as β -bromopropylene ($\text{CH}_3-\text{CBr}=\text{CH}_2$), which are nonexplosive and powerful anesthetics.

7 Luckhardt, A. B. and Carter, J. B. Physiologic Effects of Ethylene. A New Gas Anesthetic. *J. A. M. A.* 80: 765 (March 17) 1923.

8 Brown, W. E., and Henderson, V. F. On Ethylene as an Anesthetic. *Arch. internat. de pharmacodyn. et de therap.* 28: 257 (1923).

9 Richardson, B. W. A Synopsis of Anesthetics. *Scient. Am.* (supplement) 20: 8227, 8240, 1885.

10 Luckhardt, A. B. and Lewis, Dean. Clinical Experiences with Ethylene Oxygen Anesthesia. *J. A. M. A.* 81: 1851 (Dec. 1) 1923.
Leake, C. D. The Effect of Ethylene Oxygen Anesthesia on the Acid Base Balance of Blood. A Comparison with Other Anesthetics. *J. A. M. A.* 83: 2062 (Dec. 27) 1924.

11 Henderson, V. E. and Lucas, G. H. W. Cyclopropane, a New Anesthetic Anesth. & Analg. 9: 1 (Jan. Feb.) 1930. The Effect of Cyclopropane on Metabolism. *Arch. internat. de pharmacodyn. et de therap.* 37: 155 (1930). Henderson, V. E. and Johnston, J. F. A. Anesthetic Potency in the Cyclohydrocarbon Series. *J. Pharmacol. & Exper. Therap.* 43: 89 (Sept.) 1931.

12 Leake, C. D. and Chen, M. Y. Anesthetic Properties of Certain Unsaturated Ethers. *Proc. Soc. Exper. Biol. & Med.* 28: 151 (Nov.) 1930.

13 Ruigh, W. L. and Major, R. T. Preparation and Properties of Pure Divinyl Ether. *J. Am. Chem. Soc.* 52: 2662 (July) 1931.

14 Leake, C. D., Knoefel, P. K. and Guedel, A. E. Anesthetic Action of Divinyl Oxide in Animals. *J. Pharmacol. & Exper. Therap.* 47: 5 (Jan.) 1933.

15 Gelfan, S. and Bell, I. R. Anesthetic Action of Divinyl Oxide on Humans. *J. Pharmacol. & Exper. Therap.* 47: 1 (Jan.) 1933.

16 Goldschmidt, Samuel, Ravdin, I. S., Lucke, Baldwin, Muller, G. P. and Johnston, C. G. Divinyl Ether. Experimental and Clinical Studies. *J. A. M. A.* this issue, p. 21.

17 Waters, R. M. and Guedel, A. E. Independent personal communication to the author.

18 Lucas, G. H. W. Fate and Toxicity of Bromine and Chlorine Containing Anesthetics. *J. Pharmacol. & Exper. Therap.* 34: 223 (Oct.) 1928.

19 Patty, T. A., Yant, W. P. and Waite, C. P. Acute Response of Guinea Pigs to Vapors of Some New Commercial Organic Compounds. *V. Vinyl Chloride.* *Pub. Health Rep.* 45: 1963 (Aug. 22) 1930.

20 Peoples, S. A. and Leake, C. D. Anesthetic Action of Vinyl Chloride. *J. Pharmacol. & Exper. Therap.*, to be published.

IMPORTANCE OF TECHNIC

Biochemorphic studies, such as those of Prof V E Henderson's on the cyclohydrocarbons and those on unsaturated hydrocarbons, illustrate the role pharmacology may play in the development of ideal inhalation anesthetics. Technique is another phase of the pharmacologic evaluation of anesthetics which may aid in achieving ideal anesthesia. In our studies on dimethyl oxide we had occasion to examine critically various methods of administering inhalation agents. No method in our opinion is as sound physiologically as reflected in the anesthetic and postanesthetic condition of the organism as the Waters²¹ carbon dioxide filtration technique. In our experimental work we found that such complicating factors in general anesthesia as water or heat loss from the lungs, asphyxiation, anoxemia and carbon dioxide accumulation can be reduced to a minimum by this method. Furthermore, it minimizes loss or waste of anesthetic and permits very accurate control. In this study we were impressed again with the importance of anoxemia as a factor in the deleterious physiologic effects of a general anesthetic. These considerations are more significant clinically when human life is at stake than experimentally. Pharmacology may thus be helpful in evaluating anesthetic technique. This is now so complex involving so many difficult physiologic and pharmacologic propositions, that it must be obvious that anesthesia is a medical specialty worthy of the best attention of able physicians, and that it can no longer be entrusted to individuals with inadequate medical training without denying surgical patients the skill they deserve.

CHEMICAL ADJUNCTS TO ANESTHESIA

A great variety of chemical adjuncts to anesthesia have been proposed for (a) preanesthetic hypnosis, (b) regulation of metabolism preoperatively, (c) aid in the induction, maintenance and prompt recovery from direct anesthesia, (d) relief of postanesthetic nausea, and (e) postoperative analgesia. Reference to pharmacology in this overgrown field would greatly help in approaching more ideal conditions than those now existing, especially regarding preanesthetic hypnotics. It should be clinically obvious that routine preanesthetic medication or use of chemical adjuncts to anesthesia is not in the best interests of the patient. Each patient should be individually considered with regard to the chemical to be used, if necessary at all, and its dosage and mode of administration. Axiomatic though this may be, it is usually honored in the breach in anesthesia.

Pharmacologic evidence indicates that much traditional rubbish in common beliefs regarding morphine, atropine and scopolamine (hyoscine) might be removed with advantage to anesthetic practice. The objections to morphine are central nervous system stimulation outlasting the obvious depression, tendency to cause constipation, tendency to disturb carbohydrate and fat metabolism, depression of respiration and interference with rapidity of absorption and excretion of a volatile anesthetic.²² Nevertheless, it remains the best preanesthetic hypnotic and postoperative analgesic when traumatic pain is present. Codeine is preferable if the

traumatic pain is slight. It is to be hoped that the thorough biochemorphic studies of Small and Eddy may lead to the discovery of an ideal agent in this regard.²³ In congestive pain, amidopyrine or a similar acting antipyretic which seems to restore fluid from tissues to blood²⁴ may be recommended as a substitute. Little rational evidence exists that opium or a mixture of its alkaloids free from nonalkaloidal material ("pantopon") has any advantage over morphine as a preanesthetic hypnotic; indeed the evidence is otherwise.²⁵ Atropine has rational indications when chloroform or ethyl chloride are to be used or when an embarrassing mucous or salivary flow is expected. Otherwise it has little merit in anesthesia, its relaxation of the intestine probably contributing to the frequent postoperative stasis. What critical pharmacologic or chemical information is available regarding scopolamine fails to justify its use in anesthesia.²⁶ Since it is chemically related to atropine, it may be expected to have actions and disadvantages similar to the latter.

Current interest in preanesthetic hypnotics is focused on the barbiturates, to the unfortunate neglect of many other equally promising chemical types. On pharmacologic evidence from normal human beings, barbital by mouth may be recommended as a suitable preanesthetic hypnotic if no pain is present.²⁷ Although commercial rivalry has produced an amazing number of modifications of barbital satisfactory evidence is still lacking to show the undoubted superiority of any of them over barbital. The biochemopharmacology of this group of drugs has been well reviewed by Shonle.²⁸ As an example of gross commercial exploitation in this field, combinations of barbiturates in fixed proportions with amidopyrine ("allonal," "cibalgin," "pyrammal") may be mentioned. In spite of direct pharmacologic evidence of the danger of such mixtures,²⁹ since the analgesic component is excreted more rapidly than the hypnotic, so that cumulative barbital poisoning is possible on repeated administration, they remain "successful." Similarly, the "success" of tribrom-ethanol as a 'basal anesthetic' is chiefly commercial, pharmacologic and clinical evidence failing as yet to indicate that it is any better than paraldehyde by rectum.³⁰

My destructive criticism should not lead to a loss of hope that hypnotics more satisfactory than those commonly used now may not be found. The principles of biochemopharmacology may be expected to advance our knowledge to this end if they may be patiently and steadfastly pursued without the pressure of business expediency. Dr P K Knoefel³⁰ in our laboratory has made some interesting studies on the paraldehyde series which may be of practical significance.

Many hypnotics of different chemical types, which may be used as basal narcotics, seem to inhibit the gen-

23 Eddy N B. Studies of Morphine, Codeine and Their Derivatives. *J Pharmacol & Exper Therap* 45: 339-361 (July) 1932.

24 Barbour H G. Heat Regulation and Water Exchange. *J Pharmacol & Exper Therap* 29: 427 (Oct) 1926. *Physiol Rev* 1: 295 (April) 1921.

25 Barlow O W and Stormont, M F. Premedication Values of Morphine, Codeine, Papaverine, Narcotine and Pantopon in Relation to Nitrous Oxide Anesthesia. *J Pharmacol & Exper Therap* 46: 141 (Oct) 1932.

26 Barlow, O W. Preanesthetic Value of Scopolamine and Mixtures of Scopolamine and Morphine in Relation to Nitrous Oxide Anesthesia in the Rat. *J Pharmacol & Exper Therap* 46: 131 (Oct) 1932.

27 Anderson H H, Chen M Y and Leake, C D. Possible Substitutes for Morphine in Preanesthetic Medication. Observations on Common Barbituric Acid Derivatives. *J Pharmacol & Exper Therap* 29: 271 (July) 1930. Effects of Barbituric Acid Hypnotics on Basal Metabolism in Humans. *ibid* 40: 215 (Oct) 1930.

28 Shonle H A. Chemical Basis of Hypnotic Action as an Index of Clinical Efficiency. *Anesth & Analg* 11: 210 (Sept-Oct) 1932.

29 Koppány, T and Lieberman A. *J Pharmacol & Exper Therap* 39: 177 (June) 1930.

30 Knoefel P K, Loneragan Lester and Leake C D. Biochemopharmacologic Aspects of Paraldehyde and Certain Acetals. *Proc Soc Exper Biol & Med* 29: 730 (March) 1932.

21 Waters R M. Carbon Dioxide Absorption from Anesthetic Mixtures. *California & West Med* 35: 342 (Nov.) 1931.

22 Herb Isabella C. Administration of General Anesthetics with Special Reference to Ether and Chloroform. *J A M A* 56: 1312 (May 6) 1911. Gatch W D. The Use of Rebreathing in the Administration of Anesthetics. *ibid* 57: 1599 (Nov. 11) 1911. Bevan A D. The Choice of the Anesthetic. *ibid* 57: 1821 (Dec. 2) 1911. Leake C D. Chemical Adjuncts to General Anesthesia. *California & West Med* 33: 714 (Oct) 1930.

cial hyperactivity of the sympathetic nervous system caused by ether, chloroform and other volatile anesthetics. Knoefel has suggested that their use therefore may be an important factor in counteracting supranal exhaustion and anesthetic shock.³⁰ Pharmacologic study should indicate what hypnotics are best suited for this purpose.

In many other cases in which chemical adjuncts to anesthesia are used as for respiratory or circulatory stimulation disinterested critical pharmacologic evidence of the value of new drugs should be demanded before clinical trial is undertaken. The advances made by biochemorphic studies in the epinephrine series³¹ justify the hope that their continuation may lead to more ideal agents in this group for adjunctive use in anesthesia than any now available.

LOCAL ANESTHETICS

As an example of sound critical pharmacologic evaluation along the lines I have suggested the work of Sollmann³² and of Schmitz and Loevenhart³³ in the procaine series of local anesthetics is outstanding. Here is a field in which biochemorphology has been used to produce such an abundant harvest that its pharmacologic evaluation, except in scattered instances, has scarcely begun.³⁴ Pending this necessary comparative pharmacologic appraisal, clinicians should be very cautious in using new local anesthetics on their patients. It is in this field especially that the ratio of toxicity to efficiency in comparison with related agents or with standard local anesthetics is most important. Fortunately, these comparative ratios may be accurately estimated by proper pharmacologic methods. Clinicians should insist that data of this sort be plainly and fully presented so that they may be the ones to judge of the worthiness of new substances for clinical uses. For surface (mucous membrane) anesthesia it is desirable that thorough study be made of local anesthetics in order to find such satisfactory substitutes for cocaine that there will not longer be any hesitancy in discarding completely this dangerous habit former. For infiltration or subarachnoid anesthesia or nerve block, procaine will be hard to surpass because of its unusually wide margin of safety between its effective and toxic doses.

In the quinine series there is the possibility that biochemorphic considerations may aid in the finding of relatively safe and efficient local anesthetics with prolonged action. Nupercaine is by no means ideal in this regard, but its development indicates the hope.³⁵ There is also the hope that prolongation of action may be achieved in the relatively safer procaine series by biochemorphic studies. But this desideratum may be attained by other methods suggested by pharmacologic observations. Absorption may be delayed by causing local vasoconstriction, as is commonly done by adding epinephrine to a local anesthetic solution. But this

increases the toxicity of the local anesthetic, and substituting ampules of pitressin for epinephrine gives no advantage.³⁶ Biochemorphic considerations have suggested incorporating vasoconstricting and local anesthetic properties in a single chemical substance, and the recent synthesis of many such agents³⁷ offers the hope of advance in this direction toward more ideal local anesthesia. Some compounds being studied in our laboratory by Knoefel and Alles seem very promising.

Reduction of absorption by local vasoconstriction is also an important factor in minimizing systemic poisoning by local anesthetics. But the discovery of the prophylaxis of systemic local anesthetic toxicity by means of the barbitals and certain other hypnotics³⁸ is a practical pharmacologic contribution of greater significance in the development of ideal anesthesia, since it may be used to relieve the patient's fear and excitement as well as to protect against untoward reactions. The possibility of incorporating central nervous system depressant action with local anesthetic action in the same chemical has been proposed by Dr. Knoefel on biochemorphic grounds. His studies indicate definite hope in this direction.³⁹

SUMMARY

In the development of ideal anesthesia, pharmacology must play a major role particularly in the critical appraisal of the relative merits of new chemicals proposed for use in anesthesia. Significant advance may follow studies on the relation between chemical constitution and biologic action (biochemorphology). Such a possibility is already promised for inhalation anesthesia by observations on the cyclohydrocarbons, unsaturated ethers and hydrogenated unsaturated hydrocarbons, and especially for preanesthetic hypnotics and local anesthetics by a variety of chemical types. Unfortunately, commercial considerations have largely dominated this field so that proper pharmacologic data on new drugs, especially relating to toxicity and efficiency in comparison with related or commonly used agents, have not usually been furnished physicians to enable them to judge whether or not the new drugs are worthy of clinical use. Such data may advantageously be secured by cooperation with university medical laboratories. Loevenhart proposed a cooperative therapeutic institute for obtaining data of this sort under ideal conditions but unfortunately commercial houses were unwilling to establish and support it.⁴⁰

ABSTRACT OF DISCUSSION

DR. M. H. SLEEVERS, Madison, Wis.: When the time comes for the clinical trial of a new drug even after extensive pharmacologic investigation with favorable results, one must proceed as cautiously as if one had little or no knowledge of the drug, because additional action which did not manifest itself in the lower animals may preclude its clinical use. A capable anesthetist, who has been in the foreground in the clinical trial of newer anesthetic agents, recently stated that he will not attempt to evaluate any new drug until it has had an extensive clinical application.

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32. Sollmann, Torald. Comparative Activity of Local Anesthetics. *J. Pharmacol. & Exper. Therap.* 10: 379 (Nov.) 1917. 11: 19, 17, 69 (Feb.) 1918. 13: 429 (Aug.) 1919.

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CEREBRAL CYSTS

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The clinical syndromes produced by intracranial lesions follow fairly definite lines of progression, and may indicate the underlying pathologic changes. However, it is reasonable to assume that a definite pathologic diagnosis can be made only at operation or necropsy. General and neurologic examinations may indicate whether the lesion is primary or secondary, inflammatory or neoplastic, and encephalography or ventriculography may be necessary to assist in localization.

When the lesion has been localized and found suitable for operation, it is important to determine whether it is cortical or subcortical, cystic or solid and neoplastic or non-neoplastic. Because of the difficulty in distinguishing between cerebral cysts at the time of operation, we have reviewed the various types for the purpose of comparison. Between 10 and 15 per cent of the surgical conditions of the brain were found to be cystic. This particular group of conditions involving the cerebral hemispheres has been considered with regard to etiology, and has been divided into congenital, inflammatory, traumatic, parasitic and neoplastic types.

Congenital cysts may be subdivided into porencephalic, epidermoid and simple. Porencephalic cysts either communicate with the subarachnoid space and the ventricle, or extend so deeply into the substance of the brain that they cause distortion of the ventricular outline. The walls of epidermoid cysts are lined with epithelium in which there are few glandular structures, and the contents are not fluid, but caseous. Among the cysts encountered at operation are subcortical cavities containing clear fluid, the walls of which are smooth and glistening and in which there is no evidence of neoplasm or inflammation. In the absence of a history of trauma or evidence of inflammation these have been designated congenital simple cysts.

Inflammatory cysts are rare and consist either of collections of fluid in the chronically inflamed pia-arachnoid space, or subcortical collections of fluid associated with chronic encephalitis. There is usually little evidence that these cavities are the end-result of the liquefaction and absorption of a previous abscess.

Traumatic cysts may be divided into subdural hematomas, calcified, and simple cysts. It is questionable whether subdural hematomas should be included in this group because they occur between the dura mater and the cortex of the cerebrum. Calcified cysts are frequently the result of a subcortical hematoma, and are encountered at an age when spontaneous hemorrhages are not likely to occur. In addition to the congenital simple cysts, smooth-walled cysts have been encountered following a definite history of trauma, these contain clear fluid. In the walls of these cysts there is no evidence of neoplasm.

The most common parasitic cyst encountered at operation consists of the collection of fluid due to infestation by *Echinococcus*. These cysts may be solitary and frequently contain daughter and granddaughter

cysts and may occur subcortically, or they may be attached to the meninges.

The neoplastic cyst is by far the most common type encountered at operation. It varies almost in direct proportion with the frequency with which various types of neoplasms occur in the cerebrum. Almost all types of tumors have been found associated with cysts, and the more benign and slow-growing types seem to have a greater tendency to degenerate and form cysts than the more rapidly growing ones.

Tumors of the glioma group which were found to contain cysts were spongioblastoma multiforme, ependymoma, polar spongioblastoma, oligodendroglioma, astrocytoma and gangliocytoma. Cysts also were encountered, associated with hemangio-endotheliomas and rarely with meningiomas.

A less important group of cysts encountered among elderly patients are those associated with arteriosclerosis. They are liquefied infarcts in which absorption of the debris has been completed, and which contain clear fluid. Blood pigment is often found in the walls of these cavities.

Lesions such as subdural hematoma, calcified cysts and echinococcus cysts may have demonstrable characteristics which immediately lead to a diagnosis. However, following exposure and aspiration of a subcortical cerebral cyst it is extremely difficult to identify its origin and pathologic changes. Realizing these difficulties, we are analyzing some of the more prevalent of these cerebral cysts in an effort to emphasize the outstanding characteristics.

The first case presented illustrates a congenital cyst which is an exaggeration of the condition of porencephaly or developmental absence of a portion of the cerebral hemisphere. This case has been described in detail elsewhere, however, since it is a good, even if extreme, example of this type of lesion, a brief summary is given.

REPORT OF CASES

CASE 1—Porencephaly. A girl, aged 7 months, was brought to the Mayo Clinic because of progressive enlargement of the head. The child seemed normal for the first week after birth, and then began to have generalized convulsions. Because the head had increased in size and the convulsions were increasing in severity, the right lateral ventricle was aspirated through the anterior fontanel. The procedure relieved the convulsions, and it was repeated at intervals. However, the head gradually increased in size so that at the time of examination in the clinic it measured about 50 cm in circumference, and the fontanels and sutures were open. The right side of the cranium was larger than the left. The results of neurologic examination were negative, the child moved all four extremities with equal strength, and the reflexes were slightly hyperactive. Dye was injected into the right lateral ventricle and was recovered by means of posterior cistern puncture. A ventriculogram revealed what appeared to be a markedly distended right lateral ventricle and a smaller left lateral ventricle.

When the dura was opened, clear fluid was aspirated, and with the aid of a lighted retractor, it was seen that the entire right hemisphere was absent, and only the basal ganglia were present. The falx cerebri, sella turcica and tentorium were visible, and we could see into the left lateral ventricle through the intraventricular foramina, which were very large. The choroid plexuses of the right and left lateral ventricles were removed.

Possibly this case should be in the porencephalic group of congenital cysts, which may simulate neoplasms or hydrocephalus. It is conceivable that a simple cyst could be present within the brain, caused either by inflammation or by a congenital anomaly. The classification of simple cysts would seem satisfactory

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for those having smooth walls, and clear fluid, and apparently being neither neoplastic nor congenital

CASE 2—Simple cyst A man, aged 37, came to the clinic complaining of convulsions and failing vision of one year's duration. Four years before, when at work, he had suddenly lost consciousness, which lasted for twelve hours. Three months later, he had another seizure, and similar but shorter attacks occurred as frequently as four or five times a day. He occasionally fell but recovered immediately and complained of slight transitory confusion during which he suffered from propulsion or retropulsion. At the time of his first attack he noticed that he could not see objects on the right side. There were never any headaches or vomiting, but there was a marked change in personality, this led to the loss of his position and friends, and he had little interest in his surroundings.

General physical examination and laboratory studies gave negative results. Roentgenograms of the head revealed increased intracranial pressure. Anisotropia of the right eye was complete, and vision in the left eye was diminished. The left field of vision showed marked concentric contraction, with an enlarged blind spot and no color vision. The pupils were slightly irregular, the left was larger than the right. There were bilateral secondary optic atrophy and residual edema of

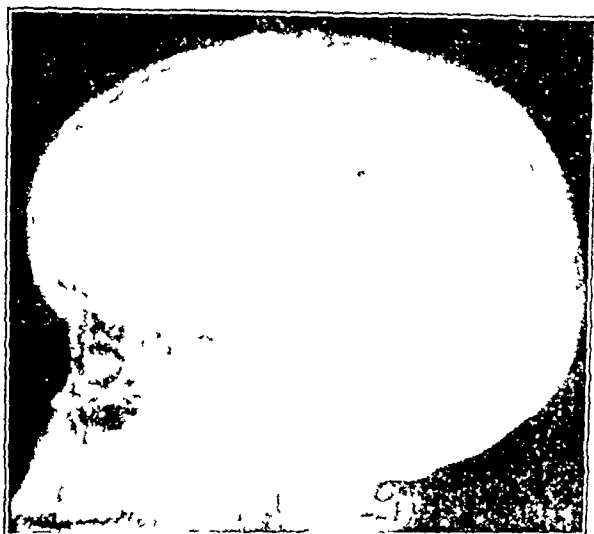


Fig. 1 (case 4)—Lateral view of a calcified cyst in the left frontal lobe

the disks, 1 diopter in the right eye and 2 diopters in the left. Neurologic examination revealed an increase of the Achilles reflex on the right, and a reduction on the left. A ventriculogram localized the lesion in the right frontal lobe.

At operation a subcortical cyst was found when the mid-frontal convolution was incised. The cyst measured 10 cm in diameter and contained 240 cc of clear fluid. The walls were smooth and fibrous, and neither gross nor microscopic evidence of tumor could be found. The cyst was connected with the anterior horn of the right lateral ventricle to secure permanent drainage.

The patient recovered uneventfully. His mentality was greatly improved. No change could be discovered in the right eye, but there was marked improvement of vision in the left. Two years after operation, he could read fine print with correction, and improvement in his general condition had been progressive. He had returned to work and was supporting his family.

This simple cyst became sufficiently large to create slowly progressive increased intracranial pressure. The papilledema and optic atrophy, as well as the roentgenologic evidence of increased pressure, suggested a long course. The satisfactory response to operation with ultimate recovery indicated that little of the surrounding cerebral tissue had been destroyed.

In the third case the cyst was believed to be of traumatic origin, and yet this could not be determined prior to operation, because neoplasms may have a similar history of trauma.

CASE 3—Traumatic cyst A boy, aged 10 years, was brought to the clinic because of convulsions. Three years before, he had been thrown from a merry-go-round, striking the left side of his face and head, this had not been associated with loss of consciousness or ill effects. A year later he had a syncopal attack which was followed by a sensation of numbness of the right thumb associated with temporary contraction of the hand and arm. Four weeks later, he had a grand mal seizure which was followed at irregular intervals from a few hours to several months, by jacksonian convulsions, which began in the right hand and sometimes involved the leg but were not associated with loss of consciousness. Occasionally the right side of the face was involved. For six months prior to his examination at the clinic, administration of phenobarbital had diminished the number and intensity of his convulsive seizures.

General and neurologic examinations, including laboratory tests, and ophthalmologic examination gave negative results. A diagnosis was made of a lesion of the brain involving the left motor area.

At operation a cyst measuring 6 cm in diameter was found in the middle and inferior frontal convolutions on the left side. It was subcortical, and the vessels which are normally on the cortex were in the exposed wall of the cyst. Three of these vessels were ligated, the roof of the cyst was incised, and the contents consisting of clear fluid were aspirated. The lining was white and fibrous, and there was no mural tumor.

The postoperative condition of the patient was satisfactory and he has remained normal for four years.

Although the operative findings in this case were similar to those in case 2, the history of trauma leads us to assume that the cystic mass was possibly the result of injury. History of trauma is common in cases in which tumor of the brain is suspected, although Parker and Kernohan reported that in only 42 per cent of a series of 431 gliomas of the brain was there previous history of injury which might have been an exciting factor.

In another case in which trauma evidently played an important part, the cyst was diagnosed and localized by means of roentgenologic examination.

CASE 4—Traumatic cyst A boy, aged 13 years, was brought to the clinic because of generalized convulsions. At the age of 3 years he had fallen downstairs, and one month later, after a mild convulsive seizure he was unable to talk for six hours. A generalized convulsion, lasting half a minute and followed by weakness of the right arm occurred shortly afterward. At the age of 4 years, a severe convulsion was followed by hemiplegia, aphasia and incontinence. He had no further attacks until he was 12 years old, when they recurred at weekly intervals for eight months. He was free from attacks until three months before examination, when the seizures recurred frequently, as many as seven in one day. Preceding each seizure, the right leg went to sleep, this sensation progressed up the right thigh and jumped to the right hand, and while ascending the right arm the generalized convulsion occurred.

Roentgenograms of the head revealed a large calcified tumor in the left frontal lobe extending 25 cm beyond the median line (fig 1). Neurologic examination revealed vertical nystagmus, moderate weakness of the lower three fourths of the right side of the face, moderate weakness of the right upper extremity and slight weakness of the distal portion of the right lower extremity. Because the margin of the tumor was more dense than the center a diagnosis of calcified cyst in the left frontal area was made.

At operation the calcified mass was found 2 mm below the surface of the cortex of the left frontal lobe and removed. It was 75 by 8 cm in diameter, weighed 254 Gm and was found to be a mass of cholesterol crystals surrounded by a

calcareous capsule 2 mm thick. The cyst was considered to be the result of an old hemorrhage. There were no epithelial cells or living tissue in the capsule or in the contents of the cyst.

After returning home, the patient continued his school work and graduated from high school; he is quite well at present.

The condition in this case differs from that in case 3, in that it was evidently primarily hemorrhagic, with secondary calcification of the capsule.

Parasitic cysts of the brain are rare in this country, in spite of the freedom with which communication and intermingling of races take place. However, case 5 is an interesting example of echinococcal infestation.

CASE 5—Parasitic cyst. An Italian laborer aged 47, who came to this country at an early age and lived in the middle west, was brought to the clinic for examination. He had been well until two and a half years previously, when he suddenly lost consciousness. A convulsion had not occurred; he was unconscious for from five to ten minutes and this was followed by weakness of the left side of the body. Fourteen similar attacks occurred in twenty-four hours. During the ensuing year and a half, he was able to work and felt well, except for slight weakness of the left arm and leg when he began to complain of right-sided headaches in the morning and projectile vomiting of attacks of petit mal with tremor of the left arm and leg followed occasionally by slight, temporary weakness, of tinnitus, and of hallucinations of smell. He was unable to dress himself and frequently was incontinent.

A serologic test for syphilis and other laboratory tests gave negative results. Roentgenograms of the head gave negative results, as did examination of the eyes. Neurologic examination was essentially negative except for diminution of the acuity of smell on the right side and weakness of the entire left side. The pressure of the cerebrospinal fluid was greatly increased. Each cubic millimeter of the fluid contained 128 small lymphocytes, 43 large lymphocytes and 75 polymorphonuclear leukocytes; otherwise, examination of the fluid gave negative results. On account of the apparent change of personality and left-sided weakness a diagnosis was made of a lesion in the right frontal lobe.

At operation the dura was extremely vascular, and when incised, the convolutions were flattened, broadened and pale yellowish white. An opaque exudate surrounded the vessels of the cortex. In the superior temporal convolution there was a bluish cystic area 3 cm in diameter, when this was opened, clear fluid under pressure was found. Several hydatid cysts from 3 mm to 1 cm in diameter, were found floating free in the fluid of the cavity (fig 2). These had opaque walls, and some seemed to have been torn loose from a stalk. The cavity was explored. It extended into the parietal lobe, and was about 8 cm in diameter, at its base there was a stalk which was ligated and resected. Histologic examination of the fluid the stalk and daughter cysts revealed the characteristic hooklets of *Taenia echinococcus*.

The patient recovered sufficiently to return home but improved very little clinically, although he was still living when last heard from.

Neoplastic cysts vary from the most malignant spongioblastoma multiforme to the least malignant astrocytoma or oligodendroglioma. They may be completely surrounded by tumor tissue, or the walls may be smooth and glistening and contain only one small nodule of neoplastic tissue. The surgical procedure depends on the situation and extension of the cyst, as well as on the degree of malignancy and the size of the associated neoplasm. Some of the more common forms of neoplastic cysts are presented in order to show that differential diagnosis between these and a neoplasm is impossible, except at operation, and that any cyst encountered at operation may be neoplastic.

CASE 6—Spongioblastoma multiforme. A man, aged 54 came to the clinic complaining of frontal headaches and convulsions. He had been in excellent health until six months

previously, when suddenly a generalized convulsion with loss of consciousness developed. A week later, he complained of severe headaches in the morning over the left frontal region. These headaches increased in severity until they were brought on by change of position. Following his first convulsion he had attacks each month, with slight residual weakness of the right upper extremity. A slight change of personality also developed.

General and ophthalmologic examinations gave essentially negative results. Neurologic examination revealed slight weakness of the right upper extremity. The clinical history and course of the disease suggested a progressive lesion of the frontal lobe. This was confirmed by a ventriculogram which gave evidence of obliteration of the anterior horn of the left lateral ventricle with displacement to the right.

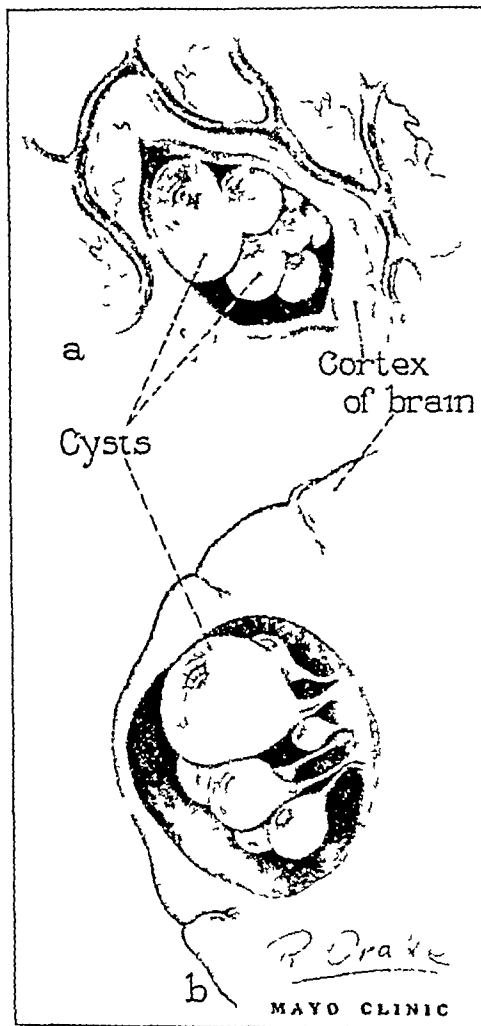


Fig. 2 (case 5).—Echinococcus cyst in the right lobe of the brain. a indicates the appearance at operation; b cross section of the cyst.

At operation the left frontal convolutions were flattened and broadened. From a cystic tumor 1 cm below the cortex, 30 cc of yellow fluid was aspirated. The inferior frontal convolution was incised, and neoplastic tissue lined the wall of the cyst. Tissue removed showed it to be a spongioblastoma multiforme, and because of its situation and extent, further operation was not attempted. Temporary improvement followed for a period of six months when the patient died suddenly.

The less malignant type of glomatous cysts should be resected if possible, yet the following case demonstrates that the condition of the patient should influence the extent of the operation.

CASE 7—Astrocytoma. A man, aged 52, came to the clinic stating that he had been well until four and a half years

before, when a generalized convulsion occurred which had been preceded by twitching of the fingers of the right hand and muscular contraction of the right side of the body. Similar attacks occurred three times a day for three days, but were controlled by the use of phenobarbital until four months prior to admission when they recurred every hour. During the last attacks consciousness was not lost, but transient aphasia was present. During the month prior to registration the right hand

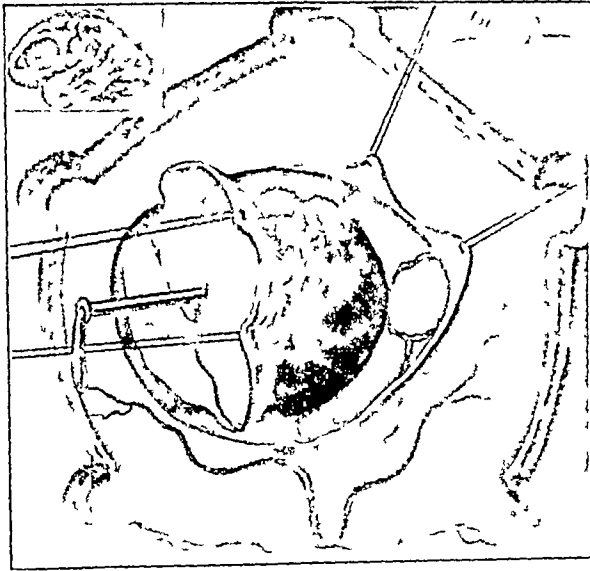


FIG. 3 (case 7)—Cystic astrocytoma of the left frontal lobe

and leg became weak, this progressed to paralysis within two weeks.

General and ophthalmologic examinations gave negative results. A moderate degree of aphasia and definite weakness of the muscles of the right side of the mouth and tongue as well as those of the right arm and leg, were present. The tendon reflexes were reduced in the right upper extremity, the patellar and hamstring reflexes were increased, and both Achilles reflexes were decreased. The sensory examination was unsatisfactory because of the aphasia. A diagnosis of tumor of the brain involving the left temporoparietal area was made.

At operation the dura was tense, and when it was incised, a large, infiltrating, vascular, cystic tumor involving the frontal and parietal convolutions was seen. The dura mater was adherent to, and was very vascular over, the tumor. Thick yellowish fluid escaped from the cystic portion of the tumor when aspirated (fig 3). There appeared to be a line of demarcation separating the tumor from the surrounding brain, and complete removal was effected by dissection along this line. Histologic study showed the lesion to be a fibrous astrocytoma.

The patient's condition seemed satisfactory, but one hour after the completion of the operation he died suddenly. At necropsy the tumor was found to have been completely removed.

Glomatous cysts which respond most satisfactorily to surgical treatment are either those which have completely liquefied, or those which contain only a mural nodule of tumor tissue. The complete removal of the nodule prevents refilling and recurrence. Case 8 is a good example of relief following operation, lasting for five years without symptoms of recurrence.

CASE 8—Oligodendroglioma A girl, aged 5 years, was brought to the clinic with the history of being well until six weeks before admission, when she stumbled and fell while going downstairs. There was no evidence of injury, but following this accident she limped with the left leg. Three weeks later, she complained of right temporal headaches in the morning, which lasted only a short time and were not accompanied by vomiting.

General examination was essentially negative, except that the vision of the left eye was 6/6, and that of the right eye, 6/30, the pupils, field and optic reflexes were normal. There was a bilateral choked disk measuring from 2 to 3 diopters. Neurologic examination revealed weakness of the left side of the face and body, and a positive Babinski sign was also present on the left. A diagnosis was made of a lesion involving the right motor areas.

At operation the dura mater was tense. A cyst containing about 120 cc. of yellow fluid was encountered near the posterior horn of the right lateral ventricle. When the cyst was opened with the electrosurgical unit, a nodular tumor was found on the mesial wall (fig 4). This was removed completely so far as could be determined grossly. A small strip of dura was inserted into the cyst for the purpose of drainage. On microscopic examination, the neoplastic tissue proved to be an oligodendroglioma.

The patient's recovery was uneventful. Only slight weakness of the left side remained. Examination twenty months later revealed that the child was normal and had been attending school regularly. She has continued in excellent health for five years and two months.

Often a glomatous cyst embedded in a tumor is encountered, and the situation and extent of the tumor, as well as the condition of the patient, prohibit extensive resection. The cyst may be drained with subsidence of symptoms, and a later operation may be carried out for more complete removal of the tumor. Sometimes the size of the tumor prevents more than a palliative operation as a second stage.

CASE 9—Istroblastoma A man aged 33, registered at the clinic and gave a history of having been in good health until eight months previously, when he noticed that his right hand was weak and that his speech was slower than normal. Two weeks later he suddenly felt his lower jaw tremble, and he became unconscious, these attacks recurred at monthly intervals.

Examination revealed right hemiparesis with increased reflexes, a positive Hoffmann and Babinski sign, a spastic gait and slight aphasia without evidence of increased intracranial pressure. A diagnosis of tumor of the brain involving the left frontomotor region was made.

Operation was postponed for three months at the patient's insistence, at which time it was found that the weakness of the right side had progressed. He also complained of recurring attacks of Jacksonian type, involving the jaw and right side of the thorax, followed by numbness of the right hand.

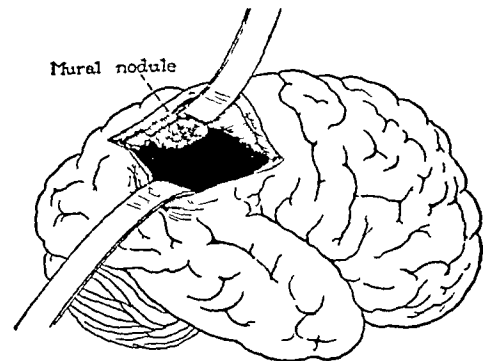


FIG. 4 (case 8)—Cystic oligodendroglioma with a mural nodule

for one hour. A trocar inserted through the superior temporal convolution encountered a cyst containing 60 cc. of yellow fluid, which clotted on standing. Following removal of the fluid, the cavity was opened and the walls were found to be lined with tumor tissue, which was so extensive that further surgical procedure was not attempted other than applying Zenker's fluid to the walls. After an uneventful recovery the patient returned home, he was able to work for about seven months when the cyst filled. Aspiration carried out at his home was followed by complete relief, but because this was

only temporary he returned for a second operation. The cystic cavity was explored again, and was found to be filled with a degenerating fungus-like mass, the greater part of which was removed.

The patient's convalescence was uneventful, and at dismissal motor power in his right upper arm had increased. He continued to improve for three months, when sudden paresis of the entire right side developed associated with convulsions. He became gradually weaker and died seven months after the last operation.

The tissue removed at operation and at necropsy proved to be astroblastoma. The tumor was very large, and had completely surrounded the cyst.

The malignant nature of the tumor responsible for the cyst is largely responsible for the tendency to recurrence. The benign nature of oligogliomas is well known, and the excellent result in the following case is probably caused by the fact that the tumor belonged to this group.

CASE 10—Oligodendroblastoma A man, aged 43, came to the clinic complaining of headaches and drowsiness. Ten months prior to examination, he began to have headaches in the morning and evening, usually frontal, but occasionally occipital, these had become progressively worse. In the six weeks preceding admission, drowsiness had slowly increased. Spasmodic contractions of the left arm lasting from three to five minutes occurred without loss of consciousness.

Examination gave negative results. The cerebrospinal fluid was xanthochromic and had a positive Nonne reaction. It contained 99 small lymphocytes, 261 large lymphocytes and 51 polymorphonuclear leukocytes in each cubic millimeter. A diagnosis of a lesion of the right frontal lobe was made.

A cyst containing 30 cc. of yellow fluid was found to be enclosed by a large infiltrating tumor, and because of the condition of the patient and the size of the tumor, removal was not attempted. The cavity was swabbed with Zenker's solution, and a strip of dura was turned into the cyst for permanent drainage. Histologic examination of the tissue removed showed it to be an oligodendroblastoma.

The patient's convalescence was stormy but he improved following repeated spinal punctures. After receiving two courses of roentgen treatment he went home and has continued working for twenty-three months without any recurrence of symptoms.

The compilation of numerous histories of intracranial lesions demonstrates the futility of making a pathologic diagnosis of the lesion from the duration of the illness. The brain becomes accustomed to slowly progressing compression, and a lesion which has been present and enlarging for a long time may produce a short clinical history of symptoms. For that reason exploration is essential in the majority of cases in which the history and examination indicate increased intracranial pressure.

In the presence of the more benign types of tumor a second operation may be required much later than in the more malignant types. In the following case the patient was completely relieved for six years, and this is a common occurrence in the slower growing types of tumors.

CASE 11—Gangliocytoma A girl, aged 16 years, was brought to the clinic because of frontal headaches, vomiting and difficulty with vision. She had been perfectly well until five months previous to examination. She had a generalized convulsion three days before examination.

Examination of the eyes revealed bilateral acute choked disks of 6 diopters, with right homonymous hemianopia. At operation a large cystic glioma was found in the left temporal lobe. This contained about 90 cc. of yellow gelatinous fluid, which clotted on standing. The major portion of the tumor was removed with some of the surrounding tissue. On histologic examination, the tumor proved to be a gangliocytoma with many neuroblasts and some mitotic figures. Following opera-

tion, convalescence was satisfactory, the choked disks receded, but the vision did not entirely return to normal, on account of the presence of secondary optic atrophy.

The patient remained well for six years, when she returned to the clinic complaining of vague generalized pains in the joints and headache, which had been present for four weeks, associated with vomiting. Examination revealed that the former decompression wound was bulging, and signs of increased intracranial pressure were present. A second operation was done, and the left temporal lobe was found to be filled with a granular red tumor which was partially removed. Histologic examination proved this to be well differentiated gangliocytoma. The patient was relieved of all symptoms. A course of roentgen treatment was given. She returned home, and after a period of five months, died suddenly.

Evacuation of the contents of a glomatous cyst is followed by transient relief of symptoms in the majority of cases. This palliative procedure is frequently important in order to prepare the patient for a more extensive operation. Case 12 illustrates the importance of palliative measures when a lesion of the brain complicated pregnancy. The patient was relieved of intracranial symptoms until the completion of gestation and a cesarean delivery. The tumor was then removed.

CASE 12—Protoplasmic astrocytoma A woman, aged 28, came to the clinic complaining of headache and visual disturbance. She had been in excellent health until four years before examination, when she began to suffer from severe attacks of headache and blurring of vision. These attacks came on at intervals of one year for three years, and lasted from three to four weeks. She became pregnant two months before examination, since which time she had had six or seven attacks of numbness involving the entire body, associated with severe headaches. Following the last attack, she became comatose for one hour.

General and neurologic examinations were essentially negative, except for the condition of pregnancy. Roentgenograms gave evidence of increased intracranial pressure. A bilateral acute choked disk of 3 diopters was found in each eye, with a right homonymous hemianopia. A diagnosis of tumor of the left temporoparietal region was made.

At operation a large cystic glioma was found involving the left temporoparietal region, from which 50 cc. of thin yellow fluid was aspirated. Because of the pregnancy, it was decided to postpone a more radical operation until later.

Following operation, the patient's condition improved, she was relieved of her headaches, and she was given three courses of high voltage roentgen therapy. The choked disks receded, and the visual fields improved. She was observed during the period of pregnancy, and when she came to term, a cesarean section was done, following which the patient and infant were in excellent condition.

One month after the cesarean section, the bone flap was elevated again and the cyst explored. On the posterolateral wall of the cyst, a nodule of tumor was found and completely removed. This was found to be protoplasmic astrocytoma. Following an uneventful convalescence, the patient returned home, and has been in excellent health for three years.

The following case illustrates similarly the relief which often follows partial removal of a neoplasm of low degree of malignancy. It is sometimes impossible completely to remove a cystic tumor, and when dealing with the less malignant types of neoplasm, it is advisable at times to remove as much tissue as is commensurate with the safety of the patient, and palliative relief lasting for years may ensue.

CASE 13—Ependymoma A woman, aged 43, came to the clinic complaining of headaches which began six years previously. Jacksonian attacks followed by paresis of the right side, with transient hemianopia, had occurred frequently during the previous six months.

General and ophthalmologic examinations gave negative results, but neurologic examination revealed marked weakness

of the entire right side of the body, with increased reflexes. A diagnosis of tumor involving the left motor cortex of the brain was made.

At operation, the left precentral convolution was found to be broadened and flattened. It fluctuated on palpation, and 15 cc of yellow gelatinous fluid was aspirated. The cortex was incised and a dark purplish-red, mucoid, granular tumor was found, which was almost completely removed. After an uneventful convalescence, the patient was dismissed with a slight residual right hemiplegia. This gradually decreased, and she has been able to do her own housework and take part in the activities of the community for the last three years.

It is unusual to encounter a cystic condition with meningiomas, and because of its rarity the following case is presented.

CASE 14—Endothelioma. A laborer, aged 55, registered at the clinic stating that he had been perfectly well until six months previously, when the day following a minor injury to the back of his head and neck he suffered from a generalized convulsion which recurred from every two to four weeks.

Examinations gave essentially negative results and the patient was advised to take phenobarbital and to return later for another examination. Three months later he returned, and stated that he had had a generalized convulsion with a residual weakness of the left side. Another attack had been preceded by twitching and spasm of the left hand, followed by transient left homonymous hemianopia. Also he had frequently noticed muscular twitching in the left forearm when

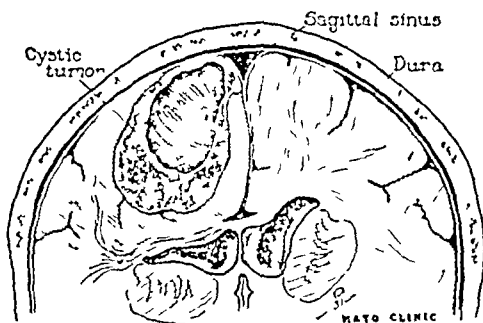


Fig. 5 (case 14)—Cystic parasagittal meningioma.

sitting quietly. At this time, neurologic examination revealed definite, although slight, left hemiparesis, with increased tendon reflexes and tremor of the left hand. A diagnosis was made of tumor of the brain involving the right frontomotor area.

When the dura was opened, a large reddish, soft tumor was found on the surface anterior to the Rolandic area; it extended to the median line and was attached to the longitudinal sinus (fig. 5). The tumor was cystic, and it collapsed following aspiration. The cystic fluid was yellow but did not clot. The tumor was completely removed, with a portion of the longitudinal sinus. Grossly, it had the appearance of a hemangio endothelioma, but the microscopic examination showed it to be a meningioma.

Compilation of the characteristics of cerebral cysts encountered at the operating table reveals similarities

TABLE 1—Cerebral Cysts

Type of Cyst	Color of Fluid
Congenital	Clear
Traumatic	Clear
Parasitic	Clear
Inflammatory	Clear
Gliomatous	Yellow

which may be confusing in arriving at a definite diagnosis. A comparison of the cystic fluids revealed that in general the congenital, traumatic, parasitic and inflammatory fluids were clear except from the recent

and calcified traumatic lesions. Yellow was the characteristic color for the neoplastic cysts (table 1).

The chemical analysis of these fluids did not reveal any outstanding change from cerebrospinal fluid except a tendency to contain an increase of the total proteins.

TABLE 2—Gliomatous Cysts

Type of Tumor	Amount of Fluid Cc	Color	Percentage of Cysts
Astrocytoma	20-100	Yellow	10
Oligodendrocytoma	10-120	Yellow	34
Polar spongioblastoma	40-60	Yellow	23
Ependymoma	10-20	Yellow	70
Spongioblastoma multiforme	10-20	Yellow	40
Gangliocytoma	10-15	Yellow	9
Hemangio endothelioma	10-16		43
Meningioma	50		10

For the purpose of comparison the neoplastic cysts were examined to determine the amount of fluid which was present and the tendency to form cysts (table 2).

SUMMARY

Cerebral cysts encountered at operation may be congenital, inflammatory, traumatic, parasitic or neoplastic. To the neurosurgeon, the most important and common group encountered is that which occurs with neoplasms; these were found to be associated with practically all types of primary tumors of the brain above the tentorium. A much rarer type of tumor in this situation, containing cysts, is the meningioma, of which only two were encountered.

It was found that only the neoplastic cysts consistently contained xanthochromic fluid, whereas all the other cysts contained clear fluid. It was noted further that in general the more benign the glioma, the more prone it was to undergo cystic degeneration.

Decompression and simple drainage was often followed by a long period of palliative relief, thus allowing the more radical procedures, such as partial or complete removal of the tumor when the patient's condition warranted. Following initial drainage, subsequent aspirations were sometimes necessary to prolong the palliation. Several operative procedures were sometimes necessary for the more benign tumors in order to remove them completely.

ABSTRACT OF DISCUSSION

DR. JAMES W. KERNOHAN, Rochester, Minn.: For several years I have had the idea that there were limited types of tumors in which cysts could be found and consequently I was very much interested in this study in which Dr. Craig found that practically every type of glioma underwent cystic degeneration. Occasionally we found the tissue of the tumor completely surrounding the cyst and, on the other hand, we often found the so-called mural nodule that was mentioned. Theoretically it seems possible for a tumor to disappear completely and to leave only a cyst, which would be almost impossible to distinguish at operation or histologically from the so-called simple or traumatic cyst. It is impossible to make a differential diagnosis of a simple cyst, traumatic cyst or inflammatory cyst by microscopic examination alone. Such diagnosis must be made in conjunction with the history the patient gives of the antecedent of the cyst. There are at least two hypotheses that may be thought of in connection with the possible cause of cyst formation which occurs along with tumors. One is that there is a transudate from the wall of the tumor such as is supposed to occur in Lindau's disease. The other possibility is that in tumors the blood supply does not progress as rapidly as the growth of the neoplasm. The blood supply in the center is insufficient and degeneration occurs or the more slowly growing and denser tumors have an insufficient blood supply and degeneration occurs in the center.

DR HANS H. REIST, Madison Wis. The presentation of Drs. Crug and Kernohan is the first comprehensive clinical surgical study on cerebral cyst. The authors demonstrate that the most careful clinical investigation of all etiologic factors too often fails in the differentiation of intracranial lesions. The diagnosis of cerebral cysts is a difficult one because no objective signs or clinical symptoms permit the differentiation of a cyst from a tumor, at times from encephalomalacia or liquefied infarcts. It is true that the history or the variation of hiccups on straining coughing and sneezing suggests a cyst, or that encephalographic studies demonstrate a communicating porencephalic cyst with the ventricular system, or with the pira-archnoid spaces. Commonly cases of serous meningitis or of circumscribed cystic meningitis are caused by trauma or infection. They are not cysts, properly, but they have been described under the misnomer pseudotumors. I agree that the most common form of cerebral cyst is the neoplastic. If one encounters a simple cyst a careful microscopic examination of the cyst wall should be performed for hemangioma to rule out the classification of such a cyst as belongs to Lindau's syndrome. Although it is extremely rare to find this kind of cyst in the cerebrum one has to keep the possibility in mind. The parasitic cysts have been seen more often in Europe especially since 1914. Sato reported 128 cases of infestation with *Cysticercus cellulosae* with forty eight positive manifestations in the fourth ventricle and Sproule reported eighty cases in the literature with such abnormalities in the fourth ventricle. Naturally, in these cases of parasitic cysts the blood eosinophilia necessitates a search of the spinal fluid not only for eosinophil cells but also for *Cysticercus* membranes or hooklets of the echinococcus. Analysis of the clinical data available on cerebral cysts did not reveal any complaints or clinical signs that would permit differentiation of a cyst from a tumor. I have the feeling that cysts are more stationary, with more extreme fluctuation in the subjective complaints. I agree with the authors that only early exploration and aspiration will clear the situation. The approach and treatment have been so well covered in this paper that it is not necessary to make any comment.

DR J. RUDOLPH JÄGER, Denver. The tumors that are associated with cysts are usually the ones most amenable to surgery, for example, the pachymeningitis cyst or the glommatous cyst with a small intramural tumor. The possibility of a cyst being present in an extremely ill patient showing signs of intracranial pressure must be constantly kept in mind. By ventricular estimation combined with a careful neurologic examination the tumor mass in many instances may be sufficiently localized so that through a trephine opening the cyst can be evacuated and the patient's condition improved to a point at which an extensive craniotomy may be performed. It must be realized that a great percentage of brain tumors above the tentorium as well as below it, by pressing on the third ventricle or aqueduct of Sylvius produce a cystic collection of cerebrospinal fluid in the lateral ventricles or in the ventricle on the side opposite the tumor. One puncture of the cystic ventricle will frequently save the life of the patient for further surgery, or as I have been doing recently, by the insertion of a small ureteral catheter into the ventricle through a ventricular needle, thereby gradually decompressing the ventricle over a period of several days. A large percentage of patients with tumor come to the neurosurgeon in an extremely critical condition. Many even in such a state can be saved if a cyst can be evacuated or a cystic ventricle can be decompressed. The young woman mentioned by the authors came under my care when I first began to do neurosurgery. Dr. Learmonth, doing an exploratory operation found a cyst in the temporal lobe and had put the bone flap back in place because of some operative difficulties. He sent her home to improve for a craniotomy later. I received a call when I was 200 miles up in the mountains on a vacation to hurry back to Denver. At that time the woman was in stupor and almost in coma. I found her in a critical condition from pressure. By perforating through a trephine opening that had been left by Dr. Learmonth and by evacuating the cyst of about 2 ounces of fluid I was able to improve her condition. She returned later to Dr. Learmonth for removal of a mural tumor and she is well today three years later.

RECENT IMMUNOLOGIC STUDIES IN HYPERSENSITIVITY TO TOBACCO

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The studies which form the actual experimental basis of this report were carried out, principally, on patients with typical thrombo-angitis obliterans and on a control group of smokers and nonsmokers without this disease.

Before entering into the discussion of my experimental results, I should like to mention certain fundamental immunologic concepts which led to the theory that thrombo-angitis obliterans, a disease in which the role of tobacco has frequently been mentioned and acknowledged by most observers, might be a localized hypersensitivity of certain groups of blood vessels to circulating allergens derived from or contained in tobacco.

The first of these concepts is that of localized and circumscribed fixed specific hypersensitivity. Although examples of this may be found in every form of hypersensitivity and in every organ, they are best known, as is only natural, in the skin, and are most clearly evident to the immunologically minded dermatologist.

Perhaps the most frequently encountered example of localized and fixed specific altered reactivity is the mycotic eruption known as dermatophytid of the hands. In this condition, as is now well known, fungi, often originating from foci on the feet, although entering the blood stream and thus presumably coming in contact with all the tissues of the body, often cause manifest lesions only in the areas of fixed localized altered reactivity on the hands.¹

Another, perhaps even more striking, example is to be found in the so-called fixed drug eruptions. Here the drug—phenolphthalein, for example—taken by mouth enters the blood stream and must be distributed in approximately equal quantities throughout all the organs of the body and all parts of the skin. And yet, in certain hypersensitive persons, it is of frequent occurrence that only a round or oval, sharply circumscribed area of the skin reacts to the circulating drug. It is known that hypersensitivity to phenolphthalein often becomes manifest in a circumscribed area on the glans penis and, sometimes, at this site alone. On the other hand, there are drugs—the arsphenamines, bromides and iodides—which have a predilection for other sites. Just as these circulating drugs selectively sensitize and attack certain parts of the skin—the follicles and cutaneous and subcutaneous vessels—so other drugs and circulating substances may be able selectively to sensitize and to attack other organs or parts of organs. I believe that such examples may be found in the cases of acute yellow atrophy of the liver sometimes caused by incredibly small doses of cinchophen derivatives and in the cases not infrequently caused by arsphenamine, in the cases of purpura cerebri (encephalitis haemorrhagica) caused by arsphenamine, or in the cases of asthmatic attacks following the ingestion or injection of quinine.

Read before the Section on Dermatology and Syphilology at the Eighty-Fourth Annual Session of the American Medical Association Milwaukee June 14, 1933.

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¹ Jadassohn, Werner and Peck, S. M. cited by Sulzberger, Marion B. and Lewis, G. M. Trichophyton Hypersensitivity Demonstrated by Contact Tests. Arch. Dermat. & Syph. 22: 410 (Sept.) 1930.

Embodied in this concept there is, to a certain degree, merely a modern paraphrasing of the old statement that certain persons possess an area or areas which are more susceptible to attack—*loci minoris resistentiae*. But the newness of the concept lies in attributing some of these pathologic reactions to a fixed and specific immunologic process, and this opens new ways for study and experimentation.

The consideration of certain fixed areas of lowered resistance as sensitization phenomena brings in its train other immunologic concepts. The next to be mentioned is that of the predilection of certain allergens to sensitize and elicit reactions in certain tissues, often to the exclusion of all other tissues. One might even say that each allergen has its favorite point of attack. Most of the aforementioned examples illustrate this point. There are many other dermatologic conditions which show this sharply focused selectivity. For instance, certain circulating allergens, such as quinine and formaldehyde, frequently attack the epidermis alone, while others—for example, shellfish, strawberries and the iodides—often confine their deleterious effects to the vascular layers of the upper cutis. We thus distinguish between eczematogenous and urticarigenic noxae.

The third immunologic concept is that not only sudden and evanescent reactions are caused when the excitant meets the specifically sensitized shock tissue but also chronic reactions and permanent organic damage are often caused by one or successive shocks resulting from such encounters. This concept is one which has not, in my opinion, received the recognition it deserves. It has been my experience, in discussing the theme of the present paper with immunologists and physicians, that the majority are disinclined to accept permanent damage as characteristic of certain forms of hypersensitivity, and consider this concept to be unorthodox or new. And yet, there are innumerable classic examples of allergic reactions resulting in permanent damage.

The oldest and perhaps the best known example is that of the Arthus phenomenon in horse serum sensitization. Here vascular thrombosis and obliteration lead to necrosis and slough.

Classic dermatologic examples of such destructive and nonephemeral reactions are to be found in the vegetating and ulcerating iododermas and bromodermas, in which the active processes are often of astonishingly long duration, the destruction thus brought about leads to scarring. There are even cases on record in which iododermas and bromodermas have proliferated in a manner similar to that of malignant tumors (sarcomas, or the almost neoplastic tumors of lymphogranulomatosis and mycosis fungoides), in spite of absolute elimination of contact with the eliciting drug, these conditions have eventually brought about the patient's death (Eller and Rein and Bloch and Fenchio²).

Common examples of destructive lesions originating in the vascular apparatus of the skin resulting from sensitization to and contact with micro-organisms or their products are tertiary syphiloderms (hypersensitivity of the skin to luetin), erythema induratum Bazin (hypersensitivity of the skin to tuberculin) and pyropulonecrotic tuberculids.

The fourth immunologic concept includes the principles of idiosyncrasy and the harmless nature of allergens to the nonhypersensitive. My interpretation of

idiosyncrasy, as applicable to most cases, is that it is a differentiation from the norm which lies in a quantitative abnormality rather than in a qualitative one. By this I mean that the idiosyncratic person becomes sensitized to concentrations and quantities of excitants that do not bring about sensitizations in normal persons. This quantitative hypothesis receives support from the observations that wherever excitants have been sufficiently concentrated in vitro or have been sufficiently diluted, the percentage of persons who could be sensitized has been in proportion to the degree of concentration. In other words, the greater the concentration of a given allergen, the larger is the number of persons who could be sensitized (Bloch, primrose, R. L. Mayer paraphenylenediamine, and Doerr, horse serum in guinea-pigs). According to this hypothesis milk, eggs, wheat, pollens or any other common causes of sensitizations could be sufficiently concentrated, these concentrations should sensitize all persons exposed to their contact. However, this has not, as yet been proved and one must accept the fact that substances absolutely harmless and incapable of sensitizing normal persons in concentrations in which they are commonly encountered cause sensitizations and severe reactions in certain (idiosyncratic, atopic and allergic) persons. These idiosyncrasiogens, excitants and allergens are generally not poisons in the pharmacologic toxicologic sense, nor are they primary toxins of bacterial nature. They become harmful only after, and due to sensitization (certain bacterial diseases are, in all probability, due to a similar process in pathologic conditions due to the tubercle bacillus or to *Spirochaeta pallida* which elaborate no known toxins, the sensitization and the immunologic phenomena are among the essential and causal factors).

The fifth immunologic concept is that in man the vascular system is one which seems to be peculiarly susceptible to sensitizations and is thus most frequently the seat of reactions. This concept may appear to be at variance with the older view concerning the seat of reaction in such a classic sensitization as human asthma. It has long been believed that in this condition the smooth muscles of the bronchioles comprised the shock tissue. But more recent studies make it seem possible or even probable that—even in asthma—the blood vessels in the lungs are the first areas to react and that the damage to these vessels their increased permeability, the extravasation of fluid and cells and the tissue edema play a large, if not a preponderant role in bringing about the shock syndrome.

I do not believe that any one can doubt that the blood vessels of the conjunctiva and of the nasal mucosa may well be the seats of reaction in hay fevers and vasomotor rhinitis (see the recent experiments of Al Walzer). In the skin, with the exception of the eczematous reactions which are confined to the epidermis, the blood vessels of the cutis and subcutis are almost always the shock organs. Examples proving this may be found in erythema nodosum (due either to micro-organisms and their products, or to drugs, such as bromides, iodides and phenolphthalein), follicular trichophytids and tuberculids, livedo racemosus and, perhaps most common of all, petechiae, the purpuras, angioneurotic edemas, urticarias and disseminated neurodermites.

By means of the usual technique of testing the skin (the scratch or intradermal methods), the allergen is brought in contact with the superficial vessels of the cutis and the sensitive tissues. The reaction, either

² Bloch, B. and Teneho, T. Zur Klinik und Pathogenese des Bromoderma vegetans. Arch. f. Dermat. u. Syph. 165: 93, 1932.

directly or indirectly, eventually damages the wall of the capillary and permits extravasation of fluid and certain blood cells. In my opinion, this reaction may certainly be regarded as another example of vascular hypersensitivity.

It appears to me to be a plausible hypothesis that the skin serves as a test tissue in so many different forms and so many differently localized internal hypersensitivities because through tests on the skin, one brings to light a hypersensitivity of a certain part of the vascular system (i. e., the upper cutis or papillary capillaries) which may be associated with hypersensitivity of the same shock tissue elsewhere, i. e., with a hypersensitivity of the blood vessels in other and, perhaps, far distant organs.

This leads me to the sixth and last immunologic concept to be mentioned namely the usefulness of the skin as a test tissue in a great variety of hypersensitivities of internal organs. This utility has already been recognized and adequately employed in many diseases of hypersensitivity such as asthma, hay fever, migraine, tuberculosis and so forth. I believe that we are only beginning to realize the possibilities of this method. All diseases which have the characteristics of hypersensitivity and idiosyncrasy, even though the pathologic process is sharply localized in a certain organ or even part of an organ should be studied as possible sensitizations and investigated by means of tests on the skin. The conditions which fall into this class are too numerous to mention, and I shall name only a few of those in which my experience has shown this to be a fruitful approach: appendicitis syndrome (proved by hypersensitivity to arsphenamine in one case), neuralgia (proved by hypersensitivity to tobacco in two cases), keratitis (proved by hypersensitivity to iodide in one case), and alcoholic psychosis (proved by hypersensitivity to rye whisky in one case).

Many other diseases must, of course be studied in this manner, for instance, uveitis, retrobulbar neuritis, angina pectoris, coronary disease and gastric ulcer (Harkavy).

While these are all examples in which the fundamental immunologic concepts I have mentioned may be at play, my results in testing the skin of patients with thrombo-angitis obliterans with tobacco bring to light more clearly the various principles I have mentioned.

TECHNIC

The method of testing the skin which my collaborators and I used in carrying out these studies is the classic one employed in hay fevers and asthmas. Approximately 0.01 cc of the excitant is injected intradermally and the site observed for at least one-half hour to note the growth of the wheal and the development of the surrounding erythema.

We employed ten different extracts of tobacco, six of which were prepared by the usual methods of extraction (Coca) from standard brands of cigaret and pipe tobaccos, two from two different kinds of uncured tobacco leaf and two from mixtures of a great variety of tobaccos. These tobacco extracts were all demicotinized to such a high degree that large doses (1 cc) were no longer fatal to mice. In addition to these demicotinized extracts, we employed a solution of 0.4 per cent nicotine sulphate which, when diluted two and one-half times further, and when injected subcutaneously in doses of 0.2 cc, killed mice within from two to five minutes.

RESULTS

As a first group, twenty-four patients with typical thrombo-angitis obliterans were tested with the solutions mentioned in the manner described. Nineteen of these, or 78 + per cent, gave immediate positive wheal

reactions to one or more of the tobacco extracts, the reactions ranging from + to +++ (+). These findings agree, in great measure, with those of Harkavy and his associates, who made similar investigations.³

As a second group, I tested ninety-five smokers in a hospital population which included many cases of a great number of different diseases which were not selected in any way except to exclude cases of thrombo-angitis obliterans. I also tested fifty healthy adult smokers (physicians, nurses and hospital personnel). The percentage of positives in this group was 36 +. There were no differences in the percentages of positive reactions among the hospitalized patients and the healthy personnel. There were no differences in the percentage of positive reactions elicited in male and female subjects and no differences in the cutaneous reactions of Jews and non-Jews. Thus, in my second group—that of smokers—36 per cent of the persons tested reacted to tobacco. (For a more complete discussion of these findings see Sulzberger.⁴)

A third group which was tested comprised fifty-eight nonsmokers. Only nine of these, or 16 per cent, had positive reactions of the skin to tobacco.

I believe it justifiable to conclude from these figures (1) that a sensitization to tobacco exists, (2) that tobacco smoking brings about a sensitization of the superficial vascular layers of the cutis to tobacco extracts, and (3) that a markedly higher percentage of persons afflicted with thrombo-angitis obliterans have a sensitized cutaneous vascular system than is to be found in other smokers.

I should like to discuss the experimental results at the conclusion of the report of each group of experiments. But, at this point, I must first say a word about tests of the skin in general. Elsewhere, in a discussion of the patch test, I have elaborated on the criteria in judging positive tests and evaluating their clinical significance.⁵ What I have said concerning patch tests seems to me to apply to other types of tests of the skin and to the immediate wheal reaction which is here observed. A test must be considered positive only when (1) it is not elicited by a so-called primary irritant, that is, not by a substance in a concentration which will cause reaction in all or in a large majority of skins, (2) the reaction is identical with or analogous to the condition under investigation, (3) the person being tested can be proved or assumed to have had prior contact with substance eliciting the reaction, or with a substance belonging to same immunobiologic or chemical group, (4) a control or controls elicit no reaction.

A reaction is of clinical significance only when these four criteria have been fulfilled and when, in addition the following facts are established: (1) The substance eliciting the positive test is one which the clinical findings point to as a possible factor in the causation of the disease, (2) elimination of contact with the substance brings about amelioration or cure, and (3) renewed contact with the substance causes a recurrence or exacerbation of the clinical disease. I believe that

2a In the editorial on this subject which appeared in THE JOURNAL Aug 12 1933 page 527 it was stated that the positive tests in these cases were obtained by the patch method. This is an error. The positive reactions were of immediate wheal and erythema type in response to intradermal tests that is they were not epidermal but vascular.

3 Harkavy Joseph Tobacco Sensitiveness in Thrombo-Angitis Obliterans Migrating Phlebitis and Coronary Artery Disease Bull New York Acad Med 9 318 (May) 1933 Harkavy Joseph Hebal S and Silbert S Tobacco Sensitiveness in Thrombo-Angitis Obliterans Proc Soc Exper Biol & Med 30 104 (Oct) 1932

4 Sulzberger Marion B Recent Immunologic Experiments in Tobacco Hypersensitivity, Bull New York Acad Med 9 294 (May) 1933

5 Sulzberger Marion B and Wise Fred The Contact or Patch Test in Dermatology Arch Dermat & Syph 23 519 (March) 1931

by adhering rigidly to these criteria immunologists may avoid the most important sources of error in judging tests of the skin and thus also in the future avoid much of the criticism to which this method of investigation has been subjected.

As far as I can see the postulates mentioned have, to a great degree, been fulfilled in thrombo-angitis obliterans. It is too well known to require further discussion that the occurrence of this disease is in most instances, intimately connected with tobacco smoking. Many of the patients are excessive smokers. Cessation of smoking tends to arrest the pathologic progress and resumption of smoking often causes renewed activity.

That tobacco smoking causes a sensitization to tobacco seems to me to be proved, as before stated by the higher percentage of reactions of the skin found in smokers than in nonsmokers and that this sensitivity is present in a strikingly high frequency in thrombo-angitis obliterans is shown by the figures I have quoted. The pathologic processes in thrombo-angitis obliterans are localized in the blood vessels and the reaction of the skin observed in the positive test is, though evanescent, also vascular.

The tobacco allergens I employed were not primary irritants, and the positive reactions of the skin noted must have been due to sensitization. One is forced to this conclusion when one considers that 84 per cent of nonsmokers and 64 per cent of smokers show not the slightest trace of reaction to the tobacco allergen.

As a result of my experiments and in conjunction with previous clinical experience, I feel that I may safely advance the opinion that the positive reactions of the skin to tobacco found in thrombo-angitis obliterans are highly suggestive of this condition, being in most cases connected in some way with a hypersensitivity of certain parts of the vascular system to circulating allergens contained in or derived from tobacco.

My second group of experiments investigated the question of whether thrombo-angitis obliterans was accompanied by a sensitization of the skin to tobacco alone or to tobacco and other allergens. With the assistance of Drs. C. Feit, H. H. Gelfand, N. N. Smith and L. Mamelok, eighteen of the patients with thrombo-angitis obliterans were tested with a large number of common allergens in addition to tobacco. In one case there were no cutaneous reactions whatsoever, two patients gave negative reactions to tobacco but marked reactions to other inhalants (dust, feathers, kapok and cat hair), fifteen patients were positive to tobacco but many not to tobacco alone, there being ten cases in which some other allergen or allergens also caused definite positive reactions of the skin. The additional positive reactions in this group were caused by foods and inhalants, dust being the principal one (eight positive reactions to dust, two positive reactions to ragweed, six positive reactions to barley and five positive reactions to orts). I therefore conclude that patients with thrombo-angitis obliterans have a polyvalent sensitivity of the vascular apparatus of the skin to various excitants which includes, beside tobacco, other inhalants and also foods. This speaks in favor of thrombo-angitis obliterans as a disease of sensitization. As is known from experience, sensitizations caused by one substance tend to lose their monovalence and become polyvalent, with a sensitivity of the skin embracing many substances which may or may not be of clinical significance. Unless thrombo-angitis obliterans is a disease of sensitization, it would be a hitherto unprecedented finding to have such a large number of positive skin reactions

in patients not within the atopic group (I did not find thrombo-angitis obliterans to be an atopic disease).

These results also explain why typical thrombo-angitis obliterans can occur in nonsmokers. All I should like to say of the disease at present is that if it is, as I believe it to be a hypersensitivity, this hypersensitivity is in most, but by no means in all, cases due to tobacco. Other substances can, in all probability, cause the same picture, and this again coincides with the rule in other forms of hypersensitivity. I know of no clinical manifestation of hypersensitivity which is invariably caused by one particular substance, and by that substance alone in all cases. (For instance, spirochetes or lepra bacilli can sometimes cause histologic tubercles not to be differentiated from those seen in the usual reactions to tubercle bacilli or their products. Ragweed and timothy account for most cases of atopic vasomotor rhinitis in or about New York City, but an occasional nonseasonal but otherwise clinically identical case will be seen which is caused by another inhalant, such asorris root or by a food, such as milk.) The two patients who gave negative reactions to tobacco but marked reactions to other inhalants seem to be peculiarly significant in this respect. Such cases require further study, in particular as to whether one or more of the substances eliciting the positive skin reaction may not be of clinical or etiologic importance.

In a third group of experiments, in collaboration with Dr. L. Feit, I investigated the relationship of the form of hypersensitivity demonstrated in thrombo-angitis obliterans with other forms of human hypersensitivity in particular with atopy. We found no proof that there was any relationship between the hypersensitivity of thrombo-angitis obliterans and the form of hypersensitivity found in asthmas, hay fevers, some infantile eczemas and disseminated neurodermites.

The family histories of our patients with thrombo-angitis obliterans were essentially negative for the presence of atopic diseases. The patients themselves had no atopic diseases and had no personal history of atopic disease. (Only one patient with a possible history of hay fever was found.)

Dr. Feit and I most carefully investigated our entire group of cases for reagins (passive transference antibodies, Prausnitz-Kustner antibodies) to tobacco. In spite of repeated and persistent experiments, antibodies of this type could be found in only one case. We also occasionally succeeded in demonstrating such antibodies to tobacco in other diseases. Furthermore, our patient with thrombo-angitis obliterans with tobacco reagins had reagins to dust also. In view of this, even in the one case in which tobacco reagins were found, the findings cannot be regarded as pathognomonic.

I therefore conclude that the sensitization in thrombo-angitis obliterans is nonatopic, for, in the material herein reported, the characteristics of atopic hypersensitivity are completely lacking (Sulzberger and Feit⁶).

Hypersensitivities with immediate wheal reactions of the skin, without atopy and without reagins are well known in other sensitizations of human beings. Urticarial and asthmatic reactions to drugs frequently fall in this group. Sensitizations to normal horse serum (not necessarily those to immune horse serums), sensitizations to many forms of insect bites and asthmas from *Pediculoides ventricosus* are in this category and thrombo-angitis obliterans will, if my experiments are

⁶ Sulzberger, Marion B. and Feit, E. Studies in Tobacco Hypersensitivity. II. Thrombo Angitis Obliterans with Positive Urticarial Skin Reactions and Negative Reagin Findings. *J. Immunol.* 24: 425 (May) 1933.

verified also fall in this group (For a more complete report and discussion of these experiments, see Sulzberger and Feit⁷)

The fourth and last group of experiments I shall mention concerns the question of the nature of the sensitizing substance or substances in the heterogeneous chemical mixture known as tobacco. I cannot as yet give any definite answer to this question. This interesting analysis must be carried further by chemical and physical fractionation of tobacco extracts and by means of tests of the skin. I can state, however, that the active ingredient eliciting the positive reaction of the skin to tobacco resists moist heat of 58 C. for one hour, that it resists irradiation with unfiltered x-rays in a dosage of six erythema units, that it resists exposure to ultraviolet rays for one hour and that it is not destroyed by boiling for one minute.

There is one further and to my mind new and important statement which can be made concerning the nature of the tobacco ingredient or ingredients which cause the reaction of hypersensitivity. My experiments in what I term "immunobiologic analysis" lead me to conclude that, in general, the reaction is caused by parts of the tobacco other than nicotine. So far as the immunologic effects of tobacco are concerned, nicotine seems to play either no role or a negligible one. I have been using patch tests with tobacco and with nicotine solutions for many years, and while I have seen several eczematous reactions to tobacco extracts, I have seen none to nicotine (Stauffer⁸). In the course of intradermal testing with tobacco extracts and with nicotine, I have seen not a few late tuberculin type of reactions appear at the site of application of tobacco but none at the site of application of nicotine. (The significance of this late tuberculin type of reaction to tobacco is, as yet, unknown and unstudied.)

In regard to the urticarial wheal reactions which here concern us primarily, I have found that nicotine is surprisingly inactive and innocuous. I have published elsewhere (with E. Feit and B. Scholder) a comparison of immediate reactions elicited by denicotinized tobacco extracts and by a strong solution of nicotine sulphate (0.4 per cent). In the twenty-five cases published (thirteen were patients with thrombo-angitis obliterans), only one showed a slight reaction at the nicotine test site. In all the other cases, the denicotinized tobacco site caused a reaction of the skin definitely stronger than that at the site of the injection of the pure nicotine (Sulzberger⁶).

Since the publication of these twenty-five cases, I have continued to test with denicotinized tobacco and with the nicotine solution. While my collaborators and I have seen many hundreds of positive reactions to tobacco, we have observed only two cases in which there were slight to moderate reactions to nicotine.

It is obvious that as soon as one regards the pathologic effects of tobacco as possibly due to sensitization, it is no longer necessary to attribute its deleterious action to any alkaloid or poison it may contain. (See the aforementioned fourth immunologic concept, which refers to the almost universally harmless, nontoxic and nonpoisonous nature of allergens.)

It is well known that all attempts experimentally to reproduce and study the harmful effects of tobacco, which are often so evident clinically in smokers, have failed. These attempts have, to my knowledge, been

made without employing the method of sensitizing the test object or experimental animal. Many of them were purely toxicologic experiments with nicotine, and these often resulted in such manifest failures that many observers have sought to find poisons other than nicotine on which to blame the damage caused by smoking.

A voluminous literature exists which treats of poisons other than nicotine to be found in tobacco smoke (pyridine bases, furfural and carbon monoxide). In my opinion this entire phase of research in tobacco smoke spring into being because of the failure of the experiments with nicotine and because experimenters, not considering the possibility of sensitization, found it necessary to search for other poisons. So far as I know none of the other poisons has been proved to reproduce the harmful effects of smoking.

All of these failures speak to my mind in favor of sensitization mechanisms being at play in the pathologic conditions clinically so evidently due to tobacco.

The concept of tobacco becoming harmful through sensitization will I hope, be fruitful in the future. If correct, its application should enable investigators experimentally to reproduce and study the effects of tobacco, by sensitizing the experimental object. This will be a decided advance and may lead to results of great practical value. This immunologic approach may lead to the discovery of the sensitizing ingredient or ingredients in tobacco and thus perhaps to a method for eliminating or destroying the harmful factor.

SUMMARY AND CONCLUSIONS

The studies herein reported were carried out in the main, by means of intradermal tests of the skin with tobacco extracts and with nicotine in cases of thrombo-angitis obliterans.

Six concepts of fundamental immunologic nature form the basis of the hypothesis that some cases of certain diseases of the vascular system (thrombo-angitis obliterans, angina pectoris and coronary disease) clinically long considered to be in some way connected with smoking, are manifestations of hypersensitivity in certain segments of blood vessels to circulating allergens derived from or contained in tobacco.

Concept 1 There is localized and circumscribed fixed specific hypersensitivity, i. e., a hypersensitivity confined to a certain organ or part of an organ may develop.

Concept 2 There is a predilection of certain allergens to sensitize and elicit reactions in certain tissues, i. e., whereas any allergen may sensitize any part, almost all allergens have their favorite point of attack.

Concept 3 Not only sudden and evanescent reactions are elicited when the excitant meets the specifically sensitized shock tissue, but chronic reactions and permanent organic damage are often caused by one or successive shocks resulting from such encounters.

Concept 4 There is an idiosyncrasy, meaning that certain persons react in a manner different from that of the norm, allergens causing reactions in the idiosyncratic person cause no reactions in normal persons. Allergens are thus usually of harmless nature and are not poisons or toxins in the pharmacologic or toxicologic sense.

Concept 5 The vascular system in man seems to be peculiarly susceptible to sensitizations and is thus most frequently the seat of reactions. Examples of this are found in many diseases of the skin. The wheal reaction is, in itself, a demonstration of vascular hypersensitivity.

⁷ Stauffer, Hans. Die Ekzempfen Arch f Dermat u Syph 162 517, 1930.

⁸ Sulzberger, Marion B. Studies in Tobacco Hypersensitivity. I. Comparison Between Reactions to Nicotine and to Denicotinized Tobacco Extract, J Immunol 24 85 (Jan) 1933.

Concept 6 The skin is useful as a test tissue in a great variety of hypersensitivities of internal organs.

The experiments in patients with thrombo-angitis obliterans and in controls have brought to light the following data: Seventy-eight per cent of the patients with thrombo-angitis obliterans tested had positive reactions of the skin to tobacco. 36 per cent of the smokers without thrombo-angitis obliterans and 16 per cent of the nonsmokers gave positive reactions.

The persons afflicted with thrombo-angitis obliterans were not atopic and there were no regularly demonstrable reagins in their sera.

As the positive skin tests in patients with thrombo-angitis obliterans correspond with the clinical evidence incriminating tobacco, these results are regarded as highly suggestive that sensitization of the vascular system to tobacco may play a causal or contributory role in many cases of thrombo-angitis obliterans.

Although tobacco was the principal allergen causing positive reactions of the skin in thrombo-angitis obliterans, other allergens and, notably, inhalants also elicited positive responses.

It is assumed that cases of thrombo-angitis obliterans must exist in which other excitants and not tobacco are the major factors.

That part of the tobacco which elicits the skin reaction of hypersensitivity is coetastable and thermostable and is not destroyed by ultraviolet rays or x-rays in the dosages we employed. It is not nicotine.

Nicotine is of little or no importance in sensitizations to tobacco. If the diseases under discussion are sensitizations to tobacco, nicotine is, in all probability, of little or no importance in their causation.

It is hoped that the new immunologic approach and the employment of animal sensitizations will lead to the experimental reproduction of certain diseases clinically attributable to damage by tobacco. As is well known, all toxicologic attempts to do this have failed.

One of the objects of such experimental studies would be to isolate and eventually, to eliminate the actual sensitizing factor or factors from tobacco.

ABSTRACT OF DISCUSSION

DR. GEORGE MILLER MACKEF, New York: Dr. Sulzberger's instructive, inspiring and conservative article describes his experimental work with tobacco sensitization. He has drawn conclusions some of which are based on definite facts while others are theoretical deductions. All are logical. He has made not a single dogmatic statement. The subject is open for continued investigation. Two important facts in the paper are, first, that in many instances the effects of tobacco are due to allergy to some yet unknown allergen in the plant and not to nicotine as previously believed. Various species may have different allergens, or human reactions to the same allergen may vary. The second fact is that these allergens have an affinity for the circulatory system in various parts of the body. The shock center may be in any layer of the skin or in any organ. Dermatologists are familiar with tobacco dermatitis (eczema venenatum). A continuation of this investigation may show that other types of eczema are caused by tobacco allergy. The paper calls to mind the importance of skin tests in practical work and especially in research. In spite of the enormous amount of work that has already been accomplished, the enormous possibilities of properly conducted skin tests are only beginning to be appreciated. When one is thoroughly acquainted with delayed reactions, intermittent allergy, generalized and fixed areas of sensitization, shock centers, passive transfers and polyallergy and can properly interpret the results obtained, one can obtain valuable information in cases of eczema venenatum, neurodermatitis in infants, children, adolescents and adults, urticaria, dermatophytide and other atopic and allergic con-

ditions of the skin and other organs. I urge that every dermatologist include adequate skin testing in his office practice and that every graduate dermatologic curriculum contain a course that covers this subject comprehensively and in detail.

DR. WILLIAM ALLEN PUSEY, Chicago: I have seen Dr. Sulzberger smoking this afternoon and therefore his conclusions are not open to the skepticism not to say hostility of most of the investigators by nonsmokers. His suggestions are interesting. In the first place he offers a hypothesis—the only one that I know—that is consistent with the known clinical facts concerning the effects of tobacco. His suggestions also are in accord with what is known of localized sensitizations occurring in the skin. For example, the paper this afternoon on fixed drug eruptions presents an illustration of fixed sensitization of blood vessels in the skin producing an inflammatory reaction which when long continued, may result in vascular sclerosis, the same sort of process occurring in blood vessels sensitized to tobacco might produce a sclerosis in certain vessels of the heart or of certain vessels of the legs. Dr. Sulzberger's observations are an illustration of the light that may be thrown by the study of pathologic processes in the skin on similar processes occurring in other parts of the body.

DR. WAITER J. HICHMAN, New York: I was impressed by the criteria and postulates by which Dr. Sulzberger wisely controls himself in reaching his conclusions. I was impressed by his statement that the pet idea of sensitization in the great majority of instances is erroneous that something entering the body of persons who are sensitized to many things may produce the condition called sensitization. More simply stated Dr. Sulzberger's paper can be summed up in the maxim that one man's meat is another man's poison. Dr. Sulzberger is not a confirmed allergist and therefore not a subscriber to the allergy racket. I too think that every man should be his own allergist in every instance.

DR. PAUL A. O'LEARY, Rochester, Minn.: My colleagues Drs. George E. Brown and N. W. Barber studied the influence of cigaret paper rather than tobacco as a factor in the production of occlusive vascular disease. They used weaker dilutions of the paper extract in the skin testing of patients with Buerger's disease, with essentially negative results. The fact that Dr. Sulzberger used a concentrated tobacco extract may account for the high percentage of positive skin tests he obtained. Horton demonstrated in 40 per cent of a group with Buerger's disease a micro-organism which when introduced into animals reproduced occlusive vascular disease. In the Scientific Exhibit there is a demonstration showing that rye bread (ergot) is an etiologic factor in this disease. These three demonstrations suggest that the blood vessels of the individual with occlusive vascular disease may be allergic to tobacco, ergot and bacteria and of course there may be other etiologic allergens that have not as yet been elicited. The allergists no doubt look with favor on the multiple etiologic factor concept of this disease, while to others such a concept is subject to severe criticism. Obliterating endarteritis was formerly thought to be confined to male Jews who smoked cigarets to excess. It is now found about as frequently in male Gentiles, and less frequently in women who do not smoke.

DR. WINSTON U. RUTLEDGE, Louisville, Ky.: Coming from a tobacco state and a tobacco manufacturing center, I have seen many cases of dermatitis due to contact with tobacco. I have treated several men who, when buying the loose leaf developed in some instances generalized erythematous eruptions and others who had maculopapular eruptions involving only the exposed portions of the body and who suffered from these dermatoses only during the tobacco season. I have seen such dermatoses, both in tobacco buyers and in workers in tobacco factories. In such places they frequently develop eruptions and practically the only cure is to get the patient away from tobacco. In my experience patch tests in such cases have been to a large extent negative, and I do not know how to account for their negativity. Dr. Cannon brought to my attention the possibility that the condition might be an arsenical dermatosis because arsenic plays an important part in the growing of tobacco. I also had the idea that perhaps some of these eruptions were fungus disease but I failed to demonstrate a fungus in any instance. I had one patient who did not develop a derm-

titis while working with tobacco in North Carolina, but on two occasions, while burning tobacco in Kentucky, had such an eruption. This example illustrates the statement made by one of the discussers that tobacco from different sections of the country may possess different allergic properties.

DR. MARION B. SUZUKI, New York. I think the application of skin tests in many conditions in which no one has thought of applying them may lead to further knowledge. To know when, where and how to apply these tests what substances to use, what to look for and how to study and evaluate the skin reaction is obviously a part of dermatology. Dr. O'Leary is absolutely right in saying that I did not by any means wish to imply that thromboangitis obliterans is always due to tobacco sensitization. That would be against all the known facts regarding sensitization in general. I believe that many cases may perhaps be accounted for by tobacco but there must be other cases which can be accounted for by other agents. I do not think that the factors Dr. O'Leary mentioned contradict the theory of sensitization of the blood vessels. I have seen cases of erythema nodosum a vascular disease, due to sensitization to bromides, to bacteria and fungi, and to foods. In the cases referred to by Dr. O'Leary there may be a vascular sensitization to bacteria to rye or even to ergot. I realize that the riddle of thromboangitis remains unsolved just as unsolved as that of asthma, hay fever, eczematous dermatitis or drug eruptions. Even when a disease is known to be a sensitization, and the allergen is recognized there remain the questions: Why does this person become sensitized? and Why to this particular substance? and Why does he react with this or that shock tissue and in this or that specific manner? Dr. Highman has frequently discussed these points. Here the neurologic, endocrine constitutional, vasomotor chaos is still without even a nebular hypothesis.

TREATMENT OF CHRONIC HEART DISEASE BY LOWERING THE METABOLIC RATE

THE NECESSITY FOR TOTAL ABLATION OF THE THYROID

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In several previous communications the treatment of chronic intractable heart disease by removal of the thyroid gland in toto was demonstrated as a feasible and effective procedure in patients without clinical or pathologic evidence of thyrotoxicosis.¹ The success of this type of therapy was the logical result of an extended series of observations on the circulation in chronic heart disease, hyperthyroidism and myxedema,²

from which the conclusion had been drawn that by reducing the basal metabolic rate one would lessen the demands on the circulation and relieve the diseased heart of its burden. These considerations were equally applicable to congestive failure and angina pectoris.³ The permanent reduction of the metabolic rate was accomplished by surgical removal of the entire thyroid gland according to the technique developed by Berlin and first performed by him, Dec. 15, 1932. This is the first time that a total ablation of the normal thyroid gland for chronic heart disease of nonthyrogenous origin had ever been performed.^{1b}

Several investigators had in occasional instances performed subtotal thyroidectomy for relief of chronic heart disease because of the obvious benefits this operation had conferred on hearts embarrassed by a state of hyperthyroidism. These cases presented clinical signs or symptoms of thyrotoxicosis and a heightened basal metabolic rate or showed improvement after compound solution of iodine, the gland, however, in some cases appeared normal grossly and microscopically.⁴ It is well known that subtotal thyroidectomy reduces the abnormally high basal metabolic rate of thyrotoxicosis to normal,⁵ there is no evidence in the literature, however, that subtotal thyroidectomy can be relied on to produce a permanently subnormal basal metabolic rate. The previous work failed to justify subtotal thyroidectomy as a valid therapeutic measure for the relief of nonthyrogenous disabling heart disease.

In the first two cases^{1a} that engaged our interest only transient relief was obtained by subtotal thyroidectomy; the period of relief paralleling the curve of decline in the basal metabolic rate. Even though maximal subtotal thyroidectomy was done in these two cases we failed in our primary purpose to reduce permanently the basal metabolic rate. Even if success might occasionally attend subtotal thyroidectomy, it became apparent that nothing but complete removal of every vestige of thyroid tissue would insure a permanent subnormal metabolic rate and clinical improvement.^{1a} Total ablation of the thyroid gland in the treatment of chronic heart disease through the persistent lowering of the basal metabolic rate has now been demonstrated to be effective in over fifty cases at the Beth Israel Hospital.

The desirability of permanently lowering the metabolic rate by means less drastic than surgery presented itself. The possibility of producing this effect by irradiation was therefore considered. As far as we know, the effect of irradiation of the normal thyroid gland of man on the metabolic rate had not previously been investigated.

Röntgen radiation was also employed in two patients in whom maximal subtotal thyroidectomy had been

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This is the fourth study of the treatment of chronic heart disease by producing a subnormal metabolic rate in patients with no evidence of thyrotoxicosis.

1 (a) Blumgart H. L., Levine S. A. and Berlin D. D. Congestive Heart Failure and Angina Pectoris. The Therapeutic Effect of Thyroidectomy on Patients Without Clinical or Pathologic Evidence of Thyroid Toxicity. *Arch. Int. Med.* 51: 866 (June) 1933. (b) Berlin D. D. The Therapeutic Effect of Thyroidectomy on Congestive Heart Failure and Angina Pectoris in Patients with no Clinical or Pathologic Evidence of Thyroid Toxicity. II. Operative Technique. *Am. J. Surg.* 21: 173 (Aug.) 1933. (c) Blumgart H. L., Roseman J. E. F., Davis David and Berlin D. D. Therapeutic Effect of Total Ablation of Normal Thyroid on Congestive Heart Failure and Angina Pectoris. III. Early Results in Various Types of Cardiovascular Disease and Coincident Pathologic States Without Clinical or Pathologic Evidence of Thyroid Toxicity. *Arch. Int. Med.* 52: 165 (Aug.) 1933.

2 Blumgart H. L. and Weiss Soma. Studies on the Velocity of Blood Flow. I. The Velocity of Blood Flow in Normal Resting Individuals and a Critique of the Method Used. *J. Clin. Investigation* 4: 15 (April) 1927. VII. The Pulmonary Circulation Time in Normal Resting Individuals. *ibid.* 4: 399 (Aug.) 1927. Blumgart H. L., Gargill S. L., and Gilligan D. R. Studies on the Velocity of Blood Flow. XIII. The Circulatory Response to Thyrotoxicosis. *ibid.* 9: 69 (Aug.) 1930. XIV. The Circulation in Myxedema with a Comparison of the Velocity of Blood Flow in Myxedema and Thyrotoxicosis. *ibid.* 9: 91 (Aug.) 1930.

3 Blumgart H. I., Gargill S. L. and Gilligan D. R. Studies on the Velocity of Blood Flow. XI. The Velocity of Blood Flow and Other Aspects of the Circulation in Patients with Primary and Secondary Anemia and in Two Patients with Polycythemia Vera. *J. Clin. Investigation* 9: 679 (Feb.) 1931. Blumgart H. L. The Velocity of Blood Flow in Health and Disease. The Velocity of Blood Flow in Man and Its Relation to Other Measurements of the Circulation. *Medicine* 10: 1 (Feb.) 1931.

4 Crile George. The Treatment of Certain Types of Hyperthyroidism. *Tr. Am. A. Study Gouter* 1: 1 1932. Boas E. P. and Shapiro Shepard. Diastolic Hypertension with Increased Basal Metabolic Rate. *J. A. M. A.* 84: 1558 (May 23) 1925. Further Observations on Patients with Hypertension and Increased Basal Metabolic Rate. *Am. Heart J.* 1: 643 (June) 1926. Rose Edward. Malignant Hypertensive Vascular Disease Simulating Hyperthyroidism. *Clinical Course Following Maximal Subtotal Thyroidectomy*. *M. Clin. North America* 16: 261 (July) 1932. Levine S. A., Cutler E. C. and Eppinger E. C. Thyroidectomy in the Treatment of Advanced Congestive Heart Failure and Angina Pectoris. *New England J. Med.* 209: 667 (Oct. 5) 1933.

5 Means J. H. and Richardson E. P. The Diagnosis and Treatment of Diseases of the Thyroid in Christian H. A. *Oxford Monographs on Diagnosis and Treatment*, New York: Oxford University Press 4: 1929. Pfahler G. E. and Vastine J. H. Results of Röntgen Therapy in Gouter. Four Hundred Cases. *Am. J. Roentgenol.* 24: 395 (Oct.) 1930.

done without benefit. It seemed reasonable to expect that the minute amount of thyroid tissue left after surgery might become hypertrophied and would be more readily influenced by irradiation than an entirely normal gland.

REVIEW OF LITERATURE

Roentgen therapy has been used for many years in the treatment of toxic goiter and a malignant condition of the thyroid. Pfahler and Vastine⁶ reviewed 100 cases of goiter treated by roentgen radiation. These cases were grouped to include 13 cases of simple or colloid goiter, 241 cases of hyperplastic goiter of which 238 were exophthalmic, 118 cases of adenomatous goiter, of which 92 were nontoxic and 26 toxic, 2 cases of nonsuppurative thyroiditis, and 26 cases of carcinoma of the thyroid gland. The roentgen factors employed in giving the treatments to this group of cases were 9 inch spark gap, 5 milliamperes, 6 mm. of aluminum filter and 10 inch target distance, 50 per cent of an erythema skin dose being given through each of four portals directed to the gland. This was repeated in three weeks, from six to eight series of treatments being given. As a result of this treatment hypothyroidism developed in four cases, or 17 per cent. Holmes and Means,⁷ Simpson,⁸ Jenkinson⁹ and Groover and his associates¹⁰ obtained similar results, and Groover likewise reported that hypothyroidism was produced in 13 per cent of his cases. Bowing¹¹ of the Mayo Clinic treated 167 cases of thyroid cancer by radiation alone or radiation and surgery. Two cases of myxedema developed in his series. The development of myxedema in these patients may not have been due to irradiation but may simply represent the incidence of spontaneous myxedema in any representative group of thyrotoxic patients who are followed over a period of time without specific treatment.¹² Ginsburg¹³ reported that he treated 500 goiter patients with radium as much as 6,000 mg. hours being given to the gland in a single dose with no evidence of myxedema. Since our own results in the treatment of toxic goiter were similar to the results obtained by the aforementioned authors we were led to believe that the production of myxedema by irradiation of the normal thyroid would be difficult.

METHODS AND RESULTS

In the treatment of toxic goiter 800 roentgens measured without backscatter directed to the gland (160 roentgens being given every other day for five days), is usually sufficient to lower the metabolic rate. Occasionally, this dose must be repeated. The factors used in our first group of four cases were the same as those employed in patients with toxic goiter as shown in the accompanying table. The total roentgens however amounted to twice and sometimes three times the usual dosage. This was considerably more than that used by Pfahler and Vastine.⁶ The metabolic rates of these patients, as will be shown, were not influenced. Two of the four patients had had a subtotal thyroidec-

tomy, with nine tenths or even more of the thyroid gland removed before roentgen therapy was instituted. As already noted irradiation had no effect on these two cases, indicating that it would be difficult or impossible to produce permanent myxedema by irradiation with the doses given.

In view of these results even larger dosage was given. Our experience in the treatment of cancer of the larynx led us to believe that we might be able to influence the normal thyroid by the Coutard method, which consists in giving heavily filtered roentgen radiation over a longer period of irradiation hours. Accordingly, two patients were treated with the Coutard¹⁴ dosage applied to the gland through one portal, 4,000 roentgens measured without backscatter being adminis-

Roentgen Therapy in Six Cases

Case	Number of Treatments	Duration of Therapy, Days	Roentgen Units
1	18	17	1,500
2	18	14	1,500
3	11	14	900
4	10	11	1,000
5	19	11	4,000
6	11	10	4,000
Total therapy for toxic goiter	5	10	800

Roentgen factors used:
Cases 1-4: 60 kilovolts, 4 milliamperes, 6 mm. of copper, 1 mm. of aluminum filter.
Cases 5-6: Same except for filter, 2 mm. of copper, 1 mm. of aluminum.

tered as shown in the table. In cases 5 and 6, treated by this method the typical epidermitis and the epithelitis of the trachea developed which lasted for a period of two weeks following the last treatment. No significant change in their metabolic rates was noted however over a period of three months after the last treatment.

The basal metabolic rate measurements were made by means of a Collins-Benedict Roth machine and were always done in duplicate.

REPORT OF CASES

CASE 1—Hypertensive heart disease, coronary disease and congestive failure of two and one-half years duration.

I. B., a man aged 45, admitted to the Beth Israel Hospital, Sept. 15, 1932, had a history of dyspnea on exertion of two years duration. On one occasion, soon after the onset of his illness, he suffered one severe attack of precordial pain lasting ten minutes. He was first admitted to the Beth Israel Hospital two years previously and at that time showed signs of pulmonary congestion, ascites, and a vital capacity of 2,000 cc. An electrocardiogram showed inverted T waves in leads 1 and 2 and prolonged auriculoventricular conduction. The blood pressure was 176 systolic, 100 diastolic, his basal metabolic rate was plus 3. He improved, was discharged, and did fairly well until eight months before the present admission, when he was again forced to bed. In spite of remaining in bed most of the time he became progressively worse.

On admission he showed severe dyspnea, orthopnea of necks, and deep cyanosis of the lips and mucous membranes. The heart was moderately enlarged, there was a gallop rhythm, and the rate was 100. The blood pressure was 180 systolic, 110 diastolic. There were signs of congestion over both lung fields posteriorly and fluid at the left base. Ascites and moderate pitting edema of the legs, hands and forearms were evident. The basal metabolic rates September 9 and October 4, were plus 9 and plus 7 per cent of normal. October 17, a maximal subtotal thyroidectomy was performed, in which more than nine tenths of the normal gland was removed.¹⁴ The

13. Coutard H. Roentgen Therapy of Epitheliomas of the Tonsillar Region, Hypopharynx and Larynx from 1920 to 1926. *Am J Roentgenol* 28: 313 (Sept.) 1932.

14. This operation as well as all others in this investigation was performed by Dr. David Berlin.

6. Means J. H. and Holmes G. W. Further Observations on the Roentgen Ray Treatment of Toxic Goiter. *Arch. Int. Med.* 31: 303 (March) 1923.

7. Simpson C. A. X-Ray Treatment of Hyperthyroidism and Toxic Goiter. *Radiology* 3: 427 1924.

8. Jenkinson E. I. Thyroid Disease. *Radiology* 4: 453 (June) 1925.

9. Groover T. A., Christie A. C., Merritt E. A., Coe F. O. and McPeak E. M. Roentgen Irradiation in the Treatment of Hyperthyroidism. *J. A. M. A.* 92: 1730 (May 25) 1929.

10. Bowing H. H. Malignant Tumors of the Thyroid Gland Treated by Operation, Radium and X-Rays. *Am J Roentgenol* 18: 501 (Dec.) 1927.

11. Holmes G. W. Personal communication to the authors.

12. Ginsburg Solomon. The Value and Place of Radium in the Treatment of Diseases of the Thyroid Gland. *Am J Roentgenol* 24: 283 (Sept.) 1930.

basal metabolic rates on November 1, 2, 3, 4, 8, 12 and 18 were minus 12, minus 6, minus 18, minus 15, minus 12, minus 14 and minus 12, respectively. During this period the patient showed clinical improvement. The basal metabolic rate then began to rise gradually, reaching plus 2 December 3. From this time on, clinical improvement was not sustained and the patient again showed an increase in the signs of congestive failure. An unsuccessful attempt was made subsequently to remove the remaining fragments of thyroid tissue by surgical intervention. Dense connective tissue adhesions obscured the anatomic landmarks and made any surgery hazardous.

Roentgen treatment was instituted, December 27, and continued to Feb 9, 1933. During the period of treatment the metabolic rate at intervals of days was minus 2, minus 11, minus 7, minus 8, minus 14, minus 3 and minus 14 per cent. On July 13 and 15, approximately five months after treatment, the metabolic rates were plus 8 and plus 6 per cent.

During the past few months the patient has continued to show evidence of congestive failure with complete inactivity and he is now confined to bed rest in a hospital for chronic diseases.

CASE 2—General arteriosclerosis arteriosclerotic heart disease, auricular fibrillation and congestive heart failure of two and one-half years' duration

H B, a man aged 59, was admitted to the Beth Israel Hospital, Nov 1, 1932 for the fifth time in two and a half years, because of edema of the legs, pain in the right upper quadrant and shortness of breath. His last discharge from the hospital was six months before this admission, at which time the diagnoses were arteriosclerotic heart disease, auricular fibrillation, congestive failure and Paget's disease. He had been confined to bed practically the entire time and the signs and symptoms of congestive failure had become progressively more pronounced.

Physical examination showed cyanosis, orthopnea, grossly irregular heart action and an enlarged heart. Both lungs were congested, and the liver was enlarged and tender. Moderately deep pitting edema was present over both lower legs, feet and the sacrum. The blood pressure was 140 systolic 70 diastolic. The seven foot roentgenogram of the chest showed the transverse cardiac diameter to be 22.1 cm, the internal chest diameter, 29.4 cm. Electrocardiographic tracings showed auricular fibrillation and bundle branch block.

November 23, a maximal subtotal thyroidectomy was performed, more than nine tenths of the gland being removed. The basal metabolic rate fell from an average of minus 4 to minus 15 per cent, with concomitant clinical improvement. Following this, however, he again began to gain edema, and the metabolic rate rose to the preoperative level.

Roentgen treatment was begun December 27, and continued until March 1, 1933. During the course of the treatment the metabolic rates progressively fell from minus 4 to minus 21 per cent but quickly returned to previous levels shortly after the last treatment. March 3, 6, 15 and 23 the metabolic rates were plus 1, plus 13, plus 24 and plus 9 per cent. On July 29, approximately five months after the termination of treatment, the basal metabolic rate was minus 8 per cent of normal. The patient continued to show evidence of congestive failure. During the past two months the signs and symptoms of circulatory failure have increased so that at the present time he is confined to bed with general anasarca.

CASE 3—Angina pectoris, of four years' duration

O H, a man, aged 68, was admitted, Feb 21 1933, complaining of attacks of substernal pain during the previous four years. The pain was severe, was viselike, would often radiate to the left arm, was precipitated by exertion, and was immediately relieved by rest or glyceryl trinitrate. These attacks gradually increased in severity and frequency and in the previous two months appeared even on rest. There was no significant dyspnea, no cough and no edema. One year before admission he was told that he had diabetes and three months before he developed a mild left hemiplegia from which he had almost entirely recovered.

Physical examination showed moderately advanced arteriosclerosis of the retinal and peripheral vessels. The thyroid gland was of normal size. The chest was somewhat emphysematous, the lungs were clear. The heart was moderately enlarged, the sounds were of fair quality and regular. There

were no murmurs. There was no edema. The blood pressure was 160 systolic, 90 diastolic. A seven foot roentgenogram showed moderate cardiac enlargement and calcification of the aorta. The electrocardiogram showed inverted T waves in leads 1 and 2.

Because of the patient's age, the history of a recent cerebral accident, and the marked coronary sclerosis, it was felt that he was a poor surgical risk for total ablation of the thyroid gland and roentgen therapy was instituted in the hope of accomplishing a lowering of the metabolic rate by this means.

Basal metabolic rates, February 23, March 1 and 2, 1933 were minus 16, minus 10 and minus 22 per cent. Roentgen treatment over the thyroid gland was instituted, March 6, and continued until March 20. Thirteen treatments were given at daily intervals, seven directed to the left and six to the right aspect of the neck. Each treatment consisted in giving 200 kilovolts 4 milliamperes, through a filter of 0.5 mm of copper and 1 mm of aluminum from a distance of 20 inches for a period of twenty minutes, with a total dosage of 2,080 roentgens. The basal metabolic rate, March 13 was minus 13 per cent. July 15 and 16, plus 12 and 0 per cent of normal. The patient continued to have frequent attacks of angina pectoris, and after being studied at the Boston Dispensary for several months and given every available treatment, he has shown no improvement.

CASE 4—Rheumatic heart disease, mitral stenosis and insufficiency, auricular fibrillation and congestive heart failure of two and one-half years' duration

S M, a man, aged 33, admitted to the Beth Israel Hospital, Jan 30, 1933 complained of dyspnea, orthopnea and weakness of two and a half years' duration. He was first admitted to the hospital, May 5, 1930, complaining of cough, tightness in the chest, dyspnea, palpitation and blood-streaked sputum of five weeks' duration. Physical examination showed cyanosis, orthopnea, enlarged heart and the signs of mitral stenosis and insufficiency. During the two years following his first admission his activity became increasingly limited, and signs of congestive failure gradually progressed.

Physical examination at the time of the present admission revealed moderate cyanosis of the lips, dullness at both lung bases, marked cardiac enlargement, and grossly irregular heart sounds. The liver was enlarged four fingerbreadths below the costal margin. There was no pitting edema. The blood pressure was 185 systolic and 90 diastolic. A seven foot roentgenogram of the chest showed a transverse cardiac diameter of 25.4 cm and an internal chest diameter of 27.6 cm.

Roentgen treatments were given from February 3 until February 14, a total of 1,660 roentgens being directed to the thyroid gland. The basal metabolic rates, February 1 and 8, were plus 6 and plus 1 per cent respectively. The metabolic rate on February 15, after treatment, was plus 3 per cent.

During his stay in the hospital the patient's condition failed to improve. He was discharged, February 18, and died suddenly one week after discharge.

CASE 5—Rheumatic heart disease, mitral stenosis, auricular fibrillation and congestive failure (No improvement after irradiation of the thyroid gland, definite improvement after subsequent total ablation of the thyroid)

S B, a woman aged 46, admitted to the Beth Israel Hospital April 24, 1933, had had rheumatic fever twenty-five years before at which time she was told that she had heart trouble. Since that time she had suffered from palpitation and dyspnea on exertion and on rare occasions she had had slight swelling of the ankles after being up and about for a considerable period of time. During the twelve months previous to her present admission, dyspnea, orthopnea and palpitation had become more pronounced.

When she was first admitted to the hospital, Aug 12, 1932, physical examination revealed slight dyspnea, some dullness at the right base, cardiac enlargement, grossly irregular heart action, and a rough diastolic murmur at the apex. In the epigastrium there was a mass, apparently the liver, which was slightly tender. There was no pitting edema of the extremities. During her stay she developed a transient hemiplegia, which cleared up after a few days. She was discharged, but readmitted, April 24, 1933, for roentgen irradiation of the thyroid gland.

Roentgen treatments were given from May 3 to May 24 1933, the Coutard method of irradiation being employed, directed through one portal over the thyroid gland, with a total dosage of 4000 roentgens. The metabolic rates before treatment on April 25, 26, 27 and 29 were plus 1, plus 14, plus 8 and plus 11 per cent of normal, respectively. The basal metabolism was plus 30 per cent, May 13, plus 7 per cent, June 1, and plus 1 per cent, August 3.

During the three months following the institution of treatment her condition remained approximately unchanged. The patient was apparently comfortable as long as she stayed in bed, but she had practically no capacity to be on her feet and developed symptoms on the slightest exertion. For this reason she was readmitted to the hospital and, August 9, total ablation of the thyroid gland was performed. In the course of the operation, numerous delicate adhesions were found between the capsule of the gland and the surrounding tissue. The gland weighed 115 Gm. On section the cut surface was reddish brown, and numerous fibrous striations were seen. Microscopic examination of the tissue revealed alveoli well filled with pink-staining colloid. These alveoli were lined by flattened cuboidal epithelium. The outlines of the alveoli were regular and round and did not reveal any intolding or papillary projections. There was some increase in the amount of connective tissue surrounding the alveoli. Lymphocytic foci were evident. All stages of degeneration were seen. In one area there was a small group of cells composed of vacuolated cytoplasm with large vesicular nuclei. The diagnosis was a normal thyroid.

The patient made an uneventful recovery after operation and showed conspicuous improvement. Palpitation disappeared and she became less orthopneic. Two weeks after operation she was permitted out of bed and noted that her breathing was considerably easier with mild exertion. Two months after operation clinical improvement continued. She was up and about without evidence of dyspnea. There was no sign of congestive failure. The basal metabolic rate had been permanently lowered and she had begun to show mild signs of myxedema.

CASE 6—Rheumatic heart disease, mitral and aortic stenosis, auricular fibrillation and congestive failure of three years duration.

M. B., a woman, aged 38, was admitted, April 23 1933, for the third time in three years because of rheumatic heart disease, mitral and aortic stenosis and insufficiency, auricular fibrillation, congestive failure and diabetes. She had had repeated attacks of congestive failure in the past and she was first told nine years before that she had heart disease. During the past three years there had been marked limitation of her reserve, with dyspnea on moderate exertion. A few days before admission she complained of "hot flashes," dry cough and palpitation, but there was no shortness of breath or edema.

Physical examination showed a cherry-red cyanosis of the face and lips, cardiac enlargement, the typical murmurs of mitral stenosis and aortic insufficiency, grossly irregular heart sounds, a blood pressure of 140 systolic, 70 diastolic, nontender enlargement of the liver to three fingerbreadths below the costal margin, and no edema. A seven foot roentgenogram of the chest showed the transverse diameter of the heart 17.9 cm., and the internal chest diameter 26.1 cm.

The patient refused operation and, accordingly, roentgen irradiation of the thyroid gland was instituted May 3 and continued to May 24, the Coutard method being employed one portal over the thyroid gland, with a total dosage of 4000 roentgens. Seven tests of the basal metabolic rate from March 31 to April 28 averaged plus 2.8 per cent. The basal metabolic rates on May 29 and June 1 were minus 7 and plus 8 per cent, respectively.

During the past few months the patient has shown no significant change in her cardiac condition.

COMMENT

Total surgical ablation of the thyroid gland, which has now been performed at the Beth Israel Hospital in more than fifty cases presenting congestive failure or angina pectoris, produces persistent lowering of the basal metabolic rate and definite clinical improvement. In the hope that irradiation of the normal thyroid

gland might be useful as a substitute for surgery or as an adjunct to subtotal thyroidectomy, the foregoing study was made. Cases 1 and 2 were the first cases in which operation was done (same as cases 1 and 2 of the first communication^{1a}). At this time the importance of removing every bit of thyroid tissue was not appreciated, nor had the technic been evolved by Berlin^{1b}. In these initial operations all thyroid tissue was removed with the exception of the minute amounts at the upper poles and in the tracheo esophageal sulci. Such maximal subtotal thyroidectomy produced only temporary lowering of the metabolic rate and temporary clinical improvement. After success attended the first complete ablation of the thyroid (case 3 of first communication^{1a}), a subsequent attempt was made to remove the remaining fragments of tissue in case 1, in which there had been a relapse to the preoperative clinical condition. Dense adhesions were encountered, which made identification of thyroid fragments impossible. It was felt that any surgical dissection would have been extremely dangerous because of the difficulty of identification and consequent likelihood of injury to the parathyroid glands or recurrent laryngeal nerves. Since the clinical condition of both patients was unimproved, heavy dosages of roentgen radiation were employed but without effect.

The effects of roentgen irradiation were also studied in four other cases in which operation was contra-indicated. These cases failed to show any clinical improvement or lowering of the metabolic rate. Operation later became feasible in one case 4. Complete ablation of the thyroid gland was done under gas oxygen anesthesia. Microscopic examination of the gland showed for the most part normal thyroid tissue, indicating that, in order to destroy the function of the thyroid, prohibitive dosage would be necessary. Following total ablation of the thyroid gland, the basal metabolic rate has been persistently low, and the patient has shown conspicuous clinical improvement.

These observations lead to the conclusion that little can be expected from roentgen radiation as a substitute for surgery or as an adjunct to subtotal thyroidectomy in the treatment of chronic disabling heart disease. At the present time nothing but the complete removal of every vestige of visible thyroid tissue by surgical means will guarantee the desired persistent lowering of the metabolic rate and the consequent clinical improvement.

SUMMARY

1 Roentgen irradiation of the normal thyroid gland, used alone and also as an adjunct to maximal subtotal thyroidectomy, failed to produce any appreciable persistent lowering of the basal metabolic rate in six patients with chronic heart disease.

2 In one case, previously reported, in which a maximal subtotal thyroidectomy had been performed both roentgen irradiation and a subsequent surgical attempt to remove the remaining fragments of the thyroid tissue were unsuccessful, and the clinical condition was not improved.

3 One patient whose condition remained the same in spite of massive irradiation showed conspicuous improvement coincident with the reduction in the basal metabolic rate when the entire thyroid gland was removed according to the technic previously described by Berlin.

4 The failure of others and of ourselves to benefit patients by subtotal thyroidectomy, our unsuccessful attempt to remove residual fragments at a subsequent

operation, and the ineffectiveness of roentgen irradiation on the remaining tissue emphasize the therapeutic importance of removing the entire gland at the time of the first operation. Ample confirmation for this conclusion was obtained by our subsequent experience in some fifty cases of angina pectoris or congestive failure in all of which the basal metabolic rate remained low after total ablation of the thyroid gland and in practically all of which the clinical improvement has been conspicuous.

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DIVINYL ETHER

EXPERIMENTAL AND CLINICAL STUDIES

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Within the past decade a widespread interest has been shown in a variety of substances that have been recommended for surgical anesthesia. It can be said as a commonplace that, when so many substances are used for anesthesia, not one is ideal from the standpoint of the patient, the surgeon and the anesthetist. This paper is a report of our experiences with still another substance which while not new has only recently been suggested by Leake and his associates as an agent for surgical anesthesia.

In 1930, Leake and Chen¹ predicted from a consideration of the chemopharmacologic properties of diethyl ether and of ethylene that compounds combining the chemical characteristics of each would be interesting general anesthetic agents. Such a compound would be divinyl ether (fig 1). Studies made by these investigators and by Knoefel, Guedel and Leake² seemed to bear out their prediction. Their observations indicated that divinyl ether showed great promise for qualifying as an ideal general anesthetic.

In 1931, Rugh and Major³ reported the successful preparation of pure divinyl ether and described its properties.

Pure divinyl ether is a clear, colorless liquid with a specific gravity of 0.77 at 20 C, and a boiling point of 28.3 C. It is as explosive and inflammable as diethyl ether and is more volatile. The divinyl ether that has been prepared for anesthesia has added to it a small amount of absolute alcohol to prevent too rapid evaporation, and an inhibiting substance to prevent decomposition. It is this mixture which we have used in our studies. Divinyl ether polymerizes on exposure to air and light and in the presence of acid decomposes to form aldehydes, one of which is formaldehyde, which is formed in very minute amounts.

Divinyl ether has a not unpleasant ethereal odor and when pure, is not as pungent or as irritating as

diethyl ether. However when decomposed or polymerized, it has according to Leake, a "stinging odor and causes definite local irritation." In a more recent paper, Leake, Knoefel and Guedel⁴ reported that its physiologic actions were less severe than those of diethyl ether. They found no significant pathologic effect when it was administered without anoxemia. Gelfan and Bell⁵ administered the anesthetic in three instances to human patients and on the basis of their observations suggested that it was worthy of a clinical trial and evaluation.

The material with which the experiments reported in this paper were conducted was supplied to us by the Laboratory of Pure Research of Merck & Co., Rahway, N. J. All the material was tested for decomposition and polymerization before its use.

We have studied the comparative effect of divinyl and diethyl ether on the blood pressure and respiration, and the concentrations of these substances in jugular vein blood at the onset of the third and fourth stages of anesthesia in dogs, and similarly in man, except that the blood was removed from a vein in the antecubital fossa during complete surgical anesthesia.

The anesthetic was administered to the dogs by inhalation through several loose layers of gauze or after tracheal cannulization and to the human patients either by open drop inhalation or in conjunction with nitrous oxide and oxygen. It will be possible in this paper to review only briefly the work we have done.

CLINICAL STUDIES

The anesthetic was not administered to the human patient until our laboratory studies were completed and we had satisfied ourselves that it could be safely administered.

The studies in the human cases were conducted in the Hospital of the University of Pennsylvania. In all 461 patients were anesthetized. To the first fifty patients the anesthetic was administered by one of us while the rest of the patients were anesthetized by the regular nurse anesthetists of the hospital.

The open drop method was used in about 90 per cent of the series, since we believed that with so highly volatile an anesthetic this method offered the greatest safety until we had become more experienced with the use of divinyl ether in the human patient. The method was as follows. Several loose layers of gauze were placed over the patient's face after the eyes had been covered with a piece of moistened gauze. The anesthetic was dropped slowly from a dropping bottle while the anesthetist talked to the patient and carefully observed his reactions. To the others it was administered in conjunction with nitrous oxide and oxygen through one of two makes of apparatus, the divinyl ether being placed in the ether reservoir. When given by this method, only a very small amount should be used, since rapid bubbling of the oxygen through the divinyl ether results in too great concentration of the anesthetic in the inspired gas.

The ages of the patients varied from 5 months to 82 years. The anesthetic was so well tolerated by children that we have used it extensively in this group for general surgical and otologic operations. Fifteen of the patients were under 2 years of age and twelve were over 60. The weights of the patients varied from a few

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¹ Leake, C. D. and Chen, M. Y. *Proc. Soc. Exper. Biol. & Med.* 28: 151 (Nov.) 1930.

² Knoefel, P. K., Guedel, A. E. and Leake, C. D. *Proc. Soc. Exper. Biol. & Med.* 29: 139 (Nov.) 1931.

³ Rugh, W. L. and Major, R. T. *J. Am. Chem. Soc.* 53: 2662 (July) 1931.

⁴ Leake, C. D., Knoefel, P. K. and Guedel, A. E. *J. Pharmacol. & Exper. Therap.* 47: 5 (Jan.) 1933.

⁵ Gelfan, S. and Bell, I. R. *J. Pharmacol. & Exper. Therap.* 47: 1 (Jan.) 1933.

pounds to 274 pounds (121 Kg.) and the physical make-up was of the variety encountered in any surgical clinic.

The conditions for which anesthesia was induced were extremely varied. It was used for operations for the duodenum, brain tumor and middle ear disease, thyroidectomy, gastrostomy, gastro-enterostomy, appendectomy, herniorrhaphy, mastectomy, and operations on the soft parts and bony skeleton. With the single exception of two operations for cholecystectomy, however, the anesthetic was not used for operations on the biliary tract.

It is difficult, as can be attested by those of us who have been anesthetized with this and other anesthetic agents, to describe the effect of divinyl ether in terms of the classic stages of anesthesia. The first stage is, as a rule, extremely short—so short in fact that consciousness is often completely lost after a few inhalations. Thus, the picture of analgesia without loss of consciousness, which is seen in the more commonly used inhalation anesthetics, is only rarely observed. The laryngeal reflexes, which are often irritated when diethyl ether is used, are rarely observed with divinyl ether.

Guedel⁶ has pointed out that there is a light stage of surgical anesthesia which affords the surgeon as much ease and comfort in operating as the state of

of divinyl ether for the induction for an appendectomy, the period from beginning the anesthetic to the beginning of the operation being three and a half minutes. The individual variation may be shown in a second patient aged 23 who had good relaxation in two minutes and in whom only 60 cc of divinyl ether was used.

TABLE 1—Concentration of Divinyl and Diethyl Ether in Blood (Internal Jugular Vein) of the Dog

Divinyl Ether Mg. per 100 Cc. Blood			Diethyl Ether, Mg. per 100 Cc. Blood		
Corneal Reflex (0 to 1 sec)	Absent	Cessation of Respiration	Corneal Reflex Absent	Cessation of Respiration	
18.0	28.7	1.5	62.0	34.0	
18.4	30.0	1.0	118.0	14.0	
19.1	29.2	1.1	119.0	14.0	
21.9	30.0	0.8	120.0	13.0	
22.1	29.8	0.9	120.0		
22.6	30.0	0.8	120.0		
23.2	29.0	1.1	120.0		
23.8	27.4	1.4			
24.1	27.7	1.5			
25.4	47.0				
Average			0	116.0	14.0

over a twenty-five minute period. For minor surgical operations the time for induction varied as a rule from twenty seconds to two minutes.

The time of anesthesia varied from ten minutes to two hours and fifty-one minutes. We occasionally observed considerable mucus in patients who had been administered the anesthetic for only a short period—a condition that was considerably more frequent in the dog. This occurred even though atropine sulphate was administered previous to operation. When mucus was present it disappeared immediately after recovery from the anesthetic.

Even in the patients who had excessive mucus there was no increased tendency to postoperative respiratory complications. The extraordinary absence of respiratory complications in 461 anesthetizations may in part be explained by the care in selection of cases and the unusual care inevitable in the first tests with a new anesthetic. Much as it is to be hoped for it will scarcely be surprising if this record is not maintained in the future should divinyl ether come into general use.

The muscular relaxation was good. It was as good as that obtained with diethyl ether and was sufficient for the most extensive laparotomy or for orthopedic manipulations.

The respiration was, as a rule, quiet except when there was a considerable accumulation of mucus. Gen-

TABLE 2—Concentration of Divinyl Ether in Blood (Intercostal Fossa) of the Human Being During Surgical Anesthesia

Mg. per 100 Cc. Blood							
11.3	14.4	15.7	16.8	17.4	21.0	27	29.8
Average 18.0							

erally the respiratory rate became slower during the period of surgical anesthesia. In only nine patients was cyanosis observed such as often occurs when nitrous oxide and oxygen are pushed to obtain good surgical relaxation. One of these patients was a child aged 15 months in whom the anesthesia was being used for an ophthalmic operation. The child became cyanotic and cessation of respiration rapidly followed. The pulse remained of excellent quality and after a very short

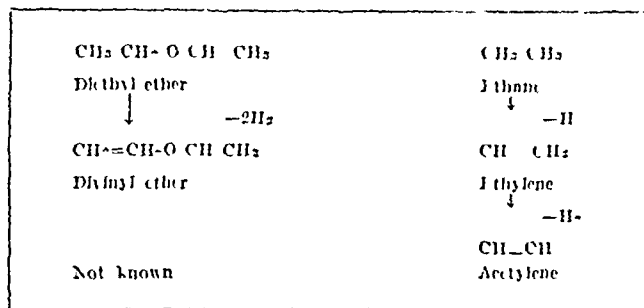


Fig. 1—Chemical composition of divinyl ether

deepest third stage anesthesia." This is a period of quietude and tranquillity which affords efficient relaxation and at the same time a maximum of safety to the patient. It is characterized by surgical anesthesia at a time when the eyeballs are oscillating rhythmically. A patient in such a condition is, according to Guedel, in the ideal stage of surgical anesthesia, and we have noted that with divinyl ether it was relatively easy to maintain this stage throughout the operation and at the same time to have efficient relaxation. The continuous movement of the eyeballs at first disturbed us, but subsequent experience proved that it was a state for which to strive rather than at which to be alarmed. It disappears in deep third stage anesthesia.

In only 2 per cent of the patients did we observe real excitement, and this was of very short duration. The rapidity of induction prevents in even the most nervous patient any real or prolonged stage of excitement.

The time from the beginning of the administration of the anesthetic to surgical anesthesia varied, of course with the type of operation. For relaxation sufficient for a laparotomy, about three and a half minutes was necessary. For extra-abdominal lesions the time was less than this. Several illustrations may be helpful in showing its effectiveness. A man, aged 21, required 14 cc

period of artificial respiration the color became good and normal respiration was resumed. This observation was in accord with our experience in the dog, in which it was usually possible to resuscitate the animal rapidly after cessation of respiration.

Records of the blood pressure were kept during 100 operations. In eight patients there was a fall of from 10 to 19 per cent from the preanesthetic level, while in five patients there was a drop of 20 per cent or more. In the remaining patients the fall was less than 10 per cent. The anesthetic was used in patients with a variety of cardiac diseases, including advanced myocardial damage, without any untoward effect.

The amount of divinyl ether necessary for maintenance of anesthesia was, on the average, about 2 cc per minute. At times it was less than this and occasionally it exceeded this amount. The tendency of the anesthetists was at first to use more than was necessary, basing the rate of the drop on experience with the administration of diethyl ether. It is advisable for anesthetists to begin with minor surgical cases until experience is gained with the anesthetic.

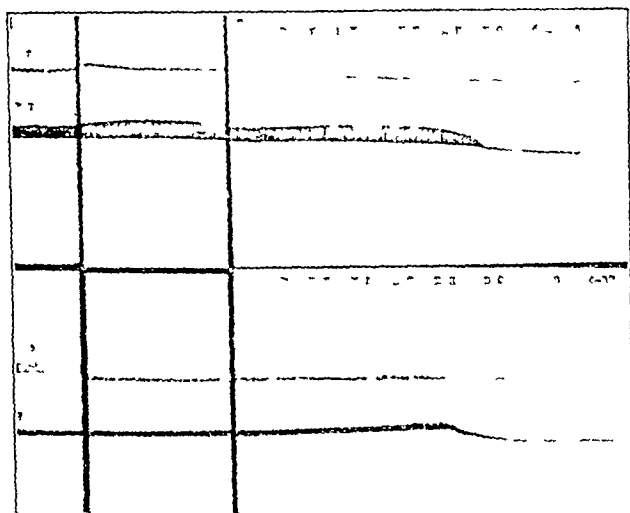


Fig 2—Upper strip, divinyl ether. A light anesthesia (blood pressure 160/80). B surgical anesthesia (blood pressure 145/60). C terminal stage (blood pressure fifteen seconds before respiratory failure 155/45). The duration of anesthesia was sixty five minutes. The persistence of the pulse after respiratory failure was three minutes and fifteen seconds. Lower strip, diethyl ether. A light anesthesia (blood pressure 170/120). B surgical anesthesia (blood pressure 160/110). C terminal stage (blood pressure fifteen seconds before respiratory failure 190/130). The duration of the anesthesia was forty two minutes. The persistence of the pulse after respiratory failure was three minutes.

Recovery was unusually rapid. It was often possible, after the anesthetist had had experience with the anesthetic, to have the patient speaking at the time of introduction of the last skin suture. Recovery was, as a rule, smooth and was only rarely accompanied by any excitement, which was very probably due to the rapidity with which the patient's faculties for rationalization returned. The usual period for recovery to the stage of answering questions rationally after operations with a duration of from twenty to forty minutes was from thirty seconds to five minutes. In a patient with a breast carcinoma the duration of the operation was one hour and twenty-two minutes, and the time from complete withdrawal of the anesthetic to recovery was twenty seconds. When preliminary narcotics were used, the period of recovery was sometimes longer. Only in patients with pin-point pupils from the administration of morphine prior to anesthetization did the recovery period exceed five minutes.

Vomiting, including simple ejection of mucus, during the recovery from the anesthetic occurred in 95 per cent of the patients. This, as a rule, consisted in the emesis of mucus on one or two occasions. In only one instance did we believe that exaggerated vomiting was related to the anesthetic. A number of patients who had only recently eaten were anesthetized because of surgical emergencies, and the infrequency of vomiting in this group was striking. In patients in whom postoperative oral feeding was not contraindicated, the rapid return of appetite for food was also striking.

The urine was examined repeatedly before and for several days after operation in nearly one half of the cases and in no instance did we obtain any evidence of renal irritation. Even after repeated anesthetization in a patient whose urine previous to operation was normal, no evidences of renal damage or irritation could be found. The anesthetic was used in a number of urologic operations. In patients in whom prolonged or repeated anesthesia might have resulted in liver injury, no evidence of injury could be demonstrated from determinations of the serum bilirubin.

The anesthetic was administered as often as five times to the same patient. It was administered to about thirty-seven patients who previously had had other anesthetics, and in every instance they expressed the opinion that the induction and recovery with divinyl ether was more pleasant than with the anesthetics that had previously been administered to them.

PHYSIOLOGIC STUDIES

In the experiments on both the dog and the monkey no preliminary medication was administered. Third stage anesthesia was more rapidly induced and recovery was more rapid than with diethyl ether. Although considerable accumulation of mucus occurred in the dog, this was not on the whole as great as that observed with diethyl ether. There was, however, a great deal of individual variation in the dogs.

Another example of individual peculiarity was the occasional presence of running motions, usually noted in dogs in which anesthesia was difficult to maintain, although the other signs of complete surgical anesthesia were present. The behavior of the monkey under divinyl ether was more like that of the human being. In the monkey, oscillation of the eyeballs during third stage anesthesia was frequently observed.

In the monkey divinyl ether and chloroform caused no accumulation of mucus, while it frequently followed the administration of diethyl ether. Recovery following three hours of divinyl ether anesthesia took place in from three to six minutes; in fact, the one monkey that was anesthetized for six hours was on its feet and eating a banana within six minutes.

In dogs the concentration of divinyl ether in the blood from the jugular vein at the time of disappear-

7 Since this paper was written the number of patients subjected to divinyl ether anesthesia has exceeded 2,000. Four patients have come to autopsy within five days after operation. In two of these evidence of a central lobular necrosis of the liver was found. We are briefly reporting these two cases through the kindness of Dr. Dean Lewis of the Johns Hopkins Hospital.

CASE 1—H. R., a man aged 54. Diagnosis: carcinoma of the stomach. Operation: partial resection of the stomach, anterior gastroenterostomy, and entero-enterostomy. Duration of anesthesia: two hours and forty minutes. Amount of anesthetic used: 350 cc. Died in his sleep on the third day after operation. No untoward symptoms between operation and death.

CASE 2—H. G., a woman aged 23. Diagnosis: appendicitis. Operation: exploratory laparotomy, appendectomy, and exploration of pelvis and upper abdomen. Duration of anesthesia: one hour and thirty-nine minutes. Amount of anesthetic used: 275 cc. Convalescence uneventful for forty-eight hours. She then became drowsy and unresponsive. On the fourth day she became very restless, the pulse rose to 130 and the respirations to 33. On the fifth day she would not respond; the respirations dropped to 12 and the pulse rose to 160 before death.

ance of the corneal reflex averaged 28 mg per hundred cubic centimeters of blood (table 1), while when diethyl ether was administered under identical conditions the concentration of this substance averaged 116 mg per hundred cubic centimeters of blood.

These results would indicate that in the dog the anesthetic potency of divinyl ether was approximately four times that of diethyl ether, which figures are somewhat

TABLE 3—Effect of Divinyl Ether, Diethyl Ether and Chloroform on the Liver of Well Fed and of Starved Dogs

Nutritional State	Anesthetic	Periods of Anesthesia	Number of Dogs	Number with Liver Necrosis
Well fed	Divinyl ether	1 period of 1 hr	4	0
		2 periods of 1 hr	1	0
		3 periods of 1 hr	3	0
		1 period of 2 hrs	1	0
		2 periods of 2 hrs	4	0
		4 periods of 2 hrs	7	0
		1 period of 3 hrs	2	0
	Diethyl ether	1 period of 2 hr	6	0
		4 periods of 2 hr	6	0
		1 period of 3 hr	10	0
Starved (5 days)	Chloroform	1 period of 1 hr	1	0
		1 period of 2 hr	1	0
		1 period of 3 hrs	2	0
	Divinyl ether	2 periods of 2 hrs	1	1
		1 period of 3 hrs	1	0
		2 periods of 2 hrs	1	0
	Diethyl ether	1 period of 2 hrs	1	0
		1 period of 3 hrs	1	0
		2 periods of 2 hrs	1	1
		1 period of 3 hrs	4	4
Biliary obstruction (17-22 days)	Divinyl ether	1 period of 1 hr	1	0

greater than those reported by Knoefel, Guddel and Lenke,² who estimated the alveolar concentration of the anesthetics.

The mean concentration of divinyl ether in the blood of the external jugular vein of the dog at the time of cessation of respiration was found to average 68 mg per hundred cubic centimeters of blood. In our studies on the dog the concentration of diethyl ether under comparable conditions at the point of respiratory failure was found to average 155 mg per hundred cubic centimeters of blood. In both of these groups the animals were under anesthesia for three hours before the anesthetic was pushed to the point of respiratory failure.

On the basis of these data it would appear that the actual difference in milligrams per hundred cubic centimeters of the blood concentration between the anesthetic and the lethal dose of divinyl and diethyl ether is approximately the same. It should be admitted, however, that in inexperienced hands it would be easier to pass from the anesthetic to the lethal concentration of divinyl ether. The use of margin of safety ratios in this connection would be, we believe, somewhat misleading. In the hands of the careful anesthetist, divinyl ether has a satisfactory margin of safety.

In the human patients (table 2) the results showed an average concentration of divinyl ether in peripheral venous blood, in third stage anesthesia of 18 mg per hundred cubic centimeters of blood (nine determinations), as against 132 mg in a single determination under diethyl ether.

We observed no significant differences in the effects of divinyl and diethyl ether on the blood pressure and respiration of the dog (fig 2). In neither were any sharp variations in blood pressure noted as long as good surgical anesthesia was maintained. The fall in the blood pressure from the level present during light anes-

thesia to the level existing during surgical anesthesia was approximately the same for both diethyl and divinyl ether. In human cases in which precipitate falls in the blood pressure occurred the fall could in every instance be ascribed to some other factor associated with the operation.

As from diethyl ether, death from divinyl ether is due to respiratory failure, the heart continuing to contract for some time after cessation of respiration (fig 2). Since recovery from divinyl ether anesthesia is rapid, artificial respiration usually will rapidly restore an animal whose respiration has ceased.

PATHOLOGIC STUDIES

The effect of divinyl ether on various tissues was studied in seventy-nine dogs and nineteen monkeys (*Macacus rhesus*) under several experimental conditions. Forty-six dogs and ten monkeys were studied under similar conditions after the administration of diethyl ether or chloroform. In this work we had the assistance of Drs. Walsh, Quereau and Wing.

The conditions under which the experiments were performed with the three anesthetics were varied as to the duration of the anesthesia, the number of anesthetizations, the nutritional state of the animal and, with divinyl ether alone, after complete obstruction of the extrahepatic bile ducts.

Specimens of the different organs were taken, as a rule, on the third day following anesthetization, since it was found that when tissue change occurred it could be best demonstrated at that time. The only significant change was found in the liver, so that our report is confined to this organ. Biopsies of the liver were performed under each of the experimental conditions prior to beginning the experiment to serve as controls.

Divinyl ether may induce liver necrosis in the dog. When liver damage followed divinyl ether anesthesia, the histologic picture was that of a central lobular necrosis. To this extent it resembled the liver necrosis of chloroform anesthesia. However, under identical experimental conditions the liver change that followed divinyl ether anesthesia was in general less marked than after chloroform. In contrast to the dog, liver damage

TABLE 4—Effect of Divinyl Ether, Diethyl Ether, and Chloroform on the Liver of Well Fed and of Starved Monkeys

Nutritional State	Anesthetic	Periods of Anesthesia	Number of Monkeys	Number with Liver Necrosis
Well fed	Divinyl ether	1 period of 3 hrs	3	0
		2 periods of 3 hrs	13	0
		1 period of 6 hr	1	0
	Diethyl ether	1 period of 3 hrs	1	0
		1 period of 3 hrs	3	0
Starved (2 days)	Chloroform	1 period of 3 hrs	2	0
	Divinyl ether	1 period of 3 hrs	4	0
	Diethyl ether	1 period of 3 hrs	2	0

did not occur in the monkey following divinyl ether anesthesia under any of the experimental conditions that were used. In neither animal did diethyl ether produce liver necrosis.

The results of the experiments on dogs are summarized in table 3. In a group of sixty-nine well fed normal dogs anesthetized for various periods with divinyl ether, thirteen were found to have developed liver necrosis. Necrosis was not found after one hour of anesthesia. It occurred, however, in two (10 per cent) of twenty-one animals anesthetized for one two-hour period, and in eight (30 per cent) of twenty-seven

dogs anesthetized for one three-hour period. The remaining three instances of liver necrosis followed four two-hour periods of anesthesia in seven dogs. The interval between anesthetizations for the latter group was four days.

The duration of the divinyl ether anesthesia was thus found to be a definite factor in the production of liver



Fig 3—Necrosis in the liver of the dog induced by chloroform. The inner two thirds of the several lobules shown are necrotic. The cells bordering the necrotic areas contain large fat droplets. Reduced from a photomicrograph with a magnification of 75 diameters.

necrosis in the dog. The critical period in this animal was found to lie between two and three hours.

In the control groups following comparable periods of anesthesia, chloroform anesthesia resulted in liver necrosis in two of five dogs after one hour of anesthesia, and in five of six dogs which received it for two hours and in both of the dogs receiving three hours of chloroform (fig 3). Diethyl ether did not cause necrosis.

Of the five dogs deprived of food for three days prior and two days subsequent to a three-hour period of divinyl ether anesthesia, two developed liver necrosis (fig 4). When under similar nutritional conditions divinyl ether was administered to two dogs for two hours on both the third and the fourth day, liver necrosis was found in one animal. In dogs, necrosis following chloroform invariably occurred under these conditions, while it was never observed following diethyl ether anesthesia.

The necrosis that followed divinyl ether anesthesia in dogs whose food had been withheld was decidedly more extensive than that found in the dogs which were well fed. The importance of the nutritional state in the occurrence and severity of the liver necrosis is well illustrated in the dogs that were anesthetized for two two-hour periods. In the well fed animals liver necrosis was not observed in the four dogs so treated, while, in the two that were starved, liver necrosis was found in one instance.

Two weeks after ligation of the extrahepatic bile ducts and cholecystectomy, three dogs were anesthetized with divinyl ether for one hour, during which time we performed a biopsy of the liver. The his-

tologic picture was not found to be significantly altered three days later. Thus, in the group in which liver necrosis was most feared, none was found.

Of the well fed monkeys given divinyl ether, three were anesthetized for one three-hour period, thirteen for two three-hour periods on alternate days, and one for six hours continuously. None of these showed necrosis of the liver. It is noteworthy that, of three monkeys anesthetized for three hours with chloroform, not one gave any evidence of liver damage (table 4).

When deprived of food for two days prior to anesthetization, two monkeys, following one three-hour period of divinyl ether anesthesia, failed again to show liver necrosis. But two monkeys similarly deprived of food and anesthetized with chloroform for three hours developed liver necrosis, demonstrating that typical necrosis may occur in the liver of the monkey. Diethyl ether anesthesia failed to produce liver necrosis under either of these conditions.

These experiments demonstrate the importance of the nutritional state and the species difference in considering the toxicity of an anesthetic. It may be said that, in respect to its toxicity for the liver in dogs, divinyl ether holds a position intermediate between chloroform and diethyl ether. In monkeys it resembles diethyl ether in this respect.

SUMMARY

We may thus far sum up our experience with divinyl ether by stating that from the standpoint of induction, maintenance and recovery the anesthetic is satisfactory. It affords rapid surgical anesthesia with

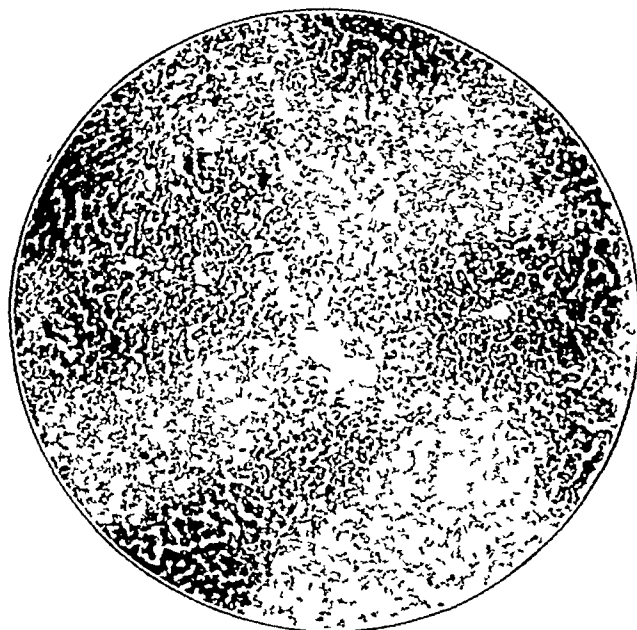


Fig 4—Necrosis in the liver of the fasting dog induced by divinyl ether. This kind of necrosis is very similar to that shown in figure 3. Reduced from a photomicrograph with a magnification of 75 diameters.

a minimum amount of the anesthetic, even maintenance, good relaxation and rapid recovery. No untoward effects have been observed on the blood pressure or respiration. The very low incidence of excitement or postanesthetic vomiting and of respiratory complications in our series is noteworthy.

The anesthetic concentration in the blood necessary for surgical anesthesia in dog or man is low, and the

lethal concentration in the dog is nearly two and one-half times the anesthetic concentration. The absolute difference between the anesthetic and the lethal concentrations in the dog for divinyl and diethyl ether is about the same. The anesthetic should be, however, carefully administered, since the lethal concentration of divinyl ether in the dog is only about one-half the anesthetic concentration of diethyl ether. The circulation is well maintained for a time after cessation of respiration.

In the human being we have encountered no untoward effects on the liver or kidneys but we have been careful to avoid its use in patients who were being operated on for disease of the biliary tract. The fact that in the dog it produces under certain conditions liver necrosis is not reason for undue alarm. Chloroform, which causes liver degeneration more easily and more extensively in the dog is more feared for its effect on the heart than on the liver. Furthermore, divinyl ether failed to produce liver necrosis in the monkey under any of the conditions imposed on it.

The anesthetic should be very useful in operations in which rapid induction and recovery with a minimum of after-effects are desirable. Its exact position in relation to the other general anesthetics now being used will have to await a more extensive clinical experience.

ABSTRACT OF DISCUSSION

DR. RALPH M. WATERS, Madison Wis. To have a new drug introduced with a study of some 500 cases before a clinical report is made of it is a rare thing in therapeutics in general. The authors have compared the drug to ether as to induction and recovery. It seems to me that that is not a very interesting thing about a new drug, unless it can be compared with nitrous oxide as to induction and recovery because I feel that nitrous oxide should be the criterion of present agents for induction and recovery. The authors have admitted liver necrosis in dogs. They have not found it in human beings. Liver necrosis has been one of the fears about the old agents and makes one worry a bit perhaps. Let me use what little time I have to tell about my experiences. My associates and I had a supply of the drug furnished us by Dr. Major of the Merck Laboratories Inc. in 1931 and we observed it early in 1932. We found not only these running movements at that time that the authors have mentioned but much more severe muscular activity which could almost be looked on as convulsive in type. We felt that the drug with which we were working must be a different drug from that with which Drs. Lerke, Knoefel and Guedel had worked and, therefore, dropped it. This spring, since the authors were to present a paper here, I was asked to observe the drug which they are using now. The drug was checked by sending some of the lot which was sent to me back to Dr. Rydman for verification of its identity. We find similar results with this drug to the ones that we had in 1932. That is in a certain percentage of dogs with which we have worked we have seen muscular phenomena that were not satisfactory as an accompaniment of anesthesia. In certain cases apparently we could not eliminate these muscular activities even by pushing the drug. Several dogs in the early part of the induction ran into some sort of circulatory disturbance which I find hard to describe but which came on suddenly early in the induction, resulting in the death of the dogs with the cessation of the heart action almost synchronous with the cessation of respiration. Dr. Meek has observed with the electrocardiograph some of these experiences and I hope that he may be able to give his opinion about the effect on the circulatory system, which I am not capable of discussing. From what little I have seen of the drug either I have mishandled it very severely or else the drug has some qualities that I think would not be well to introduce at this time into anesthesia for ordinary practical purposes.

DR. HENRY S. RYDMAN, Philadelphia. This anesthetic was sent to me by the manufacturers about two months ago at the suggestion of Dr. Rydman. Not having at hand the immediate facilities for animal experimentation in the laboratory I accepted the complete report of Dr. Rydman and his associates on his work at the University of Pennsylvania. To date I have attempted its use only in a series of ten patients. I have noticed a comparatively quiet induction with little excitement as compared to ethyl ether. Production of mucus was present in each case but not to the extent to provide annoyance. In every case there was produced an obstruction to respiration which persisted for varying lengths of time. This obstruction was interpreted as a laryngeal spasm because it was not relieved by the induction of artificial airways, nor was the type of phonation that which is caused by obstruction elsewhere in the respiratory passages. I also observed, as the authors mentioned, a wide range in the dosage required. This varied from 75 cc. for fourteen minutes of anesthesia in one patient to the other extreme of 75 cc. producing satisfactory anesthesia for forty-five minutes in another patient. By the ordinary clinical methods of observation of cardiac action, I could observe no deviation from the normal; no electrocardiograms were taken. There was a negligible variation in blood pressure. One experience I was unable to interpret. A woman, aged 25, an excellent physical risk was a subject for a simple bilateral salpingo-oophorectomy. After an induction of three minutes' duration I interpreted the anesthetic plane to be the middle stratum of the surgical stage. The corneal reflex had disappeared a very short time before, which coincided with previous observations that the corneal reflex with this agent disappears early. Oscillation of the eyeballs was still present. The color of the patient was normal, with no clinical signs of anoxemia. The circulatory status of the patient was excellent when suddenly there appeared a state of severe generalized convulsions during which, of course there was practically no tidal respiration whatever. After about a minute and a half from the onset of these convulsions her color began to grow dusky and then cyanotic in rapidly increasing degrees. The lungs were then gently inflated with 100 per cent oxygen which rapidly restored her color and in another moment or two the convulsions subsided. Ethyl ether was immediately substituted as the anesthetic agent and the operation was begun and brought to a successful conclusion devoid of any further complications.

DR. WALTER MECK, Madison Wis. I hesitate to say anything that will detract from a paper so well worked up as that of the authors which has back of it so much experience. My study was with some of Dr. Waters' animals, particularly in regard to the heart. In one case I found a heart block appearing certainly before the animal was at a surgical stage of anesthesia. In a second animal there was no heart block but there was considerable widening of the QRS complex and a split R. That would mean ordinarily that there had been some myocardial damage. A third dog showed the disappearance of heart beats simultaneously with cessation of respiration. The number of animal experiments is somewhat limited. There are only six or seven animals on which I have the straight cardiac study throughout. I may mention another case in which after the anesthesia, a stormy period was finally passed through and the heart then remained normal for a long time. The electrocardiographic results do not seem to be due to the showers of extrasystoles seen in chloroform anesthesia but an entirely different phenomenon an effect either directly on the heart muscle or, of course possibly through the vagus. It is not entirely clear which mechanism is involved. It might be said that the anesthetic had merely been crowded to the toxic stages. At least three of these animals, however, had not passed out of those curious running movements which were found so common in the dog before heart disturbances appeared. It must be realized, of course, that dogs are dogs and people are people, and this new anesthetic might not be very safe for the heart of the dog and still have no objectionable properties for man. I recognize this contingency, although I feel the danger of general cardiac involvements at the present time.

DR. CHAUNCEY D. LRAKE, San Francisco. It is gratifying to know from the studies reported by the authors that the predictions made for divinyl oxide have some reality in fact. I

think the discussion and the presentation of this paper are interesting from the standpoint of oxygen want. The majority of the experiments were performed with the drop method. I think the observations made by Dr. Waters and Dr. Meek on dogs were also made under the drop method. In this method it is necessary during the period of induction to use a much higher concentration of the anesthetic agent than is needed actually for anesthesia. That high concentration throws out the oxygen. I think that many of the experiences that have been described are due more to anoxemia than to a toxic factor in divinyl oxide if the divinyl oxide used was pure. In my own experimental studies in this agent, which were very extensive, I was early led to adopt a method of administration that precluded the possibility of anoxemia. Under those circumstances I found no untoward effects whatever as long as the material was pure. Divinyl oxide is manufactured from a chlorinated ether. Although it is stated that it is free from the presence of chlorinated ether, I think some samples nevertheless, may still retain traces of this agent. The chlorinated ethers are not at all anesthetic; they are very toxic. I have found it may be that the cardiac and liver effects described are due to traces of chlorinated ethers in the presence of anoxemia. I should like to ask the authors whether they noted clinically a degree of abdominal relaxation before intercostal paralysis occurred. This was a factor that I considered from the experimental standpoint, as being favorable for human anesthesia. I found in my own studies no liver kidney, cardiac, lung or any other significant pathologic injury whatever on repeated administrations at half hour intervals daily for as many as thirty days in dogs provided there was no anoxemia. The extensive mucous secretion to which reference was made is due, I think, to local irritation, which may again be caused by the possible presence of minute traces of impurities in the compound. Such impurities, Dr. Major informed me, may be formaldehyde or formic acid, which are extremely irritative in very small concentrations not detectable chemically. Any trace of any impurity, therefore, in the compound might be expected to induce deleterious effects, particularly if the agent is administered with anoxemia. It is my opinion that material that is to be used for human beings should be as the authors have said, first tried on experimental animals.

DR. RALPH M. WATERS, Madison Wis. I should like to correct a misunderstanding on Dr. Leike's part. Several of these animals under the electrocardiograph were anesthetized with pure oxygen as the vehicle.

DR. HIRSH E. ESSER, Rochester Minn. My observations of this anesthetic have been very limited. My experiments have been on rabbits and dogs. With rabbits I have found that induction and recovery are very rapid, but my experience has not been the same with the dog. Some dogs seem to go under easily and some do so with a great deal of difficulty. My experience with one dog would answer the description that Dr. Ruth gave of one of his patients. On another I used three bottles, 75 cc in each bottle and the dog was still struggling and it was necessary to switch to diethyl ether in order to get the animal anesthetized. Regarding recovery, my experience has been variable. Some dogs seem to come out quite rapidly and others take longer. I took dogs that were to be operated on, and put some under the divinyl ether and some under ethyl ether. The recovery period went from five to twenty-five minutes with the divinyl ether and many times it was not longer with the ethyl ether. There is one thing I noted as I gave the anesthetic by the open drop method and that was the irritating effect on the eyes of some of the assistants. One individual seemed particularly sensitive to this drug.

DR. JOHN S. LUM, Rochester Minn. I have used this agent only in operations for radical amputation of the breast, so that operative conditions might be as nearly similar as possible in each case. I have tried it with morphine and without, and with and without a barbiturate. I observed unilateral dilatation of the pupil of two patients which may have no relation at all to the drug. I observed a certain amount of rigidity of the jaw, a certain stertor that I was unable to avoid except in one case in which I finally got the jaw well forward and then the airway apparently was free. I have not yet discovered the proper method of administration of this particular agent unless it is that I have not provided a clear airway.

The consignment sent to the clinic was tested by Dr. Osterberg and found to be pure according to the tests for purity. In both rabbits and man anesthetized with this drug the same type of dispenser was noted.

DR. I. S. RABIN, Philadelphia. The discussion has unfortunately been limited to those who have had a very short experience with divinyl ether. My associates and I will be very happy if a year from now, when the various workers have had a wider experience with this substance, they will again report their results. In regard to liver necrosis, which Dr. Waters mentioned it should be recalled that the anesthetic was used in dogs in which two weeks previously an obstruction of the common bile duct had been produced. This is the type of lesion that in man at least would make one most fearful of extensive liver necrosis with an anesthetic that may produce injury to the liver. In none of the animals so treated did liver necrosis occur. Dr. Leike has brought out the factor of anoxemia and it is probable that certain of the running motions which we observed were associated with anoxemia. We do not believe that the liver necrosis was due to this. The circulatory phenomena which Dr. Waters and Dr. Meek described we have not experienced although we have made no electrocardiographic studies. In the dog and in the monkey, repeated sections were made of the heart muscle and there was no evidence of myocardial change in animals that had been subjected to long periods of anesthesia. It has been our feeling that there was no laryngospasm connected with this anesthetic. We have repeatedly introduced a bronchoscope during anesthetization with divinyl ether and had no difficulty getting through into the trachea of these animals. We observed no convulsions during divinyl ether anesthesia but I know that convulsions may occur even during diethyl ether anesthesia. The degree of abdominal relaxation in man is good—as good as that seen with diethyl ether. It would be interesting if Dr. Lundv and Dr. Essex would induce the anesthesia in Dr. Mann's anesthesia chamber by the method he uses for the induction of diethyl ether anesthesia. The experiences that we have had with this anesthetic in nearly 600 anesthetizations were on the whole very satisfactory. We at times observed the peculiar freezing of the jaw as stated in the paper, and also in man we had at times considerable mucus and some stridor. It has been our feeling that the latter was associated with a falling backward of the tongue rather than with laryngospasm because when a soft rubber airway was provided the difficulty immediately disappeared. If this is due to laryngospasm, it should not disappear. We presented this report because it seemed to us that this anesthetic agent might be useful in surgical practice. We wish to stress that final decision will have to await a much more extensive clinical experience.

The Use of the Senses—The lemon tint of pernicious anemia, not always readily distinguished from the more sallow tint of gastric malignancy, a disease which it may simulate in many other ways, is none the less characteristic. In gastric cancer it is more likely that there will be evidence of loss of weight, with the so called cachectic appearance, and a slightly bluish nose is a frequent feature. The brick-red facies of polycythemia sometimes simulating rude health at a first glance, but often with a tinge of blueness or purple to modify opinion, is quickly confirmed by turning down the deep-red eyelid just as we do in looking for the conjunctival pallor of anemia. The watery eye, the blotchy face and the reddish venous nose of alcoholism, sometimes with tremulous lips and tongue, may give the clue to a correct interpretation of digestive or nervous symptoms. Acne rosacea may likewise prompt a diagnostic of gastritis. The slightly drooping lids and wrinkled forehead of tabes, and the parkinsonian mask of paralysis agitans or past encephalitis with its flat unsmiling, sad, uncomfortable lack of expression (quite different from the puffy impassivity of myxedema), are strongly diagnostic. The dark greenish brown of chronic obstructive jaundice and the dirty muddy-brown pallor of uremia, whether due to chronic interstitial nephritis in a young man or to prostatic obstruction in an old are other examples of diagnostic color change.—Ryle, J. A. *The Training and Use of the Senses in Clinical Work*, *Guy's Hosp Gaz* 47:421 (Oct 28) 1933.

INFILTRATION VERSUS SPINAL ANESTHESIA IN OBSTETRICS AND GYNECOLOGY

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Obstetricians and gynecologists have only recently begun to use local anesthesia to any great extent. However, surgeons long ago recognized that it was advisable to avoid the use of inhalation anesthetics when operating on individuals with serious medical complications such as respiratory infections, heart trouble, kidney disease, high blood pressure and diabetes. Therefore, local anesthesia in some form was used for these cases. Later it became apparent that if local anesthesia was less hazardous for seriously ill patients it was also safer for individuals whose general physical condition was good.

DISADVANTAGES OF GENERAL ANESTHESIA

Briefly, the disadvantages of inhalation anesthesia are as follows:

- 1 No general anesthetic is perfectly safe. Therefore there is a definite though slight mortality. In a study of 148 deaths following gynecologic operations Bartlett and Simmons¹ found that eighteen, or 12.3 per cent, occurred on the operating table as a result of the ether. Of the eighteen patients who died only four were poor risks, but the rest were satisfactory subjects for a general anesthetic. The incidence of deaths from ether in 10,325 abdominal operations was 0.15 per cent or one death in 738 cases. Thornton² maintains that there is an increased incidence of deaths under anesthetics. He found the mortality rate to be 0.19 per cent for all general anesthetics. Kaye³ reported a series of 107 deaths which occurred during anesthesia, of which ninety-nine occurred under general and eight under local anesthesia. Of course, far more patients are operated on under general than under local anesthesia, but Rollison⁴ encountered six deaths during 6,062 general and no deaths in a series of 1,981 local anesthetics.

- 2 There is a distinct risk of pneumonia and other pulmonary complications.

- 3 Acidosis and alkalosis may result from prolonged anesthesia.

- 4 Shock may follow a long anesthesia.

- 5 Dehydration is common after prolonged anesthesia.

- 6 There is lowered resistance of the peritoneum to infection.

- 7 There is a toxic effect on the liver and other vital organs which makes inhalation anesthesia especially bad for women who have toxemias of pregnancy, cardiovascular disease, diabetes, goiter, hypertension and pulmonary disorders.

- 8 There are frequent gastro-intestinal disturbances after operation, especially vomiting, distention and "gas pains."

- 9 Under general anesthesia there is a tendency to mishandle tissues, and this may lead to complications such as thrombosis and embolism.

DISADVANTAGES OF SPINAL ANESTHESIA

Most surgeons who employ local anesthesia use some form of spinal injection. This method has the following disadvantages:

- 1 There is a definite mortality. Cooke⁵ says that spinal anesthesia "is apparently as judged by mortality statistics more dangerous than general anesthesia on the whole." Bower, Clark and Burns⁶ make the following statements: "Spinal anesthesia is responsible for more deaths than any other anesthetic in proportion to the number administered. Undoubtedly many deaths have occurred from the (spinal) anesthetic that have been attributed to other causes. Up to the present time there is no known method of absolutely preventing deaths from spinal anesthesia, but artificial respiration offers the best means of combating respiratory embarrassment and fall in arterial pressure." M. E. Babcock⁷ collected 215,000 cases of spinal anesthesia and in this series there were seventy-five deaths, or one in 2,867 cases. Through questionnaires, he received information that forty-six hospitals had had ninety-one deaths on the table and eleven after operation, all attributable to spinal anesthesia. Eighteen of these hospitals listed 15,652 spinal anesthetics with forty deaths on the table (one in 400 spinal anesthetics). Rapoport⁸ reports a series of 500 spinal anesthetics with nineteen pneumonias and seven deaths. Sise⁹ collected reports of fourteen deaths which occurred under 1,900 spinal anesthetics in Greater Boston during 1928. Bortone¹⁰ in eighty-five New Jersey hospitals found one death for every 1,628 general and one fatality for every 311 spinal anesthetics.

Generally the deaths due to spinal anesthesia occur shortly after the injection of the anesthetic. The fatalities are usually attributed to respiratory paralysis, to the position in which the patient is placed after the injection to a fall in blood pressure or to circulatory changes. However deaths may occur many days after the injection and still be due to this form of anesthesia, as may be proved by a study of the central nervous system.

- 2 The incidence of pulmonary complications is at least just as high as after inhalation anesthesia. In fact, Brown and Debenham¹¹ found that pulmonary complications, especially atelectasis, occurred 4.29 times more commonly after spinal (subarachnoid) anesthesia than after inhalation anesthesia, in spite of the fact that more "bad risk" patients were operated on under general anesthesia. The reasons for this are as follows: First, spinal anesthesia definitely inhibits the depth and force of respiratory movements, not only during the operation itself but also for some time afterward. It is these respiratory movements that tend to rid the tracheobronchial tree of foreign matter or secretions. Second, the normal viscosity of the secretions of the tracheobronchial tree appears to be increased, hence it is more tenacious after spinal anesthesia. Third, the patient tends to remain quiet for a few hours after an operation performed under spinal anesthesia, hence there is a greater possibility for the material in the tracheobronchial tree to obstruct a bronchus with the subsequent development of atelectasis. Arnheim and

5 Cooke W. R. *M. Rec. & Ann.* 23: 435 (June) 1929.

6 Bower John, Clark J. H. and Burns J. C. *Spinal Anesthesia* J. A. M. A. 100: 245 (Jan. 28) 1933.

7 Babcock M. E. *Anesth. & Analg.* 11: 184 (July-Aug.) 1932.

8 Rapoport B. D. *New England J. Med.* 199: 447 (April 19) 1928.

9 Sise L. F. quoted by Bevan²³.

10 Bortone F. *Anesth. & Analg.* 11: 256 (Nov. Dec.) 1932.

11 Brown A. L. and Debenham N. W. *Postoperative Pulmonary Complications* J. A. M. A. 99: 209 (July 16) 1932.

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1 Bartlett M. K., and Simmons, F. A. Jr. *Surg. Gynec. & Obst.* 55: 777 (Dec.) 1932.

2 Thornton Edward cited in Cape Town letter J. A. M. A. 100: 204 (Jan. 21) 1933.

3 Kaye Geoffrey. *M. J. Australia* 2: 579 (Oct. 19) 1929.

4 Rollison J. W. *M. J. Australia* 2: 580 (Oct. 19) 1929.

Mage¹² report that postoperative pneumonia occurred in 8 per cent of their 120 cases in which nupercaine spinal anesthesia was used. In the 338 cases reported by McKittrick, McClure and Sweet¹¹ there were eighteen cases of postoperative pneumonia, but since there were sixteen additional complications of the respiratory system the incidence of these complications was 10 per cent. They accounted for 40 per cent of all the complications in this series. The mortality rate in the group of postoperative pneumonias was 46 per cent. Since the incidence of pulmonary complications is at least as high as if not higher than after general anesthesia, spinal anesthesia should not be chosen in the hope of preventing these complications.

3 There is a definite toxic effect on the spinal cord and the spinal nerve roots which is manifested both clinically and pathologically.¹⁴ Davis, Haven, Givens and Emmett¹⁵ injected the most commonly used spinal anesthetics into the dural sacs of dogs and observed the following changes: a varying degree of inflammatory reaction in the leptomeninges, changes in the ganglion cells of the gray matter of the cord, swelling and fragmentation of the axis cylinders, and signs of degenerative changes in the fiber tracts of the cord. Myelitis and meningitis may result from an infection carried in with the needle or solution, but they may also occur in the presence of a generalized infection that tends to localize at the site of the lumbar puncture. There may be early and temporary effects such as headaches and mild paralysis of the oculomotor and abducens nerve. The late effects, which may appear months and years afterward, are paralysis of the sphincter ani and incontinence, spastic paralysis and paraplegia.

4 There is frequently a pronounced fall in blood pressure, which may be accompanied by vomiting, restlessness, pallor, cold sweat, weak pulse, shallow respirations and sometimes unconsciousness. In 10.8 per cent of the series reported by McKittrick, McClure and Sweet,¹¹ the fall in systolic blood pressure during the operation was 50 per cent or more of the preoperative level. In 25 per cent of these cases the blood pressure did not return to the preoperative level for at least twenty hours after the patients returned to their wards.

5 Nausea and vomiting occur in many cases during the course of the operation, and this may prove troublesome.

6 Headaches both temporary and persistent frequently occur after operation.

7 The uterus may fail to relax when this becomes necessary. In more than half the cases spinal anesthesia retards labor, necessitating operative intervention. This is most likely due to abolition of the sensory phase of the sensory-motor reflex, which normally brings the voluntary muscles into action.

8 Pregnant women are especially susceptible to complications after spinal anesthesia. This is the opinion of such authorities as Winter,¹⁶ Konrad,¹⁷ Pankow,¹⁸ Heim,¹⁹ Babcock²⁰ and others. De Lee²⁰ knows of

seventeen deaths in obstetrics from spinal anesthesia. Brindeau²¹ encountered two deaths due to spinal anesthesia in 102 cesarean sections, and Lull²² says "Of the fourteen cases (of cesarean section) done under spinal anesthesia two patients died before the operation was started." M. E. Babcock²³ also reports four deaths while women were undergoing abdominal delivery. Aside from the increased risk, it is technically difficult to administer spinal anesthesia to a woman at or near full term because of the impossibility of properly flexing the trunk.

9 After the drug has been injected into the spinal canal it is beyond control and, if alarming symptoms appear, the cause cannot be removed.

10 Special knowledge is required both for the injection of the drug and for the recognition and treatment of complications.

11 The method fails in at least 5 to 10 per cent of all cases. In Arnheim and Mage's²⁴ series, supplementary inhalation anesthesia had to be employed in 32.8 per cent of the cases. Deaver and Eckels²⁴ report that in their series of 2,302 cases additional anesthesia was required in as high as 32.3 per cent. In nearly all cases in which supplementary anesthesia is necessary, a general anesthetic is chosen. As McKittrick, McClure and Sweet¹¹ emphasize serious harm may result if proper care is not exercised in the administration of a general anesthetic when the field of operation is already anesthetized.

12 In some instances the danger of spinal anesthesia is greater than that of the operation itself.

13 Spinal anesthesia is hazardous in women with anemia and cardiac decompensation.

14 It cannot be used in cases of shock due to intra-abdominal hemorrhage, abruptio placentae or other causes.

15 Only a small proportion of physicians would be willing to submit to spinal anesthesia. As Bevan²⁵ points out, "the application, therefore, of the Golden Rule should limit spinal anesthesia to a narrow field."

16 Not only is the technic of spinal anesthesia not standardized but also there is no unity of opinion concerning the proper drug to be used. There are advocates of procaine hydrochloride, novocain (a brand of procaine hydrochloride), spinocaine (a non-Council accepted brand of procaine hydrochloride with strychnine sulphate), neocaine (a French brand of procaine hydrochloride), tutocain, nupercaine, stovaine (amylocaine hydrochloride B. P.), pantocain, apothesine and other substances, and this array indicates that no one drug is entirely satisfactory.

DISADVANTAGES OF INFILTRATION ANESTHESIA

1 Infiltration anesthesia cannot be used if the site at which the solution must be injected is infected or inflamed.

2 If it is known or suspected that many peritoneal adhesions will be encountered, infiltration anesthesia should not be attempted. Nevertheless in many cases this type of anesthesia may be used for most of the operation, aided by a short general anesthetic when the adhesions are being dealt with.

¹² Arnheim E. E. and Mage Sigmund. *Surg. Gynec. & Obst.* 54: 826 (May) 1932.

¹³ McKittrick J. S., McClure W. L. and Sweet R. H. *Surg. Gynec. & Obst.* 52: 898 (April) 1931.

¹⁴ Lindemulder F. G. *Spinal Anesthesia*. J. A. M. A. 99: 210 (July 16) 1932.

¹⁵ Davis Loyal, Haven Hale, Givens J. H. and Emmett John. *Effects of Spinal Anesthesia on the Spinal Cord and Its Membranes*. J. A. M. A. 97: 1781 (Dec. 12) 1931.

¹⁶ Cited by Heim.¹⁹

¹⁷ von Konrad E. *Zentralbl. f. Gynäk.* 52: 2111 (Aug. 18) 1928.

¹⁸ Heim K. *Monatsschr. f. Geburtsh. u. Gynäk.* 84: 45 (Jan.) 1930.

¹⁹ Babcock W. W. quoted by Eades M. F. *Am. J. Obst. & Gynec.* 23: 407 (March) 1932.

²⁰ De Lee J. B. *Year Book of Obstetrics and Gynecology* by J. B. De Lee and J. P. Greenhill. Year Book Publishers, Chicago. p. 175.

²¹ Brindeau. *Bull. Acad. de med. Paris* 95: 194 (March 2) 1926.

Brindeau Gagey and Schwaab. *Bull. Soc. d'obst. et de gynéc.* 18: 31 (Jan.) 1929.

²² Lull C. B. *Am. J. Obst. & Gynec.* 25: 426 (March) 1933.

²³ Arnheim E. E. and Mage Sigmund. *Ann. Surg. Gynec. & Obst.* 93: 929 (April) 1931.

²⁴ Deaver J. B. and Eckels J. C. *New England J. Med.* 203: 760 (Oct. 16) 1930.

²⁵ Bevan A. D. *The Present Status of the Anesthesia Problem*. J. A. M. A. 97: 1530 (Nov. 21) 1931.

3 This form of anesthesia should not be attempted in a woman who is exceedingly high strung and has in almost morbid fear when she is told that her operation will be performed under local anesthesia. Fortunately there are only a few women of this type. Their number can still further be reduced by properly preparing patients for this form of anesthesia. After all, local anesthesia is a relatively new procedure, and patients believe that they will see their operation performed, that they will hear all that goes on in the operating room and that they will experience much pain. A proper preparatory talk on the part of the operator is essential. The patient should be promised that her eyes will be covered so she will not see anything around her, that the conversation she will hear will not be gruesome or disagreeable, that the rattle of instruments and pans will be reduced to a minimum and above all that, if she feels much pain and so desires it, a general anesthetic will be administered to her. The operator should live up to his promises all the way through the operation or the patient may lose confidence, become hysterical and demand a general anesthetic. The chain of local anesthesia consists of the operator, his assistants (including physicians and nurses), the patient and the local anesthetic. The most important link in the chain is the operator himself. He must first of all convince himself that local anesthesia is the safest and simplest of all anesthetics. He must learn the simple technique and, above all, must be willing to sacrifice the extra time and physical and mental effort that operations performed under local anesthesia demand.

ADVANTAGES OF DIRECT INFILTRATION ANESTHESIA

1 There is practically no mortality due to this method. The number of fatalities reported in the literature as having occurred after infiltration anesthesia is extremely small and in most instances the drug responsible for these deaths was cocaine. As far as I know, this drug is never used for obstetric or gynecologic operations at the present time.

2 There are no pulmonary complications directly attributable to this procedure. It is of special importance in the delivery of women who have pulmonary disorders such as tuberculosis, bronchitis, asthma and influenza. It is also an advantage in the delivery of women who have eclampsia and preeclampsia, because these patients are particularly susceptible to pneumonia. This type of anesthesia is most helpful during the seasons of the year when grip and pneumonia are prevalent. One of the chief reasons for the absence of pulmonary complications is the fact that the lungs are well aerated not only during delivery or operation but also afterward. Frey²⁶ reports a series of 281 cesarean sections performed under direct infiltration anesthesia without the occurrence of pneumonia in a single instance, whereas in the seventy-two cases in his series in which general anesthesia was used, five patients developed pneumonia. I have performed 111 cervical cesarean sections under direct infiltration anesthesia without the occurrence of postoperative pneumonia or a fatality. However, two women in my series of cesarean sections developed pneumonia after ether anesthesia and both recovered.

3 There are no local or general complications. There are only three possible sources of trouble and fortunately I have never seen any. A needle may break during an injection, especially if an old or rusty needle

is used. To prevent this, only good needles should be employed. Furthermore, since a needle practically always breaks near the hub the needle should never be inserted its full length so that, should it break off, it can readily be extracted. The second possible source of trouble is the injection of the solution directly into a vein. This might cause disturbing symptoms, which, fortunately, last only a short time. To avoid this, one should, before injecting the solution into any area, always pull up on the plunger of the syringe to see whether any blood is drawn into the barrel of the syringe. If blood is seen, a new area must be selected for the injection. Furthermore, the needle should be kept in constant slow motion while the solution is being injected. The third possible complication is an idiosyncrasy against the drug used. I always employ procaine hydrochloride (novocain). In Mayer's²⁷ analysis of forty-three unreported deaths from local anesthesia, cocaine was responsible for twenty-six fatalities but procaine hydrochloride even though it is used far more frequently than any other local anesthetic, caused only one (possibly two) of the fatalities.

4 The technique is simple and may be employed in a home as well as in a hospital.

5 There is no bad effect on such vital organs as the liver, lungs, heart, circulatory apparatus and central nervous system.

6 No special knowledge is required. The physician himself carries out the procedure and he is therefore not dependent on another individual.

7 No special after-care is required, as is necessary after general and spinal anesthesia.

8 There is a striking reduction of bleeding in the field of operation so that the amount of blood lost is almost negligible.

9 There is no interference with the action of the uterus, of the abdominal wall, or of respiration.

10 Gastro-intestinal symptoms after operation are uncommon.

11 Patients may take liquids and carbohydrates before during and after the operation.

12 Infiltration anesthesia enables one to operate on very sick persons and on old ones.

13 There is seldom need to hurry through an operation, hence more attention can be paid to proper suturing.

14 The tissues must be handled gently, this is advantageous to the patient.

15 There is less wound infection, owing to diminished local trauma and to the fact that the patient's general resistance has not been lowered.

16 Electrical apparatus such as the cautery may be used without fear of an explosion.

17 It permits the performance of minor operations in a physician's office.

18 It eliminates the fear of an operation in some cases.

INDICATIONS FOR LOCAL ANESTHESIA

The notion that local anesthesia should be used only when there is some contraindication to the employment of general anesthesia is still too prevalent. Therefore individuals with cardiac or renal disease, pulmonary complications, severe diabetes, toxic goiter, marked anemia and those well advanced in years are the ones chiefly selected as candidates for local anesthesia. In obstetrics, the women especially chosen for this type of anesthesia are those who have pulmonary complica-

tions or toxemia of pregnancy, notably preeclampsia or eclampsia. In gynecology it is the 'poor risk' patients who form the subjects. However, local anesthesia is being used more and more by some obstetricians and gynecologists, and it may not be a wild prophesy to suggest that the time will come when instead of saying 'Local anesthesia should be used when general anesthesia is contraindicated' one will say 'Inhalation or spinal anesthesia should be employed only when infiltration anesthesia cannot be used'.

Obstetric operations that may be performed under infiltration anesthesia are the following:

- 1 Dilation and curettment for incomplete abortion, therapeutic abortion, hydatidiform mole, missed abortion and other reasons
- 2 Spontaneous delivery
- 3 Episiotomy and repair
- 4 Repair of childbirth lacerations, both recent and old
- 5 Low forceps delivery
- 6 Cesarean section, classic or cervical type, before or during active labor
- 7 Porro's hysterectomy
- 8 Anterior vaginal hysterotomy (vaginal cesarean section)
- 9 Sterilization, abdominal and vaginal

Gynecologic operations that may readily be done under infiltration anesthesia are the following:

- A Vaginal
 - 1 Removal of Bartholin gland
 - 2 Vulvectomy
 - 3 Dilation and curettment
 - 4 Anterior colporrhaphy
 - 5 Posterior colporrhaphy
 - 6 Repair of third degree laceration
 - 7 Operations on the cervix such as amputation or the Sturmdorf operation
 - 8 The Watkins-Wertheim transposition operation
 - 9 Repair of vesicovaginal or rectovaginal fistula
 - 10 Vaginal hysterectomy
- B Abdominal
 - 1 Salpingectomy and oophorectomy
 - 2 Supracervical hysterectomy
 - 3 Defundation
 - 4 Suspension of the uterus
 - 5 Myomectomy
 - 6 Ectopic pregnancy
 - 7 Appendectomy
 - 8 Sympathectomy
 - 9 Exploratory laparotomy

TECHNIC

Needless to say the surgical preparation of the vagina or of the abdomen is the same as that when inhalation anesthesia is employed. Usually my obstetric patients are given a hypodermic of one-fourth grain (16 mg) of morphine and $\frac{1}{200}$ grain (0.3 mg) of scopolamine about fifteen minutes before the infiltration of the local anesthetic is begun. Thus far I have never seen any harm to the mother or to the baby from this procedure. My impression is that the babies which seem to show the evil effects of morphine are those delivered from two to four hours after their mothers have received the drug. The babies born within an hour of the injection are rarely affected. The patients who are to have gynecologic operations are given one-fourth grain of morphine and $\frac{1}{200}$ grain of scopolamine seventy-five minutes before and one-sixth grain (0.01 Gm) of morphine and $\frac{1}{200}$ grain of scopolamine thirty minutes before the operation. The narcosis due to morphine persists for a variable length of time after the operation is ended, and this usually ensures sleep or at least comfort for some time after the patient's return to bed.

The patient should be made as comfortable as possible during the operation. Hence abundant pillows should be placed on the operating table, especially under the back and around the shoulders where braces are usually applied. The knees should be tied down gently, but the arms need only be placed in a loose sling alongside the body. Generally a trained anesthetist or a nurse sits at the head of the patient, fans her face if she feels warm, places cracked ice in her mouth if she is thirsty and encourages her from time to time if this is necessary. The operator likewise should talk to the patient occasionally unless the patient tends to become drowsy from the morphine. In this case no undue noise should be made during the remainder of the operation.

For the local anesthetic, 0.5 per cent procaine hydrochloride is used although 0.25 per cent is almost as effective. To this solution after sterilization 2 drops of 1:1,000 epinephrine is added for each ounce. The amount of solution made up will depend on the type of operation to be performed. For small vaginal operations such as episiotomy, repair of lacerations, dilation and curettment, plastic operations and low forceps operations, not more than 4 ounces (120 cc) is usually necessary. For laparotomies including hysterectomy and cesarean section, between 6 and 10 ounces (180 and 300 cc) must be used. It is advisable to make up a little more solution than is usually necessary.

The description of the technic used for the various vaginal and abdominal operations may be found in my previous papers²⁸ on this subject and those by Gellhorn,²⁹ one of the pioneers in this field, and by Falls³⁰

CONCLUSIONS

The foregoing comparison between inhalation, spinal and infiltration anesthesia tends to show that infiltration anesthesia is by far the simplest and safest of all types and spinal anesthesia the least satisfactory. It is not urged that infiltration anesthesia be used as a routine for all obstetric and gynecologic operations, but a plea is made for the more widespread use of this form of anesthesia. Increased use of infiltration anesthesia will certainly reduce the incidence of postpartum and postoperative mortality and morbidity.

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ABSTRACT OF DISCUSSION

DR JOSEPH B. DE LEE, Chicago. Dr J. Clarence Webster was the first to do a cesarean section in Chicago under local anesthesia. At the Lying-in Hospital we have done eight or nine hundred cesarean sections under local anesthesia. Not one patient has died from the anesthetic. I insist in our hospital that the solution be made by the supervising nurse in the operating room so that there is a direct carrying of the medicine by the nurse to the operating table. When nurses and doctors have the direct care of their patients, they are more particular about details. We have never had pneumonia, bronchitis or edema of the lungs following anesthesia unless the patient was operated on under local anesthesia because of the existence of a bronchitis or a pneumonia. There is an inherent objection to an operation without an anesthetic, inherited from the past. Dr Greenhill referred to the fact that some people, fearing general anesthesia will permit operation under local anesthesia.

- 28 Greenhill J. P. Internat. Clin. 4: 171 (Dec.) 1925. Porro Cesarean Sections Under Local (Infiltration) Anesthesia. J. A. M. A. 90: 1023 (March 31) 1928. Am. J. Obst. & Gynec. 19: 613 (May) 1930. Surg. Gynec. & Obst. 53: 547 (Oct.) 1931. South. M. J. 26: 37 (Jan.) 1933.
- 29 Gellhorn, George. Local and Spinal Anesthesia in Gynecology and Obstetrics. J. A. M. A. 61: 1354 (Oct. 11) 1913. Surg. Gynec. & Obst. 45: 105 (July) 1927. 51: 484 (Oct.) 1930. Am. J. Obst. & Gynec. 23: 908 (June) 1932.
- 30 Falls F. H. Am. J. Obst. & Gynec. 20: 310 (Sept.) 1930.

but this is the exception. One method that I used to overcome prejudice against local anesthesia was to let the women read affidavits signed before a notary, written by women who had had local anesthesia, a day or two before the operation, so they could talk them over with their friends, and then I would introduce a woman who had been operated on under local anesthesia. Another method was the use of music to get the woman's mind off the operation. It gave them a new slant on the situation. That they could listen to music during an operation was a new idea and did more to win the women over to local anesthesia than listening to the music itself. A great many women did not like the music, as it irritated them. About 50 per cent of the women enjoyed it, and curiously they liked high class music, they did not like jazz or orchestras but chamber music best. I found that Kreisler's Vienna caprice was the most popular of all. Now the radio is available, and since the music in the room annoys me when I operate, I have ear-pieces for the patient. The idea of music in operations is not new. I have a picture of a savage woman in the heart of Africa having a baby while her women friends are sitting around thumping on tom toms. I don't know whether they are thumping on the tom toms to drive away the evil spirits or to get her mind off her troubles. Other difficulties come in the operation itself. The doctor must inject his personality into his work. There is no better opportunity than in local anesthesia. One who gets the patient's confidence can accomplish a great deal. Talking during an operation is bad asepsis, one can spit through the mouthpiece and infect the wound. But it is good to encourage the patient with one's voice and one should cover the mouth with an extra two or three layers of heavy cloth. Gentleness is of great importance in operating. One should not pull and tug.

DR F H FALLS, Chicago. Dr Greenhill didn't stress sufficiently the fact that one may have considerable vomiting and straining during local anesthesia and many times one has to give up and resort to general anesthesia because of it. As to the question whether local anesthesia ought to be used in a case in which one can just as well use general anesthesia, I would prefer ether anesthesia. It takes longer to do the same operation under local anesthesia and in spite of music and the various methods of distracting the patient's attention, first stressed in this country by Dr Farr of Minneapolis, many patients do remember certain facts about the operation. They have a certain amount of pain and nervous apprehension, and if one can as well use general anesthesia I believe one should. Unquestionably, local anesthesia increases the operative time. In gynecologic practice, particularly in older women, I think it ought to be stressed that local anesthesia has its greatest value. I have removed an intraligamentous ovarian cyst as large as a basketball in a woman 65 years of age and she did not know that she had been in the operating room. I always precede local anesthesia by the use of morphine, $\frac{1}{4}$ grain (16 mg), and scopolamine, $\frac{1}{150}$ grain (0.4 mg), one hour before operation and repeat the scopolamine one-half hour later. The patients come to the operating room so depressed by the morphine and scopolamine that, if local infiltration is added, they frequently have no memory of the operation or of any immediate postoperative discomfort. It is important to remember that one cannot get as good results in a strange hospital, using local anesthesia. I found that operating at the County Hospital it is much more difficult to get the result than it is to get it at my own clinic in the Research and Educational Hospital at Illinois. A trained personnel is required to assist in doing this type of work. Every detail must be carefully followed out and time, patience and gentleness are required of all participants. One must be careful to examine patients that one is going to operate on under local anesthesia for a possible underlying thyrotoxicosis. I had two patients who developed thyroid shock following local anesthesia, in whom the latent goiter symptoms were not noticed preoperatively.

DR J P GREENHILL, Chicago. Dr DeLee mentioned Webster as a pioneer in the use of local anesthesia. Another pioneer to whom a great deal of credit is due for repeatedly showing the great value of local anesthesia is George Gellhorn of St. Louis. Dr DeLee reported some bad results with the accidental use of 5 per cent procaine hydrochloride. Most operators who use procaine employ a 0.5 per cent solution but

almost the identical results may be obtained with a one third or even 0.25 per cent solution. I agree that it is advisable in most cases, but by no means all, to talk to the patient during the operation. A little encouragement now and then is necessary for some patients. A few individuals become drowsy and fall asleep before the operation is ended. Preceding gynecologic operations, the patients are given morphine not later than forty-five minutes before the operation and most of the patients come into the operating room very drowsy. As explained in the paper, chief reliance is placed on morphine for the obstetric patients also. Older women are particularly good subjects, as Dr Falls brought out. Operations, particularly vaginal ones, may be performed on elderly women without any difficulty at all and most of the patients sleep practically all the time during the operation. I take exception to what Dr Falls said about the necessity for a trained personnel. I agree that in many hospitals there is difficulty getting proper paraphernalia for local anesthesia, but in reality all that is needed is two or three good syringes and a few long needles in addition to the local anesthetic. The operator himself does all the injecting but he must warn the assistants to be gentle and deliberate in all their manipulations.

LOCAL INFILTRATION ANESTHESIA OF THE PROSTATE PRELIMINARY TO RESECTION

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In the early fall of 1932 we had under our care an elderly patient with a fibrotic contracture of the vesical orifice occurring several years after prostatectomy. Cystoscopic examination revealed no prostatic recurrence but a relatively small amount of scar tissue producing a considerable degree of obstruction. The patient also had marked coronary disease, which, a medical consultant felt, constituted an anesthetic risk out of all proportion to the proposed operative risk of transurethral resection. Using only a topical application of cocaine, we quickly resected four or five small pieces of tissue from the floor of the vesical orifice with the McCarthy electrotome. Save for moderate pain during the time the cutting current was actually in use, the patient did not experience any great discomfort, making an uneventful recovery with satisfactory functional results. In retrospect, it occurred to us that, if the tissue to be resected could be infiltrated with procaine as is done with the needle in the Caulk punch, the operation could be carried out painlessly with no other risk than that entailed by the resection itself.

We therefore made an instrument for this purpose by securing the distal portion of a 21 gage hypodermic needle in the end of a No. 6 ureteral catheter. Using this in a catheterizing cystoscope, we infiltrated the tissue about the vesical orifice with procaine hydrochloride in our next case of contracture and elevation of the vesical orifice. The tissue was resected without pain. Shortly after, we found an earlier report by Frischer describing a similar needle attached to a flexible metal tube which could be used through a cystoscope. Still earlier, in 1926, Hyams devised a method to be used endovesically preliminary to diathermy.

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Read before the Section on Urology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 15, 1933.

It then occurred to one of us (W) that a needle on a straight tube might be substituted for the cutting loop in the electrotome, thus eliminating the use of two separate instruments. Such a needle was made for us by a jeweler. It gave satisfactory results until we attempted to use it on a moderately well developed lateral and median lobe hypertrophy of the prostate. After the first few cuts were made we found that infiltration had not been extensive enough. We then found a description of Ryall's needle for use in his resectoscope in which the needle and lens system travel together during the excursion of the rack and pinion device.

Knowing that suprapubic prostatectomy had been successfully done under local infiltration from above, we felt that transurethral resection under local infiltration anesthesia would be successful if the gland could be injected deeply enough. The fact that the needles we were using operated almost parallel to the long axis of the urethra seemed to offer the explanation as to why the deeper portions did not become anesthetized. If a needle could be introduced into the prostatic urethra and then turned at a right angle to the sheath of the instrument, it could be plunged far enough into the prostate to give anesthesia of proper depth.

An instrument of this principle, designed by one of us (W), was therefore made and has been used by us. While the needle did not actually operate at a right angle to the resectoscope sheath, it deflected at a sufficiently acute angle so that it would enter at least 1.5 cm into the prostatic tissue. The details are shown in figures 1 and 2. The outer sheath has the same diameter as the cutting loop and is a little shorter. The back end of this tube is secured by a small key, which slides over the front of the rack of the resectoscope. The inner end comes almost but not quite to the floor

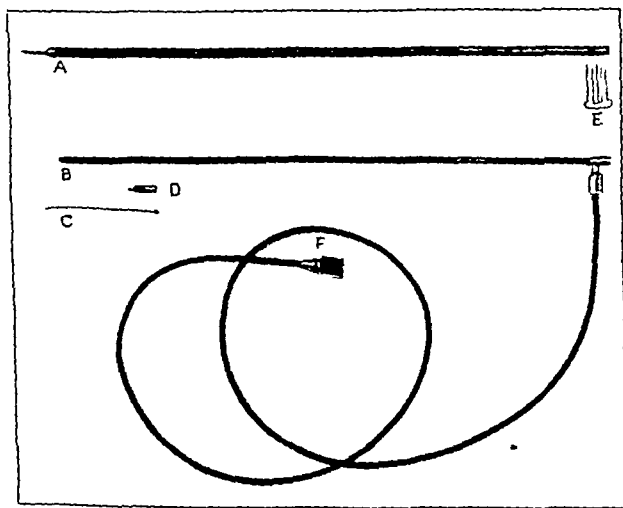


Fig 1—Parts of infiltrator. A, outer deflecting tube; B, inner needle-bearing tube; C, needle; D, tape that fastens needle to tube; E, key that secures outer tube to rack of electrotome; F, syringe connection.

of the fenestrum of the resectoscope sheath. This inner end tapers off to a deflecting tube of 18 gage. Into this outer deflecting tube, the needle-bearing tube is inserted before the instrument is fastened in the resectoscope. The needle itself, a 25 gage detachable dental needle of rustless steel, screws on to the end of the inner tube, which is then inserted into the outer sheath. The assembled device is placed into the slot in the resectoscope customarily occupied by the cutting

loop. The outer deflecting sheath is secured behind by a key fastened over the rack, while the inner needle-bearing tube slips in behind to the set-screw which usually clasps the electrode. A small tap connected to a short urethral catheter screws in the side of this needle-bearing tube just in front of the set-screw. The other end of the catheter is attached to a 10 cc luer syringe. The entire assembled mechanism is then placed in the bakelite sheath of the McCarthy electrotome after the latter has been introduced in the urethra. Thus, when the pinion is pulled clear back, the needle

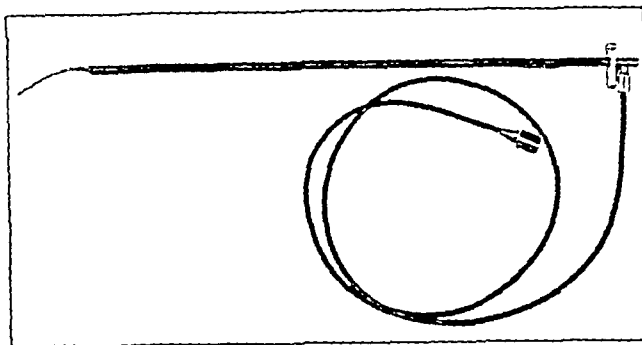


Fig 2—Infiltrator fully assembled ready to insert in electrotome.

is entirely concealed within the deflecting outer tube so that the resectoscope can be moved to and fro at will. When the desired field is seen in the lens system, the pinion is moved forward. This introduces the needle under direct vision into the prostatic tissue at a sufficiently acute angle so that it penetrates the gland quite deeply, as shown in the roentgenogram of a post-mortem specimen (fig 3).

Our procedure is as follows. The customary pre-operative narcotic is given. Half an hour before operation, 15 cc of 2 per cent metyline solution is introduced by catheter into the bladder following thorough vesical irrigation. If previous cystoscopic examination has demonstrated good bladder tolerance to distention, this may be omitted. When the patient is draped, the urethra is irrigated and anesthetized with three 15 mg cocaine hydrochloride tablets introduced through the Lewis dry applicator. The resectoscope is then placed in the urethra armed with the needle instead of the cutting electrode. Starting on the floor of the prostatic urethra at the margin of the vesical orifice, the needle is introduced into the prostate. After suction has been made with the syringe, to make sure that the needle is not in a blood vessel, 2 per cent solution of procaine hydrochloride (with 0.3 cc of 1:1,000 solution of epinephrine to 30 cc of procaine) is injected. From 1 to 4 cc is usually injected at each introduction of the needle. The needle is withdrawn and reintroduced a little distally. The floor of the prostatic urethra is thus infiltrated outward as far as the verumontanum. The lateral lobes are then infiltrated. Some bulging and blanching of the tissues are noticed if the needle is superficially placed beneath the mucosa. If deeply embedded, such is not the case. It never seriously interferes with vision or subsequent cutting. We have used as little as 6 cc for the complete anesthesia, and as much as 85 cc. The exact amount required depends on the quantity of tissue to be resected. From 20 to 30 cc is a fair average. Five or ten minutes is the usual time required. Just as success grows by continued experience with resection, so does the efficacy of anesthesia increase by its continued use.

We have not noted any immediate untoward systemic action from the procedure, nor have we as yet been aware of an intravenous injection. There is usually a slight transient acceleration of the pulse. The infiltration causes little or no pain. We have not observed any increased tendency to postoperative hemorrhage by the use of epinephrine in the solution, though it may give a clearer operative field. We must mention, however, that the only resection we have ever performed which required subsequent cystostomy to control postoperative hemorrhage was done under local infiltration. This occurred six hours after operation, the urine being only faintly pink until a sudden massive hemorrhage developed.

INDICATIONS

Local infiltration produces adequate anesthesia for resection of contracture and elevation of the vesical orifice, median bar and middle and lateral lobe hyper-



Fig. 3—Roentgenographic appearance of lateral lobes of prostate infiltrated with sodium iodide. Diffuse penetration of solution through out entire lobe may be noted.

trophy. While we have employed it on large adenomatous hypertrophies, we do not advocate its use in such cases as a routine. We believe that local infiltration anesthesia is particularly useful on patients with some systemic contraindication to inhalation or spinal anesthesia. The immediate risk of these anesthetics to the patient with marked arteriosclerotic heart disease is at times equal to or greater than the operative risk itself. On the other hand, we have not found that local infiltration has any effect on the incidence of postoperative complications (other than those directly connected with inhalation or spinal anesthesia).

CONTRAINDICATIONS

Extreme vesical intolerance to distention, demonstrated by preliminary cystoscopic examination, constitutes a serious objection to local anesthesia, as does intolerance to urethral instrumentation. While the prostate itself may be satisfactorily anesthetized, the bladder and urethra cannot be so well handled. Very

large, adenomatous prostates, the resection of which requires a long time, are not particularly suitable for local infiltration. A series of twenty consecutive resections was completed before we finally had to resort to transsacral anesthesia because preliminary cystoscopic examination and overdistention were so painful. Extremely nervous, excitable or uncooperative patients should not be subjected to resection under local anesthesia. Concurrent diabetes may also be a valid contraindication, though our experience with this is limited to one patient, whose convalescence was uneventful.

COMMENT

Infiltration anesthesia on any part of the body may be unsuccessful, this applies likewise to a certain percentage of prostatic cases. There are, however, other objections which might be raised. Foremost is the possibility of disseminating infected fluid throughout the gland. The needle may be sterile, but its point passes through a potentially infected medium before entering the gland. Indeed, we have found methylene blue, injected experimentally in autopsy specimens clear out to the periphery of the prostate, though the needle penetrated only 1.5 cm. While our experience is not large, we have found that in actual practice this objection is largely academic. Regardless of the type of anesthesia, a denuded surface follows resection, yet serious infection is the exception rather than the rule. Convalescence is no different following infiltration than after other anesthetics. It is possible, however, that future experience may alter our views.

One might also object that infiltration would produce enough local edema to impair vision or retard cutting. We have had no difficulty with vision. What theoretical problems are presented to the electric current, such as increased resistance, we do not know, but we have not observed any diminution in the electrode's ability to remove loops of tissue when the cutting current is applied. Bleeding is often though by no means always, somewhat diminished. Coagulation of vessels is not hindered.

Accidental intravenous injection of procaine may be avoided by routine aspiration after the needle is introduced and before injection is made.

If flexible rustless steel 25 gage needles are used, we do not believe that bending of the needle itself constitutes serious danger of breaking. In an autopsy specimen we inserted the needle as far as possible into a lateral prostatic lobe, exactly as one would do in practice, and then deliberately moved the entire resectoscope to and fro in the urethra with the rack and pinion held tightly, exactly as one would not do in practice. The specimen was then opened. The urethra was, of course, badly lacerated. The needle was twisted and bent but not broken. This test was far more extreme than any demands placed on the needle in actual practice. The needle itself, being detachable from its carrier tube, may be changed at each operation if one so desires. We used one needle in fifteen cases, changing it thereafter as a matter of precaution.

RESULTS

We have done thirty-three resections under local infiltration anesthesia. One lasted ninety minutes with good anesthesia to the end, though this is an unusually long duration. The majority experienced only slight discomfort. In only one case did gas have to be administered because of insufficient anesthesia.

The amount of tissue removed at each resection varied from 1 to 20 Gm.

COMPLICATIONS

In this series of resections we have had three serious complications with recovery and two deaths. One patient developed femoral phlebitis two weeks after operation. Another had a postoperative hemorrhage as previously mentioned while a third had facial erysipelas with recovery. Erysipelas caused the death of one patient. An epidemic of erysipelas was present at the time and we do not believe that it can be directly charged to the type of operation. The second death was due to hemiplegia twenty-four hours after operation on a man of 85. He had marked arteriosclerosis without hypertension and was uræmic on admission to the hospital. His renal function improved with preliminary catheter drainage so that we thought the risk justifiable. While death was unquestionably an after-math of resection we are inclined to believe that the choice of anesthesia was not a factor.

SUMMARY

An instrument is presented to produce infiltration anesthesia of the prostate preliminary to transurethral resection. Its essential feature is that the needle deflects at an acute angle, permitting deeper anesthesia than we have obtained when using needles operating parallel to the long axis of the resectoscope and urethra. Its chief field of usefulness lies in obviating the immediate danger of inhalation, spinal or sacral anesthetics in certain bad risk patients.

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ABSTRACT OF DISCUSSION

DR G. J. THOMPSON, Rochester, Minn. The advantages of local anesthesia over spinal or general anesthesia are obvious. Many of the headaches and gastric upsets that occur during and after operation under spinal anesthesia can be avoided by resorting to local anesthesia. During the last two years Dr Bumpus and I have performed 450 operations and have usually employed spinal anesthesia. In spinal anesthesia for transurethral prostatic resection only a small amount of procaine need be used in most instances, for aged patients metabolize procaine slowly. Recently we used 50 mg of procaine hydrochloride in 2 cc of spinal fluid and resected 26 Gm of tissue in a period of forty-five minutes, the anesthesia lasting very satisfactorily. The disadvantages in this method are the time consumed, the distortion of landmarks by the infiltration, and lack of relaxation of the vesical neck. I am sure the relaxation produced by spinal anesthesia is of great value for it permits the introduction of the instrument with a small amount of trauma, a factor of great importance in minimizing postoperative fever and toxemia. The necessity of supplementing this method with other forms of anesthesia is the only other disadvantage of which I can think.

DR H. M. STANG, Eau Claire, Wis. The idea of local infiltration of prostatic bars or small papillomas at the vesical neck is not new but the method of doing it was cumbersome and the procedure was not very successful. The authors present an instrument that will prove satisfactory in the hands of men who are doing prostatic resection and no doubt it will be of benefit in selected cases. Many operators will undoubtedly use the method that they have found successful, the spinal, trans-sacral or gas-oxygen anesthesia. I do not see any contraindications to this method except the manipulations necessary and the time consumed in the added manipulation in the urethra.

DR JULIUS FRISCHER, Kansas City, Mo. I wish to show that the old needle has been improved on. At first, my chief inducement to the use of prostatic anesthesia was that I would operate under local infiltration. With the advancement of transurethral work regional anesthesia such as caudal, sacral and spinal was added. Even now many patients object to these types of anesthesia but will submit to prostatic resection if I am willing to use local anesthesia. Ninety per cent of my cases have been

successfully handled with local infiltration anesthesia. It has been only during the past year that I have employed some regional methods of anesthesia. Preliminary to operative procedure when bladders are infected I have always been careful to have as clean a field as possible. The patients are prepared in the following manner: They are given sodium amytal, 3 grains (0.2 Gm.) on retiring the night before the operation, another 3 grains in the morning and one-fourth grain (0.016 Gm.) of morphine one hour before the operation. Four separate injections are made through the urethra into the bladder, 1 ounce (30 cc.) of a 2 per cent solution of procaine hydrochloride in physiologic solution of sodium chloride being used. These injections are made at fifteen minute intervals just prior to the operative procedure. For infiltration I make four separate injections of 5 cc each of a 1 per cent solution of procaine hydrochloride in physiologic solution of sodium chloride directly in the field in which I am resecting or coagulating. Local anesthesia is accomplished by means of a long flexible needle used through the operating cystoscope, the operating urethrocystoscope or the proctoscope. This needle is made of a flexible silver tubing, covered with a spiral sheath which makes it sufficiently resilient to penetrate fibrous tissues. The needle proper is 1.125 cm long, 20 gage and the shaft is 9 F caliber. The entire needle measures 15 inches in length. This added length facilitates local and infiltration anesthesia for other conditions about the ureteral orifices and in the bladder proper. I have found this needle practical because it can be sterilized by boiling because it accommodates the Luer lock syringe, and because it is flexible yet resilient and is very durable.

DR GEORGE H. EWELE, Madison, Wis. At the Detroit meeting I presented a method for transurethral anesthesia and am sorry that many of my friends misunderstood me. I was trying to differentiate between spinal and sacral anesthesia. What I was doing was introducing into the dural sac from 50 to 75 mg of procaine hydrochloride, and the procedure is carried out with the patient in the sitting posture. It can be done in any space one wishes, for the solution is very heavy and will not run to the tip of the dural sac. If the patient is allowed to remain in the sitting position for ten minutes one can put him in any position one wishes and the fluid will not travel. I have never yet experienced any change in blood pressure, because the anesthesia does not go above the sacral nerve.

DR J. A. HAYES, New York. There is no doubt that anesthesia by direct injection is a valuable aid in the treatment of urethral and urethrovaginal pathologic conditions. At the annual meeting of the American Urological Association in Boston in 1926, Dr McCarthy presented an instrument called the hypodermic electrode devised by me for making such direct injections. The instrument is of two types, one flexible the other rigid, each threaded for a tiny detachable needle, which can be used for the injection of an anesthetic or the application of diathermy. On the distal portion there are two terminals, one for attachment of a Luer syringe, the other for connection with the cord from a diathermy apparatus. The flexible type is made by Bard & Company, the rigid by the American Cystoscope Makers. They differ very little in principle from the instrument shown by Dr Frischer. I use the instrument for anesthetizing and the endo-urethral removal of inflammatory tissue excrescences, polypoid cystic elevations and small projecting portions of prostatic tissue remaining after prostatectomy. The use of infiltration anesthesia preliminary to the removal of such cicatricial obstructions as fibrous elevations at the posterior vesical lip and coarctations of the vesical sphincter has advantages. For resection of the larger types of hypertrophy of the prostate unless warranted by existing conditions, the added traumatism, possible dissemination of infection, and increased danger of secondary bleeding can hardly compensate for the slight difference in risk between this and caudal or transsacral anesthesia.

DR W. N. WISHARD, JR, Indianapolis. The question of the time element has been brought up. This has never been very great, ten minutes being the usual period. We do not wish to cast any reflections on spinal or caudal anesthesia. We have used both and have had no trouble, but we have always had some apprehension until the patient was back in bed. We have used epinephrine in several cases, it seemed to help in preventing the immediate hemorrhage and did not cause delayed bleeding.

GRANULOMA COCCIDIOIDES

FURTHER OBSERVATIONS ON THE USE OF ANTIMONY AND POTASSIUM TARTRATE AND THE ROENTGEN RAYS IN TREATMENT, REPORT OF AN ADDITIONAL CASE

C C TOMLINSON, M D

AND

PAUL BANCROFT M S

OMAHA

It is our purpose to present evidence supporting that brought forth previously, first by Guy and Jacob¹ and later by ourselves, indicating that antimony and potassium tartrate, given intravenously, combined with roentgen therapy, applied locally, is of value in the treatment of granuloma coccidioides.

In 1927 Guy and Jacob reported the first apparent cure of coccidioidal granuloma by means of these measures. Their patient had shown little or no improvement under various other forms of treatment including iodides and the roentgen rays. Four months treatment on alternate days, using a 1 per cent solution of antimony and potassium tartrate in doses up to 7 cc apparently resulted in complete healing. Roentgen therapy was used during these four months in one-half unit doses at ten day intervals.

A month after treatment was discontinued the disease recurred but subsided fairly promptly "with a few tartar emetic and roentgen treatments." These authors found that the roentgen treatment alone did not bring about material improvement. They also noted that one of the patient's lesions which was not treated with the roentgen rays while antimony and potassium tartrate was being given did not heal as rapidly as the others. In other words, it seemed to them that the two procedures were complementary.

In 1928, having followed this plan of treatment, we reported "definite improvement and possible cure" in a case of granuloma coccidioides in a patient who had contracted the disease while working with the fungus coccidioides in the laboratory.

A brief review of our previous report and the progress in this case to date follow.

REPORT OF CASES

CASE 1—P B, a man, aged 26, a fellow in the department of bacteriology at the University of Nebraska, after a prolonged period of research with *Coccidioides immitis*, became ill with moderate chills and fever, general malaise and a hacky cough which on one occasion was productive of blood-streaked sputum. Within two weeks of the onset of these symptoms an abscess developed on the plantar surface of the left foot. This was incised and drained. The fungus coccidioides was recovered in the fresh preparation of pus by culture and through inoculation into a guinea-pig. Three months' treatment on alternate days with doses of from 2 to 8 cc. of a 1 per cent solution of antimony and potassium tartrate given intravenously and one-half skin unit of unfiltered roentgen rays at intervals of from ten to fourteen days produced complete healing.

No further difficulty was experienced until May, 1931, almost four years after the original trouble, when the patient again became ill with chills and fever. One week after the onset of these symptoms a filbert-sized nodule appeared about the mid-outer surface of the left leg from which pus containing the

fungus coccidioides was aspirated. We immediately returned to the use of antimony and potassium tartrate and roentgen treatment in the manner previously described, and healing was complete in four weeks.

The patient has appeared to be in excellent health during the past two years, but we have continued to give him biweekly injections of the solution of antimony and potassium tartrate in doses of 5 cc.

Comment—In view of this patient's prolonged laboratory contact with the organism and the prodromal illness marked by cough and bloody sputum, we believe it can be reasonably assumed that this case began as a pulmonary coccidioidal infection, the result of inhaling spores of the fungus in the laboratory.

It is to be noted that although the original attack was of several weeks' duration when the diagnosis was established, this treatment resulted in complete healing of the foot and apparent normal health over a period of four years. Early recognition and treatment of the recurrent attack resulted in complete healing within four weeks and the patient has been in excellent health



Fig 1 (case 2)—Ulcers on the knees before treatment

during the past two years. This succession of events points to the efficacy of this treatment, and we think also suggests a probable need for carrying treatment quite indefinitely beyond the stage of complete healing of the lesions.

CASE 2—F P, a white American-born boy of 7, was brought to one of us (C C T) on June 25, 1929, because of ulcers on the knees. The family history and past history were essentially unimportant.

One year before the patient was brought to us he had abraded his knees on a concrete driveway. Within a few days after this accident he was taken on a two weeks automobile journey through Texas and Louisiana. From the time he left Omaha until he returned, superficial ulcerations developed at the site of the abrasions on the knees, which during the succeeding weeks became larger and deeper and drained a great deal of pus. He was placed in a local hospital where he remained almost continuously from early October, 1928, until late June, 1929, during which time various types of treatment, including roentgen therapy, wet dressings, ointments, cautery and excision failed to influence the progress of the ulcers.

When seen by us on June 25, 1929, he was markedly anemic and undernourished. His oral temperature was 100 F. Our examination revealed four ulcers about the left knee and five

Studies and contributions of the Department of Dermatology and Syphilology, University of Nebraska College of Medicine.
Read before the Section on Dermatology and Syphilology at the Eighty Fourth Annual Session of the American Medical Association, Milwaukee June 16, 1933.
1. Guy W H and Jacob F M Granuloma Coccidioides Arch Dermat & Syph 16 308 (Sept.) 1927
2. Tomlinson C C and Bancroft Paul Granuloma Coccidioides J A M A 91 947 (Sept 29) 1928

about the right knee, varying from 2 to 10 cm in diameter, with several smaller satellite ulcers between and about the larger ones. These ulcers, roughly oval in outline, were of a distinctly crateriform type, each having a granulomatous base and being covered by a firmly adherent thick purulent crust. There were marked contractures of both knees (fig 1).

Search for coccidioidal organisms in the pus (fresh alkali preparation) was negative. Cultures on Sabouraud's medium showed a moist growth on the fourth day. Animals were inoculated with fresh pus from the ulcers and from the culture material. In these animals lesions developed in which the spheroidal double contoured refractile bodies characteristic of *Coccidioides immitis* were found (fig 2).

Treatment, in addition to general supportive measures consisted of wet dressings with a weak solution of corrosive mercuric chloride, roentgen therapy and intravenous injections of antimony and potassium tartrate. Each lesion was treated with from one-fourth to one half skin unit dose of unfiltered roentgen rays at intervals of from seven to thirty days, a total of ten such treatments being given. Sixty-two intravenous injections of antimony and potassium tartrate were given over a period of one hundred and eighty-four days, the usual interval being three days, and the longest interval twenty eight days. A 1 per cent solution of antimony and potassium tartrate was employed in doses of 5 cc. No untoward reaction was noted.

From the beginning there was slow but definite improvement. The ulcers became clean and healthy looking within six weeks from the beginning of treatment but owing to their size some of the larger ulcers required eight months for complete healing. There has been no recurrence, and the patient is now a strong, active boy showing only scars of the healed ulcers (fig 3) as evidence of his previous trouble. He has had no treatment of any kind since Dec 25, 1929.

Comment—We are not at all certain as to the portal of entry in this case or as to the time the infection was acquired. In regard to this case, however we are quite certain of two things. First, that no treatment that the patient received over the fifteen months period prior to the time we saw him had any curative value. Second, that after he was started on intravenous injections of antimony and potassium tartrate and roentgen therapy

received many types of treatment including antimony and potassium tartrate and roentgen therapy, and although Zeisler's report would seem to indicate rather definite improvement following the use of antimony and potassium tartrate and roentgen therapy, it is our opinion that had these measures been used to the exclusion of others over a longer period of time better results might have been obtained. During the twelve days he was in our care he received one half skin unit



Fig. 3 (case 2)—Scars of healed lesions three years after treatment was completed

of roentgen rays and eight doses of 5 cc each of a 1 per cent solution of antimony and potassium tartrate, which in this short time brought about definite improvement of all the lesions.

Comment—We believe that this case is of little value in our report and include it only for the sake of completeness.

CONCLUSIONS

We believe that our first two case reports are evidence that prolonged treatment with intravenous injections of antimony and potassium tartrate and local roentgen therapy is effective in the treatment of granuloma coccidioides. Admitting that our two apparent cures and that of Guy and Jacob do not supply conclusive evidence, we know of no other report in which comparable results have been sustained over a period of several years. We are convinced that the treatment must be continued for a long time.

ABSTRACT OF DISCUSSION

DR GEORGE M LEWIS, New York. Granuloma coccidioides has probably shown the highest mortality and has proved the most resistant to therapy of all the rarer mycoses. The iodides, which are of great service in many fungous diseases, are of little value here. Although the report does not contain a large series of cases, this does not detract from the observations, since the authors are dealing with a notoriously persistent and progressive disease with no likelihood of spontaneous cure. Nor does the well established curative effect of other remedies, such as colloidal copper and coccidioidin mean that an ideal treatment is known. From the reports of Jacobson and many others it is evident that roentgen therapy, colloidal copper and coccidioidin do not cure every case of granuloma coccidioides. It is thus possible that some patients will do well on this regimen and other patients will respond more favorably to the combined use of x-rays and antimony and potassium tartrate. A remarkable feature in the first case history was the interval of four years between the complete subjective and objective disappearance of the disease and the subsequent development of new lesions. The question arises whether the infection remained dormant during this interval, as in syphilis, or the patient became reinfected. Because of the first possibility the

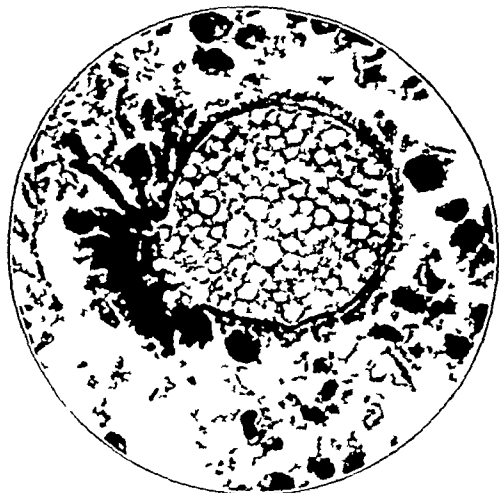


Fig 2 (case 2)—*Coccidioides immitis* section from a guinea pig inoculated with material from the patient's ulcers

he improved steadily until healed, and has had no manifestation of the disease since treatment was completed three and a half years ago.

CASE 3 (This case was previously reported by Zeisler³)—E J S, a man aged 38, was seen twelve days prior to his death by suicide. During the last year of his life the patient

³ Zeisler E P. Chronic Coccidioidal Dermatitis. Arch Derm & Syph 23: 52 (Jan) 1932.

authors do well to emphasize the importance of continuing treatment long after all evidence of the disease has disappeared. This is in line with the recognized management of other deep fungous infections, such as actinomycosis and sporotrichosis, in which relapses may occur if therapy is discontinued coincidentally with the disappearance of the skin manifestations.

Dr. EDWIN P. ZEISLER, Chicago. I should like to comment briefly on the patient the authors mentioned who had been under my care at the Cook County Hospital. The lesions in this case were entirely dermal and were unusually extensive. No pulmonary, osseous or subcutaneous involvement could be demonstrated. Before the patient came to me, many different methods of treatment had been used, including the arsenophenamines and iodides. During a period of three months I administered antimony and potassium tartrate alternating with colloidal copper, with complete retrogression of the lesions and I thought that the patient was cured. He remained well for three months, but at the end of that time new lesions developed which did not respond to further treatment. Regarding the efficiency of the drugs used, I had difficulty in arriving at any conclusion, but it seemed that colloidal copper was better than antimony and potassium tartrate. One preparation of colloidal copper sulphide made in Chicago was tried and proved to be entirely ineffective. A French preparation was found to be the most effective but unfortunately was very expensive. The one thing I have learned about the treatment of coccidioidal granuloma is that the treatment must be prolonged even after apparent cure takes place and I believe that the combination of roentgenotherapy with these two drugs will give the best results. Another point is that the few cases reported as cured were purely dermal. I think that no case presenting pulmonary lesions has been cured, a few cases of osseous involvement have been cured by amputation.

Dr. HOWARD MORROW, San Francisco. I concur in Dr. Zeisler's remarks that these cases are not cured even when we consider them cured. In California we see a great many cases of granuloma coccidioides and have come to consider the prognosis very serious. It has been our experience that 60 per cent of the patients die within a few years. When a patient is fortunate enough to have lesions on a limb only amputation may cure the disease, but such cases are rare. I have tried antimony, vaccines made from the fungus, copper typhoid vaccines and protherapy but am of the opinion that nothing will cure granuloma coccidioides. Occasionally I see a patient in whom a certain resistance has been built up against the infection and I have wondered whether the fungus was of a low-grade virulence, but I have come to the conclusion that it is not a case of virulence of the organism but of resistance on the part of the patient. Some years ago I had a seafaring man who had coccidioides of the knee. He had his thigh amputated and apparently remained well for fifteen years. He also had a mild papular and pustular dermatitis of the brow and upper eyelid, cultures of which yielded the Coccidioides organism. I could not understand why this eruption did not clear up under therapy or why the disease did not progress. I thought that the virulence of the organism was low, but on animal inoculation this was proved to be just as virulent as the most rabid type of Coccidioides. Therefore, I came to the conclusion that it was a natural resistance. The patient still has the mild papulo-pustular eruption of the brow and upper eyelid. Cultures still show the fungus, and he still seems to be in perfect health. Perhaps the primary lesion on the knee enabled him to build up a resistance.

Dr. FRED D. WEIDMAN, Philadelphia. Reports of this kind open the question whether it is the resistance of the host against the organism that is responsible for cure, or whether species of different (attenuated) virulence are concerned. Turning to granuloma coccidioides in particular the South Americans have written much that bears on today's paper. Recently Almeida has pointed out that there are different organisms concerned in what has been reported as coccidioidal granuloma in Brazil. Dr. Jordon of my laboratory has imported these organisms from South America and compared them with North American strains. I now can confirm the contention of Almeida. In South America there are two or perhaps three forms. The first is identical with what is found in North America. The second is an entirely different organism and the disease is also

different clinically. It produces very scanty lesions in animals, the disease runs a mild course and is amenable to treatment with antimony and potassium tartrate, hence the reports from South America of successful results with this treatment must be taken with reservations, for what they are treating there is for the most part an entirely different disease. However, I can vouch that this organism, *Paracoccidioides brasiliensis*, was not concerned in Tomlinson and Bancroft's case. I had the good fortune to be mixed up with the original case of cure of coccidioidal granuloma reported by Guy and Jacob. That patient had coccidioidal arthritis four years ago. Recently Dr. Guy told me that the man is now in apparently good health. I recall that the organism was comparatively nonvirulent for laboratory animals. Contrary to the usual results the lesions consisted simply of a multiple serositis. Probably there are other differences in virulence but this is the only case I have known in which a definite difference was demonstrated, and this was a genuine case of *Coccidioides immitis* infection—not the Brazilian disease. I feel sure that one may get organisms of lower virulence within a fungus species but as Dr. Morrow stated cure cannot be expected consistently in coccidioidal granuloma.

Dr. CHARLES C. TOMLINSON, Omaha. Answering the question as to whether the second attack in case I was a new infection or the lighting up of a dormant infection we feel quite sure that it was the latter as this is quite the usual history in this disease. Dr. Morrow favors amputation when the disease is confined to an extremity but in our case I reasoned that the primary focus was pulmonary and that amputation would not necessarily protect against development of the infection in other locations. I cannot quite understand why Dr. Zeisler favors colloidal copper, as his report states that his case cleared up and remained clear for a period of three or four months following treatment with antimony and potassium tartrate. Having seen two cases become symptom free and remain so under this plan of treatment we feel convinced of its efficacy and want to encourage its use particularly by the men from California, who see this disease most frequently.

BILATERAL CORONARY OCCLUSION WITH MITRAL STENOSIS

WITH A CONSIDERATION OF THE COMPENSATORY
CIRCULATORY FACTORS IN THE HEART

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An example of both mitral stenosis and bilateral coronary occlusion has not been found in the literature. The case reported here, presenting a tight mitral stenosis and an occlusion of all the main coronary arteries, furnishes an interesting example of the remarkable potentialities of the various compensatory mechanisms of the heart and its blood supply.

REPORT OF CASE

S. B., a white man aged 63 a tailor was admitted to the Brooklyn Jewish Hospital in the general medical service of Dr. Joseph Rosenthal, complaining of generalized weakness, dyspnea on exertion and edema of the ankles.

Three years before, he had an attack of pain over the precordium and shortness of breath. He was taken to a hospital where he stayed three weeks. Since then he had remained quite well and was able to go to work daily. Slight dyspnea on exertion was the only symptom that persisted. About three weeks before admission he first noted increasing generalized weakness, with increasing dyspnea which forced him to stop working one week later. At this time he first noted swelling

of the ankles which became progressively more marked. There was no precordial pain nor palpitation of the heart. Questioning regarding symptoms referable to the various tracts revealed nothing of note. There was no history of a venereal infection.

The patient was poorly developed and appeared moderately ill. He had a pale, muddy complexion. Slight cyanosis and dyspnea were present. The temperature was normal, pulse 80, respiration 20, blood pressure 110 systolic, 74 diastolic. The patient was found to be a hyposensitive type by Libman's test. A moderate sclerosis of the vessels of the overgrounds was present. The heart was found to be of normal size by percussion. The apex impulse was diffuse in the region of the midclavicular line in the left fifth interspace. The heart sounds were rather distant. A moderate extrasystolic irregularity was present. There was a prolonged mid diastolic murmur at the apex. Dulness was present over the left base, and flatness over the right base of the lungs. At the former area, moist crepitant rales were present while breath sounds were entirely absent at the latter area. The liver edge was palpable from two to three fingerbreadths below the costal margin. No fluid in the abdomen was perceived. A moderate pitting, edema of both legs and arms was present.

A gallop rhythm was present associated with a murmur during the gallop, which suggested a diagnosis of mitral stenosis with a prolonged PR interval. Electrocardiographic tracings the next day revealed a partial auriculoventricular block consisting of a PR interval of 0.26 second and occasional dropped beats. The complexes were all of low voltage the highest QRS being 5 mm. A definite right axis deviation was present. The T waves were diphasic in leads I and II and inverted in lead III. A teleroentgenogram of the heart showed a slight increase in the transverse diameter and a flattening of the left border suggestive of mitral stenosis. There was an increase in the lung markings in both bases and evidence of a small amount of fluid in the costophrenic sinus. Wassermann and Kahn tests were negative. There was slight fever up to 101.8 F from the fourth to the eleventh day of his stay in the hospital.

Saltargan, 1 cc, was injected intramuscularly shortly after admission and repeated every five days. Ammonium chloride, 20 grams (13 Gm) three times a day and digitalis, 2 grams (0.13 Gm) twice a day were administered. A favorable water balance was soon obtained and improvement thereafter was marked. By the end of the second week of his stay in the hospital, the edema had disappeared, the liver had receded so that it was barely palpable under the costal margin and the signs in the chest had cleared. For the last five days in the hospital the patient was up and about with no symptoms whatever. He was discharged from the hospital three weeks after admission feeling perfectly well and having no signs of decompensation. The diagnosis on discharge was rheumatic fever (inactive), generalized arteriosclerosis, mitral stenosis and insufficiency, coronary sclerosis, fibrosis of the myocardium, and congestive failure improved.

The patient walked out of the hospital in high spirits but on entering a taxicab he suddenly fell. On examination immediately afterward, he was pronounced dead.

At autopsy the lesions found besides those of the heart were infarctions in the lung, chronic cholecystitis, fatty degeneration of the liver, cyst in the pituitary gland, and cerebral edema and congestion.

The heart weighed 330 Gm. It was spherical and measured 8 cm from the base to the apex of the ventricles. The visceral epicardium showed patches of thickening but no adhesions and no fresh pericarditis were found. Both atria and the right ventricle were somewhat dilated and hypertrophied. The foramen ovale was closed. Some fresh adherent thrombi were present in the right auricular appendage and at the apex of the right ventricle. The myocardium besides that of the left ventricle was everywhere of normal appearance, no areas of softening, necrosis, fatty changes nor fibrous streaks being present. Microscopic examination revealed however a slight increase of the interstitial tissue, small patches of fibrosis, localized areas of sparse lymphocytic infiltration, and a slight granular degeneration of the muscle cells.

The changes in the left ventricular wall for the most part were grossly of fibrous nature. The fibrosis appeared localized

mainly in two areas, one of these was at the apex anteriorly, where the ventricular wall was thinned to 5 mm and the muscle was almost completely replaced by silvery firm fibrous tissue. The other area was at the base adjacent to the septum posteriorly. There was some fibrosis connecting these areas along the posterior wall of the ventricle near the septum. The remaining musculature showed no fibrosis but was dark red, and small streaks of purplish red were present occasionally throughout except for the basal portions, which appeared entirely uninvolved. There were no areas of softening or necrosis. The fibrotic changes extended to the septum, so that its posterior third and its entire apical portion were involved. The remaining part of the septum showed no changes. Microscopically all the sections of the left ventricular myocardium presented varying degrees of fibrosis, which was the outstanding change. The fibrous tissue showed a varying degree of cellularity in scattered areas. Some portions had only a few elongated nuclei and disintegrated nuclei, others showed an infiltration of round cells and fibroblasts. The tissue contained furthermore, many channels of various sizes lined with endothelium and containing blood cells. Throughout all the sections of the myocardium there was present a moderate amount of lymphocytic infiltration, which appeared to be most marked about the blood vessels. There was no evidence anywhere of fresh infarction. No localized areas of congestion, necrosis or polymorphonuclear infiltration were present. The individual muscle cells showed various stages of degeneration roughly proportionate to the amount of fibrosis surrounding the fibers. In the uninvolved areas the muscle cells appeared normal or sometimes showed hypertrophy of the cells with large hyperchromatic nuclei. The small arteries, except for occasional splitting of the internal elastica, appeared normal.

The right coronary circumflex artery was thickened and markedly calcified throughout its course, and numerous small atheromatous areas were present on the intimal surface. The lumen was completely occluded with organized thrombi in two places. One was immediately at the orifice for a distance of 1 cm and the other was about 5 cm from the orifice also for a distance of 1 cm. The most marked calcification was present in the latter thrombus, which thus appeared to be the older. Beyond the second point of occlusion the changes in the artery were less marked. There were similar pathologic changes in the left coronary artery but they were much greater in degree, so that the left circumflex artery was converted into a solid and calcified cord for its entire course and the left descending artery was similarly involved for a distance of 3 cm about 2 cm from its opening. Beyond this closure the lumen was markedly narrowed, and before the closure no branches were noted arising from the artery. Sections of both arteries revealed evidences of recanalization in the form of occasional lumens, pinpoint to almost pinhead in diameter. In the portions of the arteries that showed a lesser degree of damage there was microscopically present a thinning of the media and a slight degree of fibrosis. In some areas the internal elastica was split, and there was some increase in the subendocardial connective tissue. In the portions more extensively involved there were large areas of calcification and extensive hyalinization involving the entire media. This layer in some places was markedly thinned to almost linear dimensions. The lumen was filled with old thrombi consisting of hyalinized tissue containing vascular channels of various sizes.

The tricuspid, pulmonary and aortic valves grossly were normal. Their rings measured 10, 7 and 6 cm, respectively. The mitral valve was the seat of a marked stenosis producing an orifice only 1 cm in circumference. The cusps were markedly thickened and calcified. No vegetations were present. Microscopically this valve showed the typical reduplication of elastic and fibrous lumens on the auricular surface considered to be characteristic of rheumatic involvement. The same reduplication of layers was present also on the aortic valve on its ventricular surface.

Serial sections were taken of the division of the bundle of His into its two main branches. Nothing more than marked swelling of the Purkinje fibers was found. The adjacent septal musculature showed extensive fibrotic changes separating the muscle fibers into small islands.

COMMENT

The pathologic changes indicate that in this heart with mitral stenosis there had been for several years a progressive atherosclerotic narrowing of the vessels and a series of thromboses leading finally to occlusion of the main coronary arteries, which in turn existed for a fairly long time. That actual infarctions of large areas had taken place at least twice is indicated by the localized areas of fibrosis, one at the base and the other at the apex of the heart. The absence of evidence of a recent thrombosis or a fresh infarction indicates that the heart was able to survive the insult that was the final stroke in occluding all the main coronaries. That the heart apparently was able to compensate fully in the presence of this pathologic condition is one of the most interesting features of this case. The edema disappeared, the liver receded, the patient was up and about for several days without symptoms, and then he walked out of the hospital at a time when the coronaries were solid and calcified cords and a buttonhole mitral stenosis was existing.

Since recanalization of the thrombi was relatively slight and inconstant, only a small amount of blood could reach the capillary bed this way, and other means must be looked for whereby the heart was able to obtain its nutriment. As Pratt¹ suggested the heart may conceivably absorb nutritive elements through its endocardial surface directly from the blood stream, but the nutriment gained this way is necessarily limited. Hudson, Moritz, Wearn and Orgrim² have recently emphasized the rich potentials of the extracardiac coronary anastomoses for compensating for coronary occlusions, especially when extensive pericardial adhesions exist. That a large amount of blood entered the patient's heart in this manner is questionable, since the coronaries were occluded for long distances and no pericardial adhesions existed. Batson and Bellet³ have recently shown that, in coronary occlusion, blood may pass during atrial systole from the atria through the coronary veins directly into the capillaries. With the onset of ventricular systole this blood is forced back to the veins, thus producing a flow and ebb circulation. However, the time periods of the heart cycle, the low mitral pressure and velocity of the venous blood, and the length of the vascular bed of the heart are such that make it very improbable that more than a small quantity of blood can be furnished to the myocardium in this manner. Wearn⁴ and Grant and Viko⁵ have demonstrated in the human heart the extensive ramification of the thebesian vessels, which are small channels connecting coronary veins and capillaries with the chambers of the heart. These vessels have numerous ostia in all four chambers and can transmit blood directly into the capillary bed through many short channels from endocardium to myocardium. Furthermore, in the presence of complete coronary occlusion the thebesian system can act in this regard throughout diastole as long as the intraventricular pressures remain positive. The thebesian vessels bring arterial as well as

venous blood to the capillaries. Wearn⁶ considered the thebesian system the main source of blood supply to the heart in two cases in which the coronary orifices were completely occluded by syphilitic processes. In a heart described recently by Bellet⁷ the large veins as well as the large coronary arteries were completely destroyed by tuberculous myocarditis and the myocardium was nourished through the thebesian vessels.

When one considers that of all the cases of coronary occlusion the one of the very few that survived complete occlusion should be a heart with such a rare combination with mitral stenosis, one realizes that it is unlikely that such a finding is purely a matter of coincidence but that the stenosis possibly plays a beneficial role in coronary occlusion. One of the reasons may be an increased intra-atrial pressure supplying a greater amount of blood through the coronary veins to the capillaries. The prolonged PR interval in this case helped matters in this regard. Another possibility is that the tight mitral stenosis relieved the infarcted or fibrotic left ventricle of some of the strain of the circulation. In experimentally produced mitral stenosis, Katz⁸ described, among other changes, a decrease in the maximum pressure and a marked abbreviation of ejection and systolic time in the left ventricle. Various compensatory mechanisms, however, soon tend to restore conditions to normal. Although it is problematic to what extent the left ventricle is relieved of its normal strain by these changes and their compensatory mechanism in clinical cases of tight mitral stenosis, nevertheless it is not unusual for the left ventricle to be found smaller than normal in these hearts. From these considerations, it might follow that if an individual survives a mitral stenosis long enough to reach the age of coronary occlusion, the former may be an aid to him in combatting the consequences of the latter. The rarity of such combined lesions, however, has prevented statistical studies on this point.

In cases of occlusion of one of the coronary arteries, all the emphasis has been placed on the role played by arterial anastomoses in furnishing blood to the infarcted area, and other mechanisms have received little attention. The importance of the latter in this regard is emphasized in the reported heart, which recovered from its last thrombosis at a time when all interarterial anastomoses could be of little avail. Considering the role the coronary veins play in thrombosis of one of the coronary arteries, during the period of fall of arterial pressure sufficient to permit a reversal of flow in the cardiac veins the heart is in a critical state, and such marked physiologic changes in its circulation would be productive of additional grave dangers. However, the thebesian circulation can theoretically be relegated to a position of great importance in supplying blood to infarcted areas following isolated coronary insults. The anatomic arrangement of the thebesian vessels appears to be such that it can more quickly and effectively furnish blood to an area shut off from the normal supply than can the arterial anastomoses. The thebesian system can bring blood directly to the central portions of the infarcted areas from a very short distance through existing vascular channels, whereas arterial anastomoses must furnish blood from

1 Pratt F H Factors Actual and Possible in Cardiac Nutrition Boston S & M J 190 304 307 (Feb 21) 1924

2 Hudson C L Moritz A R and Wearn J T The Extracardiac Anastomoses of the Coronary Arteries J Exper Med 56 919 (Dec) 1932 Moritz D R Hudson C L and Orgrim E S Augmentation of the Extracardiac Anastomoses of the Coronary Arteries Through Pericardial Adhesions ibid p 927

3 Batson O V and Bellet Samuel Reversal of the Flow in Cardiac Veins, Am Heart J 6 206 224 (Dec) 1930

4 Wearn J T Role of the Thebesian Vessels in the Circulation of the Heart J Exper Med 47 293 (Feb) 1928

5 Grant R T and Viko L E Observations on the Anatomy of the Thebesian Vessels of the Heart Heart 15 103 123 (Aug) 1929

6 Leary Timothy and Wearn J T Two Cases of Complete Occlusion of Both Coronary Orifices Am Heart J 5 412 423 (April) 1930

7 Bellet Samuel Goutley B A and McMillan T M The Nourishment of the Myocardium Through the Thebesian Vessels in a Heart in Which the Large Coronary Arteries and Veins Were Destroyed by the Tuberculous Myocarditis Arch Int Med 51 112 121 (Jan) 1933

8 Katz L N and Siegel M L Cardiodynamic Effects of Acute Experimental Mitral Stenosis Am Heart J 6 672 682 (June) 1931

the borders of the trachea through vascular channels that must take time to form. In cases associated with marked fall of arterial pressure, the thebesian system is in an especially advantageous position in this regard. It may be suggested, furthermore, that the constancy of areas of infarction in certain areas of the heart, i. e., at the apex anteriorly and at the base posteriorly, may possibly be due in some measure to variations in the ramifications of the thebesian system or a diminution in the number of endocardial orifices in these areas, producing a relatively ineffectual thebesian blood supply in these areas. There is no record of anatomic investigations on this point.

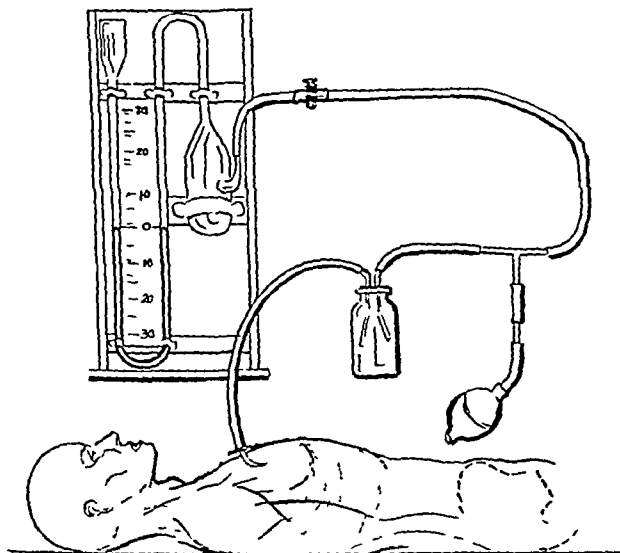
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Clinical Notes, Suggestions and New Instruments

AN APPARATUS FOR THE EVACUATION OF AIR IN SPONTANEOUS PNEUMOTHORAX

ELLIOTT P. SART, MD, OLIVE VIEW, CALIF.

Spontaneous pneumothorax is a serious accident often leading to death from asphyxia. Usually a complication of pulmonary tuberculosis, especially after artificial pneumothorax has been instituted, it may also result from emphysema, congenital cysts of the lung, or traumatic injuries. It is particularly dangerous when the collapse of the lung is sudden and severe or when a valvelike flap at the site of rupture causes a flow of air from the lung into the pleural cavity but prevents its escape, thus



Apparatus for evacuation of air in spontaneous pneumothorax

building up a positive pressure, and in instances of bilateral pneumothorax, induced or spontaneous. The resulting asphyxia demands the immediate and continued withdrawal of air from the chest. Simple aspiration with an ordinary syringe and needle, or the insertion of a cannula into the chest may avail at times, but repeated or even continuous aspiration is often required. Several such cases developing at the Olive View Sanatorium led to the construction of the apparatus here described which has been found to be both convenient and efficient and has already saved lives.

The apparatus consists of a curved antrum trocar and cannula (Pierce's), which is inserted into the pleural cavity and turned so that its end will not abrade the surface of the lung. The

From the Olive View Sanatorium

cannula is then stitched to the chest wall through its perforated flange, and further sealed at the site of puncture by the application of cotton and collodion, and strapped into place by adhesive tape, which is carried tightly from the spine to the sternum to prevent subcutaneous emphysema from pushing the cannula out. The trocar is then removed from the cannula and an adapter with tubing attached is inserted. A trap and a cotton filter are interposed between the cannula and a rubber bulb, which is fitted with valves allowing the air to flow in one direction only, outward. An ordinary atomizer bulb, with its connections reversed may be used for this purpose. A glass tubing connects with a manometer which can be shut off when the readings are not being taken.

The rubber bulb is placed within the patient's reach and he is instructed how to read the manometer and how to work the bulb whenever the positive pressure becomes too high or when he feels short of breath. In this way subcutaneous emphysema and impairment of respiration from excessive collapse of the lung or displacement of the mediastinum can be kept under control, pleural effusions that develop may be removed (none have been experienced to date), and either neutral or slight positive pressure maintained, facilitating an early closure of the ruptured lung. In actual practice it has proved to be a great therapeutic aid to the physician as well as a great relief to the patient, who gains confidence and security from the knowledge that he can control the situation himself.

THE PREVENTION OF DIPHTHERIA AND SCARLET FEVER IN NURSES

LUDVIG HEKTOEN, MD, AND CHARLOTTE JOHNSON, RN, CHICAGO

Our purpose in this note is to complete the records of the prevention of diphtheria and scarlet fever among the nurses in the Durand Hospital, which was closed, at least temporarily, at the beginning of this year. Since the opening of the hospital in March, 1913, special efforts have been made to protect the nurses against the infectious diseases with which they were dealing and especially diphtheria and scarlet fever. As tests for susceptibility and immunization of susceptibles developed, these methods were applied to the nurses. Accurate records of the health of the nurses while in the hospital have been kept. The capacity of the hospital was sixty beds. Only patients with acute infectious diseases (mostly diphtheria and scarlet fever) were received. At first the nursing was done principally by graduate nurses but after the end of the second year the bedside nursing was in the hands of student nurses working under the direction of trained supervisors. Nearly all the student nurses came to the hospital for three months from other hospitals in Chicago and vicinity. They were in no sense seasoned nurses but mostly recent arrivals in Chicago, the age varied from 19 to 35 years, the average being about 23. Special care was taken to maintain a high degree of cleanliness of patients and surroundings, from the start the nursing procedure was organized precisely and supervised rigidly to prevent as much as possible the spread of infectious materials. The health of each nurse was watched closely, nose and throat cultures were made regularly each week. The general conditions under which the nurses lived and worked did not change in any marked degree during the period in question. During this period, 3,673 cases of diphtheria and 5,416 cases of scarlet fever were treated in the hospital under the direction of Dr. George H. Weaver. Except as determined by chance, each student nurse came into equally close contact with diphtheria and scarlet fever patients. Selective or exclusive assignments of the nurses were not made. In 1928 a report¹ was published on the incidence of diphtheria and scarlet fever among these nurses up to Dec. 1, 1927. That report gives in detail the rules and suggestions for the protection of nurses and others. Practically the only difference between that report and this is that now the figures for the period after Dec. 1, 1928, have been added. Table 1 shows that of 349 nurses originally insusceptible (negative Schick test), six developed diphtheria, that of these 349 insusceptibles the 192 in the period 1921 to

From the John McCormick Institute for Infectious Diseases.
1. Hektoen, Ludwig and Johnson, Charlotte. Prevention of Diphtheria and Scarlet Fever in Nurses. *J. Prev. Med.* 2: 289 (July) 1928.

the closing of the hospital did not have a single case of diphtheria, that of 397 susceptibles (positive Schick test) immunized to negative Schick test before entering on duty, one had diphtheria, and that of all the nurses in this tested and immunized group, 802 in all, 7, or 0.89 per cent, had diphtheria. It should be pointed out that no cases of diphtheria have developed among the nurses since Dec 1 1927. Table 2 shows that before the Dick test and the preventive injection of toxin the percentage of scarlet fever among the nurses (516) was 7.7, that of 309 nurses who began their work as originally suscep-

TABLE 1—Diphtheria in Student Nurses in the Durand Hospital

	Number of Nurses	Cases of Diphtheria	
		Number	Per Cent
Before Schick test (March 17 1912 to Oct 1 1914)	35	7	19.4
After Schick test (Oct 1 1914 to Dec 31 1920)			
Originally Insusceptible	157	6	3.8
Susceptibles given antitoxin	125	9	7.2
Susceptibles not given antitoxin	8	2	25.0
Total for period	290	17	5.8
After toxin antitoxin or toxoid (Jan 1, 1921 to Jan 28, 1933)			
Originally Insusceptible	192	0	0.0
Susceptibles immunized before service	97	1	0.2
Susceptibles immunized while on service	142	4	2.8
Susceptibles given antitoxin on entering service	26	1	3.8
Service incomplete doubtful tests and so on	45	1	2.2
Total for period	502	7	0.89
All told	1170		

ceptible (Dick negative), no one came down with scarlet fever, that of 200 susceptibles (Dick positive) immunized to Dick negative before going on duty, no one developed scarlet fever and that of the 614 nurses taken into service since the Dick test came in use, 3, or 0.50 per cent, had scarlet fever. Again it is noteworthy that no cases of scarlet fever have developed in the nurses since Dec 1, 1927.

The observations on the student nurses in the Durand Hospital establish that naturally Schick negative and Dick negative young women are well protected against diphtheria and scarlet

TABLE 2—Scarlet Fever in Student Nurses in the Durand Hospital

	Number of Nurses	Cases of Scarlet Fever	
		Number	Per Cent
Before Dick test (March 12 1912 to Dec 31 1921)	516	40	7.7
After Dick test (Jan 1 1924 to Jan 28 1933)			
Originally Insusceptible	309	0	
Susceptibles immunized before service	200	0	
Susceptibles immunized while on service	89	2	2.24
Not tested susceptible but not immunized and so on	16	1	6.2
Total for period	614	3	0.50
All told	1130		

fever. Further, that susceptible young women immunized to negative Schick and Dick tests before assuming the active nursing of diphtheria and scarlet fever patients are also well protected.² As stated in the former report,¹ "by means of Schick and Dick tests followed, when necessary, with active immunization, nurses can be selected who are practically free from the danger of diphtheria and scarlet fever."

637 South Wood Street

² The results are corroborated by the work of Rhoads on the prevention of diphtheria and scarlet fever in the nurses in the Cook County Hospital Chicago (Rhoads P. S. Skin Tests and Immunization Against Scarlet Fever and Diphtheria J. A. M. A. 97 153 [July 18] 1931)

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
H. A. CARTER Secretary

ACCEPTANCE OF SUNLAMPS

During the past seven years the Council on Physical Therapy has devoted much time and effort to the question of ultraviolet radiation therapy, and in two preliminary statements¹ gave its conclusions and its specifications for acceptance of "sunlamps," by which term is understood a lamp that, at a specified distance, emits ultraviolet radiation not differing essentially from that of the clearest weather midday, midsummer, midlatitude, sea level, natural sunlight in total intensity and in spectral range of wavelengths extending from about 2,900 to and including 3,130 angstroms and that does not emit an appreciable amount of ultraviolet radiation of wavelengths shorter than 2,800 angstroms.

Sunlamps so called, are not to be confused with therapeutic ultraviolet generators designed for service in hospitals, clinics and offices of physicians. Since sunlamps are for unsupervised home use they are often of low intensity to avoid injury from overdosage.

After extensive investigation and inquiry, in collaboration with physicists and other scientists acting as consultants, and after due consideration of the status of ultraviolet radiation therapy the Council on Physical Therapy has adopted, and until a more practicable and reliable procedure is proposed, will use the erythematous reaction as a basis for judging the effectiveness of a sunlamp for the following reasons:

(a) The erythematous response is in common use as an indicator of skin tolerance and of the amount of ultraviolet radiation that can be applied at one time and so long as the present-day types of ultraviolet generators are used the erythematous test will be necessary to prevent injury from burns.

(b) It is practically the only physiologic reaction to ultraviolet rays that is established with a relatively high degree of accuracy, permitting a calculation of the approximate time of exposure from a simple physical measurement of the ultraviolet radiant flux emitted by the lamp.

(c) It is a simple and practicable means of preventing severe burns when using powerful sources of ultraviolet radiation.

(d) It is an efficient safeguard against the fraudulent sale of lamps that emit little or no radiation of wavelengths shorter than about 3,130 angstroms, generally accepted as having a specific therapeutic value in preventing rickets.

In an adopted article entitled "Ultraviolet Radiation Useful for Therapeutic Purposes—Specification of Minimum Intensity or Radiant Flux," by Dr. W. W. Coblentz, the Council has definitely specified the types of ultraviolet radiation generators that possess sufficient ultraviolet energy to be of therapeutic value. Furthermore, the Council has drafted two lists of requirements to govern advertising of ultraviolet generators to the public and to the profession.²

The Council's specifications of minimum intensity are based on a comfortable and convenient operating distance (namely 24 inches, or 61 cm.) from the front edge of the reflector, at which distance the exposure can be made without burning the skin. The ultraviolet intensity of the lamp shall be such that the time of exposure to obtain a minimum perceptible erythema (if such a dose is desired) is sixty minutes or a total of 120 minutes for a complete exposure front and back. In this connection it is relevant to note that the Council does not prescribe the dosage of ultraviolet radiation. Its function is to advise and protect the medical profession and the public against misleading and deceptive advertising in connection with the manufacture and sale of devices for use in physical therapy.

¹ Acceptance of Sunlamps. A Preliminary Statement J. A. M. A. 99 31 (July 2) 1932 100 1863 (June) 1933. The present specifications for acceptance of sunlamps supersede the earlier statements on this subject.

² Regulations to Govern Advertising of Ultraviolet Generators to the Medical Profession Only and Regulations to Govern Advertising of Ultraviolet Generators to the Public Only J. A. M. A. 98 400 (Jan 30) 1932.

In view of the increasing number of so called sunlamps, some emitting so little ultraviolet that from ten to twenty hours would be required to obtain an erythematous dose, the purchaser of a sunlamp has a right to expect and the Council on Physical Therapy requires the ultraviolet output to be sufficiently strong, relative to the total heat emanating from the lamp that, if an erythematous dose is desired in fifteen minutes, the operating distance can be shortened without burning the bare skin by the heat ("heat burn") of the lamp in its reflector.

Physiologic experiments show that for practical purposes the wavelength of maximum erythemogenic action may be taken at the emission line of homogeneous radiation of mercury vapor, at 2967 angstroms, present in many sources of ultraviolet radiation. The erythemogenic efficiency of this emission line is practically 100 per cent. No other wavelength or group of wavelengths, in any source, has such a high efficiency in generating an erythema.

For example, the erythemogenic efficiency (these values are subject to slight revision when better known) of the ultraviolet of wavelengths shorter than and including 3130 angstroms in sea level, midlatitude noonday June sunlight, is about 0.22 (22 per cent), the Mazda type S-1 Lamp, 0.24, the Mazda type S-2 Lamp, 0.215, the low temperature, type G, mercury vapor glow lamp, 0.185, the so called cold quartz, low temperature low vapor pressure, mercury arc, 0.55, the high temperature, high vapor pressure quartz mercury arc 0.344, the high frequency, electrodeless discharge, quartz mercury arc 0.33, the blue flame carbon arc lamp 0.42 and the Mazda CX tungsten filament lamp, from 0.16 to 0.20, depending on the temperature of the filament.

The intensity and the erythemogenic action of the emission line of mercury at 2967 angstroms is easily evaluated in absolute units, and the erythemogenic action, as well as the radiometric output of heterogeneous ultraviolet radiation from various sources is easily correlated with this emission line as a standard.

The Council has therefore adopted 10 microwatts per square centimeter of homogeneous radiation of wavelength 2967 angstroms as the unit of intensity of erythematous flux, and has (tentatively) called it the Einsen unit³ (ΓU), that is $1 \Gamma U = 10$ microwatts per square centimeter of wavelength 2967 angstroms. On the basis of the Council's specification of an exposure of fifteen minutes, it will require 20 microwatts per square centimeter (2 ΓU) of homogeneous radiation of wavelength 2967 angstroms to produce a minimum perceptible erythema. The amount of ultraviolet radiation of wavelengths shorter than and including 3130 angstroms that a source must emit, equivalent to 20 microwatts per square centimeter of homogeneous radiation of wavelength 2967 angstroms, is obtained by dividing the 20 microwatts by the erythemogenic efficiency of the source in question. For example, the erythemogenic equivalent of standard sunlight is $(20 \div 0.22 =) 91$ microwatts per square centimeter, and for the type G mercury vapor glow lamp it is $(20 \div 0.185 =) 108$ microwatts per square centimeter.

The erythemogenic efficiency of a source is obtained by the method employed at the Bureau of Standards,⁴ using the revised spectral erythemal response curve of the average untanned skin.⁵

From the foregoing specifications, it follows that in order to produce a minimum perceptible erythema on the average skin, in fifteen minutes for therapeutic lamps and in sixty minutes for so called sunlamps, the erythemogenic equivalent of the heterogeneous ultraviolet radiant flux of wavelengths shorter than and including 3130 angstroms, emitted by the various sources mentioned shall not be less than the values given in the accompanying table (Erythematous Unit, E U).

The specification of minimum acceptable intensities given in the table are average values observed in a 0-5° zone subtended by the center of the source (burning at an angle, if so used in practice), i. e., within a circle approximately 4 inches (10 cm)

in diameter, lying in a plane at right angles to the axis of the reflector, at the specified operating distance.

To avoid burns, the irradiated area shall be free from "hot spots," having an intensity greater than two times the average value measured in the central 0-5° zone, free from "hot spots."

At no point within a circle about 18 inches (45 cm) in diameter, at a distance of 24 inches (61 cm) from the front edge of the reflector (more specifically, in a 0-20° zone, subtended by the center of the source and lying in a plane at right angles to the axis of the reflector) shall the intensity be less than one-third the average value observed in the central 0-5° zone. Since a circle 45 cm in diameter contains about 1,600 cm² (if it were uniformly irradiated with 1 ΓU per square centimeter) the total erythematous flux would amount to about 16,000 microwatts. In practice, this area cannot be irradiated uniformly, hence it is necessary to take this fact into consideration.

The correlation of erythemogenic equivalents of the various lamps, given in the table is to be used in the following manner. Suppose, for example, that a type G mercury vapor glow lamp

Minimum Acceptable Intensities

1 ΓU	= 20 microwatts per sq cm of homogeneous radiation of wavelength 2967 angstroms exposure 15 minutes
= 5 microwatts per sq cm of homogeneous radiation of wavelength 2967 angstroms exposure 60 minutes	
= 91 microwatts per sq cm of midday, midsummer midlatitude sea level ultraviolet solar radiation exposure 15 minutes	
= 23 microwatts per sq cm of midday midsummer, midlatitude sea level ultraviolet solar radiation exposure 60 minutes	
= 83 microwatts per sq cm of Mazda type S 1 lamp radiation, exposure 15 minutes	
= 21 microwatts per sq cm of Mazda type S 1 lamp radiation exposure, 60 minutes	
= 93 microwatts per sq cm of Mazda type S 2 lamp radiation, exposure 15 minutes	
= 23 microwatts per sq cm of Mazda type S 2 lamp radiation exposure 60 minutes	
= 108 microwatts per sq cm of low temperature type G mercury vapor glow lamp radiation exposure 15 minutes	
= 27 microwatts per sq cm of low temperature type G mercury vapor glow lamp radiation exposure 60 minutes	
= 58 microwatts per sq cm of high temperature high vapor pressure quartz mercury arc radiation, exposure 15 minutes	
= 14.5 microwatts per sq cm of high temperature high vapor pressure quartz mercury arc radiation exposure 60 minutes	
= 60 microwatts per sq cm of high frequency electrodeless discharge mercury arc radiation in a quartz bulb exposure 15 minutes	
= 15 microwatts per sq cm of high frequency electrodeless discharge mercury arc radiation in a quartz bulb exposure 60 minutes	
= 36 microwatts per sq cm of cold quartz low temperature low vapor pressure quartz mercury arc radiation exposure 15 minutes	
= 9 microwatts per sq cm of cold quartz low temperature low vapor pressure quartz mercury arc radiation exposure, 60 minutes	
= 48 microwatts per sq cm of blue flame carbon arc lamp radiation (in reflector no filter window) exposure, 15 minutes	
= 12 microwatts per sq cm of blue flame carbon arc lamp radiation (in reflector no filter window) exposure 60 minutes	

is submitted to the Council for acceptance and that the radiometric measurements at 24 inches (61 cm) indicate an ultraviolet radiant flux of 9 microwatts per square centimeter. Since this is only $(9 \div 27 =)$ one third of the minimum requirement for this type of sunlamp, it will be necessary to prolong the exposure for $(3 \times 60 =)$ 180 minutes (3 hours) if it is desired to obtain an erythematous dose with the lamp at 24 inches. Obviously, such a lamp does not comply with the Council's specifications.

In the low temperature glow lamps, which have a low infra-red output, it may not be found objectionable to shorten the operating distance in order to shorten the time of exposure. On the other hand, in the case of the tungsten filament lamp, the large amount of heat from the filament and from the glass bulb may become intolerable when the lamp is operated close to the body.

From time to time, acceptances or rejections of sunlamps for home use will be published in the columns of the Council on Physical Therapy in *THE JOURNAL*. In accepting sunlamps the attention of the profession is called to the following:

A. The Council on Physical Therapy definitely withholds acceptance of the postulatory principle of dual-purpose lighting,

³ Coblenz W W. Ultraviolet Radiation Useful for Therapeutic Purposes. J A M A 98 1082 (March 26) 99 125 (July 9) 1932. Luckiesh M and Holladay L L. Fundamental Units and Terms for Biologically Effective Radiation. J Opt Soc America 23 197 (June) 1933.

⁴ Coblenz W W. Stair R and Hogue J M. Bur Sids J Research 8 770 (June) 1932. Res Paper 450 obtainable only from the Supt of Documents Washington D C price 5 cts.

⁵ Coblenz W W. Stair R and Hogue J M. Bur Sids J Research 8 541 (April) 1932. Res Paper 433 price 5 cts revised data in Res Paper 631 January 1934.

because it is highly theoretical and the promulgators of this idea have not presented acceptable clinical evidence to the Council substantiating its therapeutic or prophylactic value.

B The Council on Physical Therapy declines to accept sunlamps if the manufacturer fails to state in all advertising matter and descriptive literature the distance between the lamp and the recipient required to equal the intensity of midday, midsummer, midlatitude, sea level, natural sunlight. Thus, in the acceptances that follow, the reader will note that the manufacturer has stated the distance the recipient should be from the sunlamp to receive the alleged benefits.

C The manufacturers of acceptable sunlamps for home use have agreed to discontinue objectionable claims, such as that exposure to ultraviolet rays increases or improves the tone of the tissues or of the body as a whole, stimulates metabolism, acts as a tonic, increases mental activity, maintains health or tends to prevent colds, because these claims have not been conclusively substantiated by experimental evidence.

D The Council declines to sanction claims recorded in descriptive literature and advertising matter in which implication is made that the production of an erythema is unnecessary as a test of intensity, that suberythema doses are sufficient for therapeutic benefit. The Council believes that, while such statements may be made in good faith, they merely open the way to fraud by irresponsible vendors of alleged sources of ultraviolet radiation. Until further evidence is presented to prove otherwise, the Council declares that the erythema test is the only means of determining whether appreciable ultraviolet is emitted by the source.

In order that there can be no misunderstanding on the part of any one relative to the stand of the Council on Physical Therapy on the acceptance of sunlamps, the dual-purpose lighting and the suberythema dosage, the aforementioned stipulations are given to the profession that it may better understand the problems confronting the Council regarding ultraviolet radiation therapy. The Council will give careful consideration to clinical evidence scientifically gathered by controlled experiments.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

ANTIMENINGOCOCCUS SERUM (See New and Nonofficial Remedies, 1933, p 367)

Mulford Biological Laboratories, Sharp & Dohme, Philadelphia and Baltimore

Antimeningococcic Serum (See New and Nonofficial Remedies 1933 p 368)

Also marketed in one syringe containing 30 cc with intraspinal and intravenous injection outfit

SODIUM AMYTAL (See New and Nonofficial Remedies, 1933, p 99)

The following dosage forms have been accepted

Ampoule Sodium Amytal 0.125 Gm (1½ grains)

Pulverules Sodium Amytal 1 grain

MEAD'S HALIBUT LIVER OIL WITH VIOSTEROL 250 D (THE JOURNAL, Nov 18, 1933, p 1634)

The following dosage form has been accepted

Mead's Vioesterol in Halibut Liver Oil 250 D (In Capsules) Each capsule contains 3 minims of Mead's vioesterol in halibut liver oil 250 D representing a vitamin potency of not less than 5,500 units of vitamin A (U. S. P. X) and 570 units of vitamin D (Steenbock)

LUMINAL-SODIUM (See New and Nonofficial Remedies, 1933, p 99)

The following dosage form has been accepted

Ampules Luminal Sodium Solution in Ethylene Glycol 2 cc Each cubic centimeter contains luminal sodium 2.5 grains dissolved in ethylene glycol. The solution may be administered intramuscularly or subcutaneously but not intravenously

PRELIMINARY REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT

PAUL NICHOLAS LEECH, Secretary

VINYL ETHER

Vinyl ether (divinyl ether, divinyl oxide) is a preparation of Merck & Company, Inc., originally proposed by Leake and Chen¹ for use in inhalation anesthesia in place of ethyl ether and subsequently studied by Leake and his co-workers,² by Gelfan and Bell,³ and by Goldschmidt, Ravdin, Lucke, Muller, Johnston and Ruigh,⁴ whose paper appears in this issue.

At the request of the Council on Scientific Assembly, the Council considered the available evidence as to the therapeutic usefulness of vinyl ether previous to the annual session of the American Medical Association in order that Dr Ravdin and his associates might present their observations at a section of the assembly at Milwaukee. The Council authorized publication of the following report.

Vinyl ether ($\text{CH}=\text{CH}-\text{O}-\text{CH}=\text{CH}$) was prepared in pure form by Ruigh and Major⁵ of the Merck Laboratory of Pure Research, in 1930. It is a highly volatile liquid (boiling point 28.3°C), having a peculiar sweetish ethereal odor somewhat reminiscent of that of ethylene ($\text{CH}_2=\text{CH}_2$), to which substance it is closely related chemically, it is more inflammable than ether and is relatively unstable in the chemically pure state, forming resin-like polymers, and decomposing with the development of formaldehyde and formic acid, in the presence of light and air, it is readily decomposed by traces of acid.

Vinyl ether, as prepared for anesthesia, is said to contain 0.01 per cent phenyl-alpha-naphthylamine to prevent polymerization and decomposition, and 3.5 per cent absolute ethyl alcohol to prevent freezing on evaporation. This product is not yet marketed for general use and is prepared at present only for investigative work.

The advantages claimed for vinyl ether over ethyl ether are that it is less irritating to mucous membranes, that induction of anesthesia is much more rapid and recovery much more prompt resembling ethylene in the latter respects, that it has a somewhat higher partition coefficient than ethyl ether, that the minimum anesthetic concentration is much lower, that the minimum blood concentration of vinyl ether necessary for anesthesia is about one-fourth that of ethyl ether, that vinyl ether offers a greater margin of safety.

According to Goldschmidt and his co-workers, in normal dogs the critical period for the production of liver necrosis appears to lie between two and three hours of anesthesia with vinyl ether. In a series of monkeys two three hour periods, and in one case a six hour period of anesthesia did not result in liver necrosis.

Clinically, vinyl ether has been used for short periods in three individuals by Gelfan and Bell, and in 428 patients in the series of Goldschmidt et al. Induction is said to be exceedingly rapid and recovery correspondingly prompt, the latter occurring frequently in from thirty seconds to one minute. Satisfactory surgical relaxation is stated to obtain and anesthesia has been maintained for varying periods up to nearly three hours. Postoperative emesis is said to have occurred in 12.8 per cent of the patients in the series of Goldschmidt and his collaborators. No evidence of injury to the liver or kidneys was seen in any case in that series.

The Council decided to defer further consideration of Vinyl Ether for Anesthesia pending accumulation of additional evidence as to the therapeutic usefulness of this product and until the manufacturer markets vinyl ether for general use, at that time the preparation will also be examined by the A. M. A. Chemical Laboratory.

- 1 Leake C. D. and Chen M. Y. *Proc. Soc. Exper. Biol. & Med.* **28** 151 (Nov.) 1930. *Anesth. & Analg.* **10** 1 (Jan. Feb.) 1931.
- 2 Knoefel P. K., Guedel A. E. and Leake C. D. *Proc. Soc. Exper. Biol. & Med.* **29** 139 (Nov.) 1931. Leake, Knoefel and Guedel. *J. Pharmacol. & Exper. Therap.* **47** 5 (Jan.) 1933.
- 3 Gelfan S. and Bell I. R. *J. Pharmacol. & Exper. Therap.* **47** 1 (Jan.) 1933.
- 4 Goldschmidt Samuel, Ravdin I. S., Lucke Baldwin, Muller G. P., Johnston C. G. and Ruigh, W. L. *Divinyl Ether* this issue p 21.
- 5 Ruigh W. L. and Major R. T. *J. Am. Chem. Soc.* **53** 2662 (July) 1931.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMOTION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG Secretary

CARTOSE A CARBOHYDRATE SYRUP FOR INFANT FEEDING

Distributor—Scientific Sugars Company, Indianapolis
Manufacturer—Union Starch and Refining Company, Granite City, Ill

Description—Syrup consisting essentially of maltose, dextrins, dextrose and sucrose

Manufacture—Glucose or corn syrup (90 parts) prepared as described for Pennant Crystal White Syrup (THE JOURNAL, Jan 30, 1932, p 402) and light brown sugar (10 parts) are mixed in a glass lined autoclave and adjusted to 75 per cent solids content. The mixture is raised to a temperature of 121 C, cooled to 82 C and filtered through 100 mesh cloth into glass bottles in a room supplied with filtered air. The bottles are capped in a steam chamber.

Analysis (submitted by manufacturer) —

	per cent
Moisture	25
Ash	0.4
Protein (N X 6.25)	0.1
Sucrose	7.0
Reducing sugars as invert sugar	0.5
*Maltose	30
*Dextrose	12
*Dextrins	25

(The analysis is calculated from separate analyses of the ingredients corn syrup and brown sugar.)

*Feitzer, Evans and Longenecker, *Indust. & Engin. Chem. anal. ed.* 5, 81, 1933.

Calories—30 per gram 85 per ounce 123 per fluidounce

Claims of Manufacturer—A carbohydrate syrup recommended as a carbohydrate supplement for milk modification in infant feeding. The method of preparation and packing assure absence of pathogenic organisms.

CAPITOL BRAND EVAPORATED MILK

Packer—John F. Jelke Company, Hillsboro, Wis

Description—Canned unsweetened sterilized evaporated milk, the same as Jelke Good Luck Evaporated Milk Unsweetened, Sterilized (THE JOURNAL, July 29, 1933, p 367).

BEECH-NUT STRAINED PRUNES

Manufacturer—Beech-Nut Packing Company, Canajoharie, N. Y.

Description—Sieved prunes retaining in high degree the natural vitamin and mineral values.

Manufacture—California prunes are soaked over night washed, allowed to simmer in open kettles with a small amount of water for one hour, pitted, strained and subsequently treated as described for Beech-Nut Strained Carrots (THE JOURNAL, Nov 11, 1933, p 1562). The jars are processed at 100 C for thirty minutes.

Analysis (submitted by manufacturer) —

	per cent
Moisture	69.5
Total solids	30.5
Ash	0.7
Fat (ether extract)	0.2
Protein (N X 6.25)	0.1
Reducing sugar as invert sugar	20.9
Sucrose (copper reduction method)	0.0
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	28.9

Calories—12 per gram 34 per ounce

Vitamins and Claims of Manufacturer—See these sections for Beech Nut Strained Carrots (THE JOURNAL, Nov 11, 1933, p 1562).

IRRADIATED VITAMIN D PASTEURIZED MILK

Distributor—Gridley Dairy Company, Inc., Milwaukee (subsidiary of The Borden Company, New York)

Description—Bottled pasteurized vitamin D milk irradiated by Steenbock process (patent No. 1,680,818).

Preparation—Milk is irradiated by a "CP Carbon Arc Lamp Milk Irradiator" equipped with recording meters for measuring lamp energy input, output of milk pump, and ultraviolet ray emanations of the arc lamps, which provide complete charts of operation for inspection by plant and health officials. The irradiated milk is pasteurized by standard procedure (holding method thirty minutes at 63 C), immediately cooled, automatically bottled and capped.

Vitamins—Clinical investigation shows this irradiated milk to be a reliable antirachitic agent protecting practically all infants excepting those prematurely born, contains 50 Steenbock vitamin D units per quart.

Claims of Distributor—Irradiated antirachitic pasteurized milk having otherwise the natural flavor and food values of usual pasteurized milk. Complies with the requirements of the state of Wisconsin and the health department of the city of Milwaukee. The method of irradiation and the equipment are under scientific control.

COLLEGE INN TOMATO JUICE COCKTAIL

Distributor—College Inn Food Products Company, Chicago

Packer—Welch Grape Juice Company, North East, Pa.

Description—Tomato juice cocktail containing tomato juice, Worcestershire sauce and salt, retaining in high degree the vitamin content of tomatoes.

Manufacture—Essentially the same as for College Inn Pure Tomato Juice (THE JOURNAL, Dec 23, 1933, p 2051) with the exception that Worcestershire sauce is added and the final processing of the jars is for twenty minutes at 82 C.

Analysis (submitted by manufacturer) —

	per cent
Moisture	91.7
Total solids	8.3
Ash	1.4
Sodium chloride	1.0
Fat (ether extract)	0.0
Protein (N X 6.25)	0.6
Reducing sugars as invert sugar	4.1
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	5.6
Titratable acidity as citric acid	0.5

Calories—0.3 per gram 8 per ounce

Vitamins and Claims of Manufacturer—See these sections for College Inn Pure Tomato Juice (THE JOURNAL, Dec 23, 1933, p 2051).

ANITA HIGH PROTEIN FLOUR

(BLEACHED AND UNBLEACHED)

ESTRELLA FLOUR

(BLEACHED AND UNBLEACHED)

Manufacturer—Texas Star Flour Mills, Galveston, Texas

Description—Hard red winter wheat "straight" flour, bleached and unbleached.

Manufacture—Selected hard red winter wheat is cleaned, scoured, tempered and milled by essentially the same procedure as described in THE JOURNAL, June 18, 1932, page 2210. All flour streams are blended and are bleached with nitrogen trichloride (one-ninth ounce per 196 pounds) and with a mixture of calcium phosphate and benzoyl peroxide (1 part to 50,000 parts of flour).

Claims of Manufacturer—For general baking.

I G A CRYSTAL TABLE SYRUP

(CORN SYRUP FLAVORED WITH CANE SUGAR SYRUP)

Packer—Wheeler-Barnes Company, Minneapolis

Distributor—Independent Grocers Alliance Distributing Company, Chicago

Description—Table syrup, corn syrup base (85 per cent) with cane sugar syrup (15 per cent), the same as White Oak Brand Crystal White Syrup (THE JOURNAL, Oct 15, 1932, p 1353).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 6, 1934

MORE CRYSTALLINE ENZYMES

Biology and medicine have been interested for a century in the existence of substances that possess the unique property of biochemical catalysts. Recently, reference was made¹ to the centenary of the introduction of the word "diastase" by Payen and Persoz to represent the constituent of barley malt that converts starch into sugar, just as strong acids do, although no living cells are present. Until recently the French writers have in fact called all enzymes "diastases," though this word has been all but abandoned in the English literature of biochemistry. During the past hundred years many biochemical catalysts, sometimes designated as "unorganized ferments" and more commonly as "enzymes," have been described. They abound in the digestive secretions, where they play an important part in alimentation. They occur in plant tissues and in micro-organisms.

The preparation of a substance in crystalline form is usually accepted as evidence that it has been obtained in a condition of relative purity. Recrystallization increases the degree of purity. To Prof J B Sumner of Cornell University goes the credit of having first described, in 1926, the crystallization of an enzyme, urease, that promotes the conversion of urea to ammonia and carbon dioxide. Since then science has witnessed the description of crystalline pepsin, amylase and trypsin in this country. All these products have the properties of proteins. Some of the European biochemists have alleged that the crystalline proteins are not themselves the functional catalysts but are merely the "carriers" of the active groups. This implies, according to the view of Willstätter, that the intrinsic part of an enzyme is some specifically active radical anchored to a carrier which is characterized by high molecular weight but is not necessarily markedly specific in character. American investigators are inclined to debate this distinction.

The most recent contribution comes from the Rockefeller Institute for Medical Research in Princeton,

N J, through Kunitz and Northrop,² who already have achieved merit in the preparation of crystalline pepsin and trypsin. It has been known, through the classic studies of Kuhne at Heidelberg and Heidenhain at Breslau, that the proteolytic enzymes of the pancreas are completely inactive in fresh pancreas or in freshly secreted pancreatic juice. The enzymes become active when mixed with the enterokinase of the small intestine, as found by Schepowalnikow, or when the pancreas is allowed to stand in slightly acid solution. According to Vernon, activation may also be brought about by small amounts of active trypsin. The mechanism of this activation has been the subject of controversy for many years. Kunitz and Northrop have now described the isolation from fresh pancreas of an active crystalline protein which is converted by minute amounts of trypsin into a powerful proteolytic enzyme. This enzyme also has been obtained in crystalline form. The inactive protein has been called chymotrypsinogen and the active protein chymotrypsin. The activity of this preparation is about one-third that of the previously described crystalline trypsin with respect to the digestion of hemoglobin or casein. It is much less active than trypsin in liquefaction of gelatin but much more active in clotting milk. It does not clot blood and contains no amylase or lipase activity. The digestion of casein is carried much further than by the crystalline trypsin. The enzyme is evidently quite distinct from the trypsin previously isolated and may represent the "pancreatic rennet" of Vernon. The chymotrypsinogen has been recrystallized ten times and shows constant optical activity and constant proteolytic activity after activation by trypsin. Kunitz and Northrop have reason to believe that these new preparations represent pure proteins and that the proteolytic activity is a property of the protein molecule. Another distinguished achievement of American research effort has thus become recorded.

NUTRITION IN NATIONAL EMERGENCIES

Regardless of whether the situation is due to pestilence, war or economic distress, through which many nations have been passing in recent months, the most pressing problem that is likely to confront governments in such critical times is that of an adequate food supply for all classes of society. The realization of this was awakened to an unprecedented degree during the World War. In 1917 Herbert Hoover, at that time United States food administrator, pointed out¹ that the great conflict had entered a phase in which food dominated the economics, strategy and statesmanship not only of the countries at war but of neutrals as well. The Allies were blockading Germany, and its population was living in an era of food control previously undreamed of.

² Kunitz M and Northrop J H. Isolation of a Crystalline Protein from Pancreas and Its Conversion into a New Crystalline Proteolytic Enzyme by Trypsin. *Science* 78: 558 (Dec 15) 1933.

¹ Kellogg V L and Taylor A E. *The Food Problem*. New York: Macmillan Company, 1917. preface.

¹ The Centenary of the Discovery of Diastase. editorial J A M A 201: 1564 (Nov 11) 1933.

The adjacent neutrals were under many restraints and pressures to yield their food to either side and were striving with every resource to protect their vital supplies. The Germans were trying to starve the Allies by sinking their supplies at sea. All were desperately trying to maintain production and reduce consumption. In consequence, food problems in balancing vegetable and animal production, in imports, exports and price controls, in protein, fat and carbohydrate content, were all silhouetted against a background of destruction and tragedy.

Under such ominous conditions, some of the leading nutrition experts in each country were called on to offer suggestions that might help to meet desperate situations. One American enthusiast ventured the public statement that "ours is the splendid burden of feeding the world." Within recent years the irony of fate has brought to our nation the necessity of giving serious attention anew to the problems of national nutrition. An almost unprecedented trade depression with millions of unemployed and poorly paid workers has presented the threat of undernutrition and malnutrition among our citizens. Almost every state in the Union, in addition to various federal government agencies, has organized scientific and philanthropic forces to avert nutritional disasters. The outcome of some of these deliberations and activities has been reviewed in earlier issues of *THE JOURNAL*.² Such undertakings have done far more than to meet impending emergencies, they have helped to summarize and apply the prevailing knowledge of nutrition at a period when notable advances were being reported in this science. This is true particularly of the growing information about vitamins and essential inorganic components of the diet.

Some time ago the British Medical Association appointed a Committee on Nutrition, which has recently published its report.³ There was said to be on the one hand a considerable body of opinion that malnutrition is not observable among the poor, and on the other hand that it exists to a considerable extent. The British committee was specifically instructed "to determine the minimum weekly expenditure on foodstuffs which must be incurred by families of varying size if health and working capacity are to be maintained, and to construct specimen diets."

As in all such cases, it became necessary first of all to define the nature of the various essential constituents of a diet that would fulfil the requirements, and, further, to agree on the quantities necessary at varying ages. The task is not an easy one, as the requisite food intake must be varied with the amount of physical labor involved and the number of children of different ages in the families to be supported, as well as the availability and comparative costs of different common foods. Allowance must also be made for wastage in their preparation

and alimentary utilization. The British committee, after careful consideration, recommended the adoption of the figure 3,400 calories in the food as purchased as the unit requirement of the normal man of average stature, if health and working capacity are to be maintained. This is not regarded as a minimum figure, nor would the adoption of a bare subsistence standard fulfil the terms of reference of the committee, which specifically states that both health and working capacity are to be maintained. It, moreover, does allow a little latitude for individual variation.

It is interesting to compare this conclusion with the deliberations of the experts at work during the World War. The Interallied Scientific Food Commission, which met in Paris late in March, 1918, adopted the following resolution: "That the requirements of the average man of 70 kilograms body weight doing eight hours average physical work in a climate such as England's or France's is to be considered as 3,300 calories as purchased." It was decided that 3,000 available calories as ingested was the requirement of the average man leaving a 10 per cent margin for domestic spoilage or waste.⁴ In the provision of the "emergency" rations in this country in recent months, the tendency has been toward a limitation of the provision of energy to somewhat less than 3,000 calories a day for the average adult man. Fractional requirements for persons of varying size and age have repeatedly been published.

The British experts have taken a noteworthy stand with respect to the protein factor in nutrition. Thus, they state,

It is now usual to differentiate the protein foodstuffs into two classes. Proteins from animal sources are designated as first-class proteins, whilst those of vegetable origin are relegated to the second class. The first-class proteins, besides possessing a higher nutritional value than second-class proteins, are more nearly completely absorbed by the body. Vegetable proteins are absorbed in varying proportions, which rarely exceed 80 per cent. There is a measure of agreement that from 10 to 15 per cent of the daily calories should be derived from protein, and 100 grams of protein per day will provide 12 per cent of the total daily calory supply of 3,400. The Committee agrees that 50 grams of first-class protein per day is sufficient to maintain the health and working capacity of the average man. The figure of 50 grams of first-class protein represents half the daily protein intake. The other half can be furnished from vegetable sources.

This conclusion will scarcely please the advocates of the exclusive vegetarian diet, though it will not affect those who practice the more common forms of lacto-vegetarianism.

The new report alleges that a common fault in the dietaries of young children is a shortage of first-class protein. It insists that the popular prejudice against giving meat and cheese to children of this age is not based on physiologic data. In Britain, as in this country, the general consensus on the value of milk as a food for young children is so strong that it should be included in every case in the diet of children in order

² Food and Nutrition in the Depression Period editorial J. A. M. A 98: 50 (Jan. 2) 1932. Depression Death Rates *ibid* 99: 1354 (Oct. 15) 1932. Malnutrition in Children *ibid* 101: 1318 (Oct. 21) 1933.
³ Report of Committee on Nutrition British Medical Association Brit. M. J. Nov. 25 1933 supplement.

⁴ Lusk, Graham. *The Elements of the Science of Nutrition* ed. 4 reset Philadelphia W. B. Saunders Company, 1928.

to maintain health and normal growth. The American tendency would be, however, to exceed somewhat the guiding rule of 1 pint of milk a day for a child up to the age of 5 and of half a pint of milk from 5 years to 10. The usual stress is placed on the invariable inclusion of dairy produce, fruits and green vegetables in the family diet in order to ensure a sufficiency of food containing vitamins and mineral constituents. In view of rapidly changing purchasing values it is almost futile to compare the proposed costs of adequate nutrition in times of stress. It is heartening, however, to find such general agreement among the English-speaking nations in respect to the fundamental food problems of their people.

Current Comment

BOVINE TUBERCULOSIS

Many years ago, extensive investigations in this country and abroad proved that the organism causing tuberculosis in cattle is capable of infecting human beings. Bovine tuberculosis rarely causes pulmonary tuberculosis in adults, but according to Park and Krumwiede,¹ the bovine bacillus causes about one tenth of the bone joint and lymph node tuberculosis in adults and one fourth of this type of tuberculosis in children. In young children it is said to cause from $6\frac{1}{3}$ to 10 per cent of the total fatalities from this disease. Tuberculosis in cattle is beyond question, a menace to public health. How the infection in cattle reaches man is another problem that has been extensively studied and it is agreed that the chief agent in transmitting the infection is cow's milk. The well known process of pasteurization if properly done will destroy the tubercle bacilli in milk. But pasteurization is not always properly done and it is not everywhere required to be done at all. Strange to say, there are interests that would prevent the further adoption of this method of insuring safe milk. In an industry so close to the public health it would be highly desirable to reach the point of attainment at which all tuberculous cattle were removed from the dairy herds. Since 1917 the federal government has been aiming at just that in its cooperation with the different states in testing, condemning and slaughtering tuberculous cattle. It is extremely interesting to note the changes in the death rate of tuberculosis in man that have occurred in that period. H. R. Smith of the National Live Stock Exchange calls attention to figures compiled from data from the U. S. Bureau of Animal Industry and the Bureau of the Census. The human death rate from respiratory tuberculosis in the United States in 1918 was 128.6 per hundred thousand of population, but it has decreased every year since then and last year was 56.6, or less than half what it was in 1918. The number of cattle tuberculin tested under this program in the year ended June 30, 1932, was nearly thirteen and a half million.

In this huge number, 1.9 per cent had a positive tuberculin test in contrast to 4.9 per cent in the cattle tested in 1918. As a matter of record, the aggregate number of cattle tested in all these years under this program has been 115,170,388, and among them 2,693,570 reactors were found. It cannot be claimed that the cooperative program of the government for the eradication of bovine tuberculosis alone has been responsible for the decline in the tuberculosis death rate, but it certainly is significant that during the eighteen years previous to 1918 the death rate of tuberculosis other than respiratory did not decline, in fact, the trend was slightly higher. This mortality rate in the United States in 1900 was 21.4 per hundred thousand of population. In 1917 it was 22.5 and through the intervening years it no time did it fall below the rate that prevailed in 1900. Various influences were at work from 1900 to 1917 to reduce the mortality rate of respiratory tuberculosis and they succeeded, but they did not reduce the mortality rate of other forms of tuberculosis. Since the government's campaign was instituted, however, the trend of the mortality rate of tuberculosis other than respiratory has been entirely different. The rate has been less for each succeeding year, and in 1932 it was 6.4. The removal of hundreds of thousands of tuberculous cattle from the herds that supply milk was coincidental with the great decline in the death rate from tuberculosis other than respiratory. It would seem to substantiate the work of investigators who found long ago that bovine tuberculosis was responsible for a great many cases of extrapulmonary tuberculosis in man.

ALBERT ABRAMS REDIVIVUS

In the department of THE JOURNAL devoted to reports by the Bureau of Investigation appears in this issue an account of an exceedingly impudent attempt to exploit anew the so-called electronic reactions of Abrams. One is inclined to remark that there are no new hokums, there are merely the old hokums introduced in a new way. Barnum knew that the will to believe is perennial, the technique of the magician need not vary, one merely diversifies the *materia magica*. The idea of special vibrations for different diseases can be found among the concepts of ancient centuries. But the engineer who would revive the Abrams doctrine has introduced new wrinkles, which must be the product of a training in engineering. The physician who scans the pictures of the Food and Remedy Test Set and the cow, so scientifically hitched, which the Bureau of Investigation provides for his delectation, will realize how a training in engineering can help a man who yearns for a medical career. The reason for this comment in association with the extraordinarily complete analysis by the Bureau of Investigation of the claims of Engineer F. C. Ellis lies in the concluding two paragraphs of the report. The Micro-Dynameter of Mr. Ellis has been exhibited at a meeting of the Inter-State Postgraduate Medical Assembly. A few of the physicians who derive their scientific pabulum through that organization have apparently invested in the device and thereafter been unable to find it of the scientific worthiness which at the time of investment it seemed to possess. Moreover, a

¹ Park W. H. and Krumwiede Charles. The Relative Importance of the Bovine and Human Types of Tubercle Bacilli in the Different Forms of Tuberculosis. J. M. Res. 27: 109. 1912-1913.

so-called medical periodical, *Clinical Medicine and Surgery*, has aided promotion of the device through its advertising columns, indeed, Mr. Ellis flaunts a letter from the editor of that publication, Dr. George B. Lake, in support of his contentions. It seemed when the late but not too greatly lamented Abrams passed from our midst—from pneumonia before he even hatched himself up to a machine—that his cult would pass soon from the scene. Usually these thaumaturgies disappear within a few years of the magician who promotes them. Little has been heard of Abramsism since that time and many a medical scrap heap yields the coils and wires that once were the heart and soul of the Abrams box. Yet now like a spirit from beyond the sepulcher emerges the Micro-Dynameter of Mr. Ellis. And a medical organization and a medical periodical are available to help rap the tables and shake the tambourines to assist the materialization. The spirit of Barnum must be chuckling beyond the Styx, unless perhaps exhausted by its laughter when viewing the multitudes who visited the india rubber man and the stuffed whale at A Century of Progress Exposition.

CAPILLARY PERMEABILITY TO LIPIDS

Attention has recently been directed to the need for further investigation of the physiology of digestion and absorption.¹ These functions of the organism are preparatory to the actual metabolism of the foodstuffs which, once circulating in the blood stream, are still more or less distantly removed from the cells of the tissues. Although the manner of transport of sugar and amino-acids is fairly well established, the mode of passage of lipids through the capillary walls into the interstitial fluid has not been satisfactorily explained. Man and Peters² have recently reported studies designed to elucidate the permeability of the capillary walls to the lipids of the plasma. Serums of normal persons were analyzed for cholesterol, total fatty acids and phospholipids before and after the subjects stood absolutely still for half an hour. Under these conditions of increased hydrostatic pressure there ordinarily occurs a passage of protein-free fluid from the capillaries into the tissues. In the present experiments it was observed that the increased concentration of cholesterol paralleled that of serum protein, indicating that this lipid failed to pass out of the capillaries as did the protein. In most of the subjects studied, the same observation was made with the total fatty acids and phospholipids. On the other hand, analysis of ascitic, pericardial and pleural fluids indicated that the lipids and protein occurred there in proportional concentrations. It is plain that these observations, though important from certain points of view, yield no explanation of the manner in which lipids traverse the walls of the blood vessels. As the transport, storage and utilization of lipids involve the transfer of this group of substances into and out of the capillaries there is presented here, as recognized by the Yale investigators, still another problem in the biochemistry of fats.

1 Mendel L. B. *Science* 78: 317 (Oct. 13) 1933.

2 Man E. B. and Peters J. P. *J. Clin. Investigation* 12: 1031 (Nov.) 1933.

Association News

MEDICAL BROADCAST FOR THE WEEK

Talk over Network of the National
Broadcasting Company

The American Medical Association broadcasts each Monday afternoon from 5 to 5:15 Eastern standard time (4 o'clock, central standard time). The subject for Monday, January 8, is "Looking 1934-ward." The speaker will be Dr. W. W. Bauer, director, Bureau of Health and Public Instruction, American Medical Association. Subjects and speakers for subsequent broadcasts will be announced weekly in *THE JOURNAL*.

Radio Talks from Station WBBM

The American Medical Association broadcasts on Tuesday and Thursday mornings from 8:55 to 9 o'clock, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

January 9 Fever
January 11 Drinking Water at Public Schools

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

January 13 Lister and the Development of Surgery

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Polluted Clams—A group of clam diggers who had previously been dropped from the state "clam diggers list" was recently arrested for handling polluted clams. They were given a suspended sentence of thirty days. The state department of health states that the conviction is an important advance in the better control of a clean clam supply in the San Francisco Bay region. The control is getting more difficult because of the increasing consumption of clams and the depletion of supply in beds that are clean.

New State Mental Hospital—Ground was recently broken for the new state mental hospital near Camarillo, Ventura County. The site is about 4½ miles from the Pacific Ocean and includes 1,610 acres, 1,200 being arable. The institution will ultimately cost about \$7,000,000 and house 6,000 patients, although funds now available will provide facilities for only about 800 patients. The plans are designed for the ultimate capacity, twenty-two wards to be devoted to each group of 2,000 patients. These three divisions will each have its own feeding, industrial and hospitalization units, administration quarters and apartments for officers. Patients will be housed in a connected group of one and two story ward units enclosing a large central court and twelve smaller courts. Spanish and Italian architecture will prevail. It is hoped to have the institution ready for the reception of patients May 1.

Society News—Dr. Henry Douglas Eaton, Los Angeles, was elected president of the Southern California Medical Association, November 4. Drs. Leslie H. Redelings, San Diego, and Francis B. Settle, Long Beach, vice presidents, and Robert W. Langley, Los Angeles, secretary.—Dr. Rodney A. Yoell, San Francisco, addressed the San Joaquin County Medical Society in Stockton, November 2, on medical economics.—Dr. Henry Chesley Bush, Livermore, conducted a clinic on tuberculosis before the Sonoma County Medical Society, recently.—Dr. Hugh Cabot, Rochester, Minn., discussed "The Management of Bilateral Renal Calculi" before the Los Angeles Surgical Society, December 18. Dr. Allen B. Kanavel, Chicago, addressed the society, December 8, on problems in traumatic surgery of the hand.—Dr. Albert H. Rowe, Oakland, addressed the Fresno County Medical Society, recently, on "The Challenge of Allergy in Medical Practice"—Dr. Wil-

ham Boyd, professor of pathology, University of Manitoba Faculty of Medicine, gave the Colver lectures of the College of Medical Evangelists, December 18-19. His subjects were "Bacterial Infections of the Heart" and "Tumors of the Neck."

Popular Medical Lectures—The fifty-second course of popular medical lectures to be given by Stanford University School of Medicine will open January 12 and continue on alternate Friday evenings until March 23. The following speakers will participate:

Dr. Edmund W. Butler, January 12, Organization of Medical and Surgical Emergencies in San Francisco.
Dr. Ray Lyman Wilbur, January 26, Medicine in Community Service.
Agnes Fay Morgan, Ph.D., February 9, Relation of Diet to Health.
Mary C. Rixford, O.T., February 23, Occupational Therapy.
Dr. George S. Johnson, March 9, Role of Psychiatry in Preventive Medicine.
Joseph C. Hinsey, Ph.D., March 23, Contributions of Medical Science to Our Knowledge of Pain.

COLORADO

Physician Donates Athletic Field—About 3¼ acres of land was presented to the board of regents of the University of Colorado, November 14, to be used as an athletic field for students and members of the faculty. The property which adjoins the campus of the medical school and Colorado General Hospital, Denver, will be named in honor of the donor, Dr. Horace G. Wetherill, Monterey, Calif., who was professor of gynecology in the medical school for many years. Dr. Wetherill, who has retired from practice, was formerly president of the Denver County Medical Society, the Colorado State Medical Society and the Western Surgical Association.

CONNECTICUT

Break Up Narcotic Ring—An illicit traffic in narcotics in Connecticut is believed to have been broken up by the arrest, November 9, of seven leaders of two narcotic rings which have been dealing almost exclusively with the illegal transportation of diacetylmorphine (heroin). Drugs valued at nearly \$30,000 were confiscated by the agents. Narcotics were supplied to adjacent states.

Scholarship Awarded—Yale University School of Medicine, New Haven, has awarded the Perkins Scholarship to Miss Lena Halpern, third year student. The scholarship, founded in 1914 by the widow of George C. Perkins, is given annually to the student making the best record in scholarship in the basic subjects of the medical and biologic sciences. Miss Halpern led her class at Yale in this respect and she had the highest average grade in a group of 593 medical students from all sections of the country who took the National Board examinations, part one, last June. She obtained a bachelor's degree at Hunter College in 1926 and a master's degree from Columbia University in 1930.

GEORGIA

Mental Hygiene Clinic Discontinued—A free clinic for mental hygiene, conducted by the city-county health unit of Macon and Bibb County, was discontinued, December 1, as a part of an economy program instituted by the state board of control, newspapers reported. The clinic has been in operation for twelve years and was under the supervision of Dr. Young H. Yarbrough, Milledgeville.

ILLINOIS

Sanitation Program to Prevent Typhoid—With the objective of eliminating sources of typhoid, the state health department has announced a program of sanitation in the southern part of the state, where, in thirty-four counties, the prevalence of typhoid is twelve times higher than in the northern third. With only one seventh of the population, the southern third of Illinois has fully one half of the state's typhoid cases each year. Last year the sixty-eight counties of the state had fifty-eight deaths from the disease, while the thirty-four counties in the southern section accounted for sixty-nine. An engineer of the U. S. Public Health Service has been assigned to Illinois to assist the state department of health in planning, organizing and supervising the project.

Chicago

Sentenced for Holdup of Physician—Judge Epstein sentenced Stanley Kaszulowski to serve from one year to life in prison, December 5, after he had been found guilty by a jury of robbery with a gun. The victim was Dr. Edward H. Warszewski, a member of the Chicago Medical Society. Kaszulowski was a member of the bandit gang that specialized

in "fake calls" and the holdup of physicians. Three of his companions were sentenced to 100 years each in the penitentiary, August 14, after they pleaded guilty to the murder of Dr. Bernard F. Garritz.

Dr. Craig to Lecture on Amebic Dysentery—Dr. Charles F. Craig, director of the department of tropical medicine, Tulane University of Louisiana School of Medicine, New Orleans, will give the second Jessie Horton Koessler Lecture of the Institute of Medicine of Chicago, January 26. He will discuss amebic dysentery. Officers of the institute, named at the eighteenth annual meeting, December 13, are chairman of the board of governors, Dr. Ludvig Hektoen, president, Dr. Joseph L. Miller, vice president, Dr. Vernon C. David, secretary, Dr. George H. Coleman, and treasurer, Dr. John Favill.

Address by Dr. Copeland—Dr. Royal S. Copeland, senator from New York, will address the Chicago Medical Society, January 17, on the Copeland bill. Dr. Arthur J. Cramp, director, Bureau of Investigation, American Medical Association, Chicago, will discuss the bill. Dr. Everts A. Graham, Bixby, professor of surgery, Washington University School of Medicine, St. Louis, will participate in a symposium on the gallbladder in general practice before the society, January 24, discussing the surgical aspect. Drs. George H. Coleman and Anton J. Carlson will consider internal medicine and physiology, respectively.

INDIANA

Society News—Speakers before the Indianapolis Medical Society, December 19, were Drs. Millard H. Foster on "Sexual Theory of the Neuroses," Howard B. Mettel, "Role of Allergy as Applied to General Medicine," and Bert E. Ellis, "Obstruction of the Larynx." Dr. Henry S. Leonard was elected president of the society, December 5. At a meeting of the Gibson County Medical Society in Princeton, December 11, Drs. John L. Morris and Amos H. Rhodes, Princeton, spoke on pneumonia and eye infection including corneal ulcer, respectively. Drs. Everett E. Padgett, Indianapolis, and Samuel Kennedy, Shelbyville, discussed medical economics before the Henry County Medical Society in Lewisville, December 7. Dr. William J. Butler, Grand Rapids, addressed the Elkhart County Medical Society, December 7, on "Acute and Chronic Gonorrhea." The Noble County Medical Society was addressed in Kendallville, December 12, by Dr. Merlin H. Draper, Fort Wayne, on tuberculosis. Dr. Ernest O. Nay, Terre Haute, talked on "The Relief of Prostatic Obstruction by the Electroscope" before the Vigo County Medical Society, December 12.

KENTUCKY

Personal—Dr. Elijah H. Maggard, superintendent of Eastern State Hospital, Lexington, has been transferred to Central State Hospital, Lakeland, to succeed Dr. William A. Quinn. Dr. Edward Davenport succeeded Dr. Maggard. Dr. George L. Thompson, Calhoun, health officer of McLean County, was elected chairman of the Green River Valley Public Health Association at its annual meeting in Hartford, November 9. Dr. Theodore Sallee, Covington, has been appointed health officer of Covington to succeed Dr. James P. Riffe, who has been elected coroner of Kenton County.

Society News—The Physicians and Dentists' Bureau for credit information and collection of accounts has been formed in Ashland with the approval of the Boyd County Medical Association. A joint meeting of the Harlan County Medical Society, the Cumberland Valley Medical Society and the Southeastern Kentucky Dental Society was held in Harlan, December 6. Among other speakers were Elmer C. Hume, D.D.S., Louisville, on traumatic surgery of the facial structures and Dr. Addie M. Lyon, Frankfort, eugenic sterilization. Dr. Earnest R. Goodloe, Paducah, addressed the Greenup County Medical Society in November on intravenous medication. Dr. Leroy U. Gardner, Saranac Lake, N. Y., addressed the Jefferson County Medical Society, Louisville, December 4, on pathology of pulmonary tuberculosis.

MAINE

Survey of Malnourished Children—The Maine Medical Association is cooperating with the state department of health, the Maine Public Health Association and local agencies in a plan to investigate and report on malnutrition in children of the state. Since local conditions are a factor, the organization of the plan has been left to the county medical societies with recommendations that they confer with local health officials. Arrangements will be made with school authorities for the examinations.

Society News—At a meeting of the Portland Medical Club, November 7, Dr Henry W Lamb discussed "Joint Tuberculosis"—Dr Harry I Friedman Boston, conducted a clinic on cancer before the Oxford County Medical Association in Rumford, recently, and gave an address on the same subject—The Penobscot County Medical Society was addressed in Bangor November 21, by Dr Elliott C Cutler Boston on "Total Thyroidectomy in the Treatment of Heart Disease" and Dr Channing Frothingham Boston discussed uremia, both physicians also conducted clinics—At a meeting of the Piscataquis County Medical Society at Dover-Foxcroft November 23, Dr Adelbert B Allen, Waterville, discussed diseases of the prostate

MARYLAND

Dr Wilmer to Retire as Director of Ophthalmologic Institute—Dr William H Wilmer will retire as director of the Wilmer Institute of Ophthalmology at Johns Hopkins University School of Medicine, Baltimore, July 1, to comply with regulations providing that professors leave the faculty when they reach the age of 70. The Wilmer institute was inaugurated in 1925, following the completion of a \$3,000,000 fund, the income of one third of which serves for the maintenance of the department. The income of the second million is used for the support of beds in the clinic for persons unable to pay, and the third million is devoted largely to the construction and equipment of the necessary buildings for housing the department. Dr Wilmer has been director of the institute since its establishment, carrying a concurrent appointment as professor of ophthalmology. He served in a similar capacity at Georgetown University School of Medicine, Washington, D C, from 1906 to 1925. Dr Wilmer was born in Powhatan County Va, in 1863. He graduated in medicine at the University of Virginia in 1885, taking graduate study at the New York Polyclinic and various hospitals of Europe. In 1889 he established practice in Washington. D C. Georgetown University conferred the degree of doctor of laws on Dr Wilmer in 1919, and Princeton the degree of doctor of science in 1926. Now a brigadier general of the medical reserve corps, Dr Wilmer's service in the army was concluded in 1918 as a colonel. Until 1918, he was officer in charge of the army medical research laboratories, when he assumed a similar responsibility for the American Expeditionary Forces in France, for one year. He was awarded the Distinguished Service Medal in 1919. Dr Wilmer has held official positions with several scientific societies and contributed to the literature on ophthalmology and medical aviation. He plans to continue with his private practice and writing.

MASSACHUSETTS

Society News—Dr Donald Gregg, Wellesley, was named president of the Massachusetts Society for Mental Hygiene November 23, and Dr Charles E Thompson, Gardner, secretary. Speakers at the annual meeting of the society included Dr Lawrence K Lunt Concord, Payson Smith Ed D, Boston. Dr Henry B Elkind and Dr Clarence M Hincks, director National Committee for Mental Hygiene, New York.

In Honor of Dr Shattuck—The name of Van Dyke Street, which adjoins Harvard University Medical School, has been changed to Shattuck Street in memory of Dr Frederick C Shattuck. The street is a private thoroughfare and the change of name was made by authority of the Harvard Corporation and neighboring hospitals. Dr Shattuck graduated from Harvard College in 1868 and from the Harvard Medical School in 1873. He became associated with the teaching staff in 1879 and served as Jackson professor of clinical medicine from 1888 to 1912. Following his retirement, he was a member of the board of overseers from 1913 to 1919 and remained actively interested in the progress and development of the institution until his death in 1929.

MICHIGAN

State Society Night—January 15 has been designated 'State Society Night' by the Wayne County Medical Society, when the program will be presented by members of the council of the Michigan State Medical Society.

George L LeFevre Muskegon president State Society Objectives
Richard R Smith Grand Rapids president elect State Institutions
Burton R Corbus Grand Rapids chairman Council Responsibilities
Frederick C Warnshus Grand Rapids secretary The State Society
Its Activities Strength and Weakness

An opportunity will also be presented to members of the county medical society to ask questions. Following this meeting, a social hour will be held in honor of two past presidents

of the Wayne County Medical Society, Drs Frank A Kelly (1923-1924) and Henry A Luce (1925-1926).

Society News—The Detroit Obstetrical and Gynecological Society was addressed, December 5, by Drs Harold A Furlong, Pontiac, on "Repair of the Urethra Following Obstetrical Trauma" and Alexander M Campbell, Grand Rapids "Radio-que Media in Gynecological and Obstetrical Diagnosis"—The Bay County Medical Society was addressed, November 8, by Dr Henry K Ransom, Ann Arbor, on "Surgical Diseases of the Female Breast"—Dr Grover C Penberthy, Detroit, addressed the Gratiot-Isabella-Clare County Medical Society in Alma, November 9, on osteomyelitis in children—At a meeting of the West Side Medical Society, Detroit, December 7, proposed changes in medical practice were discussed by Mr William J Burns and Drs Henry A Luce and Edgar E Poos—A symposium on automobile injuries was presented before the Wayne County Medical Society, December 18, by Drs Elisha S Gurdjian, Alfred D LaFerte Harry W Plaggemeyer, Harold K Shawan and Claire L Straith and Inspector Henry J Garvin of the Detroit Police Department—Dr Myron William Chitt Flint, was elected president of the Michigan Association of Roentgenologists, November 24, succeeding Dr Augustus W Crane, Kalamazoo.

MINNESOTA

Society News—Speakers before the Hennepin County Medical Society, December 13, included Leroy S Palmer Ph D, of the University of Minnesota on "Clinical Nature of Vitamins and Their Distribution in Foods" and Drs Charles B Wright and Arthur A Wohlrabe, on diets in treatment of ulcerative colitis and gallbladder disease, respectively—Dr Charles H Mayo Rochester, has been reelected president of the Minnesota Public Health Association.

Tuberculosis Program in Hennepin County—To stimulate interest in the early diagnosis of tuberculosis, the Hennepin County Tuberculosis Association is furnishing to physicians of the county a tuberculin syringe and diluted old tuberculin in a sterile vial. This service includes delivery to the physicians in their offices of a fresh supply of diluted tuberculin once every two weeks. Complete instructions are also given for applying and reading the Mantoux test. The tuberculosis association plans to inaugurate an educational campaign for the public later, stressing the importance of the tuberculin test and the x-rays in early diagnosis.

MISSISSIPPI

Society News—The Central Medical Society was addressed in November, among others, by Drs M A Sanchez-Vigil Managua, Nicaragua, on "Practice of Medicine in Nicaragua," and Frank H Hagaman, Jackson, "Resection of Sympathetic Nerves for Relief of Pelvic Pain"—Dr Irvin W Barrett, Clarksdale, among others, addressed the Clarksdale and Six Counties Medical Society, November 8 on hay fever, and Dr William H Brandon Clarksdale, sterility—Speakers before the East Mississippi Medical Society, October 19, were Drs Leonard Hart, Meridian, and James S Speed Memphis Tenn, heart disorders and fractures of the elbow joint, respectively—Dr James B McElroy, Memphis, Tenn, discussed the treatment of malaria, among other speakers, before the North Mississippi Medical Society in Oxford, October 25.

NEW JERSEY

Princeton Investigates the State Health Department—In a recent investigation of the state government conducted by Princeton University at the direction of Governor Moore, a number of recommendations were made concerning the state health department. To increase the revenue of the department the survey suggested that charges be made for examinations to test qualifications of persons desiring employment in fields closely connected with public health and for licenses issued to establishments handling foodstuffs. It was recommended that bakeries, canneries and confectioneries be added to the list of such establishments, removing these from the jurisdiction of the department of labor. Other license fees suggested were from individual milk plants from which milk is imported into New Jersey. Regulation of health conditions among persons who work at home for factories was urged as a function of the health department rather than the department of labor, the cost of which would be distributed among the contractors distributing such work. Among internal changes recommended were restoration of the publication of *Public Health News*, the department's bulletin, combination of the bureau of venereal

disease with the bureau of local health administration which handles problems concerned with other communicable diseases restoration of appropriations to provide offices and help for district health officers, and abolishment of the health officer of the port of Perth Amboy

NEW YORK

Society News—The ninth annual meeting of the New York State Committee of the American Society for the Control of Cancer was held in Rochester, December 12. A clinical conference was held in the morning at Strong Memorial Hospital, Rochester, and in the evening Dr. Burton T. Simpson, chairman of the state committee, addressed a public meeting at the Charlotte High School. The Buffalo Surgical Society for its December meeting visited clinics conducted by Dr. Donald Guthrie at Sayre, Pa.

New York City

Guest Lecturers at Medical School—The Clinical Society of the New York Polyclinic Medical School and Hospital is presenting a series of guest speakers the first Monday night in each month. Dr. Ralph Pemberton, Philadelphia, spoke, November 6, on "Newer Developments in Arthritis," and Drs. Elliott P. Joslin, Boston, and Francis M. Pottenger, Monrovia, Calif., December 4, on "Diabetic Gangrene—The Chief Menace to the Diabetic Today" and "Conservative Versus Operative Measures in the Treatment of Pulmonary Tuberculosis," respectively. Speakers to come in the series are:

Dr. Frank H. Lahey, Boston, Esophageal Diverticulum: Its Diagnosis, Surgical Management and End Results, January 8.
Dr. Walter L. Biering, Des Moines, Iowa, President Elect, American Medical Association, Coronary Artery Disease, January 8.
Dr. Grant I. Ward, Baltimore, New Developments in Electrosurgery, February 5.
Dr. William D. Cutter, Chicago, The Educational Program of the American Medical Association, February 5.
Dr. John Shelton Horsley, Richmond, Va., Cancer of the Stomach, March 5.
Dr. Dean Lewis, Baltimore, President, American Medical Association, Surgical Diseases of the Breast, April 2.
Dr. George W. Crile, Cleveland, End Results of Denervation of the Adrenal Glands for Neurocirculatory Asthenia, Peptic Ulcer, Diabetes and Epilepsy, April 2.

Dr. Richard Kovacs is president of the clinical society and Dr. Thomas J. Tobin, secretary.

Course in Physical Therapy—Six lectures and demonstrations comprise the course in physical therapy to be opened by the Bronx County Medical Society, January 8, under the direction of Dr. Frederick E. Bruer. No fee will be charged. Following is the schedule:

January 8, External Heat Measures Including Hydrotherapy, Dr. Heinrich F. Wolf.
January 12, Medical Diathermy, Dr. Richard Kovacs.
January 15, Massage and Exercise, Dr. Wolf.
January 19, Low Frequency Currents and Electrodiagnosis, Dr. Kovacs.
January 22, Surgical Diathermy, Dr. William Bierman.
January 26, Ultraviolet Radiations, Dr. Bierman.

Dr. Rice Appointed Health Commissioner—Dr. John L. Rice, for several years health commissioner of New Haven, Conn., has been named health commissioner of New York, succeeding Dr. Shirley W. Wynne, retired. Dr. Rice, who is 46 years of age, was born in Connecticut. Following his graduation from Johns Hopkins University School of Medicine in 1917, Dr. Rice engaged in medical and sanitary work in Central America, Trinidad and Puerto Rico for the Rockefeller Foundation. On returning to the United States he was health officer of Mason County, Kentucky, and later held a similar position in Albany, N. Y. Dr. Rice is president of the Connecticut Public Health Association. He and Dr. George C. Ruhland, health officer of Syracuse, recently spent several weeks in Germany and Austria as members of a party of municipal executives from American cities, studying public health conditions and problems.

NORTH CAROLINA

University News—Dr. John Shelton Horsley, Richmond, conducted a clinic at Duke Hospital, Durham, December 2, on lesions of the stomach and colon, and Dr. Eldridge L. Eliason, Philadelphia, December 7, on fractures. Dr. Estelle Ford Warner of the U. S. Public Health Service lectured, December 13, on child hygiene and Dr. Charles W. Stiles, also of the service, December 8, on hookworm.

Society News—Dr. George Curtis Crump, Asheville, addressed the Buncombe County Medical Society, November 6, on diseases of the gallbladder. Dr. Joseph Colt Bloodgood, Baltimore, conducted clinics on cancer at Wake Forest College School of Medicine, December 1-2. Dr. Samuel B. McPheeters addressed the Mecklenburg County Medical Society, Charlotte, December 5, on latent and reinfection tuberculosis.

Dr. Roy R. Kracke, Atlanta, spoke, November 21, on "The Nutropic State."

Dr. MacNider Receives Medal—The Southern Medical Association at its annual session in Richmond in November awarded its annual gold medal for notable achievements in research to Dr. William deBerniere MacNider, Kenan research professor of pharmacology, University of North Carolina School of Medicine. Dr. MacNider is a native of North Carolina, received his education in the state university, and has been a member of the faculty since 1905. He was president of the Medical Society of North Carolina, 1925-1926, chairman of the section on pharmacology and therapeutics of the American Medical Association 1926-1927 and is at present president of the American Society for Pharmacology and Therapeutics. Since 1930 he has been a member of the National Board of Medical Examiners.

OHIO

Past Presidents' Dinner—The second annual banquet of the Past Presidents' Association of the Summit County Medical Society was held in Akron, November 22. The three oldest members of the group of about twenty-five, Drs. John Henry Seiler, Dell S. Bowman and Samuel St. John Wright, were elected honorary presidents and Dr. Joseph N. Weller, president. Dr. Seiler, the oldest member, was president of the society in 1898 and in 1903. Following the dinner the remainder of the society was invited to hear an address by Dr. George E. Follansbee, Cleveland, chairman of the Judicial Council of the American Medical Association, on "The Practice of Medicine—Profession or Trade."

Society News—Dr. Wade W. Oliver, professor of bacteriology, Long Island College of Medicine, Brooklyn, gave an address on science and art entitled "Continuity," before the Cincinnati Academy of Medicine, December 18. Dr. Donald G. Ralston, McConnellsville, addressed the Ashland County Medical Society, November 29, on childhood tuberculosis. Dr. Berton M. Hogle, Troy, addressed the Miami County Medical Society, Piqua, November 8, on anesthesia. Dr. Herbert M. Platter, Columbus, addressed a joint meeting of the Marion Academy of Medicine and the Marion County Bar Association, November 14, on "Medicolegal Relationships." Dr. Jonathan Forman, Columbus, addressed the Huron County Medical Association, Willard, November 15, on allergic diseases.

OKLAHOMA

Society News—Harper County physicians and dentists have formed a society to be known as the Harper County Medical and Dental Society, with Dr. Hardin Walker, Rosston, as president. Dr. Charles P. Bondurant, Oklahoma City, addressed the Pontotoc County Medical Society, recently, on skin disease.

PENNSYLVANIA

Dr. Reed Wins Academy Prize—Dr. Josiah F. Reed was awarded the Seibert Memorial Prize of the Harrisburg Academy of Medicine at the annual banquet, November 22. The award, which is \$500, to be used in visiting medical centers of Europe, was established in memory of the late Dr. William Seibert, Steelton, by his sister, the late Anna Mary Seibert. It is given every two years to a member of the academy who has done notable work. Dr. Reed is an obstetrician on the staff of the Harrisburg Hospital.

Meeting on Medical Economics—The Allegheny County Medical Society devoted its entire meeting, December 19, to discussions of emergency health and welfare problems. Speakers were Drs. Harold A. Miller, director, state emergency relief board; Walter F. Donaldson, secretary, Medical Society of the State of Pennsylvania; Benjamin Franklin Royer, vice chairman, state emergency child health committee; Charles H. Smith, Uniontown; Robert A. Knox, Washington; and Henry T. Price, Pittsburgh, chairmen of emergency child health committees in Fayette, Washington and Allegheny counties, respectively, and Alexander H. Colwell, Pittsburgh.

Philadelphia

Society News—Dr. Arturo Castiglioni, professor of the history of medicine in the University of Padua, delivered the Nathan Lewis Hatfield Lecture of the College of Physicians of Philadelphia, November 29, on "The Medical School at Padua and the Renaissance of Medicine." Dr. George Dorance delivered an oration before the Philadelphia Academy of Surgery, December 4, on "Ligation of the Great Arteries of the Neck." Drs. Alexander Randall and Edward Campbell presented a paper on "Value of Nephrolysis, Ureterolysis and

Nephropexy in Selected Cases" — Dr Frederick M Law, New York addressed the Philadelphia Laryngological Society, December 5 on "Errors in Interpretation of X-Rays of the Mastoids and Sinuses" — Speakers at the meeting of the Obstetrical Society of Philadelphia, December 7 were Drs Ross B Wilson on "Transverse Positions of Vertex Presentations", Edward A Schumann and William E Parke "Endometriosis of the Abdominal Wall," and Lewis C Scheffey, "Infrequent Complications of Uterine Cancer with Certain Clinical Observations"

Joseph W England Dies — Joseph Winters England, an Associate Fellow of the American Medical Association, died of a sudden heart attack, December 2, aged 70. Mr England was graduated from Philadelphia College of Pharmacy and Science in 1883. In 1902 he became consulting pharmacist to the Smith, Kline and French Laboratories, remaining in that capacity until his death. He took an active part in pharmaceutical organization activities having served as president of the Pennsylvania Pharmaceutical Association in 1926 and of the Philadelphia branch of the American Pharmaceutical Association in 1921. For many years he was secretary of the publication committee of the *American Journal of Pharmacy* and chairman of the committee on publication of the American Pharmaceutical Association. In 1910 he was a member of the Committee on Revision of the Pharmacopoeia. He was also active in the affairs of his alma mater, having been secretary of the alumni association from 1904 until his death and for the nine years 1924-1933 chairman of its board of trustees. In 1903 he received the honorary degree of master in pharmacy, honoris causa, from the college. He carried on extensive research and contributed many articles to the literature.

RHODE ISLAND

Superintendent Retires — Dr John M Peters has resigned after forty-four years as superintendent of Rhode Island Hospital, Providence. Dr Peters came to the hospital as an intern after his graduation from Harvard University Medical School in 1887 and two years later was appointed superintendent. At that time the hospital had 130 beds, in comparison with the present 600, and served 902 patients in a year compared with more than 10,000 last year. Dr Peters announced his resignation, November 3, his seventieth birthday, to take effect January 1. Dr William O Rice, assistant superintendent since 1909 has been named acting superintendent. Dr Peters was president of the American Hospital Association in 1909.

TEXAS

Society News — Physicians of Hardin and Tyler counties recently organized the Hardin-Tyler Counties Medical Society, with Dr James H Dameron, Silsbee, as president, and Dr John F Shivers, Woodville, as secretary. — Drs Samuel M Hill, Dallas, and Edward H Schwab Galveston, addressed the Dallas County Medical Society, November 9, on suprarenal insufficiency and hypertension, respectively. — Drs Robert M Barton and Robert F Short, Jr, Dallas addressed the Henderson County Medical Society, Athens, November 6, on "Cardiac Edema and Its Treatment" and "Surgical Treatment of Empyema in Children," respectively. — A medical society representing Lamb, Bailey, Hockley and Cochran counties was organized at a meeting at Littlefield November 21, with Dr I J Sparks, Olton, as president and Dr John G Little, Littlefield, secretary. A petition for a charter was sent to the Texas State Medical Association. — The Limestone County Medical Society was reorganized at a meeting in Mexia, November 14. Dr Joseph F Moore Coolidge, is president, and Oscar T Christoffer, Mexia, secretary.

VERMONT

Society News — Drs Thomas E Hays and Arthur Bradley Soule, Jr, Burlington, addressed the Franklin County Medical Society, St Albans, November 1 on arthritis. — Dr Ralph E Powell, Montreal Quebec, addressed the Northeastern Medical Society at Newport, November 10, on genito urinary infections. — The Rutland Clinical Club began a series of eleven meetings, November 14, with Dr John F Burgess, Montreal Quebec, as the first speaker, on diseases of the skin and their management.

WASHINGTON

Personal — Dr William M Beach, Shelton, has been appointed health officer of Mason County. Dr Donald E McGilivray, Port Angeles, of Clallam County to succeed the

late Dr Walter J Taylor, and Dr Allen Bonebrake of Klickitat County.

Hospital News — A new administration building and a receiving hospital for male patients are under construction at Western State Hospital, Fort Steilacoom, at a total cost of about \$300,000. The administration building will replace the present main building.

WEST VIRGINIA

Society News — Dr Byrl R Kirklin, Rochester, Minn, addressed the Kanawha Medical Society, Charleston, November 13 on "Less Commonly Recognized Lesions of the Gastro-Intestinal Tract." — Dr Solomon L Cherry, Clarksburg, addressed the Harrison County Medical Society at its November meeting, on "Treatment of Common Diseases of the Heart." — Dr W T Morris, Covall, discussed the 'Automatic Nervous System' at the quarterly meeting of the Wyoming County Medical Society, November 2. — The Cabell County Medical Society met at the Veterans' Administration Facility, Huntington, November 9, Drs Harvey M McClure and Agha B Musa of the hospital staff presented a paper on thrombo-anginitis obliterans.

WISCONSIN

Appendicitis Increases — A recent study of appendicitis in Wisconsin shows that the death rate from this disease has increased from 11.6 per hundred thousand of population in 1911 to 18.2 in 1930, or an increase of 56 per cent. Analysis of the cases by groups revealed that the increases took place among children under 10 years of age and persons past 30, mounting with age with the exception of children under 5. Among the latter the increase was 64 per cent, for the 5 to 9 group 13 per cent. Delay in calling a physician or refusal to follow his advice was found to be responsible for fatalities in most cases.

Society News — John A Lapp LL.D, professor of sociology, Marquette University, addressed the Milwaukee County Medical Society, December 14, on "Medical Service in the Program of Social Welfare." — Drs John E Mulsow and Herbert G Schmidt addressed the Milwaukee Oto-Ophthalmic Medical Society, November 28, on "Roentgenological Study of the Hypopharynx and Trachea" and "Fracture of the Mastoid" respectively. — Drs Alfred W Adson and Henry W F Woltman Rochester, Minn addressed the Barron-Washburn-Sawyer-Burnett Counties Medical Society, Rice Lake, November 13, on "Brain and Spinal Cord Injuries." — At a meeting of the Grant County Medical Society, Lancaster November 2, speakers included Drs William A Mowry, Madison on allergic reactions, and Gunnar Gundersen La Crosse, on duodenal obstructions. — Drs Harold E Marsh and Arnold S Jackson Madison, addressed the Marinette-Florence Counties Medical Society, Marinette, November 9, on surgery in heart disease and acute conditions in the abdomen, respectively.

GENERAL

World Narcotics Quotas Issued — The amounts of narcotics that may be used in every country of the world during 1934 have been announced by the League of Nations under authority of the Narcotics Limitation Convention adopted in 1931 and ratified by the required number of countries early in 1933. The total is nearly 50 tons, valued at approximately \$15,000,000 wholesale. For the principal narcotics the amounts are roughly morphine 40 tons including 26 tons of codeine, 1½ of diacetylmorphine, 2¼ of ethylmorphine hydrochloride and 5½ of cocaine. The United States will have the largest quotas in the world, except for diacetylmorphine, which is not allowed to enter the country. The maximum amounts for the United States of the five most important narcotics are morphine, 9,865 Kg 336 Gm, diacetylmorphine none, codeine 6,044 Kg 505 Gm, ethylmorphine hydrochloride, 522 Kg 968 Gm, and cocaine 1,140 Kg 688 Gm. Germany, France, Russia and Japan receive the next largest amounts. The convention requires each country to submit each year by November 1 an estimate of the amount it expects to require for medicinal purposes during the next year and if these estimates appear excessive the league may make inquiries, though it has no power to change the estimates. If a country does not submit an estimate, the league has authority to decide its needs and to enforce its decision. Forty-five countries and eighty-three territories submitted estimates for 1934 and the league board fixed quotas for twenty-three countries and thirty-one territories. Among the latter were Russia, China, Mexico, Argentina and Brazil. Russia however later submitted estimates.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 9, 1933

Progress in Technic at the Radium Institute

The report of the Radium Institute for 1932 shows important improvements in the treatment of cancer of the cervix and cancer metastases in the neck. In treating cancer of the cervix, it has been possible by a new form of vaginal applicator to increase dosage while increasing filtration, so as to keep within the limits of tolerance. The vaginal applicators now in use are spherical or cylindric, with rounded ends, so as to distribute pressure more evenly on the vaginal mucosa. The spheres are made of vulcanite, are 17 mm in diameter, and are perforated by a canal 7 mm in diameter into which fits a platinum container with a wall thickness of 1.5 mm, secured by a vulcanite plug at each end. The container can be filled with any desired amount of radon which is contained in glass capillary tubes. The cylindric applicators are of balclite with a wall thickness of 5 mm and contain a platinum tube 22 cm long in which the radon tubes are placed. The activity of the vaginal applicators has been increased from 10 mg of radium to 15 millicuries of radon. For intra-uterine application a gum elastic sheath 8 cm long and 0.8 cm in diameter holds three radium tubes in tandem each containing 10 mg of radium element. The uterine applicator and three or four vaginal applicators are inserted under gas-oxygen anesthesia and left for forty-eight hours. This combined application is repeated after a week, but between the two a further vaginal application is made forty-eight hours after the first in the knee chest position. This technic gives a dose of 2,880 mg hours in the uterus (the same as before) but an increase in the vaginal dose from 5,040 mg hours to from 5,500 to 7,000, according to whether three or four vaginal applicators are used.

In treatment of cancer metastases in the neck, the new technic seems to hold out more promise of success for the difficult problem of glandular metastases in the neck in cancer of the tongue. The present method consists in using a small number of high content tubes at increased skin distance. With a distance of 4 cm it was found that large fixed glandular masses disappeared. So far the method has been confined to inoperable cases, but the results seem to justify extension. A Columbia paste collar 2 cm thick is made, and the radioactive tubes are mounted on blocks of balsa wood 2 cm thick. The tubes are 4.5 cm long and the filter is 2.5 mm of lead attached to the wood. Generally four tubes are used, being arranged as a square of from 64 to 144 sq cm. The upper tube is parallel to and at the level of the lower ramus of the mandible when the superior cervical glands are involved. The time of exposure has gradually been increased until it is now ten hours daily for twenty days. Each tube contains 50 millicuries of radon and is made up to its original content every morning. The dose given is 280 millicurie days. The reaction is severe, there is a destructive dermatitis over a wide area and the patient feels ill for two or three weeks. The time is too short for a final estimate of the method, but the results are better than any previously attained.

Lead in Canned Sardines

At the Society of Public Analysts Dr. L. H. Lempitt and a collaborator read a paper reporting that canned sardines had been found seriously contaminated with lead. An apparent connection existed between the amount of solder exposed in the can and the lead content of the sardines. But solder was not the only source of lead, for it had been found in sardines packed in cans in which no lead could be derived from the

container. It had been shown that sardines cooked on grills covered with so called tin containing appreciable quantities of lead were badly contaminated with the latter, whereas if pure tin was used the lead content of the sardines fell to a negligible figure. The metal of the grills was the chief source of contamination with lead. The lead content of sardines should not be substantially more than from 5 to 8 parts per million. Higher figures indicated avoidable contamination in the preparation of the sardines before canning.

Epidemic of Gastro-Enteritis Affects a Whole Town

The town of Kidderminster, with a population of 30,000, has been stricken with an epidemic of gastro-enteritis, which has swept through it like one of the ancient plagues. One big school has had to close down and many business and work shops have been working with only half their staffs. Children have been most severely affected. The cause is supposed to be some contamination of the water supply. Policemen have made a door to door tour and handed notices to all householders advising them to boil their water for at least ten minutes before using it. Notices to this effect are also displayed everywhere including the cinemas. It is supposed that the heavy rains following the recent drought has caused 'foreign water' to drift into the water supply and brought the contagion. A chlorination plant has been installed in the reservoir, which has led to continuous improvement in the quality of the water.

Reduction of Crush Fractures of the Spine

In 1930 Mr. R. Watson Jones of Liverpool called attention to a simple method of reducing crush fractures of the spine now so common a result of automobile accidents, which can be carried out by any one who knows the rudiments of plaster work. The kyphotic deformity produced is due to acute flexion at the site of injury. If the patient is placed prone, supported only by his arms at the side of his head and by the front of his thighs and legs, leaving the trunk entirely unsupported, body weight alone is sufficient to give perfect anatomic reduction. Mr. Jones recommends that reduction be performed by arranging two tables end to end, with a space between slightly greater than the length of the patient's trunk. The front table is raised on blocks or chairs, so that it is about 2 feet higher than the other. The patient is lifted face downward on to the lower table, and a double layer of stockinet pulled over the trunk and stitched over the shoulders and beneath the perineum. He is then assisted into such a position that he is gripping the edge of the higher table with his abducted arms, his head resting on a small pillow. The lower table supports his lower limbs as high as the upper part of the thighs but between the groin and the neck there is no support. In this position he is unable to prevent his spine from sagging into full hyperextension. A plaster jacket is applied at once. At the recent meeting of the British Medical Association Mr. W. S. Haughton of Dublin endorsed the advice of Mr. Jones that these patients should be transported face downward. If the patient is placed face downward on the stretcher with a roll of coat or blanket under the upper part of the chest and another under the pelvis the spine will sag into hyperextension and even reduction of the deformity may take place during transport. This method of transport is now taught to ambulance surgeons.

Hospitals to Be Compensated for the Treatment of Road Accidents

The great strain on the resources of hospitals due to the treatment of automobile accidents has been reported in previous letters. Thanks largely to Lord Moynihan this condition is to be remedied. According to the law drivers of automobiles must hold a policy of insurance against the cost of accidents. A clause has been added to the road traffic bill providing that

when any payment is made under policy of insurance or by the owner of the vehicle in respect of death or bodily injury arising out of the use of an automobile on a road, and the dead or injured person has received treatment from a hospital, the insurer or owner must pay to the hospital the reasonable expenses incurred in such treatment up to \$250 for each person treated as an inpatient and \$25 for each person treated as an outpatient. In calculating these expenses, money received by the hospital in payment of a specific charge is to be deducted, but not money received under any contributory scheme. The cost of treating patients is to be calculated as the average daily amount of cost for each inpatient and the maintenance of the hospital and staff. At present many hospitals situated near the great highways are occupied with automobile accidents to the exclusion of those cases for which they were originally intended. It is calculated that the voluntary hospitals of this country are out of pocket to the extent of \$750,000 a year at least for the treatment of automobile accidents. The clause was agreed to without a division in the house of lords.

Payment of Physicians for the Treatment of Road Accidents

Physicians who give emergency treatment in road accidents have a grievance similar to that of the hospitals. In the house of lords, Lord Moynihan moved the second reading of the road traffic (emergency treatment) bill. He said that only about one physician in twenty received either thanks or remuneration for the emergency treatment of road accidents. He originally suggested that a maximum fee of \$15 would meet the case, but it was pointed out that a maximum fee would probably become the standard fee, which would be excessive. After a discussion the committee decided that \$3 would be a fair charge. He suffered a good deal of criticism from physicians for agreeing to this decision. In a great many cases it would be too little, but it is better than nothing which was what the majority got now. This sum would be paid by the insurance companies as part of the "third party risk." In supporting the bill, Lord Dawson, a physician said that physicians worked hard and looked forward to a quiet Sunday, but that was the day of all others when they were likely to be called to road accidents. In many cases the cost of the dressings they had to supply was a substantial sum. For the government the earl of Plymouth objected that the bill would fasten a liability on a man in respect to an accident for which he might not be in the least responsible. He sympathized with the grievance of hospitals and physicians, but he doubted whether the bill provided the right remedy. The government could not accept it and if it reached the house of commons would not undertake to provide facilities for its passage. Lord Moynihan expressed disappointment and urged the house to give the bill a second reading, which it did.

The Recognition of Foreign Medical Qualifications

At the opening session of the general medical council the president, Sir Norman Walker explained the conditions under which physicians from foreign countries or other parts of the British Empire could be registered and so enjoy all the privileges of British physicians. If the council was satisfied that the qualifications furnished a sufficient guaranty of knowledge and skill for the efficient practice of medicine, surgery and midwifery, it might recognize such qualifications. It is lawful to practice in Great Britain without a qualification, but an unqualified person cannot hold any medical appointment, do panel work, sign a death certificate or sue for fees. Most of the British colonies and dominions control medical education and registration and the council has found it easy to estimate the standards of any dominion with a view to giving or withholding reciprocity.

PARIS

(From Our Regular Correspondent)

Nov 22, 1933

The French Congress of Therapeutics

The *Congres français de thérapeutique*, a new creation, was founded by Professor Loeper, who served as its first president. The first session, held at the *Faculté de médecine*, was well attended by scientists from all countries of Europe. In his inaugural address, Professor Loeper brought out that modern research in physiology, biologic chemistry, pharmacodynamics, physical therapy, serotherapy and organotherapy had completely transformed the old type of therapeutics, which justified the creation of this congress. So many communications were offered that it was necessary to organize three sections (medicine, pharmacodynamics, physical therapy), each held in a separate hall. The medical section considered, first, parenteral treatment of gastroduodenal ulcer. Professor Devoto of Milan described the good results secured by the subcutaneous or intravenous injection of various substances, among which he prefers sodium benzoate. He did not give an interpretation of its mode of action although it is possible that it stimulates the secretion of hydrochloric acid. The cures effected in this manner are, however, not permanent. François Moutier discussed treatments by shock methods and by vaccinations, referring to vaccines prepared with the micro organisms of dental pyorrhea. Mr. Debray dealt with the organotherapy, particularly injections of pepsin. Professor Glaessner of Vienna spoke on the same subject and also on the use of insulin and parathyroid hormones. Professor Pribram of Berlin, Mr. Feissly of Lausanne, Guido Mann of Trieste, Mr. Hernandez of Madrid, Mr. Besse of Geneva, Mr. de Beco of Brussels, Mr. Dinkin of Berlin, Mr. Vihardell of Barcelona, Mr. Foyer of Amsterdam, Pavel and Florin of Bucharest, and numerous French specialists, presented their views, without forming the basis for any generally accepted opinion, for all the treatments proposed were presented as having been successful. Another question studied was the treatment of colibacillosis. Fournau and Bovet gave a complete survey of all urinary antiseptics. Professor Vincent, in collaboration with Mr. Pacquet, gave an exposition of his general treatment with his anticolibacillary serum, which is applicable in all manifestations of *Bacillus coli*, including cholecystitis and neuropathic disorders. Mr. Baruk emphasized the last point and discussed colibacillary psychoses, frequent cases of which follow pyelonephritis and the puerperium. Mr. Chevassu reported his experience with Vincent's serum in urinary surgery, during the previous nine years. He reserves it for serious cases of septicemia and pyelonephritis, and as preparation for operative interventions. Mr. Hauduroy spoke on the uses of vaccines, autovaccines and bacteriophages in colibacillosis. Numerous communications were then presented recommending widely different forms of treatment: acridine, neoarsphenamine, derivatives of phenyl salicylate, vaccine-therapy, mineral waters and opotherapy, in endocrinopathetic dysequilibrium. The congress was supplemented by a comprehensive exhibit of pharmaceutical specialties.

Congress of the Anatomic Society

The congress of the *Société d'anatomie* was presided over by Professor Roussy. Two topics were discussed comprehensively. The first topic concerned the mechanism of cerebral hemorrhages. Prof. H. T. Deelman of Groningen took up the theory of Rosenblatt, which denies that cerebral hemorrhage has but one cause, as commonly believed, namely, rupture of a blood vessel. Rosenblatt contends that there are small hemorrhagic foci produced in advance by an alteration of the cerebral substance itself. Deelman thinks that such foci are only secondary and that one can provoke a cerebral hemorrhage by a partial obstruction of the arterial circulation. Prof. P.

Schwartz of Frankfort-on-Main thinks that there are three types of cases (1) lesions following vascular obliterations due to emboli, (2) lesions following obliterations due to arteriosclerosis, and (3) lesions without vascular obliterations or apoplexy due to hypertension. Jean Lhermitte submitted a comprehensive paper on the subject. He pointed out that Charcot and Bonchard's theory of multiple aneurysms is no longer tenable. Cerebral hemorrhage is a complex phenomenon, made possible by the fragility of the cerebral parenchyma, and is precipitated by a sudden stoppage in the arterial system. An anatomic study on the innervation of the visceral pedicles was the subject of papers by Professor Delmas of Montpellier and by Professor Kiss of Szegedin, who reached the conclusion that the structure of these pedicles is identical in the whole organism. Their fibers and cells are of the sympathetic type but combined with somatosensory fibers. There is therefore no reason to assume the existence, in the autonomic pedicles, of two categories corresponding to the orthosympathetic and the parasympathetic.

French Congress of Orthopedics

At the French Congress of Orthopedics, presided over by Professor Mathieu, Dr. Mutel of Nancy presented a paper on "Open Methods for the Reduction of Luxation of the Hip." Such methods are suited to only 8 per cent of the cases in children, and in adults only to the cases in which other methods have not given good results. This type of surgery often leads to ankylosis and should be rejected in bilateral luxations. One can base some hopes on the results of resection of the bone which adapts the length of the femur to the shortened muscle but imposes a permanent limp. The lively discussion that followed showed that, in France at least, the open method has few advocates. Even Mr. Mathieu opposed it, pointing out that it produces stiffness in the simple cases, that it is a grave intervention in difficult cases, and that, in fact, the technique is not yet well worked out.

Another paper, presented by Dr. Richard of Paris, dealt with chronic arthritis of the spinal column, a problem that is imperfectly understood and in which no diagnostic precision can be reached without radiography. He described the numerous types and also the disorders that may simulate it. The treatment varies, requiring in some cases immobilization (tuberculous arthritis) and in some cases progressive mobilization, after disappearance of the muscular contracture through rest, and requiring the use of radiotherapy and thermal treatments. Further communications were presented by Mathieu, Ombredanne, Roederer, Frolich, Graves, Mauclore, Rocher, Ponzet, Meyer, Guerin and Delrhaye. The congress next year will consider "Le thorax en entonnoir" (chief speaker, Mr. Garnier), and "Treatment of Spasmodic Paralysis, the Little Syndrome, and Encephalopathies" (chief speakers, Roudil of Paris and Delchef of Brussels). In 1935 the congress will consider "The Pathogenesis and the Treatment of the Vollmann Syndrome."

The French Assembly of General Medicine

The October session of the French Assembly of General Medicine was devoted to a study of syphilis in France. The chief speaker, Mr. Godlewski, stated that, during the five years that followed the war, there was a considerable increase in the cases of syphilis, then a rapid decline between 1925 and 1929. The situation at present is stationary, but there is a marked contrast between the frequency of syphilis in the rural districts and in the cities, the latter constituting veritable reservoirs of virus. There is no great difference in the relative distribution among the various social classes, but the situation is much better than formerly in the army and in the navy, in which prophylactic measures are vigorously employed. Syphilis too often remains unrecognized until the appearance of the tertiary

stage. Tubercles have become less grave, and one sees nowadays few severe cases of ataxia such as were formerly observed. Visceral localizations, especially aortic, are still frequent. It is generally noted that modern treatment of syphilis has greatly diminished its gravity. Recent cases of syphilis are more quickly suppressed than formerly, but so-called abortive treatment has not proved its efficacy and may give a false sense of security. The Wassermann test is still needed, but the negative results should be interpreted in a critical spirit. Chastity is the origin of syphilis in two thirds of the cases, in both the rural districts and the cities. Medically supervised prostitution is, to be sure, immoral, but it decreases the danger of infection. The antivenereal dispensaries have not given as good results as were expected, for patients, fearful of publicity, hesitate to visit them, often preferring to consult a practitioner who is not a specialist rather than the family physician. During the discussion, the extension of prophylaxis through the teaching of youth the dangers of venereal disease was unanimously approved. The exceedingly difficult differentiation of syphilitic aortitis and atheroma of old age was discussed at length. The present treatment of syphilis is still the subject of much controversy. An interesting graph prepared by Mr. Rimc enabled the assembly to note the relative quantities of the various drugs employed since 1920. It was clearly seen that trivalent arsenic is less used than formerly. Bismuth, particularly the hiposoluble forms, and mercury are being more widely used. Pentavalent arsenic has not sensibly varied since its appearance.

Resignation of Robert Davis

Robert Davis has resigned as superintendent of the American Hospital at Neuilly, which post he had accepted only for a period of eighteen months, by reason of other duties as head of the American Library in Paris. Dr. MacIlroy, director of the school of medicine of Richmond College, has been summoned as his successor.

BERLIN

(From Our Regular Correspondent)

Nov. 20, 1933

The Congress of Gynecology

The congresses held this year have not been so numerous as usual, but the Deutsche Gesellschaft für Gynäkologie held its regular congress in October, under the chairmanship of Stoeckel. The first topic on the program concerned gynecologic hemorrhages. Schroder of Kiel dealt chiefly with anomalies of menstruation. Instead of the usual terms menorrhagia, oligomenorrhoea, polymenorrhoea and metropathia, Schroder proposes a less ambiguous terminology. He divides the anomalies of menstruation into five classes: (1) increased and excessive menses, (2) too frequent or too rare menses, (3) supplementary hemorrhages, (4) hemorrhages not recognizable as menstrual discharges and (5) hemorrhages during the menopause. He emphasized the importance of the constitution with reference to these disturbances. Changes in the menstrual cycle often result from marked external influences, for example, after severe accidents. The importance of psychic influences affecting the menstrual cycle, while no doubt such exist, must not be exaggerated. Runge of Greifswald, in discussing treatment, warned against the uncritical use of organotherapeutic preparations. In the treatment of amenorrhoea, the onset of menstruation following the administration of certain preparations is not conclusive proof of their efficacy. The treatment of recurrent, climacteric metropathia haemorrhagica is relatively, firmly established. The preferred therapy is the equivalent of castration but effected by roentgen irradiation. When occurring in young women, the problem is vastly more difficult as the objective is to restore to normal functioning an ovary that is evidently functioning in

an inadequate and possibly also in abnormal manner. Opinions as to the value of radium irradiations were widely divergent. Whereas one group rejected them entirely, others emphasized that mild radium irradiation had often been found to have life-saving value in hemorrhages occurring in juveniles. In young women, the corpus luteum hormone is often likewise effective.

OPERATIONS BASED ON EUGENIC INDICATIONS

In discussing the second topic "Operations Based on Eugenic Indications," the speakers expressed absolute approval of the new law pertaining to sterilization (*THE JOURNAL*, Sept 9, 1933, p 866). Professor Kohlrausch of Berlin, a specialist in criminal law, called attention to the fact that hitherto the law did not justify an interruption of pregnancy based on eugenic indications. Bumke, psychiatrist of Munich, pointed out that mental disease had shown an increase in recent years. The indications for the interruption of pregnancy in mental patients depend on the degree of probability that the offspring will be abnormal, which can be assumed only in case both parents are mentally ill. The hereditary influence transmitted by weak-minded persons is not yet fully established, but if both parents are weak-minded the assumption is that 70 per cent of the offspring will be weak-minded, if only one parent is weak-minded the assumption is that about 50 per cent of the offspring will be weak-minded. In schizophrenia, with which 70 per cent of the mental patients in institutions are affected, a child has 50 per cent of a likelihood of becoming mentally ill if both parents are affected and 7 per cent of a likelihood if only one parent is schizophrenic. In weak-mindedness and in schizophrenia, the factor of education plays a large part in the decision, for often such parents are susceptible of being educated. Schizoid subjects should not be sterilized. The decision is difficult in epilepsy, for, while true epilepsy may be transmitted to offspring, the tendency cannot be said to be dominant, hence the decision must be based on the circumstances surrounding the individual case. If the symptoms of manic-depressive subjects are mild, sterilization should not be considered, but it becomes a question if the depressions are severe. The sterilization of alcohol addicts if the condition is severe, is much to be desired, for alcohol addicts are most unsuitable as fathers of families.

During the general discussion, physicians with Catholic antecedents pointed out that the sterilization law must be considered not only biologically but also metaphysically and ethically, with a borderline area between medicine and moral theology. The Catholic view compels the rejection of this law on ethical grounds, as it cannot assume the responsibility of separating sexual union from the propagation of new life.

CANCER OF THE CERVIX

The third main topic considered the early diagnosis and treatment of cancer of the cervix uteri. Hinselmann of Altona discussed the value of frequent colposcopy. Every leukoplakia should be regarded as a warning and it can always be discovered with the colposcope. An erosion demands no less attention. Von Mikulicz and Radecki (Königsberg) spoke on the radical operation, and Eymér (Heidelberg) on radiation therapy. These papers revealed that operation and irradiation are still contending for the supremacy. An important outcome of the whole discussion was the draft of a law, which the Deutsche Gesellschaft für Gynäkologie submitted to the federal ministry of the interior. In this bill the proposal is made to restrict absolutely the treatment of cancer patients to licensed physicians. The suggestion is made, too, that the insurance carriers (namely, the Krankenkassen) be required to subject annually every woman more than 30 years of age to an examination for cancer. The fourth topic on the program was "New Results of Research on Twins," which was presented by Verschuer of Berlin. The next session of the congress will be held in Munich, in October, 1935.

ITALY

(From Our Regular Correspondent)

Oct 15 1933

Discussion of Immunity at the "Volta" Convention

Each year there is held in Rome a convention organized by the Fondazione Alessandro Volta (associated with the Royal Academy of Italy), which is attended by some of the most eminent scientists in the world. The chief event of this meeting is the consideration of a single precisely drawn scientific topic, which reflects the progress of a scientific activity rather than its history and constitutes an attempt to unify the theories and the results of recent experiments. The topic chosen this year was "Immunity and Immunology." The convention was presided over by De Blasi, professor of hygiene at the University of Naples and the principal nations of Europe and America were represented. The delegates from the United States were Landsteiner, Flexner and Kahn, from England Nuttall, Topley, Muir and Wright, from France (among others), d Herelle and Besredka.

SEROLYSIN

The first meeting was presided over by Professor Landsteiner, Nobel laureate and member of the Rockefeller Institute in New York. Professor Petterson of Stockholm presented a paper on "Beta-Serolysin" which is a bactericidal substance in the blood serum different from the Buchner lysin, from which it may be distinguished by the fact that it is more resistant toward the influences that tend to block the bactericidal action of the serum. It is found in part in the precipitate euglobulin, and its bactericidal potency may be demonstrated in solutions of globulin. Certain micro-organisms under the action of the lysin do not provoke any formation of bacteriolytic immune bodies. If in the immunized animal an increase of bactericidal potency is observed, it should be attributed to other influences than the leukocytes. It is impossible to increase the specific bactericidal capacity when it is a question of acting on bacteria on which the cells of the organism itself do not exert a destructive action. As an example of a practical application of this fact, against anthrax and local staphylococcal infections active immunization by means of killed staphylococci is indicated. Professor Maragliano of Genoa affirmed that in tuberculosis any immunity present does not appear to be essentially an antibacterial immunity. The micro-organisms undergo various changes but are not destroyed and remain, for the most part, living and enclosed in old foci. Experiments show that, while it is easy to modify the germs coming from without, it is difficult to act on those already present in the body. The early infiltrate, which is regarded as the result of an exogenic reinfection, is, on the contrary, the rekindling of foci apparently extinguished but still certainly having an active influence.

Professor Rondoni agreed that immunity against tuberculosis is essentially histogenic, fibrogenic and encapsulative. His search for bacteriolysins proved negative. In 1915 and 1916 he studied the histologic reactions in tuberculous reinfection, demonstrating an early hematogenic reaction or polymorphonuclear mobilization in reinfected animals subjected to vital staining.

Professor Weichardt pointed out that one must distinguish between protective substances already present physiologically and substances obtained by means of immunizing processes. These various processes endeavor to eliminate the infection and, when their influence is not sufficient, the antibodies intervene.

IMMUNOCHEMICAL SPECIFICITY

The topic discussed by Karl Landsteiner of New York was "Immunochemical Specificity." He dealt with complex antigens obtained by means of combinations of various chemicals with protein substances and with the natural complex antigens. He described recent researches on peptides and the marked individual differences that are brought out experimentally in animals.

of the same species. In discussing the paper, Professor Abderhalden said that by experiments on defensive ferments it was possible to differentiate between strictly specific antigenic substances. The studies of the speaker are a bridge so to speak, between physiology and immunity for the solution of the problem of the composition of proteins, which it seems impossible to solve by chemical means. Professor Doerr of the University of Basel surveyed experiments carried out by his school on the antigenic action of arsenical compounds and searching then for arsenic in the antiserums secured. It was found that the latter do not contain arsenic and hence cannot be derived from the former; it is impossible therefore to synthesize antigens artificially.

In his paper on *The Bacteriophage in Its Relations to Immunity*, Prof. Felix d'Herelle presented evidence to show that every man and every animal has in the intestine a bacteriophage that lives in symbiosis. Its activity is not specific but it has a variable potency. If it is very potent the bacterium succumbs, if it is less potent the micro organism may resist it and acquire immunity to it, and then the bacteriophage is destroyed or accommodates itself to a bacteriophage symbiosis. Recovery from infectious diseases does not result from an immunizing process but from the bacteriophage and from the reactions that it provokes. The speaker demonstrated interesting therapeutic applications with bacteriophage in the prophylaxis and treatment of infectious diseases. A lively discussion followed the presentation of Professor d'Herelle. Professor Bertarelli of the University of Pavia asked questions about the thermostability of the bacteriophage and as to whether it was possible to set up a standard method to determine its presence. Professor Besredka of the Pasteur Institute in Paris asked the speaker how a bacteriophage injected intravenously can act when a small quantity of blood serum is capable of inhibiting its action. Professor Degkwitz of the University of Hamburg remarked on the composition and physical properties of the bacteriophage, which he regards as a ferment. In response to all questions, Professor d'Herelle reaffirmed that the bacteriophage is living matter and that its curative action is unquestionable. The process of recovery is through contact by the same route as the causal disease, as has been observed in various epidemics.

THE THEORY OF ANAPHYLAXIS

Professor Doerr of the University of Basel presented the official paper on the theory of anaphylaxis. He pointed out that the resemblance that some have endeavored to establish between the histamine reaction and the anaphylactic reaction is not tenable. There are substantial differences between the two reactions, for example in the period of latency and in the fact that, whereas repeated stimuli applied in the same concentration are always equally effective in anaphylactic experiments, on the contrary, it is necessary to increase considerably the dose of antigen, in order to secure a later muscular contraction. His experiments on anaphylactic heredity have forced him to assume the existence of a latent form of antibodies. The discovery of passive anaphylaxis and the reversibility of these experiments show that there does not exist an increased or a pathologically changed reactive capacity of the cells but only a normal susceptibility to the reactions of antibodies.

Professor Zironi, director, Institute of Microbiology, University of Milan, who spoke on *allergy in infectious diseases*, pointed out that not all allergic phenomena can be regarded as manifestations of hypersensitivity, in the strict sense of the word since many cases are due chiefly to a conflict of antigens with antibodies, independently of the sensitivity or reactivity of the cells. With regard to the causes of the hyperactivity, Professor Zironi said that the research on the subject is far from complete and that it would be necessary to study the period of incubation

of the infections, the problem of the virulence of the organisms, the genesis of the predisposition to the infections, and the course of many diseases. In the general discussion, Professor Frugoni of Rome described research carried out by his pupils, on the basis of which it has been discovered that in typhoid and in sepsis lenta due to *Streptococcus viridans*, the increase of antibodies in the circulation coincides with the disappearance of the bactericidal potency of the blood.

Professor Canonici of the University of Naples described his research and the research of Professor De Cristina on the phenomenon of sensitization and desensitization, affirming that recovery from infections occurs through the spontaneous development of desensitization of the patient, a process that can be provoked also by introducing into the organism, preferably by vein, small quantities of proteins of the micro organisms causing the disease.

The Lombard Medical Society

At a meeting of the Lombard Medical Society held in Milan Silvestro spoke on the hemoglobin in pulmonary tuberculosis. He pointed out that tuberculous anemias are due to toxic hemolysis rather than to defective regeneration of red corpuscles. Therapeutic pneumothorax and phrenic exeresis reduce the hemolysis with improvement in the anemia.

Arrighi and Corsari reported their observations in a number of cases of hemolytic splenomegalic icterus. They admit the possibility that a primary fragility of the blood cells and a primary hyperactivity of the reticulo endothelial system are essential factors underlying the hemolysis. Anatomic research reveals that in hemolytic icterus, the hyperplasia of the reticulo endothelial system although varying in degree in various cases, is usually of a uniform character namely splenohepatic, lymphoglandular or medullary. The organ most commonly attacked is the spleen. Splenectomy is always of great benefit in the treatment of the pure types of hemolytic icterus. It is particularly indicated in cases in which in addition to the characteristic hematologic and clinical manifestations of the disease, there are signs of other constitutional anomalies. The speakers regard biopsy of the liver for diagnostic and prognostic purposes, as useful and advisable to be applied in connection with any operative intervention performed on patients who present a splenopathy.

Chiovenda described twelve cases of glioma of the brain in which diagnosis of cerebral hemorrhage or softening of the brain (seven cases), encephalitis (three cases) and meningitis (two cases) were made. In the cases observed by the speaker there were no connections between regressive phenomena, course localization and the histologic type of the glioma.

Prophylactic Vaccinations

Professor Madsen of Copenhagen, chairman of the Health Committee of the League of Nations has published an article on vaccination applied during an epidemic to prevent an increase of the susceptibility to the infection, namely the so called negative phase. The report of the International Committee on Standardization shows that in the field of vaccination the fears are entirely unfounded. On the basis of his research, Madsen interpreted the rapid decline of the antitoxic potency of the serum to the neutralization or the fixation of a part of the antitoxin injected into the circulation. He explained that the later increase of antitoxin may be due to its formation or to its release from the organs or to a partial intravascular dissociation of the total antitoxic antigen formed originally. On the interesting problem of the negative phase questions were asked by Professor Ramon of the Institut Pasteur de Paris, Professor Doerr, Professor Kolle and others.

Prof. Lecomte De Nouy called attention to two phenomena that characterize immunity: the diminution of the absolute

potency of the static surface tension of the serum solution in the animal immunized or sensitized and the absolute increase of viscosity of the blood serum following the addition of antigens. He affirmed that the organism preserves the record of the reaction in the form of immunity. Although the serum has regained its normal behavior, it has been markedly changed with regard to viscosity and to its physicochemical equilibrium.

Professor Sachs of Heidelberg surveyed and criticized the fundamental theories of various methods of immunodiagnosis. Professor Ramon of the Institut Pasteur presented a paper on the anatoxins, emphasizing the importance of the diphtheritic anatoxin, the present better method of obtaining it and the essential qualities of the product: the innocuousness, the intrinsic antigenic value and the immunizing action and the irreversibility. He praised the official decree in Italy, which makes vaccination compulsory in the primary schools for children aged 1 to 5 when diphtheria is prevalent endemically.

Professor Schilling of Berlin offered a communication on immunity in disorders due to protozoa with especial reference to malaria in children.

Professor Koller of the University of Frankfurt-on-Main spoke on immunity in spirochetoses, particularly in syphilis. He emphasized that in human syphilis there is no proof of an active immunity.

Marriages

CLAUDE HENRY FRYAR Oak Ridge, N. C. to Miss Lucie Sutton Hayes of Palmer Springs, Va. Nov. 29 1933

CHARLES DOUGLAS SAWYER Port Chester, N. Y., to Miss Ruth Partridge of Maplewood, N. J., Dec. 9 1933

HAROLD HERMAN FREEDMAN Freehold N. J., to Miss Marian Winters of New Brunswick, July 28, 1933

CLOYCE R. TEW, Raleigh N. C., to Miss Anna Rebekah Waaser of Mauch Chunk, Pa. Sept. 8 1933

CHARLES WESLEY MYERS, Indianapolis to Miss Marguerite Preston of Knoxville, Tenn., Nov. 28 1933

RAY EDWARD CURRIE Medical Lake Wash., to Miss Frances Eleanor Joseph of Spokane Sept. 10 1933

CHARLES KENNEDY CAREY Rushville, Ill., to Miss Geneva Strong at Mount Vernon, Dec. 10, 1933

JOHN TALBOT GERSON, Chicago to Miss Lorene Fredericka Mueller of Minneapolis, Dec. 2 1933

CARL CAUGHMAN SON, Columbia S. C., to Miss Alluwee Babb of Spartanburg Aug. 15, 1933

LEO SMITH, Pearson Ga., to Miss Dorothy Elizabeth Quilian of Milledgeville Oct. 25 1933

LEVI STEELY SILER Corbin Ky., to Miss Dorsie Pember-ton, at Jellico, Tenn., Oct. 7 1933

ISAAC RIDGEWAY TRIMBLE to Miss Margaret Price Brown, both of Baltimore, Sept. 16, 1933

SOUREN H. TASHJIAN, Seattle, to Miss Margaret Cahalan of Yakima, Wash., Nov. 4 1933

OREN C. TARBOX to Miss Edythe Pearl Howe, both of Oneonta N. Y. Aug. 26 1933

EVON WALKER to Mrs. Leota Montgomery McVee, both of Ottumwa, Iowa, Sept. 6, 1933

JAMES ALLEN SMITH Macon, Ga. to Miss Sarah Jennings of Thomasville Oct. 12 1933

JOSEPH MCCRARY Bold Spring, Tenn., to Mrs. Azalee Reynolds in December 1933

WARDE BAUNTON ALLAN, Baltimore, to Miss Angelica Peale Iglehart, Dec. 2 1933

NORMAN W. GILLESPIE to Miss Mildred Nicholson both of Boston Oct. 26, 1933

WILLIAM C. KEYES to Miss Emma Filsinger, both of Bellingham Wash. recently

ROBERT G. SMITH to Miss Mary Poly both of Columbus, Ohio, recently

WALTER S. GRISWOLD to Miss Jessie Reeves both of Seattle, Aug. 20, 1933

Deaths

George Paul Marquis, Chicago, Northwestern University Medical School, Chicago, 1892, member of the Illinois State Medical Society, the American Academy of Ophthalmology and Oto Laryngology and the American Laryngological, Rhinological and Otological Society, fellow of the American College of Surgeons formerly assistant professor of laryngology and rhinology at his alma mater veteran of the Spanish-American War attending otolaryngologist to St. Luke's Hospital, aged 65 died, Dec. 22, 1933, of tuberculosis of the large intestine

Matthew Kollig, Saginaw, Mich., University of Michigan Medical School Ann Arbor, 1907, member of the Michigan State Medical Society, past president of the Saginaw County Medical Society, fellow of the American College of Surgeons formerly instructor in anatomy at his alma mater and professor of anatomy George Washington University School of Medicine Washington, D. C., on the staff of St. Mary's Hospital, aged 52 died Nov. 28 1933

Matthew D. Fullingim, Denton Texas Fort Worth (Texas) School of Medicine, Medical Department of Fort Worth University, 1899, member of the State Medical Association of Texas past president and secretary of the Denton County Medical Society for two years city health officer of Denton and physician to the North Texas State Teachers College aged 60 died suddenly, Oct. 16, 1933, of heart disease

Courtney Perry Grover, Dayton Ohio Kansas Medical College Medical Department of Washburn College, Topeka 1904, member of the Ohio State Medical Association, fellow of the American College of Surgeons served during the World War, formerly on the staffs of the National Military Home Hospital and St. Elizabeth's Hospital, aged 52, died Nov. 29, 1933, of streptococcal pharyngitis and diabetes mellitus

George Graham Hunter of Los Angeles University of California Medical Department, 1906 fellow of the American College of Physicians councilor at large of the California Medical Association and past president of the Los Angeles County Medical Society aged 57 on the staff of St. Vincent's Hospital where he died, Dec. 12 1933, of a bullet wound inflicted by a patient

Lyman C. Broughton, Castile, N. Y. University of Buffalo School of Medicine, 1889 member of the Medical Society of the State of New York for many years county coroner health officer of Castile and Genesee Falls aged 65, died Nov. 19, 1933 in the Wyoming County Community Hospital, Warsaw, of arteriosclerotic heart disease

William Edward Denning, Worcester, Mass. University of Vermont College of Medicine Burlington, 1899, member of the Massachusetts Medical Society, fellow of the American College of Surgeons, served during the World War, formerly on the staff of the Worcester City Hospital, aged 61, died, Dec. 7 1933, of heart disease

William Leslie Munson of Granville, N. Y., Albany Medical College 1908 served during the World War, district state health officer state department of health, for many years president of the board of education of Granville, on the staff of the Glens Falls (N. Y.) Hospital, aged 48 died, Dec. 2, 1933 of pneumonia

Frank Crawford Story, Marion Ind. University of Georgia Medical Department, Augusta 1926, on the staff of the Veterans' Administration Facility formerly county health commissioner of Jenkins and Wayne County, Georgia aged 37 died Oct. 30, 1933, in a hospital at Indianapolis, of retroperitoneal carcinoma

Oliver P. Terry of West Lafayette, Ind., St. Louis University School of Medicine 1906 medical adviser with rank of professor in the department of biology Purdue University aged 51, on the staff of St. Elizabeth's Hospital, Lafayette where he died, Dec. 6, 1933, following an operation for duodenal ulcer

Francis Calistus O'Neill, Philadelphia, University of Pennsylvania School of Medicine Philadelphia, 1911 member of the Medical Society of the State of Pennsylvania aged 52 on the staffs of St. Christopher's Hospital for Children and St. Agnes Hospital where he died Dec. 8, 1933

Burpee L. Steeves, Salem Ore., Willamette University Medical Department Salem 1894, past president of the Oregon State Medical Society, fellow of the American College of

Surgeons, formerly mayor of Salem and lieutenant governor of the state, aged 65, died Oct 23, 1933

Frank R Moore, Florence, Colo., Columbus (Ohio) Medical College, 1885, member of the Colorado State Medical Society, past president of the Fremont County Medical Society, health officer of Florence, aged 69, died suddenly, Nov 27, 1933, of heart disease

Frederick William Knoll ♂ Reading, Pa., Jefferson Medical College of Philadelphia 1914, served during the World War, on the staff of St Joseph's Hospital, aged 47, died Nov 29, 1933, of hypertension, nephritis, cerebral sclerosis and heart disease

Herbert M Klein ♂ New York, Cornell University Medical College, New York 1928, aged 30, died Nov 26, 1933, in the Massachusetts General Hospital, Boston, of pulmonary embolus, following an operation for fusion of the vertebrae

Ray Russell Hetherington, Pittsburgh, University of Pennsylvania School of Medicine, Philadelphia 1916 member of the Medical Society of the State of Pennsylvania, served during the World War, aged 42, died, Oct 22, 1933, of coronary sclerosis

Rufus D Boss ♂ Wacousta, Mich., Columbian University Medical Department, Washington, D C, 1891 past president of the Clinton County Medical Society, on the staff of the Clinton Memorial Hospital, St Johns, aged 71, died Dec 4, 1933

Ralph Evans Runkle, Oklahoma City, Barnes Medical College, St Louis, 1899, member of the Oklahoma State Medical Association, aged 55, died, Nov 23, 1933 in the Oklahoma City General Hospital, of bronchopneumonia

Louis Eugene Barlow, Philadelphia, Jefferson Medical College of Philadelphia 1896, member of the Medical Society of the State of Pennsylvania, aged 67, died, Dec 8, 1933 in the Frankford Hospital, of heart disease

Patrick Henry Whalen, Buffalo, University of Buffalo School of Medicine, 1906, member of the Medical Society of the State of New York, aged 48 died, Dec 12, 1933, of cerebral hemorrhage and hypertension

William Louis Rost ♂ New York, Long Island College Hospital, Brooklyn 1909 on the staff of the Morrisania City Hospital, aged 51, died, Dec 4, 1933, in the Mount Sinai Hospital, of malignant hypertension

John T Shelland, Ada, Minn. Medical Department of Hamline University, Minneapolis, 1900 member of the Minnesota State Medical Association, aged 61, died suddenly, in November, 1933, of heart disease

Abraham Jacob Sumner ♂ Brooklyn, Columbia University College of Physicians and Surgeons, New York, 1906, on the staff of the Beth Moses Hospital, aged 48, died suddenly Dec 2, 1933, of heart disease

William Nicol Stein ♂ Sherrandoah, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1894 aged 63 on the staff of the Locust Mountain Hospital, where he died, Nov 23, 1933, of pneumonia

Joseph Armour Wade, Fredericton, N B, Canada Medical School of Maine Portland, 1877, first medical officer for the western health district of the province of New Brunswick, aged 84, died, Oct 21, 1933

Leopold Heimann ♂ Evansville, Ind., University of Louisville (Ky.) School of Medicine, 1904 aged 51, for many years on the staff of St Mary's Hospital, where he died, Dec 7, 1933 of cerebral hemorrhage

Daniel Webster Sullivan, Passaic, N J University of Vermont College of Medicine, Burlington, 1896, aged 64, died Nov 28, 1933, of heart disease, Parkinson syndrome and chronic arthritis deformans

Joseph N Kiefer, Buffalo, University of Buffalo School of Medicine, 1906, member of the Medical Society of the State of New York, aged 52, died, Dec 15, 1933, of septicemia and heart disease

Samuel Steele, Chanute, Kan. Kansas City (Mo.) Medical College, 1896, aged 63, died Nov 18, 1933 in the Research Hospital, Kansas City, Mo., of arteriosclerotic cardiovascular renal disease

Joseph A Oliver, San Francisco, University of California Medical Department, 1889, member of the California Medical Association, aged 71, died, Oct 17, 1933, of arteriosclerosis

Joseph Marzano, Chicago, Loyola University School of Medicine, Chicago, 1931 member of the Illinois State Medical Society, aged 25, died, Dec 21, 1933, of pneumonia

Alfred Charles Nicholas Peterson, Worcester, Mass University of Pennsylvania School of Medicine, Philadelphia 1897, aged 65, died, Nov 6, 1933, of arteriosclerosis

Phreborn Grundy Paugh, St Louis Marion Sims College of Medicine St Louis 1899, served during the World War, aged 62, died, Nov 24, 1933, of heart disease

Carl W Kimery, Lerna III Barnes Medical College St Louis 1898, aged 64 died Nov 24, 1933 in the State Hospital, Jacksonville, of carcinoma of the liver

Jesse Edgington, Hood River, Ore., Kentucky School of Medicine Louisville 1879, formerly county health officer, aged 84 died, Nov 15, 1933 of chronic myocarditis

James McConnell Hubbard, Hickman, Ky., Missouri Medical College, St Louis, 1886 formerly county health officer, aged 70 died, Nov 29, 1933 of heart disease

Thomas Byron Kea, Adrian, Ga., Atlanta (Ga.) Medical College 1915 member of the Medical Association of Georgia aged 54, died Dec 5, 1933, of heart disease

August Henry Malm, Princeton, Ill., Barnes Medical College St Louis, 1895, since 1904 county coroner, aged 64, was found dead, Dec 4, 1933 of heart disease

Horace H Prefontaine, South Durham, Que., Canada, Laval University Medical Faculty, Montreal, 1890 aged 68, died Oct 12 1933 of heart disease

Sheridan P Manship, Philadelphia University of Pennsylvania School of Medicine Philadelphia, 1890, aged 65 died Dec 14 1933 of acute nephritis

Alfred G Smith, Philadelphia, Hahnemann Medical College and Hospital of Philadelphia, 1900, aged 54 died, Nov 27 1933 of chronic myocarditis

William Lawrence Dunn, Oakland, Calif University of California Medical Department 1897, aged 58 was found dead Nov 24 1933 of heart disease

Thomas Simpson Pryse, Dawson, N D., University of Louisville (Ky.) School of Medicine 1894, aged 61, died in October 1933 of heart disease

Ninian Wildridge Woods, Braxfield, Ont., Canada L.R.C.P., Ireland 1887, M.R.C.S., England 1887 postmaster aged 73, died Oct 31, 1933

Raymond Wallace Anderson, New Hamburg, Ont., Canada, University of Toronto Faculty of Medicine, 1904, aged 50 died, Sept 30 1933

Joseph D McCarter, Beaver Falls, Pa., Jefferson Medical College of Philadelphia 1883 aged 77, died in December, 1933 of cerebral hemorrhage

Benjamin H Kirk, Union Star, Mo (licensed Missouri, 1884) Civil War veteran, aged 91 died, Nov 20 1933 of pulmonary emphysema

Albert Habermaas ♂ St Louis Marion-Sims College of Medicine, St Louis 1896 aged 61 died, Nov 20, 1933 of cerebral hemorrhage

Harry Wishart Keith, Enderby, B C, Canada, McGill University Faculty of Medicine, Montreal, Que., 1896, aged 60 died Oct 22, 1933

John Shelby Moremen, Louisville, Ky., Kentucky School of Medicine Louisville, 1890 aged 68 died, Nov 30, 1933 of angina pectoris

James B McPike, Smileyville, Mo College of Physicians and Surgeons Keokuk, Iowa, 1879 aged 76 was found dead, Nov 19, 1933

Joseph Thomas Poock, Hoboken, N J Baltimore Medical College 1890 aged 73, died Nov 13, 1933 in St Mary's Hospital

Samuel Henry Ward, Los Angeles Chicago Homeopathic Medical College, 1896 aged 59 died Oct 29, 1933, of angina pectoris

A P Massengill, Halls, Tenn Memphis Hospital Medical College 1907 aged 61 died Nov 29, 1933, of heart disease

Charles R Long, Pierceton, Ind., Detroit Medical College 1880 aged 82 died Nov 23 1933, of cerebral hemorrhage

Daniel J Halbrook, Formosa, Ark (licensed in Arkansas in 1903), aged 61 died Nov 28 1933, of heart disease

Chambers J Penn, Piketon Ohio (licensed, in Ohio in 1896) aged 81, died Nov 21, 1933 of heart disease

Edward Pearce, Marshall, Ill Chicago Medical College, 1878 aged 83, died Nov 21, 1933, of arteriosclerosis

Charles M Oughton, Evanston, Ill Rush Medical College, Chicago, 1884, aged 71 died Dec 8 1933

Josephus W Benadom, Monticello Iowa (licensed, Iowa, 1887) aged 90, died Dec 5 1933

Bureau of Investigation

MICRO-DYNAMICS

One of the Outgrowths of the Electronic Reactions of Abrams

Every physician who has practiced for ten years or more remembers the gigantic piece of pseudo scientific hokum that was brought into existence by the most polished charlatan of the century, Albert Abrams. This man and the followers of the cult that he developed claimed that it was possible by means of some pieces of electrical hocus-pocus that Abrams put on the market and leased at a high price, to diagnose from a drop of dried blood, or even from the autograph of a person, the ailment from which that person was suffering. Then the diagnosis having been made, the patient was switched on to another Abrams machine to cure the condition by alleged vibrations. Disciples of the cult reaped a golden harvest diagnosing disease where it did not exist and then charging the victims a round price for curing the non-existent ailment. Abrams named his cult the "Electronic Reactions of Abrams" shortened for commercial purposes to 'E R A'.

Now, there is being pushed to the medical profession a device that, if the exploiters are to be credited, is still more marvelous than any of the wonders called from the vasty deep by Abrams. It is called the "Micro Dynameter" and is put out by a concern known first as the Electronic Research Laboratories and now as the Ellis Research Laboratories, Inc. The man back of the concern seems to be Mr F C Ellis, who claims to be a graduate of the University of Wisconsin, Electrical Engineering, of the Kansas State College, General Science, and of the Finlay Engineering College. He has described himself as a consulting engineer. The only information regarding Mr Ellis' abilities in the electrical field of which we have any evidence is the fact that in 1925 his name headed a committee of three which declared that it had examined the "Tricho" apparatus and concluded that "all of the necessary precautions have been taken in its construction to safeguard the patient from exposure to undesirable rays". Physicians will remember that the Tricho device—an X-ray machine for depilation and one of the most viciously dangerous pieces of apparatus ever put into the hands of beauty-parlor operators—has been responsible for innumerable cases of X-ray burns, atrophies, telangiectases, ulcers and, in some cases, cancer.

The Bureau of Investigation has made no examination of the mechanics of the Micro-Dynameter. This article will be confined to a discussion of the background on which the device is projected, and of the claims made for it. There is a tendency on the part of the medically untrained to assume that whenever a fantastic piece of pseudo-medical apparatus whose use is predicated on a preposterous theory is commercially exploited, it becomes the duty of the organized medical profession to check and recheck such apparatus by technical means to determine whether or not the claims made for it are true. The facts are of course that in all such cases the burden of proof lies with the man or concern that is making money by promulgating the theory and exploiting the machine. Surely no one would hold that the American Astronomical Society would be under obligation to carry out extensive spectroscopic investigations to disprove the claim that the moon is made of green cheese. No sensible person believes that it is incumbent on the medical profession to carry out a series of experiments to prove or disprove the belief, widely held by some, that the left hind foot of a rabbit caught in a churchyard in the dark of the moon is a therapeutic agent of potency and respectability.

THE BACKGROUND

In 1923 Mr Ellis' concern was known as the Electronic Research Laboratories, it claimed to make precision instruments for the diagnosis and treatment of disease. At the time Mr Ellis was putting out *Bulletin No 1* entitled 'Report on "Electronic Diagnosis and Treatment of Disease"'. In the opening pages of this report he stated:

'Science is just entering the field of vibrations

Each form of diseased matter in common with other forms of matter has its own characteristic vibratory rate and gives off energy of individual wave form

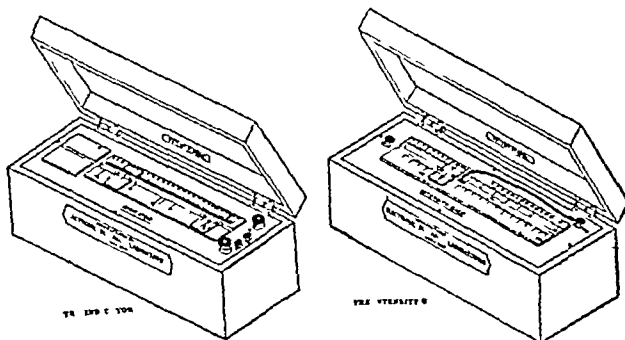
'When a healthy person is properly connected by wires to a certain device containing a drop of blood extracted from a diseased patient then under certain conditions definite physiological effects are produced upon the abdomen of that person. This is a readily demonstrable fact. These manifestations are the product of the action of disease emanations from the blood sample.'

There was much more of the same tenor, with tables and graphs, all mysterious and impressive. On the well-known thesis that the unintelligible appeals to the unintelligent, the bulletin doubtless impressed a certain class. The sum and substance of Mr Ellis' *Bulletin No 1* seemed to be that Albert Abrams' theories were all right but his practical applications were rather crude. Mr Ellis closed the *Bulletin* with certain conclusions, the first of which was:

The existence in diseased blood of radiant energy of wave like character has been established.

Other conclusions were to the effect that the Abrams theories of cure had been disproved, but Mr Ellis had enunciated the correct theory, that the defects in the Abrams apparatus for electronic diagnosis and treatment had been revealed, but that Mr Ellis had developed superior apparatus.

The L D Rogers Testimony—Thus, it will be remembered, was in 1923. In September, 1924, Mr Ellis sent out on his own stationery as 'consulting engineer' a mimeographed 'release' to editors describing the alleged work of Dr L D Rogers 'in measuring the cancer wave,' which, according to Mr Ellis, 'lies in a new band of radio frequencies'. L D



Two of Mr Ellis diagnostic instruments—the Indicator and the Intensity Gage.

Rogers will be remembered by many readers of this department of THE JOURNAL as the exploiter of "Auto-Hemic Serum," as the one-time dean of the National Medical University, a "sun-down" institution of ill repute as the advertiser of an alleged Japanese treatment for tuberculosis, etc. Mr Ellis assured the editors that, according to Rogers' findings, "cancer acts as a miniature broadcasting station." Let us quote from one paragraph of the story:

'In the test Dr Rogers used as a subject a woman about 45 years of age. Says Dr Rogers: "I tried out different samples of her blood at different times—during every test we got most pronounced cancer wave radiations. On one occasion we took the sample of blood to Mr Ellis inventor of the delicate indicator used in this test. Without any suggestion of any kind as to the nature of the wave length he measured it correctly as cancer and also located it in the right breast."

Substitute the name of "Albert Abrams" for that of "Mr Ellis" in the quotation just given, and it might have been taken almost direct from the old Abrams ballyhoo.

'Feeding the Sick Atom'—In 1924, also, Mr Ellis was sending out a little pamphlet, obviously intended for the general public, entitled "Feeding the Sick Atom in Disease." The opening paragraph under the chapter heading "Health and Disease Waves" stated that the booklet was 'an account of a new and remarkable method of protecting and combating disease in sick people.' It went on to elaborate by stating that "man is an electrical machine made up of tiny batteries" and that when "the batteries in the human plant" run down, it produces the condition we call disease. Then:

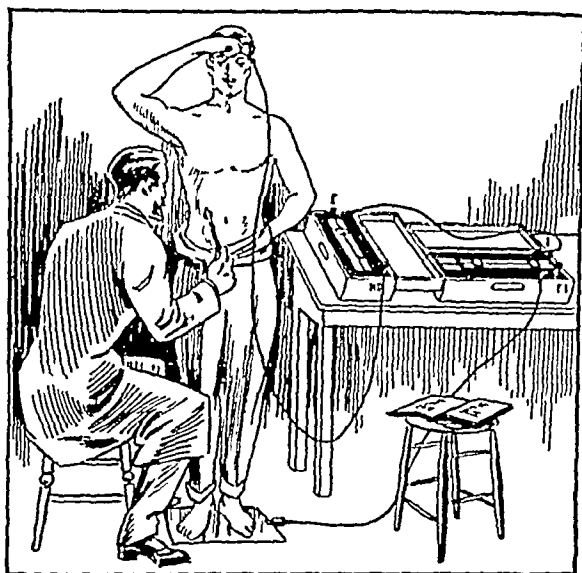
To overcome such a condition the batteries of the body need recharging and this may be done in a simple manner.

Mr Ellis then dwelt on the improved apparatus that he had devised for electronic diagnosis, thus

When a healthy human being (Detector) is properly connected to a device called an Indicator containing a drop or so of diseased blood from a patient the disease waves can be tuned into

On another page of the same booklet an electronic "treatment" with an Ellis machine was described. It was stated that in taking the treatment the patient sits comfortably in a chair with his feet on a metallic plate while electrodes are either held in the hands or applied to certain parts of the body. Wires leading from the treatment apparatus were said to "carry a flow of the elements which are needed by the patient and which have been liberated through the destruction of a metal by incandescence and applied under proper low potentials to the patient." It was emphasized that this Ellis treatment was a very different thing from what the public usually considered "electrical treatment" and that no current could be felt.

However a pleasant sensation of warmth beginning at the extremities and gradually pervading the whole body is usually experienced and this is accompanied by an unmistakable increase in vigor and mental clarity and a getting well feeling which builds up and carries the patient forward to health from the first treatment.



The Indicator (on the left) and Intensity Gage (on the right) in use in making a diagnosis from a drop of blood. This picture according to Mr Ellis is one illustrating a convenient set up for diagnosis. The drop of blood (on paper) is put on the far end of the Indicator which is connected at one end with an electrode held to the forehead of the Detector (a healthy subject) and at the other end with the Intensity Gage which in turn is connected to a metallic plate on which the Detector stands. By percussing the abdomen of the Detector the physician acquainted with the mysteries of Micro Dynamics determines the pathologic state of the patient from whom the drop of blood was taken.

The booklet then went on to explain that Albert Abrams was the originator of electronic diagnosis and treatment, but that as he was "primarily a physician, not a physicist" his apparatus was admittedly rather crude. It was a logical sequence, it continued, that expert physicists—such as Mr Ellis—should be turned loose on the problem. This was done, with the result that instruments of greater refinement and giving a "fuller measure of success in diagnosis and treatment" had been brought about. Then comes in the closing paragraphs the admission that these new instruments, "the result of a long and scientific research" had been developed by the Electronic Research Laboratories!

The Indicator and 'Intensity Gage'—In 1924 Mr Ellis already had some of these 'new instruments' on the market. One was known as the 'Indicator'. Its function was to fix "as stationary electrical waves" the "electronic emanation from matter such as diseased blood." Another device was the 'Intensity Gage'. The two instruments sold for \$300.00, the 'Treatment Apparatus' was \$350.00. The Intensity Gage we were told, unlike the Indicator, which measured the length or

base of an electronic wave," was used "for the purpose of measuring the amplitude of such a wave." These two devices, the Indicator and the Intensity Gage, seemed to be used in much the same way that Abrams used his diagnostic mystery boxes. In use, a healthy subject, known as the "Detector," stood on a metallic foot plate that was connected by wire to the Indicator. The Indicator was connected by wire to the Intensity Gage. The Intensity Gage was connected by wire to an electrode which the healthy subject (Detector) held against his forehead while his abdomen was percussed and the "diagnosis" made!

The Seven Basic Diseases—At this stage of Mr Ellis' investigations he had expressed the opinion that there were seven definite "disease emanations" whose "frequencies" lay "between the limits 37,500,000,000 and 150,000,000,000 cycles per second." Probably realizing from Abrams' experience the possibility of being laughed out of court if he attempted to name his seven fundamental disease forms, Mr Ellis expressed the opinion that "the naming of individual wave forms indigenous to diseased blood is unsatisfactory." But the patient who had to pay the bill for a "diagnosis" might be expected to demand information less ethereal than the statement that he was suffering from electronic vibrations whose frequencies were let us say 55,343,000,000 cycles per second. To meet this, pragmatically Mr Ellis suggested—in a pamphlet devoted to "Operating Instructions" of his "Indicator" and "Intensity Gage"—that "of course it may be necessary from the patient's standpoint to give diagnostic findings in terms of the common disease names." He therefore gave the following tabulation of the seven "basic diseases":

HALF WAVE LENGTH	DISEASE	SETTINGS OF INDICATOR	
		SLIDE 'L'	SLIDE 'R'
1	Conorrhea	1	1
2½	Sarcoma	2½	2½
3	Carcinoma	3	3
4	Congenital Syphilis	4	4
5	Acquired Syphilis	5	5
7	Streptococcus	7	7
8	Tuberculosis	8	8

How reminiscent this is of Abrams. He it was who reported finding carcinoma, syphilis and many other serious conditions in patients in whom ordinary M.D.'s could find no organic trouble. In fact diagnosing syphilis in certain husbands and wives who were quite free from that disease brought Abrams legal grief. As a result he suggested to the followers of his cult that they substitute for what he had been calling congenital or acquired syphilis the euphemism 'Congenital or Acquired Diminished Resistance'.

Selecting Diet by Radio—By 1925 Mr Ellis had extended his field of operations. He had brought out a "Food and Remedy Test Set"—price \$85.00. This was, as Mr Ellis advertised, to make it possible for patients to have their 'Remedies and Diet Selected by Radio'. The Food and Remedy Test Set was a shallow case or box containing between two and three hundred short metal cylinders standing vertically. Small glass vials slipped loosely into the cylinders. The food, condiment "tissue salt," "protein or pollen," beverage or "drug or serum" to be tested "by radio" was placed in a vial which was put into one of the metal cylinders ("and so is shielded from all other specimens"), then a hollow electrode which would fit into the metal cylinder was put in position over the vial and the electrode was connected with Mr Ellis' "Indicator." This, in turn was connected by wire with Mr Ellis' Intensity Gage which also in turn, was connected by wire with the person ("Detector") who was standing on a metal plate holding the electrode from the Intensity Gage to his forehead while the Ellis disciple percussed the abdomen of the "Detector" and thus solved the mystery of the food, "tissue salt," "drug or serum," etc.

In 1926 Mr Ellis was advertising a "Laboratory Service" and sending physicians a mimeographed letter with which was included a buff envelope bearing the name and address of the "Electronic Research Laboratories" with the statement printed on it "Specimen of Human Blood Submitted for Electronic Examination by Dr. ———." In the buff envelope was a black envelope (presumably to keep out any stray radio waves) and in it was a piece of white test paper on which the blood

specimen was to be put and then the whole mailed to Mr Ellis. The mimeographed letter gave the explanation of the "test" services offered.

(1) *The Disease Test* includes determination of radiations from diseased blood specimens associated with basic diseases such as Carcinoma, Syphilis, Tuberculosis, Streptococci infections, Gonorrhea, Syringia and others if indicated in accordance with the well known methods published by these Laboratories and previous calibrations of the Ellis Precision instruments from known disease sources. As has been demonstrated these are the most sensitive present methods for this work.

(2) *The Food and Remedy Selection Test* includes a determination of (a) What substances such as foods, stimulants, chemicals, etc. used by a patient are incompatible and act to increase the disease energies in his blood and (b) What substances contain elements needed by the patient which will reduce or nullify his disease energies as indicated in the blood radiation analysis.

Cow Curing—In 1926, also, Mr Ellis was describing how tuberculous cattle were being diagnosed and cured with his machine. One sick bossy was diagnosed on June 26 as "Tuberculosis, 100%, streptococci infection 51%". She was given Ellis treatments and then on July 7 again put on the diagnosis machine. This we are told recorded "Tuberculosis 0, strep 8½%". The report closes with the statement: "On July 8 another abscess broke and pus exuded from eyes and nose, cleared away, appetite voracious."

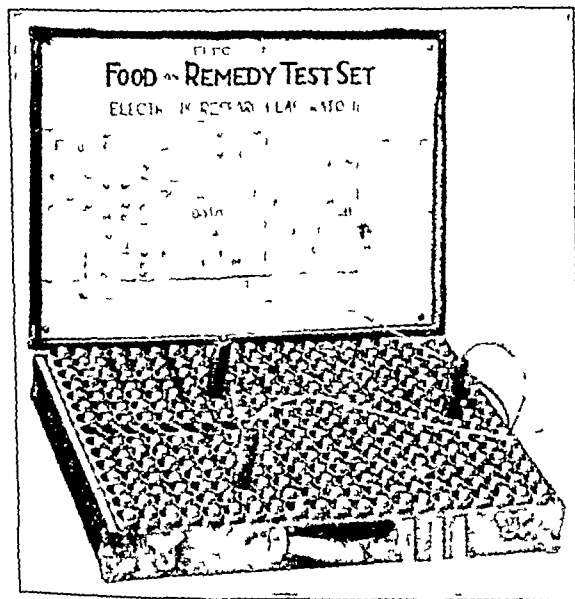
About this time, too, Mr Ellis seems to have named his "Treatment" machine the Raydion. He also combined an "Indicator," an "Intensity Gage" and a "Food and Remedy Test" into one unit and christened it the "Quantometer." In addition, he advertised a line of dehydrated food products with a *Bulletin* (No 19-B) detailing the virtues of certain foods thus:

Peaches—Eliminate bile and poison in the kidneys

Yellow Turnip—Very cooling to the nerve and brain centers

Mushrooms—Nerve and brain food

Irish Moss—Has remarkable value in the elimination and dissolving of goiter and is a natural food for the restoration of hair to its natural color and in promoting the growth of the same.

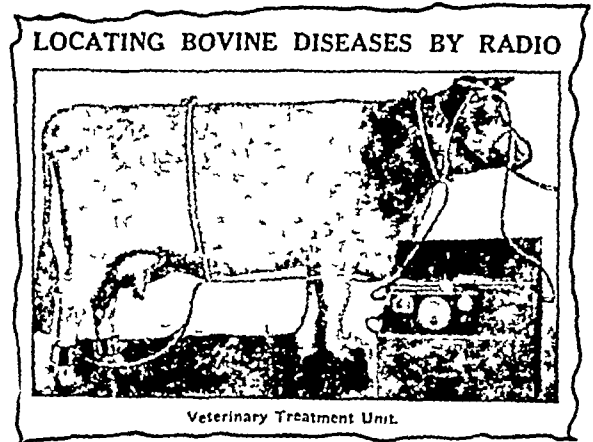


Mr Ellis' Food and Remedy Test Set. According to Micro-Dynamics, certain drugs, chemicals, vaccines, medicines, foods and other substances have been found to radiate energies similar in intensity to those of disease sources and to have wave lengths which are similar or close multiples thereof and which will cause abdominal reactions similar to those of disease.

Mr Ellis, in a "Technical Number" of one of his *Bulletins*, declared that the effects of treatment by his machine the "Raydion," had been observed with the ultra microscope by watching the dispersion and movement of the protein particles in the blood.

When these particles lose their electric charge they coagulate and precipitate in and clog the capillaries and produce degenerative processes of disease. Following treatment on the Raydion the protein particles have been observed to be dispersed again due to restoration of normal electric charge—replacement of missing electrons on the particles.

It was about this time that Mr Ellis began to quote McDonagh and his theory. Dr McDonagh of London, England, has established what bids fair to become a cult. It appears from the intricate and involved theories that he has built up around a private nomenclature, that Dr McDonagh holds that practically all pathologic and therapeutic action consists in changes of the condition of the colloids—mainly proteins—of the body, which, he claims, in health are in an optimum state of dispersion. Hence his slogan: "There is



In 1922 Mr Ellis even invaded the veterinary field. Here is shown a cow being tested for tuberculosis.

only one disease'—namely, a change of the condition of the colloids. So far as we know, Dr McDonagh is quite unaware of Mr Ellis and his mechanical apparatus for diagnosing and treating disease. In fact, Dr McDonagh apparently is interested in the prescribing of certain proprietary remedies of secret composition known by such peculiar names as 'SUP 36,' 'SUM 36,' 'Antrypol,' etc. Apparently the one angle of McDonagh's theories that is of particular interest to Mr Ellis is that McDonagh has reduced all disease from seven basic pathologic states to one.

MICRO-DYNAMETER

The apparatus that Mr Ellis is exploiting at the present time is a great improvement, of course, on the Indicator, Intensity Gage, Food and Remedy Test Set, Radion, Quantometer, etc. It is known as the Micro-Dynameter and as Mr Ellis points out has "an unusually impressive appearance." The advantage of the latest piece of apparatus to come from the Ellis Research Laboratories is that it apparently makes the diagnosis and treatment of disease purely mechanical. No longer is there any need of the healthy subject ("Detector") having to stand on a metallic plate and have his abdomen percussed in order to learn what disease emanations there are in a blood specimen or the nature of the vibrations there may be in a vial of spinach.

Now the entire problem has been reduced to its lowest common denominator. Mr Ellis describes his Micro-Dynameter as a "New Mechanical Detector for Diagnosis and Precision Therapeutic Generator." The essential part of the Micro-Dynameter, so far as the physician who is supposed to use it is concerned, is the "Detector Scale," which is a little over a foot wide, has a zero mark in the center, and ranges from 150 points on either side of zero—negative to the left and positive to the right. Readings are said to be made by means of a spot of light casting a vertical narrow shadow which travels along the scale "under the impulse of minute electric currents generated by a patient's body." Each of the 150 divisions, both negative and positive, are said to be adjustable up to 1,000 units. The normal human body, instead of registering zero on the scale, is said to register 50 or, in Mr Ellis' figures, 50,000 to the right (positive) of zero, as he puts it. "This is the zone of Health and maximum Vitality." The range to the left from 50,000 to zero is said to take in most of the "chronics," while in the range to the right, 50,000 to 150,000, come the "acute" cases.

In making a diagnosis, the patient is attached to the Micro-Dynameter by two electrodes, one a metallic plate on which he stands in his bare feet, the other a metallic rod that he holds in his hands. Then the current is turned on and a narrow black line should appear at zero. Another switch is thrown and the line begins to move slowly and it comes to rest on a certain mark to the right of the zero point 'which your patient can see and understand'. This according to Mr. Ellis is said to reveal 'in one single reading the summation of all disease factors going back to those of heredity. Or, to put it in Mr. Ellis' own modest phrase expressed in black-faced type, the Micro-Dynameter is 'the first true therapeutic gauge in history' and 'a perfected scientific mechanical detector for diagnosis'.

Mr. Ellis then lists a number of "diseases"—as they are quaintly called by ordinary physicians—and the markings that are shown on the Detector Scale of the Micro-Dynameter correspond to these diseases. Thus

Advanced Diabetes with Obesity	3 000
Heart prostration, extreme exhaustion	4 000
Cancer	9 000
Melancholia high blood pressure	12 000
Tuberculosis	15 000
Apoplexy	16 000
Neurotic	17 000
Asthma	18 000
Nervous breakdown	22 000
Anaemia	27 000
Sacro-Iliac strain	33 000
HEALTH	50 000
Deafness cataract	59 000
Syphilis	77 000
Acute Gonorrhoea	91 000
Acidosis	122 000
Insanity	141 000

From this presumably incomplete table, it will be seen that good health lies somewhere between a sacro-iliac strain and deafness and cataract. It appears, further from Mr. Ellis' book that a patient's "polarity"—determined by the Micro-Dynameter in connection with another of Mr. Ellis' devices, the "Polarimeter" may depend to some extent on where he lives. We read, for example

In New York a large group of people measured positive in every single case and no two were alike variations ranging from 3 divisions up to 1800 divisions to the right of 0. In Chicago the proportion is very close to two positives to one negative and likewise wide differences between the degree of displacement from 0 between individuals. In Des Moines Iowa a group split exactly even between positive and negative.

From this it would appear that Des Moines, Iowa would be the ideal place to live, were it not for the further fact that Mr. Ellis says that "this factor is influenced by the seasons and the weather."

Another chapter in Mr. Ellis' book on Micro-Dynamics deals with the localization of disease after it has been diagnosed. Mr. Ellis would like to resolve all diseases into one or, as he puts it, "the reduction of all diseases to simple unity would constitute the greatest scientific classic." But he admits that this is "just now relatively a big step to take." In fact, he thinks that "the proposal is probably 25 years or more ahead of the world," because "the patient still demands to know the name of his ailment." Mr. Ellis still thinks, though, it would be far better for everybody concerned if one could reduce the thing to two terms, Health and Disease and instead of trying to find *what* a person has, determine *where* he has it.

Mr. Ellis claims for the Micro-Dynameter the following advantages over the older instruments

- 1 A complete examination which formerly might have required an hour can be made by this new method in from 5 to 10 minutes.
- 2 The efficiency of detection is increased from 5% to approximately 100% due to the fact that the human element is ruled out completely and the detections are made by means of the sense of sight instead of the unreliable senses of touch or hearing.
- 3 Technique is utterly simple due to the automatic working of the instrument.
- 4 More confidence on the part of the patient is assured by the visual readings which the patient may also read and understand [Italics ours—Ed.] by reason of correlation with his symptoms and experience.

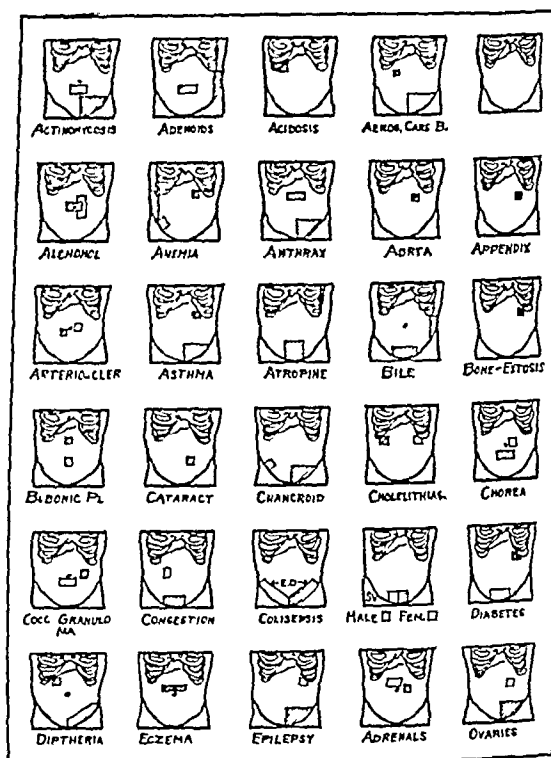
Mr. Ellis does, it is true, throw in as a suggestion that after this 100 per cent efficient diagnosis has been made, "physical examination may be employed to verify these findings." One wonders why.

The Micro-Dynameter is also used in the treatment of disease. It is, in fact, "a Precision Therapeutic Generator." After

the instrument has been used to make the test of "vitality" and then the patient's "polarity" is measured, "the calculation of the treatment is made with the aid of a blue print of curves, which are calibrations of the instrument." A picture is given showing a patient with hepatic insufficiency receiving treatment from a Micro-Dynameter. The patient grasps one electrode with both hands, a flat electrode is placed over his liver, and his feet are contacted with a foot plate. The current is turned on and the hepatic insufficiency disappears?

The Micro-Dynameter is also recommended as having "particular application to the problem of Special Analysis" and, as such, will doubtless interest osteopaths and even chiropractors, for it is said to record spinal subluxations.

This story has been a long one, but it has been necessary in order that the medical profession may have a clear understanding of the background, medical and otherwise, on which Micro-Dynamics is predicated. Mr. Ellis has, in a pamphlet recently issued attacking the American Medical Association when considerable umbrage over the fact that the Bureau of Investigation of the American Medical Association in answering inquiries about Micro-Dynamics, has stated that it knew of no evidence from scientifically respectable sources to sustain the claims made for the Micro-Dynameter. As indicative of



This is Mr. Ellis' Chart No. 1 localizing certain diseases—mainly in the As Bs and Cs—by means of the diagnostic set up already illustrated. This chart is reminiscent of the ones put out by Albert Abrams.

Mr. Ellis tactics, he reproduces in his booklet a letter which a chiropractor wrote to the Bureau of Investigation about the Micro-Dynameter. The Bureau of Investigation answered the letter briefly, as follows

Dear Sir—In our opinion, there is not a scintilla of evidence from scientifically respectable sources to sustain the fantastic claims made for the Ellis Micro-Dynameter.

Mr. Ellis publishes the chiropractor's letter and the Bureau of Investigation's reply, and in a comment implies that he is surprised that the Bureau of Investigation should stand ready to serve a chiropractor. The Bureau of Investigation answers inquiries from all laymen—the butcher, the baker and the candlestick maker. It has given information concerning

nostrums and quackeries on a few occasions to chiropractors. The Bureau, however, has never found it necessary to employ a chiropractor to write a decoy letter.

The peculiar theories and still more peculiar device of Mr Ellis would probably never have become of sufficient importance to warrant a detailed description of them had it not been for the fact that Mr Ellis' device has been given a quasi respectability by having been exhibited at the convention of the Inter-State Postgraduate Medical Assembly at Cleveland. The further fact that Mr Ellis' device is advertised in *Clinical Medicine and Surgery* may also mean much to him but the profession is fairly well aware of the fact that this particular journal carries advertisements of many dubious products.

While Micro Dynamics is essentially a further extension of the preposterous theories of Albert Abrams, there is this difference. Albert Abrams was a physician and a charlatan; his devices were electrically and mechanically crude to a degree. Mr Ellis is merely an electrical engineer without medical knowledge or training who apparently believes that he has reduced the diagnosis and treatment of disease to the simplicity of a nickel-in-the-slot gum-vending machine. The ability to sell such fantastic devices as Perkins' Tractors, the Abrams machine and the Micro-Dynamometer are actually a much greater indictment of that part of the medical profession that buys them than they are of the individuals whose names these devices bear.

Correspondence

ULCERATIVE COLITIS

To the Editor—Recently two articles on chronic ulcerative colitis have appeared in *THE JOURNAL*. The former of the two was written by us (November 4, p. 1462), the latter, by Dr Moses Paulson (November 25, p. 1687).

The altercation between Dr Paulson and us is well known to those who are interested in gastro-enterology. To say that the dispute is of no importance to us personally would be to assume an indifference which we do not feel. Nevertheless, we forbore to mention it in our article, for it is not absorbing to those who are not specialists in the field concerned, and it might well result in disservice to the sick. Here we carry the controversy no further than to refer those who are interested to our published work. Such readers will be able to judge whether Dr Paulson's partial direct quotations and his indirect quotations of us have always been of sufficient length to give an accurate impression of what we have stated and done.

The reason for this note is only that we believe the destructive character of Dr Paulson's paper might result in leading some physicians, who see only an occasional case of ulcerative colitis, to believe that no aid can be given. We have demonstrated the contrary.

We published the report of our work as soon as we thought we had ascertained something that would be of value at the bedside. Of the fact that we have modified our ideas as we gained more knowledge we are proud rather than apologetic. Dr Paulson is correct in saying that etiology must not be confused with therapy. We have not so confused them. We have recognized that gaps might exist in our concepts of etiology, and in attempts to fill these gaps we have extended our studies into all manner of intestinal ulceration. But we have applied what we knew, and have followed our patients sufficiently long to be sure of our results. These results have engendered in our minds nothing of the despair to which Dr Paulson confesses.

J A BARGEN, M.D.,
LOUIS A BUIE, M.D.,
Rochester, Minn.

DIAGNOSIS OF AMEBIASIS

To the Editor—In reference to the diagnosis of amebic dysentery, as outlined in the article by Dr Kano Ikeda of St Paul in the Dec 16, 1933, issue of *THE JOURNAL*, I venture to state that his conclusions regarding the laboratory diagnosis are not borne out by the experiences of those who have had an opportunity to study the intestinal amebias of man.

He says: "While, therefore, I follow the teaching of the authorities that the finding of red blood cells within the vegetative form of amebas and the demonstration of the four nucleated cysts should constitute the final diagnostic criteria of *Endamoeba histolytica*, I feel that, in experienced hands, a positive diagnosis without either of the two, may be justified, at least in the face of an outbreak such as has been witnessed."

In the first place, the finding of the vegetative form is not easy unless one can procure the specimens directly from the ulcerations through proctoscopic examination. Secondly, the differential diagnosis of the vegetative form of *Endamoeba histolytica* and *Endamoeba coli* is not easy. Possibly the finding of the red cells within the cytoplasm in the case of the former, and the finding of foreign bodies, bacteria, and so on, in the case of *Endamoeba coli*, are good diagnostic differential points, but, after all is said and done, the true diagnosis of this disease must be made by finding the cystic forms. Differences between the cysts of *histolytica* and *coli* are very striking. I have found in this country that but few laboratory workers are performing routine examination of stools for the demonstration of the cystic forms by staining methods. Thirdly, it is manifestly unscientific and unwarranted to make a diagnosis simply because we are facing an outbreak of supposed amebic dysentery in certain communities. On the face of it, this is very poor advice to be given by the laboratory to the general profession.

In my studies at the Hamburg Institute of Tropical Medicine under Professor Reichenow, it was emphasized that the finding of cysts was the only true criterion for the laboratory diagnosis of this disease. It should be used as a routine method in all laboratories.

It is imperative that in stool examinations a routine staining process be carried out in all suspected cases of amebic dysentery. Once the observer becomes acquainted with the characteristics of the cysts of these two forms, no great difficulty occurs in making a laboratory diagnosis.

The staining method is as follows:

1 Fix in a mixture of 2 parts of saturated aqueous solution of corrosive mercuric chloride and 1 part of alcohol, from twenty to sixty minutes.

Put specimen on cover glasses, not slides. Smear needle float on surface of petri dish containing fixative, face downward, then turn them around with forceps, face upward. They sink.

2 Pour off mercuric chloride-alcohol, put back into bottle. Pour on iodo-alcohol (alcohol 70 per cent and tincture of iodine enough to give a light port wine color).

3 Let stand from twenty to thirty minutes.

4 Pour off. Seventy per cent alcohol one hour or longer (from twenty-four to forty-eight hours).

5 Pour off. Iron alum, 4 per cent, one hour.

6 Pour off. Stain one hour in Heidenhain hematoxylin, 1 per cent. Should be ripened four weeks. Wash in water. (Heidenhain hematoxylin is made by dissolving 1 Gm of hematoxylin in 10 cc of 95 per cent alcohol and diluting to 100 cc with distilled water. It should not be used for at least four weeks.)

7 Differentiate with 2 per cent iron alum in dish with cross marked on bottom to designate one, two, three and four minutes' immersion. Take out the thinnest for one minute, thicker, more time.

- 8 Place in water one, two, three and four minutes
- 9 Wash in running water for twenty minutes
- 10 Place in small bottles the various ingredients for the final staining

Sixty per cent alcohol
 Eighty per cent alcohol
 Eighty per cent alcohol
 Ninety-six per cent alcohol
 Absolute alcohol
 Xylene
 Xylene
 Mount in balsam

For the examination of fresh material, in searching for the vegetative form it is necessary only to use a small amount of

water (1 part camphor, 2 parts alcohol, 200 water, filtered) 250 cc, distilled water 700, acetic acid 65 cc. A hazelnut size piece of stool is rubbed with from 2 to 5 cc of water, then add 50 cc of the foregoing solution and shake. Then filter through a gauze filter. Then it is put into a separatory funnel. Add 15 cc of ether, shake, removing the stopper two or three times and then let stand. In a few seconds the ether impregnated detritus goes into the upper layer. In the lower layer are found the cysts and eggs of worms, which one can concentrate by centrifugation for a few minutes. The sediment can be examined fresh or stained.

In addition to *Entamoeba histolytica* and *Entamoeba coli*, the staining method for cysts will show the characteristic *Entamoeba tenax*, *Entamoeba bütschlii*, *Endolimax nana* and *Dientamoeba fragilis* any one or several of which may be present in any one specimen.

The accompanying chart of the characteristics of these various forms is the composition of Professor Reichenow of the Institut für Schiffs und Tropenkrankheiten of Hamburg, Germany.

R B H GRADWOHL M.D., St. Louis

THE HAZARDS OF DRY CLEANING

To the Editor—I read your comprehensive and timely editorial "The Hazards of Dry Cleaning" (*THE JOURNAL* Dec 16 1933 p 1970) with a great deal of interest and benefit, and may I say that I second all of the suggestions contained in it.

One phase of the subject however, I believe needs further emphasis. This has to do with commercial dry cleaning.

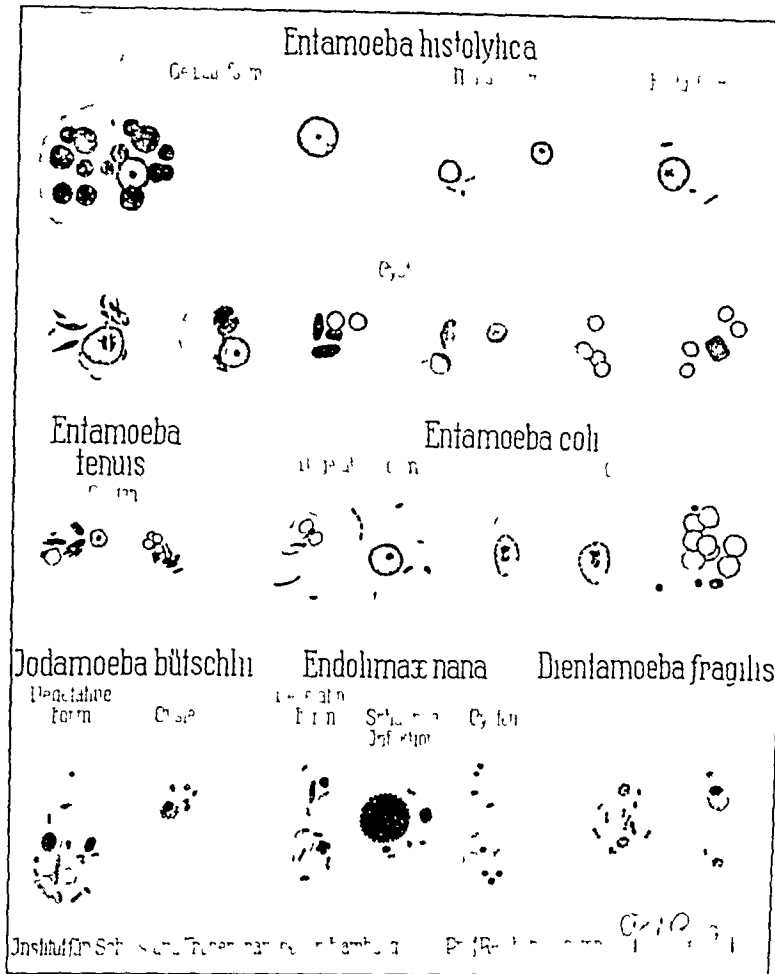
Since the introduction of carbon tetrachloride and trichlorethylene as a general solvent in the dry cleaning establishments, I have noted cases of dermatitis of varying severity which followed the wearing by women of clothing recently cleaned in these establishments. In all the instances observed there occurred an annoying, somewhat scaly, red, dened and well defined involvement within forty-eight hours. The localization depended on whether the dress was short or long sleeved. In the former, the areas of the axillary folds, the sternum and the neckline of the dress showed involvement, in the latter in addition to the foregoing areas, the antecubital fossae were also affected. The degree of dermatitis was dependent on the length of time which the dress was worn. When the causative factor was not soon discovered (as in two instances), the inflammatory reaction became much more severe the skin becoming edematous later a papulopustular

eruption became superimposed. This secondary pyoderma involved the extremities and the trunk.

The treatment of this contact dermatitis is exceedingly difficult, the mere removal of the offending clothing is not enough as is the case in so many other forms of this group of dermatitis. The skin has to be kept well lubricated with such a preparation as coconut oil. I usually ask these patients to remain at home for several days, put on loose mushy garments and keep them selves literally soaked in oil.

Usually as a result of this chemical irritation there remains the earmarks of the epidermal insult for a considerable period in the form of hyperirritability of the affected skin which will appear as a dermatitis on the slightest provocation.

LESTER HOLLANDER M.D., Pittsburgh



Characteristics of various amebas

the fresh stool between the slide and cover glass. Examine with the low power and then with oil immersion.

In the stained smear the cysts are often mistaken for air bubbles by beginners. They are also to be differentiated from

Blastocystis. The addition to the mixture of iodine 1 part potassium iodide 2 parts, and water 100, or 2 per cent eosin solution, helps this examination. Eosin stains the background but does not stain the amebas and flagellates. The iodine stains nuclei brown. It is therefore very important in examination for cysts. The Dutch investigators Bayor and Kuenen use a concentration method to demonstrate cysts. Another method by Riparte and Petit in order to make the cell structure more visible is as follows: copper chloride 1 Gm, copper acetate 1 Gm, solution of formaldehyde 50 cc, camphorated

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

INADEQUATE TREATMENT OF SYPHILIS

To the Editor—A man aged 29 had a chancre about two years ago and about eighteen weeks after infection consulted a physician who gave him eight intravenous injections of nearsphenamine together with injections of mercury. Six months later he had what the physician told him was a second chancre, and at this time he received six more intravenous injections followed by twelve intramuscular injections, presumably nearsphenamine and bismuth respectively. During the course of these injections he had a rash which he was told was a secondary eruption and which finally disappeared again in the course of treatment. Following this he discontinued further treatment of his own accord and six months ago came to me for treatment with his trunk and extremities covered with a papular eruption. In the genital region where the folds of skin rub together were open sores apparently condylomata. He felt very much "run down" but did not complain of pain of any kind. I took this to be a recurrent secondary reaction for the pupils reacted sluggishly both to light and in accommodation but the neurologic examination was otherwise negative. A blood test at this time was Kolmer 4 plus, Kline 2 plus. I started him on injections of 4.5 Gm of nearsphenamine at five day intervals until six treatments had been given. A blood examination at this time revealed the Kolmer reaction to be 4 plus and the Kline reaction 4 plus. I then gave him twelve biweekly 1 cc injections of bismuth salicylate in oil containing 0.13 Gm of the drug per cubic centimeter. Blood examination then gave a Kolmer reaction of 4 plus, Kline 3 plus. After two injections of the nearsphenamine the eruption disappeared and the patient gained weight and felt better in spite of the turn of the blood picture toward the positive side. I then gave him a rest of three weeks and began a repetition of the previous treatment except that I increased the nearsphenamine to 6 Gm because the patient weighed 190 pounds (86 kg). During the course of this treatment he developed typical arciform syphilids on the lower limbs and dry fissured lesions about the fingers, the palms of the hands and some on the forearms. He states that he does not feel as well as he did during the first course. I continued with the bismuth injections up to eight and then the blood became Kolmer negative, Kline 4 plus. Should I continue treatment in the same manner and if not, what should be done? Please omit name and address.

M D Minnesota

ANSWER—The treatment of this patient, accepting the history as it is given, but correcting the misplaced decimal points in the dosage of nearsphenamine, has been inadequate throughout. The data are insufficient to determine whether the recurrent penile lesion was a bona fide reinfection or a monorecurrence. The first papular eruption with erosive lesions in the groins may well have been either delayed secondaries or secondaries associated with a reinfection. It seems more probable, however, that the whole picture is to be interpreted as serial relapse assuming increasingly the characteristics of a precocious tertiarism. There seems little doubt from the description of the treatment, including the introduction of rest intervals and the inadequate dosage of nearsphenamine and heavy metal that the patient is on the verge of the most serious complications as a result of induced allergic response to his infection following inadequate treatment. The most intensive and vigorous treatment is therefore indicated, including a shift from nearsphenamine to arsphenamine and the administration of bismuth salicylate in doses of 0.2 Gm every four to six days for several injections, followed by the institution of a five to seven day interval. Close attention must be paid to the mouth during this time. It is now a recognized fundamental principle that treatment in early syphilis should be continuous and not intermittent and no attention should be paid to the outcome of serologic tests so far as the direction of treatment is concerned during the eighteen months, or even for two years. An effort should be made to approximate at least forty injections of arsphenamine, and from a year to eighteen months with heavy metal.

EFFECTS OF EPHEDRINE IN NOSE

To the Editor—Will the frequent use of nose drops containing 1 per cent of ephedrine have any harmful effect when given to children? What harmful effects might ensue if any and what is the maximum dosage that can be used in this fashion? Please omit name. M D Kansas

ANSWER—The frequent use of nose drops containing 1 per cent of ephedrine would in most instances even over a long period not produce any condition that could not be relieved by ceasing to use the drops. From time to time patients develop a tolerance for the ephedrine so that it does not work well in the nose, and a few may develop hay fever-like symptoms in addition to their original complaints. One must guard against

the use of too much ephedrine at a time with a resultant swelling of the drug, with its constitutional reactions. In very young children, nose drops of oily character have been known to enter the lung, producing undesirable reactions. Ephedrine may be used in oily solutions in strengths of 1 per cent and in aqueous solutions in strengths of from 1 to 3 per cent.

ALCOHOLIC LIQUORS AT SPAS

To the Editor—I have often heard it stated that alcoholic liquors are dangerous if taken at a time during which a person is undergoing spa therapy, i.e., drinking a natural mineral water and taking hydrotherapy. Is there any physiologic reason for this statement? Please omit name.

M D, Indiana

ANSWER—There is a psychologic rather than a physiologic basis for this prohibition. "Spa therapy" aims at alterative effects, i.e., a change in a person's constitution as a result of change in habits, and the elimination of the use of alcoholic liquor may be of greater importance in the 'cure' than the drinking of the natural mineral water. It is just as bad for a person to drink liquor at home as at a spa.

NERVES AFFECTED IN JAKE PARALYSIS

To the Editor—I have a patient with paralysis of the hands and lower extremities (jake paralysis). Please advise me just what nerves are affected to cause this condition. D E LITTLE M D Eufaula, Okla.

ANSWER—The same nerves are not affected in all cases of so called jake paralysis. Hence the way to find out just what nerves are affected in this particular patient is to go over his motor and sensory condition carefully. The various movements should be tested and a list made of the muscles showing distinct weakness. Next the patient's sensation for touch, pain, heat and cold should be determined and the areas affected should be mapped out. By consulting books on anatomy or neurology it is easy to learn what nerves correspond to the muscles and skin areas involved.

USE OF OXYGEN TENT IN PATIENT WITH HEART DISEASE AND GLYCOSURIA

To the Editor—Please send me some information of what method and how soon to remove a patient from an oxygen tent in coronary thrombosis and hypostatic congestion of the lungs. Also if the patient had a blood sugar 333.5 urea N 28. Would you use insulin in such cases? The patient who took sick suddenly was never complaining before this illness.

LEOPOLD HARRIS M D New York City

ANSWER—There is no uniform method of removing a patient from the oxygen tent. The general practice is to keep the patient in the tent as long as there is cyanosis or distressed breathing. If one is satisfied that convalescence is established, it is wise to reduce the oxygen pressure gradually to see how the patient breathes in a reduced atmosphere.

Regarding the blood sugar, insulin would seem to be contraindicated unless there is a real diabetes present. Was there glycosuria? Had the patient a diabetic history? Was there hyperglycemia a constant finding or just a single incident? Since it is known that both insulin and hypoglycemia may be harmful to the damaged heart (Strouse, Solomon, Soskin, Samuel, Katz, L N, and Rubinfeld, S H. Treatment of Older Diabetic Patients with Cardiovascular Disease, THE JOURNAL, May 14, 1932, p 1703), it should not be used without a real indication. If a patient has true diabetes and does not react to moderate restrictions of diet, small doses of insulin might be advisable, but the patient should be watched very carefully, and the occurrence of any cardiac symptoms or signs would be a definite indication for stopping insulin therapy.

CHANGES IN KAHN TEST

To the Editor—Dec 28 1931 a white woman aged 40 consulted me. As she came into the office I noticed a definite ataxia to the right. Her chief complaints were extreme nervousness, a tendency to stagger to the right side, fainting spells in which she always fell to the right side and terrible right temporal headaches. Examination revealed hyperactive reflexes on the right side of the body. The pupils reacted evenly to light and in accommodation. There was a questionable positive Romberg sign. A tentative diagnosis of brain tumor was made and she was sent to an ophthalmologist for examination. The report came back that there were no choked disks and that there were no changes in the eyegrounds to account for the symptoms. A Kahn test was done which came back 4+. There was no history of any syphilitic infection. The woman was married ten years previously and there is no history of infection in the husband. His Kahn test was negative on two different tests. From Jan 16 to Feb 27 1932, she was given sixteen doses of 1.5 cc each of

bismuth arspenamine sulphionate intramuscularly and seven doses of metraphen consisting of 10 cc each intravenously. A specimen of blood then showed a Kahn reaction of 2+. From March 12 to June 7, 1932, she received seventeen similar doses of bismuth arspenamine sulphionate and four similar doses of metraphen. She was then changed to sodium bismuth thioglycolate and from June 11 to Oct. 8, 1932, she received twenty-four doses of 3 grains (0.2 Gm) each. Her blood at this time still showed a 2+ Kahn reaction. She was then changed to a solution of sodium bismuth iodide in ethylene glycol and from Nov. 5, 1932, to Jan. 21, 1933, she received twenty doses consisting of 2 cc each. At this time her blood showed a 4+ Kahn reaction. She was then changed to arspenamine. From Jan. 21, 1933, to the present date she has received two courses of six injections each. Each injection is spaced two weeks from the previous one. Throughout the whole time of treatment she has taken 25 grains (1.6 Gm) of potassium iodide daily. Why did this patient get a return to a 4+ Kahn reaction a year after treatment was started, in view of the fact that her Kahn reaction dropped to 2+ after only two months of treatment? Is this patient getting sufficient treatment, and if so, is it directed correctly? Is there any further treatment that you would suggest? Clinically the patient is much improved. She has no attacks or fainting spells and no more headaches. Kindly omit name.

M D, Missouri

ANSWER—The question as to why a 4+ Kahn reaction is changed to 2+ following antisyphilitic therapy cannot be answered with certainty, since the true basis of a positive serology is not as yet definitely known. It is to be remembered that there is not always a direct relation between serologic potency and clinical symptoms. A patient showing a very strong reaction might be free from clinical symptoms, while a patient showing a weak reaction might be very ill. Serologic potency, it is believed, depends on the extent of active syphilitic lesions present in the body, while clinical symptoms depend on the particular organ or organs that are being attacked by the spirochete. It is possible that, following syphilitic therapy, certain lesions might be affected more than others and produce as a result, improvement in clinical symptoms and yet at the same time an increase in serologic potency. As to the question of therapy, it cannot be adequately answered without knowing the Kahn reaction (and colloidal gold curve) on the spinal fluid, since it is possible that this patient has syphilis of the central nervous system.

TREATMENT OF SYPHILIS IN PREGNANCY

To the Editor—In a case in which the veins are exceedingly small and inaccessible would you consider it good therapy to use sulpharsphenamine intramuscularly in a pregnant woman of about four months? Is there any increased danger of exfoliated dermatitis aplastic anemia with purpura or anemia haemorrhagica occurring? Would the administration of liver extract offset to any degree the danger of the anemias mentioned? Can a close observation of blood smears and count give an early enough warning of any tendency to these diseases? Or could you suggest anything better to be given intramuscularly? Would a dosage of 0.5 Gm of sulpharsphenamine be excessive every week or should less be used? Bismuth should also be used every week should it not? Please omit name.

M D Ohio

ANSWER—The use of sulpharsphenamine intramuscularly in adults, to say nothing of pregnant women, is not recommended on account of the greatly increased danger of exfoliative dermatitis and aplastic anemia from the use of the drug. This increased risk has been amply demonstrated by the most recent studies of reaction to arsenicals used in the treatment of syphilis. There is no way of escaping this risk by any prophylactic measure, particularly as applied to the onset of agranulocytosis or aplastic anemia.

The treatment of this patient can be conducted, if necessary, exclusively with bismuth compounds or with bismuth arspenamine sulphionate in the full adult dosage. If bismuth arspenamine sulphionate is employed, an effort should be made to give it as often as twice a week for a series of forty injections. If a preparation of bismuth alone is used, one of the oil soluble bismuth compounds or bismuth salicylate could be given once a week until two weeks before the date of expected delivery.

HAIRY MOLES OF FACE

To the Editor—A boy aged 14 years is about to begin shaving. His face was always clean until his tenth year when several pigmented areas about one-eighth inch in diameter made their appearance along the sides of both face and chin. The moles show an abundant growth of hair while there is only a scanty growth of beard and mustache. Would shaving have any injurious effect on the moles? Are there any safe depilatories to be used instead of a razor? Please omit name.

M D New York

ANSWER—Moles in the bearded region of the face in young persons frequently develop coarse black hairs, which contrast with the downy growth of the rest of the face. Shaving would not have any injurious effect on the moles. Depilatories should not be used instead of a razor. If the moles at any time show

signs of irritation they should be excised or removed with electrodissection and the hairs destroyed with the electric needle.

DIAGNOSIS OF ANGINA PECTORIS AND CORONARY DISEASE

To the Editor—1. Can a man have sclerosis of the coronary arteries with attacks of angina pectoris relieved by glyceryl trinitrate and yet have a normal heart sound, pulse, blood pressure and electrocardiogram? 2. Is there any pathognomonic objective sign that will positively diagnose the condition, should the history of cardiac pain be concealed from the examiner for some reason as in insurance examinations? 3. How can one differentiate the malingerer from the actual patient complaining of anginal attacks that is, by objective signs especially when the electrocardiogram, blood pressure and sounds are negative (as in the examination of prisoners)? Please omit name.

M D New York

ANSWER—1. Angina pectoris is characterized by no objective signs. The heart may be normal on physical examination, with normal blood pressure or blood pressure either higher or lower than normal with no roentgenologic changes, and with normal electrocardiograms, and the patient may still have typical attacks, which are relieved by glyceryl trinitrate. At necropsy, no more coronary sclerosis may be found than is concomitant with the patient's age. All one can say is that for some reason the blood supply to the heart muscle is inadequate for the needs of the muscle at that time. That reason may be coronary sclerosis. There is a great deal of reason for assuming in some cases that there is a temporary vasoconstriction of the coronary arteries, but this is a matter of opinion.

2. There are no objective signs pathognomonic of angina pectoris or of coronary disease. Many cases will show electrocardiographic changes but not all. The diagnosis must be based entirely on the patient's account of the attack.

3. If the patient conceals the history, the examiner has nothing on which to base his opinion. Certain electrocardiographic changes may indicate anatomic changes in the heart, probably due to coronary disease, but they tell nothing of whether the patient has attacks of angina pectoris or not. In cases of doubt it is better to accept the patient's story. A great many patients with supposed false angina and supposed malingerers have died during a so called pseudo attack.

ITCHING OF PHARYNX AND TONGUE

To the Editor—I have recently completed a rather exhaustive allergic study on a patient suffering from allergic bronchitis and bronchial asthma. With the removal from her environment of a number of the offending allergens and a course of pollen desensitization there has been a great improvement in the symptoms. A minor degree of pathologic change in the nose and a fragment of tonsil are present. These are both being treated regularly by a competent rhinologist. The patient is severely distressed by an intractable itching of the posterior pharynx and the base of the tongue. This appears to precipitate coughing spells and is annoying both day and night. I am aware of the fact that this symptom is frequently encountered in allergic states, but in view of the marked general improvement I believe this may be a purely local condition which might be relieved by local measures. Can you suggest some therapeutic measure that would be of value? Kindly omit name.

M D New Jersey

ANSWER—Small pellets of ice placed on the posterior third of the tongue and allowed to melt there often relieve irritation in this region. Gargling with ice cold water a number of times a day is also sometimes beneficial. When these measures fail, tablets containing a small amount of orthoform or ethyl amidobenzoate may be used every two or three hours, the tablets being allowed to dissolve slowly in saliva after being placed on the tongue. Internally, the use of antipyrine in doses of from 0.13 to 0.26 Gm three times a day together with tincture of belladonna will often alleviate the irritation.

HYPOPHYSEAL CACHEXIA

To the Editor—Can you give me some references on hypophyseal cachexia? A woman aged 24 unmarried complains of loose teeth, underweight (81 pounds or 36.7 kg) and a weak voice. Her weight has remained the same for the past seven or eight years. She appears much older than the stated age there is marked loss of nutrition the voice is weak and high pitched there has been no loss of body hair although the eyebrows appear scanty. Inspection of the teeth shows no infection of the gums but a border of marked pallor extends round the gum margin about half an inch wide. Beyond this point the mucous membrane appears normal. The cusps are merely sitting on the alveolar process no root infection exists and the remaining teeth are normal roentgenographically. She has a fairly large goiter of the right lobe with no toxic signs. There is a low to and fro murmur opposite the second costal cartilage on the left. The heart is not enlarged. The fluoroscopic examination suggests a patent ductus arteriosus. The remainder of the physical examination is within normal limits. Routine

blood studies are well within normal. The Kahn reaction is negative. The urine shows no albumin or sugar and the microscopic examination shows nothing abnormal. Neurologic examination with special attention to any hypophyseal disturbance is negative. Studies of the basal metabolism and calcium studies of the blood and urine have not been done. Treatment has consisted of attempts to increase the weight by a high caloric diet. However though the patient is cooperative she cannot take even a 2000 caloric diet. A high calcium diet has been attempted in conjunction with the high caloric diet, but unfortunately I cannot overcome the vomiting of milk that promptly follows its ingestion. Might such a syndrome be considered suggestive of the so-called Simmonds' disease? Would you care to comment on the possible diagnosis and therapy if any? Please omit name. M D Michigan

ANSWER—The case seems to require more study before a definite diagnosis can be made. Certainly the basal metabolic rate should be determined and a careful gastro-intestinal study should be made. Also a careful analysis of the nervous and psychologic reactions is indicated to exclude the possibility of anorexia nervosa being the basis of the patient's inability to eat. As described the syndrome does not seem like the cachexia of Simmonds' disease, but it does not seem advisable to advise further therapy until the suggested studies are undertaken.

TYPHOID VACCINE IN ARTHRITIS

To the Editor—In using typhoid vaccine in chronic infectious arthritis what dose and interval are now believed to be most satisfactory and how long is this treatment usually continued? Please omit name.

M D, New Mexico

ANSWER—The question is divided into three parts: dosage, interval and duration of treatment.

1 The initial dose of the intravenous injection varies between 10 million and 50 million, depending on the source of vaccine. Many hospitals make up their own, and therefore the potency varies. The dosage may be increased by 25 million at each successive injection, depending on the patient's response or reaction.

2 The interval depends on the reaction. Some authorities give the injection every two days until the patient gets a chill and develops fever. Others use the plan of an interval of from four to seven days.

3 The duration of treatment varies with the individual. Some physicians establish the rule of giving a dose every two days until chill and fever appear and then they stop. Others give the injection every four to seven days until the patient has had six good reactions.

NEUROCIRCULATORY ASTHENIA AND DYSPNEA

To the Editor—In examining men for enrolment into the CCC I have not infrequently come across youths (ages 18-25) who show a marked amount of dyspnea on merely hopping up and down on one foot for a minute or two. Many, and it is in these cases that the question is asked on auscultation show no evidence of decompensation (rales in chest) and no murmurs of any type. The blood pressure was normal in the majority. There was no evidence of lung changes and no history suggestive of rheumatic infection. Urinalysis was negative. What suggestions may be offered as to the cause of the dyspnea? I now have several similar cases in my camps. Please omit name.

M D California

ANSWER—It is possible that in the absence of cardiac or pulmonary disturbances the dyspnea might be produced by anemia. Another possibility is merely poor muscular condition. If these factors are not present, a neurogenic origin must be considered. The chief syndrome to be considered under this heading is neurocirculatory asthenia. Respiratory manifestations may predominate in this condition, with the cardiac and muscular elements in the background. In fact, patients may have constant panting even while at rest quite as they may have constant palpitation or diarrhea. Other symptoms, however, should be brought out during work, namely, early exhaustion, tremor, palpitation, tachycardia and sweating.

SENSITIZATION TO ALCALIGENES ABORTUS

To the Editor—I have a patient a veterinarian who is sensitized to *Alcaligenes abortus*. If he does not wear rubber gloves when called on to treat a cow infected with that disease a severe dermatitis of his hands and arms develops. Is there any means or methods of desensitizing for this infection? Kindly omit name.

M D, Minnesota

ANSWER—If it has been demonstrated that the veterinarian is sensitized to *Alcaligenes abortus*, the simplest preventive measure would be to insist that he wear rubber gloves when he has direct contact with fresh animal tissues. It is assumed that the possibility of contact dermatitis from bovine vaginal secretions has been excluded. If not, this could be done by skin tests with bovine vaginal secretions or bovine serum, or both.

In skin testing for sensitivity to *Alcaligenes abortus* it is important to carry out the intradermal test with very dilute suspensions of the organism in order to avoid a severe reaction. The patch test, the sediment of killed organisms being used under a piece of adhesive plaster, instead of the usual intradermal test, might be a safer procedure.

If the disturbance is proved to be due to sensitization to *Alcaligenes abortus*, it would be possible to desensitize the patient by intradermal injections or by subcutaneous injections of an *Alcaligenes abortus* vaccine. It would be well to use a detoxified suspension of the organisms for the desensitization rather than the heat-killed or formaldehyde treated suspension as described by Tishay (*J Infect Dis* 51:286 [Sept-Oct] 1932). The injections should be small beginning with 0.01 cc and should be continued over a considerable period until skin tolerance to an intradermal injection of heat-killed organisms is achieved.

CINCHOPHEN POISONING

To the Editor—Please give me what information you can about cinchophen poisoning, the antidote and its relation to acute yellow atrophy of the liver. How quickly do poisoning symptoms appear? What tests are used to prove the connection of cinchophen action on the liver? How common is acute yellow atrophy of the liver due to cinchophen? Please omit name.

M D Massachusetts

ANSWER—Worster Drought was the first to describe liver disturbances in patients who had taken cinchophen. The first fatality showing yellow atrophy of the liver was reported by Cabot in 1925. Since that time about forty-nine fatalities and fifty-eight severe poisonings have been reported in the literature. It is important to know that fatal accidents may occur within a short time even with therapeutic doses as small a dose as 3 Gm daily for two days may produce severe toxic symptoms, on the other hand, 324 Gm has been taken in the course of four months before the appearance of toxic symptoms. Either the course of the poisoning is rapid with the death of the patient or it takes weeks or even months to recover from the toxic effects. From the reports in the literature it appears that hypersensitivity may play an important part in the production of cinchophen poisoning. In animals, degenerative changes of the liver have been reported only with large doses. Control of the liver function during the administration of cinchophen appears to be advisable. Gastro-intestinal disturbances and the appearance of bile pigments in the urine are the first symptoms of the poisoning. After definite symptoms have set in the treatment is usually not very effective. There is no specific antidote, occasionally encouraging results have been reported by increasing the glycogen store by a carbohydrate diet, by the injection of dextrose and insulin and by duodenal lavage with magnesium sulphate (Eimer K. *Deutsche med Wchschr* 57:1663 [Sept 25] 1931; Walker, H G. *New England J Med* 204:253 [Feb 5] 1931; Weiss C R. Toxic Cirrhosis of the Liver Due to Cinchophen Compounds, *THE JOURNAL* July 2, 1932, p 21; Grigg W K, and Jacobson, V C. *Ann Int Med* 6:1280 [April] 1933).

USE OF RESORCIN SULPHONATE IN HEMORRHOIDS

To the Editor—Please give me some information concerning the action of resorcin sulphionate with special reference to its application in rectal inflammations and hemorrhoids. Is it ever used internally, and, if so for what and why? Please omit name.

M D, Pennsylvania

ANSWER—Sulphonation greatly reduces the specific activity of the phenols, and resorcin sulphionate is probably no exception to this general proposition. If this is true, it is doubtful whether resorcin sulphionate is of any special value either locally or internally.

USE OF HEXYLRESORCINOL

To the Editor—Regarding your answer to the query in *THE JOURNAL* August 19, page 625 Sharp and Dohme inform me that hexylresorcinol is not obtainable in the form you specify for oral administration. The strongest product is the Caprokol capsule 0.15 Gm. This would require more than six capsules for a 10 year old child. The solution for use as an enema could be obtained only by buying hexylresorcinol solution S T 37 in small bottles 12 ounces I believe, being the largest. I am very anxious to try this method in a resistant case of *occurus* infection. Any suggestions would be welcome. Please omit name.

M D New York

ANSWER—The presence of a solvent, such as oil or glycerin, greatly reduces the activity of hexylresorcinol. On this account it is doubtful whether the use of Caprokol or hexylresorcinol solution S T 37 in enemas would be as successful as using crystalline hexylresorcinol.

As stated in previous publications, hexylresorcinol is controlled by Sharp and Dohme, who have temporarily withdrawn

the crystalline form from the market on account of cases of local irritation from improper administration when children have chewed up hexylresorcinol pills and obtained temporary irritation of the mouth. In the meantime, investigators are trying to find some acceptable means of administration.

RELATIONSHIP OF MUSCLE CRAMP TO DROWNING

To the Editor—When one is reported to have been drowned as a result of cramps what is thought to be the condition causing a good swimmer to drown? Please omit name.

M D Pennsylvania

ANSWER—Cramps are involuntary sustained contractions of skeletal or visceral muscle, of a tonic or tetanic character. It is well known that cramps or spasms of skeletal muscle may be induced by prolonged and intense stimulation of the cold nerve endings of the skin. Such muscular spasms may also be induced by severe physical exertion in people not in good physical training. A man may therefore be a good swimmer but not in good physical training or practice for swimming or other severe physical exertion. Such muscle cramps or spasms may involve any muscle or group of muscles in the body but usually not all of them simultaneously. This is true not only of the visceral but also of the skeletal muscles. It may involve the diaphragm and the other muscles of respiration. The cramp or muscle spasm is usually associated with local pain, which tends to inhibit use of other muscles that involve the spastic members either in motion or in tension.

It is conceivable that the trained swimmer might suffer severe spasms of some part of the gastrointestinal tract leading to such severe pain that the exertion of swimming becomes more or less intolerable. Spasms or cramps of the skeletal muscles in swimming rarely come in the hands, arms and legs at the same time. Probably the death or drowning on the part of a trained swimmer from cramp is largely the result of panic or confusion from fear. The notion that cramp on the part of a swimmer is so dangerous and fatal is generally believed and hence when he feels such a cramp locally he begins to be confused and executes all kinds of useless and futile movements which accentuate or extend the spasm. It is well known that good swimmers who have some understanding of the body machine can handle themselves well in water with cramps of the arms or cramps in the legs merely by turning on the back and keeping afloat by a slight movement of the arms and legs not already involved in the cramp. Such resting in the absence of fear usually permits the spasm to subside and the swimmer can go on.

REFLECTION OF LIGHT FROM EYES OF ANIMALS

To the Editor—Why do the eyes of some animals reflect light in darkness and other animals' eyes do not? Which of the commoner animals in this country belong to each group? Please omit name.

M D Pennsylvania

ANSWER—The visibility of light reflected from any eye is a factor of the intensity of the source of light, the diameter of the pupil, the angle of the incident and reflected beam and the color of the reflecting fundus. In addition to these factors, there must come into consideration the relative intensity of the illuminating beam and of the area round about the animal. The two factors that are mainly responsible for the visibility of reflection from the eyes of some animals and not others are the diameter of the pupil of the animal's eye and the color of the animal's fundus. With a contracted pupil, the angle of the incident and the reflected beam is so small that any slight variation from a given position prohibits observation of the reflected beam. In the majority of domestic animals, the fundus range from red to yellow and green. With such fundus colors, brilliant reflections may be expected under proper conditions such as are seen from the eyes of cats and dogs. In certain other animals, as the hedgehog and the squirrel, the fundus presents a light gray appearance and as a result no distinct reflection is to be anticipated.

TREATMENT OF HOOKWORM DISEASE

To the Editor—In THE JOURNAL Nov 25 1933 page 1746 appears a statement relative to the treatment of hookworm disease. I believe that tetrachlorethylene is in all probability as effective as carbon tetrachloride and theoretically decidedly preferable because it does not cause liver damage or any other intoxication that I could discover. Clinically it seems to be as effective as carbon tetrachloride. Like any anesthetic when taken by mouth it may cause temporary giddiness which should not be considered intoxication. The only contraindication that I know against its use is in cases of mixed infestations in which both Ascaris and hookworm are present in which condition it may cause migration of Ascaris with complications.

PAUL D. LAMSON M.D.
Vanderbilt University Nashville Tenn

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALABAMA Montgomery Jan 9 13 Sec, Dr J N Baker 519 Dexter Ave Montgomery
AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY Cleveland June Sec Dr C Guy Lane 416 Marlboro St Boston
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY (Written Group B Candidates) The examinations will be held in various cities of the United States and Canada April 7 Oral (all candidates) Cleveland June 12 Sec Dr Paul Tins 1015 Highland Bldg, Pittsburgh
AMERICAN BOARD OF OPHTHALMOLOGY Cleveland June 11 Sec Dr William H Wilder 123 S Michigan Blvd, Chicago
AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec Dr W L Wherry 1500 Medical Arts Bldg Omaha
CONNECTICUT Basic Science New Haven Feb 10 Prerequisite to license examination Address State Board of Healing Arts 189 Yale Station New Haven
DISTRICT OF COLUMBIA Washington Jan 8 9 Sec, Dr W C Fowler 203 District Bldg Washington
HAWAII Honolulu Jan 8 11 Sec Dr James A Morgan 48 Young Bldg Honolulu
ILLINOIS Chicago Jan 23 25 Supt of Regs Dept of Regs and Edu Mr Eugene R Schwartz Springfield
MINNESOTA Minneapolis Jan 16 18 Sec Dr E J Engberg 300 St Peter St St Paul
NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Feb 14 16 May 7 9 June 25 27 and Sept 12 14 Ex Sec Mr Everett S Flood 225 S 15th St Philadelphia
NEBRASKA Basic Science Lincoln Jan 9 10 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln
NEW YORK Albany Buffalo New York and Syracuse Jan 29 Feb 1 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany
SOUTH DAKOTA Pierre Jan 16 17 Dir Dr Park B Jenkins Pierre
VERMONT Burlington Feb 7 9 Sec Dr W Scott Vay, Underhill
WASHINGTON Basic Science Seattle Jan 11 12 Regular Seattle Jan 15 16 Dir Mr Harry C Huse Olympia
WISCONSIN Madison Jan 9 11 Sec Dr Robert E Flynn, 401 Main St LaCrosse
WYOMING Cheyenne Feb 5 Sec Dr W H Hassel Capitol Bldg Cheyenne

Hawaii October Examination

Dr James A Morgan secretary, Board of Medical Examiners reports the oral and written examination held in Honolulu Oct 9-12 1933. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Seven candidates were examined, 5 of whom passed and 2 failed. The following schools were represented:

School	PASSED	Year	Per
		Grad	Cent
Northwestern University Medical School	(1933)		85.4
Tulane University of Louisiana School of Medicine	(1933)		86.5
Jefferson Medical College of Philadelphia	(1934)		83.5
Vanderbilt University School of Medicine	(1930)		84
University of Wisconsin Medical School	(1932)		84.7
School	FAILED	Year	Per
		Grad	Cent
Chicago Medical School	(1920)		70.7
St Louis University School of Medicine	(1932)		70.4

Two physicians were licensed by endorsement during September. The following school was represented:

School	LICENSED BY ENDORSEMENT	Year	Endorsement
		Grad of	of
College of Medical Evangelists	(1931)	(1933)	N B M Ex

*License withheld

Idaho October Report

Hon Emmitt Post, commissioner of law enforcement, reports the oral and written examination held by the Idaho Medical Examining Board in Boise, Oct 3-4, 1933. The examination covered 13 subjects and included 130 questions. An average of 75 per cent was required to pass. Five candidates were examined, all of whom passed. Six physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year	Per
		Grad	Cent
Northwestern University Medical School	(1933)		87.87
Rush Medical College	(1933)		83
State University of Iowa College of Medicine	(1932)		83
University of Oregon Medical School	(1931)		89
School	LICENSED BY ENDORSEMENT	Year	Endorsement
		Grad of	of
College of Medical Evangelists	(1933)	N B M Ex	
Stanford University School of Medicine	(1928)	California	
George Washington University School of Medicine	(1928)	N B M Ex	
University of Louisville School of Medicine	(1929)	Kentucky	
Washington University School of Medicine	(1931)	Missouri	
University of Nebraska College of Medicine	(1925)	Nebraska	

Tennessee September Examination

Dr H W Quills secretary, Tennessee State Board of Medical Examiners, reports the written examination held in Memphis, Sept 29 30, 1933. Twenty three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad	Number Passed
Kansas City University of Physicians and Surgeons	(1933)		1
Missouri			
Columbia University College of Physicians and Surgeons	(1932)		1
University of Tennessee College of Medicine	(1933,20)		20
Albert Ludwig Universität Medizinische Fakultät I	(1926)		1
burg Germany			

Eleven physicians were licensed by endorsement from September 8 to November 6. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Georgia Medical Department	(1929)		Georgia
State University of Iowa College of Medicine	(1929)		Iowa
University of Louisville School of Medicine	(1933)		Kentucky
Tulane University of Louisiana School of Medicine	(1918)		Mississippi
(1930) Louisiana			
Creighton University School of Medicine	(1910)		Nebraska
Long Island College of Medicine	(1930)		New York
University of Pennsylvania School of Medicine	(1917)		Ohio
(1929) Minnesota			
Memphis Hospital Medical College	(1895)		Missouri
University of Texas School of Medicine	(1927)		Texas

Book Notices

The Law Against Abortion Its Perniciousness Demonstrated and Its Repeal Demanded. By William J. Robinson M.D. Consultant to the Bronx Hospital. Cloth Price \$2. Pp 123. New York: Eugenes Publishing Company Inc. 1933.

Abortion Legal or Illegal? By A. J. Rongy M.D. F.A.C.S. Cloth Price \$2. Pp 212. New York: Vanguard Press. 1933.

These books are omens of an expansion in the United States of the demand for sex freedom. So far has the religious taboo against abortion sunk into the consciousness of Western man," says Rongy, "that today even the liberal advocate of birth control does not carry his reasoning to its logical conclusion in the support of abortion." And, says Robinson, now that the prevenception battle has been won, we are permitted to go a step further and devote some of our energy to the subject of necessary abortion." Both books must be recognized as propaganda in support of a movement to bring about the relaxation or even the repeal of present laws relating to the inducing of abortion. Neither author attempts to show the good that has been and is being accomplished by the laws now in force or the evils that may follow in the wake of their repeal or relaxation. The attitude of both is well shown by Robinson's statement:

The law against abortion should be repealed first because it is a vicious injurious law and second because it is a futile unworkable law. And *en passant* if the law were one hundred per cent workable and efficient if it made the performance of abortions really impossible it would be the most pernicious law in our penal code because it would lead to an enormous number of suicides to an incalculable amount of anguish shame disgrace and ostracism.

The format of Robinson's book and the general tone of its contents leave one in doubt whether it is intended for the medical or the lay reader. Of 100 pages of text, forty are devoted to heart-throb stories of women who suffered, and some of whom died, as the result of criminal abortions or because of inability to have abortions induced. Eighteen pages are devoted to a discussion of methods for inducing abortion, a discussion too elementary for the medical profession and yet of sinister possibilities so far as the public is concerned. The medical profession hardly needs instruction concerning the differences between emmenagogues abortifacients and ecboolics. To tell the lay reader that in a pregnancy of but a few days' duration emmenagogues 'may also help and then to devote five pages to a discussion of The Best Emmenagogue Combinations,' giving two prescriptions for such combinations, certainly suggests and makes convenient the lay prescribing and use of such drugs. Robinson lays down a brave thesis which he himself seems afraid to follow to a logical conclusion.

For the one thousandth and first time we shall repeat and we shall repeat it again and again that we want life but only such life as is desirable to its possessor and to those around. Such life is desirable

and sacred. But life that is a curse to its possessor and which he goes on living merely out of cowardice, a life of pain a life of disease, a life of shame, a life of endless poverty struggle and drudgery, a life of misery to its possessor and to those around him and to the race in general is not desirable and is not sacred. And to prevent such life is the highest service that a man can render to the individual family, to the community and to the human race as a whole!

Here we have Robinson the realist. His thesis clearly justifies the killing not only of the embryo and fetus but also of all human beings who come within the category the author defines. It justifies infanticide. It justifies suicide. It justifies euthanasia either with or without the consent of the person whose life is to be destroyed. But Robinson the idealist will have none of this. He writes:

I do not see eye to eye with some of our ultra radicals who consider abortion a matter of no importance (I mean ethically not hygienically) and who would permit the artificial emptying of the uterus at any time—even as late as the seventh or eighth month—some go further and would not recoil even from an early infanticide. I do not wish to be considered an apostle or adherent of that sort of ultra radicalism.

Robinson demands however, neither more nor less than the complete and total abrogation of any law against abortion, and only if complete abrogation is impossible is he willing to accept even a very radical modification of the law. He sums up his demand as follows:

And so because the law against abortion accomplishes no good but causes an incalculable amount of harm it should be repealed.

If desired a clause could be inserted permitting abortion only until the end of the third month and only a certain number of times in the case of any given woman as is the case now in soviet Russia.

But if the induction of abortion is to be tolerated "in order to do away with infanticide, in order to save thousands of women from the hands of incompetent and ignorant bunglers, in order to save thousands and thousands of women from shame, disgrace ostracism, blood poisoning, invalidism, death and suicide" why tolerate it only during the first three months of pregnancy? And if this limitation is proposed because of the increased danger to the mother after the three-month deadline, that very danger, it is obvious, is a reason for enabling women who desire abortions after the third month to obtain the services of the most skilled physicians, not a reason for driving them to the underworld and to incompetent and ignorant bunglers. The suggested limitation of the number of induced abortions any given woman may have is obviously impracticable, for physicians whose services might be sought for such operations would have no means other than the word of interested applicants for treatment to inform them whether those applicants had or had not been subjected to their respective allotted number of operations.

Rongy's book contains about 200 pages of text. For a book of its size and pretensions an index seems necessary, but none is provided. Rongy writes more directly to the medical profession than does Robinson, but even so it is somewhat difficult to determine whether his book was written for the profession or for the public. About one third of it is devoted to a discussion of the historical background of abortion and of the religious attitude toward it. Here and elsewhere in the book the intelligent reader will feel keenly the lack of documentation. It may be true for instance, as the author states, that in the Oath of Hippocrates the pledge concerning the induction of abortions is not based on ethical, religious or professional grounds but originated somewhat in the nature of a guild or trade union rule, to prevent physicians from encroaching on a field already occupied by 'the female doctors of Greece, who were experts in abortion,' but the serious reader would like to know the authority for this hypothesis. Likewise, when the reader is told that the national total of abortions has been estimated to top 2,000,000 per year, and that "it is the opinion of competent medical observers during the last thirty years that there are more criminal abortions performed in this country than in any other country in the world," he would like to be given some basis on which to determine how seriously to regard those statements.

Notwithstanding Rongy's advocacy of the utmost freedom with respect to the inducing of abortion, he calls attention to the fact that abortion threatened the stability of the Roman Empire so gravely that the poets historians and philosophers of that day sought means for stopping it and persuaded the legislators to enact restrictive legislation. With what safeguards, then, does he propose to surround the induction of

abortion under his suggested scheme in order that our own national stability may not be jeopardized? What he proposes is apparently the unrestricted induction of abortion when desired by a pregnant woman, in any case of illegitimate pregnancy and in the case of any woman who is mentally defective whether married or single, or who has been deserted by her husband or left a widow while pregnant, or who has had several children and who wants to halt further child bearing, in order to preserve her health, or whose husband is already providing for several children but is unable to provide economically for another child. Whether Rongy proposes the establishment of official machinery for determining before an abortion is induced whether the applicant is or is not entitled to the operation, he does not say.

Rongy is particularly bitter toward the church because of its condemnation of abortion. He apparently overlooks the fact that human life is a continuous process, from the moment of conception to the last heart beat—gamete embryo fetus, infant child youth and man. The church condemns the killing of the human being at any time. Rongy, however, would have the government approve the killing of the gamete the embryo and the fetus. Why he would tolerate feticide and forbid infanticide and other forms of homicide is not apparent. The new-born infant may be as much of an embarrassment to its mother as is the unborn babe, the incurable invalid and the insane may be a burden, socially and financially as insupportable as is an illegitimate or an unwanted infant and in many cases the bearer of the burden of a disgraced or invalid life may himself vastly prefer that it be terminated. How is the legalization of feticide to be justified while homicide and suicide under analogous conditions are still forbidden?

Neither Robinson's book nor Rongy's would in itself justify a review of the length here devoted to it. The subject matter of these volumes, however, abortion, fully justifies it. The intimate relation that the medical profession has to the matter and the agitation that is going on for a repeal or relaxation of the law relating to the inducing of abortion require the constant earnest, thoughtful consideration of the matter by every physician. It is not for the medical profession to propose legislation in this field. Laws forbidding the inducing of abortion have not interfered, so far as is known with the inducing of a therapeutic abortion to save the life of any woman whose life has been endangered by pregnancy, nor are they likely to do so. This is true even though some such laws contain no specific provision authorizing therapeutic abortions. But the profession must watch such legislation as is proposed and endeavor to have such laws as may be enacted limited to such logical bounds as the circumstances may indicate.

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The purpose of this publication is to give the practitioner and specialist a more compact, less detailed and more economical work of reference than was provided by the monumental

Handbuch der Haut- und Geschlechtskrankheiten which appeared several years ago. The entire work is to be delivered in twenty-five instalments which are not to be sold separately and eventually will comprise five volumes. A perusal of the first seven instalments indicates that each one is more or less monographic in character and deals with separate phases of the subject. Section 1, by Fuhs of Vienna, is a particularly valuable presentation of the parasitic skin diseases and emphasizes the recent immunologic and clinical advances made in the mycoses. The inclusion of pityriasis rosea in this volume would lead one to infer that the author feels that this eventually will be found to be mycotic in origin. The second instalment includes authoritative articles by Stühmer on general syphilis, diagnostic methods by Schönfeld, and the histology of syphilis by Frieboes. The third section is devoted to gonorrhea in its various manifestations and is along traditional lines. Section 4 by Mucha and Matras, deals with the pyodermites. In the fifth instalment Kumer has some interesting chapters on skin diseases produced by spirochetes and protozoa and those of unknown etiology, among which are herpes zoster, varicella, erythema multiforme and pemphigus. It is instructive to note the large number of new remedies that have been tried out in various German clinics in the treatment of pemphigus. In the sixth instalment the contribution by Löhe on early syphilis is noteworthy for the large number of excellent illustrations. The short chapter on malignant syphilis by Witz seems unnecessary in the light of modern chemotherapeutic success in the treatment of this disease. Schönfeld has contributed a good account of late syphilis of the skin and mucous membranes. The seventh section, by two less well known writers, Pernkopf and Patzelt, on the anatomy and histology of the skin has some interesting schematic charts and photomicrographs. If future instalments come up to the high standard of the present series there is no doubt that this work will prove a valuable and authoritative contribution, at least as compared with the average textbook. The format is excellent and the numerous illustrations, some of them in colors, drawn from some of the largest dermatologic clinics in the world, will be of great value to the student.

The Dog's Medical Dictionary. An Encyclopaedia of the Diseases, Their Diagnosis and Treatment, Poisons and Their Antidotes, and the Physical Development of the Dog. By Alfred J. Sewell. M.R.C.V.S. New edition revised by Frederick W. Cousins. M.R.C.V.S. Canine Surgeon by Appointment to H. M. King George V and H. R. H. the Prince of Wales. Cloth Price \$2.75. Pp. 324 with illustrations. New York. Charles Scribner's Sons. 1933.

As the title implies, the various items concerning practical dog anatomy, disease and treatment appear in alphabetical order. Interspersed throughout the book are a great number of pictures of various pedigreed types of dogs, such as Afghan hound, wire haired Dachshund, and Keeshond. Because of the former inclusion the book will be welcomed by every experimental laboratory. Of particular value are the descriptions with illustrations of the various types of bandages best fitted for different parts of the dog's frame. From the American point of view it is hard to understand why ether instead of chloroform is only casually mentioned as an anesthetic agent and that the Laidlaw-Dunkin method of the control of distemper is not mentioned at all.

Obstetrical Nursing. A Text Book on the Nursing Care of the Expectant Mother, the Woman in Labor, the Young Mother and Her Baby. By Carolyn Conant van Blarcom. R.N. Third edition revised with the assistance of Calvina MacDonald, R.N. and others. Cloth Price \$3. Pp. 661 with 263 illustrations. New York. The Macmillan Company. 1933.

This edition was prepared with the object of revision in two definite trends, the first, for simplification of care especially of maternity service in the home, the second, in the field of social service with especial attention to the benefits of mental hygiene in the nursing care of maternity patients. Both the text and the illustrations have been augmented with profit. The book contains all that an obstetric nurse needs to know in the care of her patients and is an excellent reference work for the student and the graduate nurse. The teaching is sound and the text clear and direct. The book is well put up and is printed on high grade paper and in large type. The glossary will be found indeed useful.

Medicolegal

Right of Court to Order Operation Performed on Infant—Helen Vasko, 2 years old, had a glomus of the retina of her left eye. Medical authorities of the Grasslands Hospital of the Department of Hospitals recommended that the eye be removed. Her parents refused to permit the operation and the Westchester County Society for the Prevention of Cruelty to Children instituted a proceeding in the children's court, Westchester County, New York, to have her declared a neglected child under the provisions of the New York Children's Court Act (Laws 1930, chapter 393). That act defines a "neglected child" as including one whose parent, guardian, or custodian neglects, or refuses, when able to do so, to provide necessary medical, surgical, institutional or hospital care for the child. It authorizes the children's court to provide the necessary medical or surgical care for such a child. In this case, a physician appointed by the children's court to examine the child reported that the eye was permanently blind and that the growth was probably of a malignant nature, would increase in size until it filled the eyeball, and would then burst through and protrude between the lids and that in all probability, if left to nature, it would follow the optic nerve into the brain and that the child would die. In the opinion of this physician, the child had an excellent chance of living if operated on. The court then ordered the operation to be performed and the parents appealed to the supreme court, appellate division, second department, New York.

The law, said the supreme court, is not only zealous in the protection of the civil rights of infants but has a special regard for their moral care, training and guidance. Its beneficence extends also to the conservation of their health and their physical well being, as well as the preservation of their lives. If parents or guardians neglect their duty in respect to any one of these obligations, the state may intervene. Children come into the world helpless, subject to all the ills to which flesh is heir. They are entitled to the benefit of all laws enacted for their protection—whether affecting their property, their personal rights or their persons. The Children's Court Act is constitutional, and the children's court acted in this case not only in strict compliance with the act, but with scrupulous care and moderation and on ample and competent evidence. The order of the children's court was therefore affirmed.—*In re Vasko (N Y)*, 263 N Y S 552.

Agreement in Restraint of Professional Practice Valid if Reasonable—The plaintiff and the defendant, two physicians, entered into a partnership agreement for the practice of medicine and surgery in Chicago. Under the contract, the plaintiff obligated himself not to engage in the practice of medicine, in Chicago, independently of the defendant. In a suit to enforce the payment of certain sums provided for in the contract, allegedly due from the defendant to the plaintiff, the defendant contended that the contract was against public policy because it restrained the plaintiff from practicing his profession. This restriction on the plaintiff was unreasonable, it was contended, for two reasons: first, because it was unlimited in time, and, second, because it was not sufficiently limited as to space or territory. With these contentions the Supreme Court of Illinois could not agree. In *Linn v Sigsbee* 67 Ill 75, a practicing physician sold his medical practice and obligated himself 'not to establish nor to attempt to establish a medical practice within the aforesaid township of Chili, nor within six miles of his present residence'. In that case the Supreme Court of Illinois held that an agreement to practice medicine, if reasonably limited and supported by consideration is not invalid and that the question of the reasonableness of the contract is to be determined by the court. The restraint imposed by the contract then under consideration was held to be reasonable and the contract to be valid. In *Ryan v Hamilton* 205 Ill 191, 68 N E 781, the Supreme Court reached a similar conclusion when it held valid an agreement made by a physician never again to practice medicine in or within 8 miles of a designated city without the consent of the second party to the contract,

another physician. The decision in *Linn v Sigsbee*, supra, is authority, said the Supreme Court in the present case, for the proposition that the limitation is not unreasonable because it may extend throughout the lifetime of the plaintiff. Counsel for the defendant cited no case where a restriction on the right of a person to engage in his profession, trade or business, limited to a city, town, or territory less than the whole state, has been held unreasonable on such ground. Under the contract the plaintiff was not restrained from practicing his profession at any place in the state outside Chicago and, with respect to practice in the city, the restraint was not total but only that the plaintiff would not practice his profession independently of the defendant. The contract, concluded the court, was supported by a valuable consideration, the restraint imposed was limited or partial and was not greater than was reasonably necessary to protect the contract rights of the defendant. It was not against public policy. The validity of the contract was therefore upheld.—*Storer v Brock (Ill)*, 184 N E 868.

Malpractice Injuries Attributed to Plaster-of-Paris Impression of Auricle and Auditory Canal—Dr Padden attempted to make a wax impression of the auricle and auditory canal of the plaintiff's ears so that phonettes could be made for his use while operating an airplane. According to Dr Padden, he cleansed and lubricated the plaintiff's right ear, picked it with cotton from the eardrum outwardly about a quarter of an inch, and poured in a plaster-of-paris preparation of the consistency of whipping cream, permitting the preparation to harden for eight minutes, to the consistency of hard butter. When he attempted to remove the hardened preparation a portion of it broke off and remained tightly wedged in the auditory canal. A surgical operation, performed by Dr Belknap, was necessary to remove it. Subsequently, the plaintiff lost his hearing in his right ear, the sight of his right eye, and his sense of balance, and suffered a partial permanent paralysis of the right side of his face. He brought suit against Dr Padden and Dr Belknap. Judgment was entered against Dr Padden only, who appealed to the Supreme Court of Oregon.

The real question in this case, said the Supreme Court of Oregon, is whether or not the plaster-of-paris mixture was poured down past the false isthmus into the osseous part of the plaintiff's auditory canal. If it was, Dr Padden was negligent. All expert witnesses testifying at the trial agreed that it would be proper practice to make an impression of the auditory canal with the material and by the method used by Dr Padden, if the canal was plugged up with cotton as far as the false isthmus, and if the plaster-of-paris mixture was not permitted to go deeper into the canal than the false isthmus. This, continued the court, is not a case in which a physician performs an operation to cure or remove a cause of disease. In such a case the physician is not held to guarantee results. If he possesses and uses the ordinary measure of skill possessed and used by physicians in the community and locality in which he practices, he is not liable for any damage arising from an error in judgment. In such a case, a physician can make only a limited examination of the part to be operated on. Here, there was no reason why Dr Padden should not have discovered all about the mechanical structure of the plaintiff's ear before he attempted to take an impression. All the experts agreed that no two ears are exact duplicates. The length of the canal varies. The outer or cartilaginous portion may be long and the osseous part short, or vice versa. The angle formed at the point where the outer part joins the inner part varies in different ears. It does not require an expert to know that, if a substance like plaster of paris is poured into a tubular canal that is not straight, somewhat constricted midway, and the walls of which are immovable beyond the constriction, and permitted to set until it reaches the consistency of hard butter, it cannot be extracted without breaking.

The defendant contended that there was no medical testimony from which the jury was justified in finding that he was guilty of negligence. But, said the court, the evidence showed, in conformity with standard authorities, that the auditory canal in the average person is about one inch in length and that the false isthmus is about two thirds inch from the eardrum. The

evidence showed that the auditory canal in the plaintiff's ear is about average. Dr. Padden testified that he picked the plaintiff's ear with cotton about one fourth inch outwardly from the eardrum and that he poured the plaster of paris to within that distance of the eardrum, and that it was necessary to pour it down into the osseous canal and to let it stand or harden before attempting to remove it. Thus from a purely mathematical calculation it will be observed that the material would be poured past the false isthmus. The operation was really more of a mechanical than a surgical one. In such instances, it is not always necessary to establish the allegation of negligence by medical testimony. It was a question said the Supreme Court, for the jury to determine from the facts and circumstances whether the plaster-of-paris mixture was poured past the false isthmus. If it was, there was medical testimony to support the allegations of negligence. The judgment in favor of the plaintiff against Dr. Padden was accordingly affirmed.—*Keadle v Padden (Ore)*, 20 P (2d) 403

Malpractice Limitation of Actions, Medical Books Used to Cross-Examine Witness—The plaintiff Nov. 30 1926, broke both bones of his left leg about 8 inches above the ankle. He was treated for a period of ten weeks by a physician and then employed the defendant physician, Feb. 3, 1927. A roentgen examination at that time disclosed that the bones were not in apposition. The defendant operated, joined the bones sutured them and encased the leg in a plaster cast. At the time of the trial, the plaintiff's leg was bowed backward. Alleging a faulty union of the large bone to the defendant's negligent treatment, the plaintiff sued, Nov. 15, 1929. The trial court gave judgment for the plaintiff, and the defendant appealed to the Supreme Court of Michigan contending, among other things, that the statute of limitations had run against the suit, in that it had not been instituted within two years from the time the cause of action accrued.

The statute of limitations had not run, said the Supreme Court of Michigan. While more than two years had elapsed from the date the defendant assumed charge of the case, there was evidence that as late as February, 1929, the defendant had bandaged the leg. Until treatment of the fracture ceased, said the court, the relation of physician and patient continued, and the statute of limitations had not run. Error was alleged in a ruling of the trial court that when a physician witness states that a certain book is a standard medical work, the physician may then be asked whether or not that standard work does not contain a certain statement. This is not the rule said the Supreme Court of Michigan. If a medical witness refers to a textbook as his authority, then the book referred to may be used to contradict him. The trial court erred, too, continued the Supreme Court, in permitting a medical witness, in answer to a hypothetical question, to state what in his opinion was the proximate cause of the bow in the plaintiff's leg. This invaded the province of the jury. As far as the witness could go was to state that the alleged malpractice of the defendant might cause the bow in the leg. The trial court refused to instruct the jury that an expert witness, in answering a hypothetical question, assumes as true every fact asserted in the question and that if the jury finds the asserted facts untrue, then it must disregard the answer of the expert to the question. This offered instruction correctly states the law, said the court, and should have been given. For these errors committed by the trial court, the judgment for the plaintiff was reversed and a new trial ordered. *De Haan v Winter (Mich)*, 241 N W 923. The case was tried a second time. Again the trial court gave judgment for the plaintiff, and the defendant appealed to the Supreme Court of Michigan. The trial court permitted counsel for the plaintiff in cross-examining one of defendant's expert medical witnesses to bring out the fact that the witness and the defendant belonged to the state medical society, and that a part of the annual dues of the witness was set aside as a defense fund, for the defense of malpractice suits instituted against members. Permitting the cross-examination was not error, said the Supreme Court. For the purpose of affecting the credibility of a witness he may be cross-examined as to his interest in the suit, including contribution to the expense of it. Counsel for the plaintiff sought repeatedly to have an expert witness for the defendant

name some book, publication or medical journal as entering into or forming the basis of his opinion, but the witness refused to do so. Thus baffled, counsel for the plaintiff by a series of questions sought to create the impression that the opinion of the witness was not in accord with eminent medical authority. While the trial court sustained objections to these questions said the Supreme Court, the jury must have been influenced by this method of cross examination and the defendant's case was prejudiced thereby. It constituted reversible error and the decision of the trial court was reversed and a new trial granted.—*De Haan v Winter (Mich)* 247 N W 151

Malpractice When Married Woman May Not Sue on Implied Contract—Generally a patient injured by the failure of a physician to use reasonable skill and care may sue in tort for the injury or in contract for a breach of the terms of employment. *Stokis v Wright*, 20 Ga App 325, 93 S E 27. The plaintiff in this case, however was a married woman living with her husband. She broke her leg. Attributing the necessity for its amputation to a default on the part of the defendant-physicians, she entered suit against them. Apparently because an action in tort was already barred by the statute of limitations she charged them with a breach of an implied contract to set and treat the leg with reasonable care and skill. The trial court dismissed the case, and the patient appealed to the court of appeals of Georgia Division No 2. There was no express contract by the wife to pay the physicians for their services said the court of appeals, and an implied obligation arose that her husband would pay them. Even though the patient earned her own living and her husband had consented that she should have her earnings he still had the duty of furnishing his wife with medical attention. In the absence of an express contract on the part of the wife to pay for such attention and in the absence also of facts showing clearly an assumption of individual liability by her exclusive of the liability of her husband the husband remained primarily liable. The implied contract in this case was between the physicians and the patient's husband. A suit for a breach of such a contract cannot be maintained by the wife. The trial court properly dismissed the case brought by the wife.—*Scott v Simpson (Ga)*, 167 S E 920

Privileged Communications Examining Physician Not Within Rule—An Iowa statute provides that no practicing physician shall be permitted in giving testimony, to disclose any confidential communications properly entrusted to him in his professional capacity and necessary and proper to enable him to discharge the functions of his duty toward his patient. Under this statute, said the Supreme Court of Iowa, the question of whether or not a physician may testify depends on whether or not the relation of physician and patient exists. If the relation ship does exist, the physician may not testify. If the relation ship does not exist, then the testimony of the physician is admissible. In the present case, the witness was a physician appointed by the United States government for examining veterans seeking pensions. He was directed by the government to examine an applicant for the purpose of ascertaining whether the applicant was entitled to a pension. There was no examination made for the purpose of treatment. Since, said the court, the relationship of physician and patient did not exist at the time the examination was made the testimony of the physician was admissible.—*City of Cherokee v Aetna Life Ins Co of Hartford, Conn (Iowa)* 247 N W 495

Society Proceedings

COMING MEETINGS

American Academy of Orthopedic Surgeons Chicago Jan 8 10 Dr Philip Lewin 104 South Michigan Blvd Chicago Secretary
Annual Congress on Medical Education and Licensure Chicago February 12 13 Dr W D Cutter 535 North Dearborn Street Chicago Secretary
Tri States Medical Association of the Carolinas and Virginia Charlottesville Va Feb 12 14 Dr James M Northington 804 Professional Building Charlotte N C Secretary

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AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, St. Louis

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- Angioid Streaks of Fundus Oculi T Wassenaar Pretoria South Africa—p. 759
History of Cataract Operations E Jackson Denver—p. 767
Experimental Tuberculosis of the Eye W A Ohmart Denver—p. 773
Complete Discussion of the Crystalline Lens I Preliminary Report of Clinical and Experimental Studies C Berens and Olga Stichefska New York—p. 779
New Stitch in Cataract Operation G McD Van Poole, Honolulu Hawaii—p. 788
Cyst of Uveal Layer of the Iris A E Town New York—p. 790
Growth of Corneal Epithelium into Anterior Chamber J Levine New York—p. 796
Cerebral Pseudotumors or Chronic Arachnoiditis Report of Three Cases G G Marshall Rutland Vt—p. 799
Possible Explanation of One Type of Color Blindness R D Williams, Columbus Ohio—p. 803

American Journal of Pathology, Boston

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- Posterior Pituitary Activity from an Anatomic Standpoint H Cushing Boston—p. 539
Malformation Assumed to be True Hermaphroditism Case J McFarland Philadelphia—p. 549
Phosphorus and Alcoholic Cirrhosis F B Mallory Boston—p. 557
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*Rare Form of Saccular Cardiac Aneurysm with Spontaneous Rupture W C Hunter and R L Benson, Portland Ore—p. 593
*Actinobacillosis of Man Report of Fatal Case D C Beaver and L Thompson Rochester Minn—p. 603
Erythroleukoblastosis in the New Born Ruth C Wanstrom Ann Arbor, Mich—p. 623
Congenital Heart Disease with Pulmonary Arteritis Interventricular Septal Defect Dextroposition of the Aorta and Dilatation of the Pulmonary Artery H L Stewart and B L Crawford Philadelphia—p. 637
Reducing Substance Found in Chromophilic Adenomas and in Normal Anterior Pituitary T J Putnam and H B Wilcox Boston—p. 649
Effect of Testicular Extract on Experimental Tuberculosis in Rabbits I Skin Lesions T F Walker and D C Hoffman Boston—p. 651

Saccular Cardiac Aneurysm with Spontaneous Rupture

—Hunter and Benson describe an almost unparalleled type of cardiac aneurysm situated over the external aspect of the left ventricle. Death was the result of spontaneous rupture of the thin fibrous wall of the aneurysm and the pericardial adhesions about it. The mechanism by which the aneurysm was produced is not easily explained. The clinical data suggest that, three months prior to death when the patient was seen by a physician, he was suffering from cardiac symptoms referable to the heart and compatible with coronary thrombosis. The other significant observation at this time was the systolic blood pressure of 160 recorded during the seizure. Cardiac hypertrophy (640 Gm) was observed at necropsy without demonstrable cause other than possibly pericardial adhesions and the characteristic renal arteriolar lesions of essential hypertension. The authors believe that slow and progressive ischemia of a small area of myocardium brought about by high grade atherosclerosis of the vessel supplying the myocardial scar may have led to disappearance of patches of heart muscle and finally to replacement fibrosis. Less probably the scar may represent the end result of focal rheumatic or syphilitic myocarditis. Proof of these diseases is lacking, but certain features about the perivascular aortic and coronary arterial lesions are suggestive of rheumatic myocarditis. The aneurysm may have had its inception three months prior to death either during or shortly after an attack of severe thoracic pain and cardiac embarrassment.

Actinobacillosis in Man—Beaver and Thompson present a case of actinobacillosis in man in which pathologic studies were made of the lesions. The lesions are essentially similar to those that have been described in cattle, except that in man the lesions are much more widespread and sulphur granules, such as occur in bovine lesions, apparently do not occur. The authors describe the lesions in their case as granulomatous abscesses severely affecting the lungs, liver and spleen. Lesions similar to those observed in man and cattle were produced in experimental animals. The organism isolated revealed a close cultural and antigenic relation to *Actinobacillus lignieresii* and a more distant relation to *Pfeifferella mallei* and *Bacillus whitmorei*. Thompson has previously shown that *Actinobacillus lignieresii* of bovine and human origin, *Pfeifferella mallei* and *Bacillus whitmorei* are antigenically interrelated, and has proposed that they be included in a common genus. This relationship, as far as the organism in the authors' case is concerned, is also confirmed from the pathologic point of view, for the lesions in man and in experimental animals were similar to glanders as well as exhibiting similarities to bovine actinobacillosis. Although the organism under consideration showed minor cultural differences and somewhat different antigenic phenomena from a typical strain of *Actinobacillus lignieresii* of bovine origin, nevertheless, it seems justifiable to regard the organism in this case as a variant of the usual bovine strain of *Actinobacillus lignieresii*.

American Journal of Public Health, New York

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- Sanitary Control Over the Production and Handling of Shellfish on the Pacific Coast C E Green Portland Ore—p. 895
Resident Mortality from Tuberculosis in Urban and Rural New York According to Age Sex, Color and General Nativity Elizabeth Parhurst Albany N Y—p. 901
Treatment of Water by Certain Forms of Silver J Gibbard Ottawa Ont Canada—p. 910
*Study of the Opsonocytaphagic Power of Blood and Allergic Skin Reaction in Brucella Infection and Immunity in Man I F Huddleson H W Johnson and E E Hamann East Lansing Mich—p. 917
Toxicity of Organic Fluorides W P Yant Pittsburgh—p. 930
Incidence of Xerophthalmia and Night Blindness in the United States Gage of Vitamin A Deficiency A F Hess and D B Kirby, New York—p. 935
Modified Quevenne Lactometer for the Public Health Laboratory Control of Market Milk R V Stone Los Angeles—p. 939
Laboratory Aids in Diagnosis and Serum Therapy of Pneumococcus Pneumonia A B Sabin New York—p. 978

Brucella Infection and Immunity in Man—The method of Huddleson and his associates for determining the opsonocytaphagic power of blood for *Alcaligenes* is a modification of the Leishman and Veitch technique. The authors' studies show that the *in vitro* activity of the polymorphonuclear cells in whole citrate blood for *Alcaligenes* is an expression of immunity to *Alcaligenes* and an indication of the progress toward recovery in active infection. The absence of or a low phagocytic activity obtained in conjunction with a negative allergic skin test is evidence of susceptibility to *Alcaligenes* infection. Infection in an individual is indicated by a positive allergic skin test obtained with *Alcaligenes* nucleoprotein in conjunction with a negative or a low opsonocytaphagic activity of the whole citrated blood for *Alcaligenes*.

American Journal of Tropical Medicine, Baltimore

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- Further Studies on Etiology of Granuloma Inguinale W A DeMonbreun and E W Goodpasture Nashville Tenn—p. 447
Natural Infection of Trypanosoma Cruzi Chagas Found in Rhodnius Pallescens Barber in Panama L H Dunn Panama R of P—p. 471
Observations on Host Selection of Ornithodoros Talaje Guern in Panama L H Dunn Panama R of P—p. 475
*Brucellin a Possible Specific for Undulant Fever in Man Preliminary Report I F Huddleson and H W Johnson East Lansing Mich—p. 485
Host Specificity and Specificity of Animal Parasites E R Becker Ames Iowa—p. 505
Some Observations on Trypano Agglutinins and Lysins and Their Production with Killed Trypanosomes L Reiner and S S Chao Tuckahoe N Y—p. 525
Effects of a High Vegetable Protein Diet on Trichomonad Flagellates of Rats R Hegner Baltimore—p. 535
Nomenclature of Plasmodium Ovale Stephens 1922 C F Craig New Orleans—p. 539

"Brucellin" in Treatment of Undulant Fever—Huddleson and Johnson report twelve of their eighty cases of undulant fever and the results obtained from their treatment with

"Brucellin" They prepare this agent by growing each of the three species of Alcaligenes in separate flasks of beef liver infusion broth, adjusted to a pH of 6.6, for sixty days at 37 C. The inoculated flasks are shaken vigorously at weekly intervals. At the end of the growing period each flask is examined bacteriologically and, if found contaminated is discarded. The broth is clarified by centrifugation at a speed of 3,000 revolutions per minute for four hours. The clear liquid is decanted and adjusted to a pH of 7 with tenth normal hydrochloric acid. The product from each of the three species is pooled and filtered twice through sterile Berkefeld N filters. The filtered liquid is transferred to sterile flasks or tubes and incubated for five days at 37 C to determine sterility. It is standardized and transferred to sterile 1 cc vials or stored in larger containers until ready for use. The procedure which the authors recommend for Brucellin in the treatment of undulant fever is as follows. An intradermal injection of about 0.05 to 0.1 cc of Brucellin is given to determine the sensitiveness of the patient. If no marked systemic reaction is elicited within forty-eight hours, 1 cc may be given intramuscularly. This dose should be repeated at intervals of three days until four injections have been given. The intramuscular injections usually cause a local reaction and the temperature of the patient rises to 104 or 105 F. About one to three hours after the temperature reaches its highest point, it drops gradually or rapidly to near normal. There is as a rule an increase in the severity of the symptoms which do not persist for more than twenty-four hours. If the systemic reaction from the intradermal injection is severe it is advisable to start the intramuscular injections with 0.1 or 0.2 cc. In children the beginning dose should be 0.2 cc. The ambulatory or chronic type of case of long standing does not respond readily to four injections of 1 cc of Brucellin. It may be necessary to increase the dose gradually to 5 cc by 1 cc steps in order to effect recovery in these patients. The authors are convinced that the remarkable results that they obtained in their series cannot be attributed to mere coincidence.

Annals of Internal Medicine, Ann Arbor, Mich

7 281-416 (Sept.) 1933

- The Internist as His Own Psychiatrist A Stengel, Philadelphia—p 281
- Cerebral Circulation VVV Remarks on Clinical Physiology S Cobb Boston—p 292
- Evidence for a Cerebral Vascular Mechanism in Epilepsy W Penfield Montreal—p 303
- *Value of Alimentary Galactosuria in Diagnosis of Jaundice H J Tumen and G M Piersol Philadelphia—p 311
- Concerning Placental Hormones and Menstrual Disorders A D Campbell Montreal—p 330
- Effect of Vitamins and Inorganic Elements on Growth and Resistance to Disease in Children A Brown and F F Tisdall, Toronto—p 342
- *Further Observations on Treatment of Pernicious Anemia with Prenatal Horse Liver Extract Including One Case of Pernicious Anemia Following Gastrectomy O Richter A E Meyer and A C Ivy Chicago—p 353
- Research in Electrocardiography W D Reid Boston and S H Caldwell, Cambridge Mass—p 369
- *Differential Diagnosis of Diseases of Liver and Spleen with Aid of Roentgenography After Intravenous Injection of Thorium Dioxide Sol (Thorotrast) Experience with Eighty Patients W M Yater and L S Otell, Washington D C—p 381
- Some Aspects of Cell Physiology W J V Osterhout New York—p 396

Alimentary Galactosuria in Diagnosis of Jaundice—

Tumen and Piersol used the galactose tolerance test in studying fifty-four cases of jaundice. Eighteen were obstructive jaundice, twenty-three catarrhal jaundice and thirteen toxic hepatitis. Galactosuria of 3 Gm or more occurred in 54 per cent of the patients having toxic hepatitis, in 78.3 per cent of those having catarrhal jaundice and in 55 per cent of those having jaundice due to obstruction. Of the group having obstructive jaundice only one patient showed a definitely positive response to the test. This patient had a stricture of the common bile duct with jaundice of a duration of four weeks. At operation, definite biliary cirrhosis was found. Two other patients with biliary cirrhosis excreted normal amounts of the sugar. Two patients with obstructive jaundice had galactosuria of between 2 and 3 Gm. In both patients the duration of the jaundice was short and nothing was found other than the slight increase in excretion of the sugar to indicate that damage of the cells of the liver existed. In one patient who had a partial obstruction of the common duct for about four months, the galactose tolerance

test was normal. Of the twenty-three patients having catarrhal jaundice, only five excreted less than 3 Gm of galactose and of these one patient passed 2005 Gm. The other eighteen had galactosuria of more than 3 Gm. Seven of the thirteen patients suffering from toxic hepatitis excreted more than 3 Gm of the sugar, and three of the remaining six passed between 2 and 3 Gm of galactose.

Treatment of Pernicious Anemia—Richter and his associates treated twenty one patients having pernicious anemia and induced complete blood remissions in three by the intravenous administration of the equine liver extract. From 2 to 4 cc (1 cc prepared from 10 Gm of liver) of the material was injected at intervals of from one to three days. Following the rapid injection of liver extract in one patient having a low blood count with an initial hemoglobin of 24 per cent and a red cell count of 840,000, a mild systemic reaction was occasionally noted. This consisted of an immediate drop in blood pressure, accompanied by a rapid, weak pulse and dyspnea and later followed by a generalized feeling of warmth. This systemic reaction was usually absent when the liver extract was injected slowly, i.e., less than 1 cc per minute. No serious reactions were observed among sixty intravenous injections. One of the three patients, previously resistant to treatment with large amounts of oral liver extract and whole liver, made a complete hematologic remission in fifty seven days on intravenous injections of equine liver extract. Equally good responses were obtained from subcutaneous and intravenous injections. Twenty-four patients suffering from relapses were treated with daily injections of subcutaneous horse liver extract. The average dose used was 25 cc, containing the active principle of 25 Gm of horse liver. Patients entering the hospital in a semicomatose or moribund condition received two or three injections (from 50 to 75 Gm) daily until evidence of a reticulocyte response was obtained, and then once daily until the hemoglobin and red cell counts became normal. The maximal reticulocyte response was obtained between the fifth and seventh days and varied in this series of cases from 168 to 472 per cent. The average of the entire group was 276 per cent, omitting the patients who received previous therapy which had absorbed the maximal reticulocyte peak. The authors experience indicated that only a temporary remission is obtained from liver therapy and that maintenance treatment is necessary to prevent another relapse. A complete hematologic remission was produced in intervals of from four to eight weeks and the majority of the patients treated showed an average daily gain of 1 per cent hemoglobin and 57,914 red cells from the average daily injection of 2.14 cc of equine liver extract.

Diagnosis of Diseases of Liver and Spleen—Yater and Otell describe a new method of visualization of the liver and spleen developed mainly by Radt and Oka. It consists in the intravenous injection of thorium dioxide sol, from which the radiopaque thorium dioxide is engulfed by the reticulo-endothelial cells of the body. Since these cells are most numerous in the liver and spleen, these organs are visualized better than other parts of the body. This method is a laboratory procedure and should in no way replace clinical methods of diagnosis. It may not be harmless, but except for the possibility of radioactivity contraindications are negligible. Reactions are few and are not serious. The results of this method alone were diagnostic of the nature of the lesions of the liver in twenty-four patients. Evidence suggestive of the nature of the disease of the liver or spleen was obtained in eleven, the nature of an undiagnosed abdominal mass was determined in seven and confirmation of the enlargement of the liver or spleen or both was obtained in thirteen. The method was valuable in ruling out lesions of the liver or spleen in twelve and supplementary information was obtained from it in eleven so that a working diagnosis could be made. The position of the diaphragm was established in two and the method was of scientific value in only two. No aid was obtained from it in eight, and in one patient the wrong diagnosis was made on the basis of the method. The authors state that the following points may be determined by means of this method: (1) the presence of enlargement of the liver or spleen, (2) the decision of the question as to whether a mass in the upper part of the abdomen is the liver, the spleen or something

else, (3) the presence of metastases in the liver, (4) the presence of a primary tumor, cyst or abscess in the liver, (5) in many cases the nature and extent of such intrahepatic diseases as cirrhosis and extensive scarring of the liver from syphilis, (6) the progress of such diseases of the liver, (7) the presence of free fluid in the abdomen, (8) the existence of such lesions of the spleen as tumor, infarct, abscess, fibrosis and leukemia, (9) the existence of rupture of the liver or spleen, (10) the position of the diaphragm, (11) the presence of accessory spleens and (12) possibly the presence of obstruction of the common bile duct

Annals of Otol, Rhinol and Laryngology, St Louis

12 641 960 (Sept) 1913

- The Influence of Sir Felix Semon on the Development of Laryngology I Frank Chicago—p 641
Spread and Phagocytosis of Particulate Matter in Nasal Mucous Membrane of Rabbit B J McMahon St Louis—p 660
Tactile Sensation as Related to Hearing Testing and Hearing Impressions Through Nerves Other Than the Eighth D MacFarlan Philadelphia—p 680
Otosclerosis in a Seven Months Fetus L K Cuggenheim St Louis—p 690
Congenital Atresia of External Auditory Meatus L Richards Boston—p 692
Elimination of Lipiodol from Nasal Sinuses J M LeMee Paris France—p 712
Otosclerosis Complicated by Other Lesions Study of Roentgenograms Audiograms Laboratory and Clinical Findings F P Fowler New York—p 714
*Study of Twenty Four Cases of Neck Infection A L Beck New Rochelle N Y—p 741
Studies of Nasal Cilia in the Living Mammal A W Proetz St Louis—p 778
Fracture of Styloid Process and Its Tonsil Tonsil Complications Report of Case J A Babbitt Philadelphia—p 789
Accidental Perforation of Esophagus Gastrostomy, Recovery Plea for Retrograde Dilatation in Small Size Strictures C J Imperatori New York—p 799
Empyema of Petrous Apex Further Observations and Case Reports S J Kopetzky and R Almour New York—p 802
Tuberculosis of Esophagus Report of Case Following Iye Ingestion M C Myerson New York—p 829
Physiology of Hearing Aural Acuity Bone Conduction Critical Review M J Gottlieb New York—p 835
Malignancies of Upper Air Passages Statistical Review S Salinger Chicago—p 850
Some Observations on Temporal Bone Sections and Otitic Meningitis L C Boerner St Louis—p 866
*Advantages of One Stage Laryngectomy Through a Straight Midline Incision in Cases of Intrinsic Cancer W R Brandon New York—p 878
*Diethane as Local Anesthetic for Nose and Throat H L Stitt Cincinnati—p 887
Pantocain as a Substitute for Cocaine Preliminary Report A T Laszlo New York—p 892

Infections of the Neck—Beck discusses infections of the neck, especially deep pus in the neck, and the surgical route in such cases. The source of such infection is in or about the tonsils. In connection with deep pus in the neck there is often an unrecognized thrombosis of the internal jugular vein which gives a fatal septicemia. The author presents an analysis of twenty-four cases of infection of the neck, all except two of which were treated surgically. For infection of the prevertebral fascia or retropharyngeal abscess he employed a direct incision of the pharyngeal wall through the mouth or an incision along the anterior border of the sternomastoid muscle lateral to the larynx, as recommended by Dean, for infection of the pharyngomaxillary, parotid and submaxillary space, an approach through the submaxillary space after elevating the gland, as recommended by Mosher, or a direct approach beneath the angle of the jaw without elevating the gland, for infection of the carotid sheath and visceral fascia, an incision along the anterior border of the sternomastoid muscle as for jugular resection, and for posterior triangle infection, an incision along or behind the posterior border of the sternomastoid muscle.

Laryngectomy and Intrinsic Cancer—The technic of Brandon differs from that of Mackenty in the manner of the incision and the method of drainage. The larynx is exposed through a straight midline incision beginning just below the hyoid bone and extending to the second ring of the trachea. This straight midline incision gives perfectly adequate exposure for skeletonization of the larynx in all cases of intrinsic cancer. Any slight advantage which the T-shaped incision may have in the way of exposure is more than offset by disadvantages when it comes to postoperative healing and the dangers of infection

Before the midline incision is closed, two small lateral incisions for drainage, about three-fourths inch long, are made parallel to the upper portion of the wound and just anterior to the sternocleidomastoid muscle. Two other lateral incisions large enough to admit a double drain are made opposite the trachea, just anterior to the sternocleidomastoid, for drainage around the lower part of the wound. A small rubber catheter drain tube with three openings in the center, close enough together to drain the center of the wound, is placed through and through the upper incisions from one side to the other of the deep wound. A double Mackenty drain tube wrapped in gauze and open only at its distal and proximal end is placed in each upper lateral incision, just below the through and through tube, and is pushed in near to the center of the wound. In each of the lower drainage incisions a double rubber drain tube wrapped in iodoform gauze, and with an opening about 1 cm from the distal end, is placed to the bottom of the wound pointing slightly inward and upward. The midline incision is then closed with parallel mattress stitches of heavy silk-worm-gut, following the Mackenty technic.

Local Anesthetic for Nose and Throat—From a study of the use of the hydrochloride of piperidinopropanedial diphenylurethane (diethane) as a local anesthetic for the nose and throat, Stitt concludes that the drug, if properly used, is a satisfactory local anesthetic to replace cocaine for all routine uses in the nose and throat. It may be used in considerably lower concentrations than cocaine, although the onset of anesthesia is somewhat slower. The resulting anesthesia is more lasting than that produced by cocaine and frequently much more striking. Its action on the ear drum allows an almost painless paracentesis. In a series of several hundred cases in which hydrochloride of piperidinopropanedial diphenylurethane has been used there have been no signs of toxicity and the drug has not produced the undesirable reactions sometimes found with cocaine. It is safe for routine use as a spray to relieve pain after tonsillectomy and is preferred for this purpose to acetylsalicylic acid.

Archives of Pathology, Chicago

16 315-452 (Sept) 1913

- Anatomic Evidence of Functional Disorders of the Heart O Saphir Chicago—p 315
*Lycopodium Granuloma Its Clinical and Pathologic Significance Together with Note on Granuloma Produced by Talc W Antopol New York—p 326
*Leiomyoma of the Prostate Report of Three Cases D L Dial and B Halpert New Haven Conn—p 332
Hypertension with Retroperitoneal Ganglioneuroma and Softening in Brain and Spinal Cord Report of Case in Young Man F H Jergesen, Oakland Calif—p 340
Examination of Pathologic Tissue by Filtered Ultraviolet Radiation C J Sutro and M S Burman New York—p 346
Normal Variability in Weight of Adult Human Liver and Spleen Edith Boyd Minneapolis—p 350
Negative Result from Transfer of Material from Human Acute Multiple Sclerosis to Macacus Rhesus Under Optimal Conditions N P Hudson and R R Grinker Chicago—p 373

Lycopodium Granuloma—Antopol states that Lycopodium, because of its fine spicules, has a tendency to become adherent to any tissue on which it is deposited and that on manipulation it may be forced beneath the surface. It is therefore possible for an operative specimen to become contaminated with spores of Lycopodium during removal. To demonstrate this, the freshly removed specimen from a patient operated on for acute appendicitis was intentionally handled with gloves which had been powdered with these spores. After the specimen had been dehydrated, embedded, sectioned and stained, microscopic examination revealed many of the spores completely embedded within the tissue. It is obvious that this may lead to an error in diagnosis. To avoid such an error it is necessary that the spores be found within giant cells or within a granulomatous lesion. The author reports six illustrative cases. Animal inoculation with the spores of Lycopodium clavatum resulted in the formation of granulation tissue after from two to six weeks, which on microscopic examination was not unlike the reaction in man, including the presence of the spores within the giant cells. Further experimental studies on the various phases of this problem are in progress. It is also possible that the crystals of magnesium silicate (talc) produce such lesions. This idea obtains support in the finding of the crystals within the giant

cells in the fistulous tract. The author presents a case which demonstrates the formation of minute talc granulomas in an otherwise normal appendix.

Leiomyoma of the Prostate—During the past year Dirl and Halpert observed three cases of solitary myomatous nodules of the prostate. They discuss these and the eight cases reported previously in the literature. Depending on size, location and concomitant changes in the prostate, they produced disturbances either of urination or of defecation. Seven of the patients had urinary symptoms only. The remaining four had primarily rectal manifestations. In most of the patients with urinary symptoms, the presence of the myomatous nodule perhaps only exaggerated the disturbances due to enlargement of the rest of the prostate. In none of these could the urinary difficulties be attributed to the myomatous growth alone although the growth arising in the prostate proper (mostly in the median portion) contributed to the distortion of the urethra. In the group of patients with rectal disturbances, the tumor obviously produced obstruction. Arising in the posterior portion of the prostate, it grew toward the rectum. The location of these leiomyomas with respect to the prostate and the surrounding organs suggests a genetic difference in the origin of the tumor. The available information is insufficient to ascertain the validity of this suggestion.

Canadian Public Health Journal, Toronto

24 405 454 (Sept.) 1933

- Combined Dark Field Outfit in the Early Diagnosis of Syphilis. A. I. McNabb, Gladys Matthews and A. D. McClure. Toronto—p. 405.
Rules for Choice of Causes of Death in the Dominion Bureau of Statistics. I. S. Macphail. Ottawa Ont.—p. 413.
Modern Swimming Pool Construction. F. H. Darling. Hamilton Ont.—p. 420.
Diagnostic Clinic in Pathology in Control of Cancer. J. F. Bates. Toronto—p. 429.
Observations on Tuberculosis Statistics in Canada 1921 and 1931. R. E. Wodehouse. Ottawa Ont.—p. 433.

Endocrinology, Los Angeles

17 485 620 (Sept-Oct.) 1933

- Endocrine Associations. A. W. Rowe. Boston—p. 485.
Effect of Anterior Pituitary Like Hormone on Ovary of Hypophysectomized Rat. H. Selye, J. B. Collip and D. I. Thomson. Montreal—p. 494.
*Relation of Adrenal Cortex to Vitamins A, B and C. Julia E. Lockwood and F. A. Hartman. Buffalo—p. 501.
Relation of Anterior Pituitary to Carbohydrate Metabolism. B. O. Barnes and J. F. Regan. Chicago—p. 522.
Influence of Adrenal Cortex Extract on Resistance to Certain Infections and Intoxications. W. J. M. Scott and W. I. Bradford. Rochester, N. Y.; F. A. Hartman. Buffalo and O. R. McCoy. Rochester, N. Y.—p. 529.
Influence of Calcium and Iodine on Growing Rats. Juanita Thompson. Toronto—p. 537.
Comparative Studies of Gonad Stimulating Hormones. C. F. Fluhmann. San Francisco—p. 550.
Chemical Studies on One Hundred and Fifty Normal Human Thyroids from Charleston. S. C. H. Von Kolnitz and R. E. Remington. Charleston, S. C.—p. 563.
*Determination of Specific Dynamic Action of Protein and Its Value in Diagnosis of Pituitary Disease. M. A. Goldzieher and M. B. Gordon. Brooklyn—p. 569.
Production of Deciduous in Immature Rats by Pituitary Treatment. M. C. Shelesnyak. New York—p. 578.
*Hyperinsulinism Treated with Insulin. Case. Preliminary Report. H. J. John. Cleveland—p. 583.
Osseous Development of Diabetic Children. P. A. Gray and M. J. Geyman. Santa Barbara, Calif.—p. 587.

Relation of Suprarenal Cortex to Vitamins—Lockwood and Hartman determined the influence of cortical extract on vitamin A, B and C deficiency, respectively. Guinea-pigs were used in the vitamin C and rats in the vitamin B and A experiments. When administered by mouth, the cortical extract afforded no protection against avitaminosis C and B. However, when the extract was injected intraperitoneally, it (1) improved the growth curve and scurvy score in avitaminosis C, (2) improved the growth curve and delayed the onset of symptoms in avitaminosis B and (3) had no influence in ameliorating the symptoms in avitaminosis A. Suprarenal weights showed hypertrophy of the suprarenals in vitamin C and B deficiencies and atrophy in vitamin A deficiency. Hypertrophy was measured over a period of time after single suprarenalectomy in the vitamin C experiments. It was found that after single suprarenalectomy the hypertrophy increased as the interval of time after the removal of the first gland increased, measured

over an interval of from four to eight weeks. In the vitamin C series, after single suprarenalectomy the activity of the remaining suprarenal, as measured by its influence on the onset of scurvy, increased to a degree greater than is found with the two normal intact suprarenals. A decrease in this overactivity was noticeable at approximately the end of the third week after the operation. The injection of cortical extract containing cortin delayed the onset of symptoms in avitaminosis C and B but had no influence in avitaminosis A. Either cortin or some unidentified substance must be responsible for this effect. Because the extract is most effective (1) early in the experiment when some vitamin from the preexperimental period is still available in the organism and (2) when a partial protective quantity of the vitamin is fed the authors believe that cortin or some unidentified substance aids in the utilization of vitamins C and B. Since cortical extract retards the onset of the avitaminosis symptoms of vitamins C and B, they suggest that an ample supply of these vitamins would be advantageous in suprarenal cortical insufficiency.

Specific Dynamic Action of Protein and Its Value in Pituitary Disease—Goldzieher and Gordon determined the specific dynamic action of protein in 264 patients. Signs and symptoms of pituitary disturbances were present in 196. There were sixty-eight cases used as controls which included normal subjects as well as some presenting various nonpituitary endocrinopathies such as hyperthyroidism or hypothyroidism or ovarian deficiency. The basal metabolic rate was established by the usual technique and determinations were calculated according to the method of Benedict. The following morning a test meal was given consisting of the whites of three hard boiled eggs, a thin slice of toast and a cup of tea without sugar, cream or milk. After a rest of two hours, the metabolic rate was again determined and the difference between the basal rate and the reading after the test meal was compared. Every patient had at least two readings made at each time. Each patient was studied according to a routine procedure and the diagnosis made on the basis of a careful history of development, growth, nutrition and sexual function on thorough physical examination including the special fields of gynecology, gastroenterology and ophthalmology on anthropometric studies, roentgen observations whenever indicated especially of the sella turcica and bone development in children and on chemical studies. The average specific dynamic action in the pituitary cases was 4.47 against 16.3 in the controls, and the incidence of a specific dynamic action below 10 was 86 per cent in the pituitary cases against 21 per cent in the controls. In twelve cases the specific dynamic action increased after prolonged treatment with anterior lobe extracts together with small doses of thyroid. Patients having a pituitary tumor or an ovarian deficiency showed a specific dynamic action well above all others. Determination of the specific dynamic action after the ingestion of a small protein test meal is a valuable aid in the diagnosis of pituitary disease.

Hyperinsulinism Treated with Insulin—John reports the case of a woman who was subject to repeated attacks diagnosed as hyperinsulinism. She was treated with small doses of insulin (10 units) after meals with a view to forestalling discharge of that hormone by the pancreas. The results were notably favorable. Whether or not 10 units of insulin three times a day is the optimal dosage has not yet been determined. Perhaps a gradual increase to the point of tolerance might prove more effective in some cases. Another point to be determined by further study is whether training the pancreas to put out less insulin will stabilize the function of the pancreas, so that insulin may be discontinued. The author plans to reduce the amount of insulin gradually until it is eliminated completely.

Iowa State Medical Society Journal, Des Moines

23 495 538 (Sept.) 1933

- Radical Gastric Surgery in Peptic Ulcer. H. M. Richter. Chicago—p. 495.
Angina Pectoris. F. R. Holbrook. Des Moines—p. 496.
Electrocardiogram and Its Relation to Diagnosis and Prognosis of Angina Pectoris and Coronary Occlusion. H. A. Collins. Des Moines—p. 500.
Intra Ocular Foreign Body. Unusual Case. J. E. Rock. Davenport—p. 503.
Retinoblastoma. F. L. Secoy. Sioux City—p. 506.

Journal of Nervous and Mental Disease, New York

78 221 132 (Sept.) 1913

- Acute Ascending Myelitis Following Administration of Typhoid Vaccine
Report of Case with Necropsy Findings R I Gayle Jr and R A
Bowen Richmond Va—p 221
- Study of Developmental Craniocephalic Topography as Determined by
Orthoscopic Method W T Peyton Minneapolis—p 232
- *Conduction of Labyrinthine Impulses to Cortex I Aronson New
York—p 250
- Intracranial Hemorrhage in Purpura Hemorrhagica B J Alpers and
W Duane Jr Philadelphia—p 260

Conduction of Labyrinthine Impulses—Aronson confirms the observation of Spiegel that, after strychninization of the posterior ectosylvian and suprasylvian convolutions in cats and dogs, stimulation of the labyrinth can produce epileptiform convulsions. Experiments were performed in which one labyrinth was destroyed and the previously mentioned cortical areas were strychninized on the same and then on the opposite side. In these experiments, rotation still produced epileptiform convulsions. These experiments led to the conclusion that each labyrinth is connected with the crossed as well as the homolateral cortex. After total severance of the posterior longitudinal fasciculus, rotation still caused epileptiform convulsions when the suprasylvian and ectosylvian convolutions were strychninized. The author concludes that labyrinthine impulses reach the cortical centers by way of the posterior longitudinal bundle and that there exist also other tracts outside these pathways for this conduction.

Journal of Pharmacology & Exper Therap, Baltimore

48 1 132 (Sept.) 1933

- Physiologic Action of the Principles Isolated from Secretion of Bufo
Arenarium K K Chen H Jensen and A L Chen Indianapolis
and Baltimore—p 1
- Physiologic Action of the Principles Isolated from Secretion of European
Green Toad (Bufo Viridis Viridis) K K Chen H Jensen and
A L Chen Indianapolis and Baltimore—p 14
- Physiologic Action of the Principles Isolated from Secretion of Japanese
Toad (Bufo Formosus) K K Chen H Jensen and A L Chen
Indianapolis and Baltimore—p 26
- Tranquilizing and Respiratory Depressant Effects of Tribrom Ethanol
(Avertin) Amylene Hydrate Isoamylethylbarbituric Acid (Amytal)
and Ethyl (1 Methyl Butyl) Barbiturate (Pentobarbital) Alone and
In Combination with Morphine on the Rat O W Barlow and J D
Gledhill Cleveland—p 36
- Influence of Morphine on Premedication Value of Tribrom Ethanol
(Avertin) and Tribrom Ethanol Fluid (Avertin Fluid) in Relation to
Nitrous Oxide Anesthesia in the Rat O W Barlow and J T
Duncan Cleveland—p 50
- Influence of Morphine on Premedication Values of Ethyl (1 Methyl
Butyl) Barbiturate (Pentobarbital) and Isoamylethylbarbituric Acid
(Amytal) O W Barlow and J T Duncan Cleveland—p 60
- Observations on Effect of Calcium on Action of Cocaine W Salant
and W M Parkins, Cold Spring Harbor Long Island N Y—p 67
- Pharmacologic Action of Phosphorus Acid Esters of the Phenols M I
Smith R D Lillie E Elvove and E F Stohman Washington,
D C—p 78
- Acute Degenerative Changes and Changes of Recuperation Occurring
in the Liver from Use of Ethyl Alcohol A Functional and Pathologic
Study W deB MacNider Chapel Hill N C—p 100
- Action of Sodium Oxalate in Normal and Thyroparathyroidectomized
Cats W Salant and W M Parkins Cold Spring Harbor Long
Island N Y—p 117

Kansas Medical Society Journal, Topeka

34 333 374 (Sept.) 1933

- Acute Head Injuries and Their Management A R Hatcher Wellington
—p 333
- *Trichomonas Vaginalis Vaginitis H V Holter Kansas City—p 337
- Intracranial Aneurysm Case Report W C Menninger Topeka, and
J L Dixon Clay Center—p 342
- Hodgkin's Disease of the Jejunum Mesenteric Liver Retroperitoneal
Glands and Both Ovaries W Cox Wichita—p 346
- Perivesicular Fibromyoma Benign Tumor with Acute Manifestations
E R Furgason Independence—p 349

Trichomonas Vaginalis Vaginitis—In treating Trichomonas vaginalis vaginitis Holter thoroughly cleanses the vulva, vaginal wall, cervix and anal region with tincture of green soap and warm water. The vagina is cleansed with warm tap water, wiped as dry as possible and dried by holding a low pressure air current at the mouth of the speculum for a few minutes. The vagina and cervix are then sprayed with a 1:1,000 solution of hexylresorcinol by connecting a spray to the low pressure air current. A tampon soaked in solution of boroglyceride is then inserted high into the vagina. The vulva and thighs are then wiped dry and painted with a 50 per cent solution of glycerin. The tampon is removed the next day and

the patient takes a douche with 1 tablespoonful of tincture of green soap in 2 quarts of water. Douches should be taken morning and night on the two days following the treatment. The vulva and thighs are painted with the 50 per cent solution of glycerin after each douche. These treatments should be continued until the trichomonads are absent on at least three successive hanging drop examinations. When the treatments are discontinued, the patient takes lactic acid douches daily. During pregnancy, the local treatments can be continued as outlined, until about six weeks before term. After that time it is advisable to use 4 per cent mercurochrome instillations with a sterile catheter every other day. In resistant cases the vaginal walls and cervix may be painted with tincture of iodine instead of the solution of hexylresorcinol.

New England Journal of Medicine, Boston

209 519 564 (Sept 14) 1933

- Fat and the Diabetic F P Joslin Boston—p 519
- Carcinoma of Rectum and Sigmoid with Particular Reference to the
Disease as Seen in Youth W M Shedden Boston—p 528
- Acquired Hypersensitivity to the Arsenobenzol Radical of Bismarsen
F M Thurmon and M M Tolman Boston—p 540
- Endemic Typhus Fever in Boston Report of Ten Cases A C
Ernstene Cleveland and J E F Riseman, Boston—p 542
- Familial Congenital Dislocation of the Hip S S Hanftig Boston—
p 545
- Clinical and Economic Features of Arthritis in Ex Members of the Mil-
itary Service P B Matz, Washington D C—p 547

New Orleans Medical and Surgical Journal

86 147 204 (Sept.) 1933

- Treatment of Syphilis in Children J Signorelli New Orleans—p 147
- Therapy in Primary Syphilis with Especial Reference to Bismuth
Arsphenamine Sulphonate (Bismarsen) H W E Walther, New
Orleans—p 150
- Treatment of Visceral Syphilis The Use of Bismuth O W Bethea
New Orleans—p 152
- Treatment of Neurosyphilis F L Fenno New Orleans—p 156
- *Bacteriophagy in the Treatment of Infections of Superficial and Deep
Tissues Report of Two Hundred Cases F F Boyce, R Lampert
and Elizabeth M McFetridge New Orleans—p 158
- Convalescent Serum in Prevention and Attenuation of Measles H F
Garrison Jr Jackson Miss—p 165
- Midwifery Customs in India Which Favor Tetanus and Pressure Gan-
grene of Mother and Decomposition of the Unborn Case Reports
H W Knight, New Orleans—p 172
- Mandibular Third Molar Infections and Complications S L Tibbler
New Orleans—p 178

Bacteriophagy in Treatment of Infections—Boyce and his associates observed that they have not found dosage to be of great importance in the bacteriophage treatment of infections of superficial and deep tissues. If the results are not prompt they increase it hoping that an increased amount of bacteriophage may compensate for a possible lack of potency, but when the results are satisfactory they continue with the original dose. They have given as many as seven successive injections, in doses ranging from 0.5 to 5 cc, and have found, as did d'Herelle, that large doses were without harmful effects. The application of the jelly to open wounds is far more satisfactory than the older method of using moist dressings or of injecting fluid material into open cavities in which it could not be expected to remain but it is the authors' impression that the lysate is rather more effective. In the single case in which they used the intravenous route they bore in mind d'Herelle's warning that bacteriophage must be used in adequate dilution (from 1 to 2 per cent in quantities of 500 cc of physiologic solution of sodium chloride) and should be administered slowly, in order to avoid the risk of anaphylactic shock.

Oklahoma State Medical Assn Journal, Muskogee

26 315 346 (Sept.) 1933

- Some Practical Points in Hand Surgery C R Salsbury Oklahoma
City—p 315
- The Crippled Hand C von Wedel Oklahoma City—p 320
- Injuries of Nerves and Tendons of Hand S L Koch Chicago—p
323
- Acute Appendicitis Problem H Reed Oklahoma City—p 329

Public Health Reports, Washington, D C

48 1031 1068 (Aug 25) 1933

- Malarial Fever in Narcotic Addicts Its Possible Transmission by
Hypodermic Syringe G H Faget—p 1031
- A Form of Experimental Endocarditis Produced in Rabbits O F
Hedley and Edythe J Rose—p 1038

Surgery, Gynecology and Obstetrics, Chicago

57 147 290 (Aug.) 1933

- Sacro-Iliac Arthritis T. A. Willis Cleveland—p. 147
 Infrapulmonary Empyema A. S. W. Touroff New York—p. 156
 Study of Vesical End of Ureter in Hydronephrosis Report of Fifteen Cases H. L. Kretschmer and W. G. Hibbs Chicago—p. 170
 Spinal Anesthesia Clinical and Experimental Study M. Grodinsky and C. P. Baker, Omaha—p. 187
 Factors Which Decrease Risk in Operations on Colon and Rectum C. F. Dixon and J. T. Priestley Rochester, Minn.—p. 206
 *Studies on Immobilization of Normal Joints I. W. Hly and M. C. Mensor San Francisco—p. 212
 Effect of Anterior Hypophysis on Conception and Pregnancy in Guinea Pig G. L. Kelly Augusta, Ga.—p. 216
 Heliotherapy and Orthopedics in Surgical Tuberculosis A. Rollier Leysin, Switzerland—p. 220
 *Method of Dealing with Proximal Jejunal Loop in Posterior Polya Anastomosis T. H. Lahey Boston—p. 227
 Renal Tuberculosis Diagnosis and Treatment with Study of Ninety Seven Cases of Nephrectomy for Tuberculosis R. B. Henline New York—p. 231
 Torsion of the Spermatic Cord V. J. O'Connor, Chicago—p. 242
 Bilateral Orchiectomy J. Floesser San Francisco—p. 247
 Removal of Vertebral Bodies in Treatment of Scoliosis H. J. von Lackum and A. DeF. Smith, New York—p. 250
 Pernicious Anemia Syndrome in Gastrostomized Patients S. M. Goldhamer Ann Arbor, Mich.—p. 257
 *Phenyl Mercury Nitrate Its Chemical Uses in Gynecology Preliminary Report I. H. Biskind, Cleveland—p. 261

Immobilization of Normal Joints—Ely and Mensor review and attempt to determine just what pathologic changes may occur in the experimental animal following immobilization. They observed the following definite microscopic anatomic changes: 1 The cartilage shows a closer approximation of articular surfaces. 2 There is thinning, irregularity, fibrillation and in places vacuolization of the cartilage. 3 Fibrin plaques are evident between the surfaces of the joint apparently related to the synovial membrane. 4 The areolar tissue about the periphery of the joint becomes of a denser consistency and encroaches between the articular surfaces in places, causing a substitution of the cartilage with connective tissue type of cell. 5 No definite fibrous adhesions are demonstrable between the surfaces of the joint. The authors do not entirely agree with Muller, who, while confirming the anatomic observations of earlier investigators, stated that only extreme grades of immobilization give discernible changes. In their series the immobilization was not complete, as if the bone had been in a plaster-of-paris cast with skeletal traction, nor was the immobilization constant during the entire period. In spite of the absence of these factors, however, the fixation was complete enough to give the microscopic picture described.

Proximal Jejunal Loop in Posterior Polya Anastomosis—In dealing with the proximal jejunal loop after having satisfactorily completed the posterior Polya anastomosis, Lahey employs the following method. The ligament of Treitz is cut from its lowest insertion into the jejunum up to its origin in the mesenteric root. This permits of mobilization of the uppermost part of the jejunum, so that the proximal loop of jejunum now anastomosed to the stomach can be passed up through the slit made in the transverse mesocolon, and in this way the entire proximal loop of jejunum is brought above the mesocolon and is excluded from the greater general peritoneal cavity. While the true vascular root of the transverse colon is still above the junction of the jejunum with the duodenum, nevertheless there is less angulation of the proximal jejunum than when the proximal jejunal loop enters the greater peritoneal cavity at the jejunal fossa and is again passed upward out of the greater peritoneal cavity through a slit in the transverse mesocolon. It has the additional advantage that now only a single segment of intestine the distal jejunal loop emerges through the transverse mesocolon. Snug suture of the slit in the transverse mesocolon about the single loop of intestine is thus possible and the danger of hernia through this slit is lessened. The plan of placing the entire proximal loop of jejunum above the transverse mesocolon in a posterior Polya anastomosis has, if anything, not added to but diminished certain of the technical difficulties of this type of anastomosis after partial gastrectomy. In all the cases in which it has been employed, the anastomosis has functioned well, and any question of the need of entero enterostomy between the proximal and distal loops of jejunum has been eliminated.

Phenylmercuric Nitrate—Biskind treated seventy consecutive cases of infections of the vagina and the cervix with

phenylmercuric nitrate. A smear of the urethral secretion was taken as a routine. The vagina was opened with the usual bivalve speculum and a cervical smear was then made. Subsequently the entire vagina was cleansed and the cervical canal was wiped dry. Phenylmercuric nitrate was then instilled into the cervical canal with a cotton applicator and it was held in place while a cotton ball saturated with the medication was used to swab out the vagina. The applicator was then removed and a tampon the distal end of which was saturated with phenylmercuric nitrate was inserted. The patient was instructed to remove the tampon after twenty-four hours and then to begin the daily douche. Dilutions of 1:25,000 and 1:12,500 were used at first but it was soon evident that lower dilutions could be used with safety. Continued experimentation afforded sufficient evidence that optimal results were obtained by using a 1:1,250 solution, which, according to Weed and Ecker, is the saturation point for phenylmercuric nitrate in water. Favorable response to the use of this antiseptic was invariable in all the conditions encountered, both specific and nonspecific, except when Trichomonas vaginitis was the inciting agent. The character of the infection can be changed and rapid amelioration of the condition may be obtained often with but a single application of this antiseptic. The results of the use of phenylmercuric nitrate in this series ranged from rapid and complete clinical recovery to improvement sufficiently marked so that adjuvant treatment could be successfully applied.

Virginia Medical Monthly, Richmond

60 331 396 (Sept.) 1933

- Pharmacology of Digitalis H. B. Haug Richmond—p. 331
 Observations in the Management of One Hundred Foreign Bodies in Air and Food Passages I. G. Gill and J. A. Pilcher Jr. Roanoke—p. 335
 Renal Function Tests F. P. Alyea Durham N. C.—p. 340
 Grain Itch Report of Two Cases Occurring in Small Epidemic H. E. Kittredge Washington D. C.—p. 357
 Prognostic Value of the Electrocardiogram J. W. Hunter Jr., Norfolk—p. 360
 The Survival of the Family Doctor R. K. Flannagan Richmond—p. 364
 Examining Men for Road Relief Work in Virginia B. F. Randolph Arrington—p. 367
 General Paresis Viewed from a Modern Standpoint B. C. Keister Washington D. C.—p. 369
 Breast Cancer Anatomy of the Breast H. M. Havier Abingdon—p. 371
 Id. Cancer of the Breast General Pathologic Considerations H. W. Brachman Bristol—p. 372
 Id. Symptoms and Differential Diagnosis Beverley F. Eckles Galax—p. 375
 Id. Treatment X-ray and Radium End Results J. T. McKinney Roanoke—p. 377
 Id. Treatment by Other Methods with Results H. H. Trout Roanoke—p. 381

Grain Itch—Kittredge presents two cases of grain itch, occurring in an epidemic of eight cases caused by contact with debris from infected wheat straw. The characteristic lesion of the eruption is an urticarioid wheal surmounted by a tiny central vesicle, which rapidly becomes lactescent or even puriform. The vesicles vary in diameter from 0.5 to 2 mm. When of the larger size, the cutaneous picture may strikingly resemble that of chickenpox. The distribution of the eruption varies but the neck and the trunk and, to a lesser extent, the arms and the legs are usually involved. The face may show a few lesions, but the hands and the feet are ordinarily exempt. Itching is invariably violent if not intolerable and as in scabies, is worse at night, making sleep difficult or impossible. Malaise, anorexia, nausea, vomiting, chilliness and a rise of temperature also may be experienced. Schamberg's ointment was applied for the acute stage. One of the patients was entirely well, and in the other the eruption had almost completely involuted, twelve days after treatment had been instituted.

Wisconsin Medical Journal, Madison

32 565 664 (Sept.) 1933

- Physiotherapy an Essential Specialty in Medicine J. E. Rueth Milwaukee—p. 573
 Transurethral Resection in Prostatic Obstruction J. C. Sargent Milwaukee—p. 579
 Finding Tuberculosis in Apparently Healthy Youth A. A. Pleyte Milwaukee—p. 584
 Etiology and Pathology of Renal Infection (So Called Surgical Kidney) W. J. Carson Milwaukee—p. 591
 Extemporaneous Laboratory Aid V. A. Chapman Milwaukee—p. 594
 Chronic Prostatitis C. G. Richards Kenosha—p. 595

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2 365 404 (Aug. 26) 1933

- Prevention of Accidents and Complications in the Course of Treatment in Chronic Osteomyelitis H. W. Orr—p. 365
*Significance of Vitamins in Practical Experience I. J. Harris—p. 367
Nervous Control of Abdominal Blood Vessels and Viscera D. T. Barry—p. 373
*Etiology and Prevention of Toxemias of Pregnancy G. W. Theobald—p. 376

Significance of Vitamins—Harris states that correct nutrition cannot be left to instinct, to the use of natural unspoiled foods, to a varied diet or to a process of free selection. Recent official reports show that no less than from 80 to 90 per cent of the elementary school population in London gave evidence of having had some degree of rickets, notwithstanding the decreasing severity of the disease. Statistical data have been collected to show that, under our climatic conditions, unless special prophylactic measures are taken, some degree of rickets supervenes in a large proportion of instances with an appreciable proportion of severe cases and that no common foodstuff contains sufficiently large amounts of the antirickets vitamin. Cod liver oil has proved a sterling remedy but has the disadvantage that it may be impracticable to give enough to ensure full protection in every case. Experience shows that the most certain remedy is *viosterol*. From a practical standpoint it is sometimes an advantage to use a food in which the requisite quantity of *viosterol* has already been incorporated by the manufacturers. Ultraviolet therapy presents difficulties in the administrative direction for "wholesale" prophylaxis. For curative treatment, *viosterol* is undoubtedly the method of choice, it can easily be given at a sufficiently high and precisely standardized level. When administering *viosterol* it is essential to adhere strictly to the correct dose, since overdosage gives rise to hypervitaminosis. Contrary to what is often supposed the toxic overdose for the human being is close to the optimal therapeutic dose. The author recommends a dose of 1,500 international units a day for ordinary prophylactic use, and 3,000 or a maximum of 5,000 units for curative treatment. Experience shows that smaller doses may be only partially protective. The minimal toxic dose for the infant is about 10,000 units. The author discusses the mode of action of vitamin D and condemns parathyroid treatment for infantile tetany and other conditions of calcium or phosphate deficiency arising from inadequate retention of food calcium and phosphate. Vitamin A cannot be regarded as a general anti-infective agent, although it is advisable to ensure that diets are adequately provided with it because the offspring receives but a moderate amount prenatally and in the milk. There is no evidence to support the suggestion that the prevalence of constipation and stasis is due to the lack of vitamin B. It is essential that all infants should be dosed with adequate vitamin C (orange juice), as this vitamin is destroyed to a greater or less extent during the pasteurization of milk.

Prevention of Toxemias of Pregnancy—Theobald believes it improbable that any one toxin could cause the widely varying symptoms associated with the toxemias of pregnancy, or that a number of separate toxins should originate in the products of conception. The fact that the hepatic lesions peculiar to eclampsia may be caused by dietetic or mechanical factors, or a combination of the two, disposes finally of the strongest argument in favor of a toxin of pregnancy. He suggests that the fetus affects the fixity of the internal environment and that all the toxic disorders may be regarded as deficiency diseases. It follows that there is no fundamental causal difference between ordinary morning sickness and eclampsia. This hypothesis is not contradicted by any known fact and is supported by the results of calcium therapy. If excessive salivation, vomiting, cramps, dermatitis herpetiformis, edema and other symptoms can be cured by the injection of calcium, it is logical to suppose that they are caused by its deficiency. The number of patients who have been treated is small, but the success that has attended calcium therapy in such a variety of conditions warrants its extended trial. A great disservice has been done to the science of dietetics by

those enthusiasts who stress this or that vitamin without considering the diet as a whole or the importance of personal hygiene. The author claims that a complete, well balanced appetizing and easily digested diet, rich in the vitamins and in calcium, iron and iodine, if given early in pregnancy, will prevent the onset of toxemias (but not always of albuminuria), although it may be necessary to increase the available amount of calcium by the injection of calcium gluconate. Indeed, it might be expedient and, in the end, economical to give routine injections of this mineral at the thirty-second and thirty-sixth weeks of pregnancy. He further believes that such a diet would increase the resistance of the woman to puerperal infection. The one advantage of this hypothesis, which is possessed by no other, is that it can be put to the test, and even under "field" conditions.

Indian Medical Gazette, Calcutta

GS 485 544 (Sept.) 1933

- Observations on Unusual Case of Acute Hemorrhagic Purpura E. S. Phipson—p. 485
Some Observations on Two Cases of Disorder of the Liver in Infancy and Childhood S. P. Bhattacharya and K. C. Chaudhuri—p. 488
Studies on Action of Atebrin in Plasmodium Infection of Monkeys R. N. Chopra and B. M. Das Gupta—p. 493
Studies on Inguinal Granuloma II. Bacterial Flora of Granuloma T. B. Menon and D. R. Annamalai—p. 499
Id. III. Donovan Organism of Granuloma T. B. Menon and T. Krishnasami—p. 500
Bacillæmia in Leprosy J. Lowe—p. 503
*Mechanism of Immunity in Malaria. Proof of Phagocytosis of Malarial Parasites by Large Mononuclear Cells in Malaria H. Stott—p. 507
*New Operation for Drainage of the Pleura F. C. Fraser—p. 510
Ectopic Gestation W. C. Spackman—p. 511
Congenital Dilatation of Fetal Urinary Bladder P. C. Das—p. 513
Some Notes on Planocaine in Spinal Analgesia J. T. Robinson and T. Sesbachalam—p. 515

Mechanism of Immunity in Malaria—Stott discusses two cases of malaria which showed severe malignant tertian infection with a rate of approximately 50 per cent of the red cells infected and numerous sporulating bodies in the peripheral circulation. It is possible, therefore, that the mononuclear phagocytosis of parasites normally takes place in the fixed reticulo-endothelial cells, which become "unfixed" or "free" in the blood only in the severest infections when there is an excessive stimulation of these reticulo-endothelial cells. The appearance of sporulating bodies in the blood observed in these cases is further evidence of the severity of the infection, for this phenomenon also usually takes place in the recesses of the reticulo-endothelial tissues. The clinical jaundice that was present is a reflection of the severe destruction of the red cells by the malarial parasites. As regards the type of parasite phagocytosed sporulating bodies were far more frequently observed in the mononuclear cytoplasm than ring parasites. It was easy to recognize such sporulating bodies when they were still within a phagocytosed red cell. It was frequently a matter of conjecture whether bodies of the size of individual spores scattered throughout the cytoplasm were or were not the semidigested remnants of a previously phagocytosed sporulating body. It could not be expected that the typical blue and red spore staining would be recognized in such a semidigested state, but the closer the number of such bodies approximated to fourteen and the more bunched they were together, the more likely it was that they were spore remnants. Sometimes the phagocytosed malignant tertian rings were within phagocytosed red cells and sometimes they were free in the mononuclear cytoplasm. Probably such free rings were mostly left behind after the red cell had been digested—but several such rings were free in the cytoplasm unsurrounded by any unstained vacuole and, moreover, they showed an excellent staining reaction and not a washed out or indiscriminate stain, which one might expect if the ring was semidigested. It is possible, therefore, that merozoites may at times be phagocytosed directly from the serum after leaving the breaking down red cell containing a sporulating body and before reaching a new red cell—and may indeed develop to some extent in the mononuclear cytoplasm itself. There is no doubt that small rings are found in large mononuclears, not surrounded by a vacuole and giving the impression of health and vigor rather than of semidestruction from digestion, by reason of their distinctive chromatin and protoplasmic staining reaction. Large mononuclear cells

may therefore show their phagocytic power in malarial, even in the peripheral circulation of severe human cases, by the presence of (1) pigment, (2) rings and (3) red cells normal or dehemoglobinized and infected or noninfected with sporulating or, less commonly, with other forms of malarial parasites

Operation for Drainage of Pleura—Fraser describes an operation which was originally designed for a case of malignant growth of the pleura in which the effusion collected so rapidly that aspiration had to be repeated every twenty-four hours. He decided on continuous drainage. Under local anesthesia with a 5 per cent solution of procaine the skin and the tissues right down to the periosteum of the eighth rib in the mid-axillary line were infiltrated and an incision was carried right down to the bone, $1\frac{1}{2}$ inches in length. An ordinary mastoid retractor was then inserted to hold back the soft tissues and the periosteum cleared from the rib over about one-half square inch. A trephine corresponding in diameter to the largest size tracheotomy tube was then used to make a hole through the center of the rib. Through the hole thus made the pleura was infiltrated with procaine, after which a pair of sinus forceps was inserted through the soft structures and the pleural cavity opened. The blades of the forceps were opened and rotated within the hole to tear the pleura open for admission of a tracheotomy tube. Only one tube was used and its curved end was directed downward, it entered smoothly and lay snugly flush with the rib, to which it was fastened by a silk suture through the periosteum. On removal of the mastoid retractor, the soft tissues closed in to some extent and the gap left was lightly plugged with sterile gauze to exclude air but to allow free drainage. The author believes the advantages of this method are: 1 The small size of the wound and minimal incision. 2 The bloodlessness of the method if epinephrine is used with procaine hydrochloride. 3 The absence of mutilation of the rib. 4 No projection from the wound by way of drainage. 5 Absence of irritation of the pleura or reflex coughing with the tracheotomy tube lying flush against the wall of the thorax within. 6 The rapidity of the method compared with resection of a rib.

Journal of Physiology, London

79 121-238 (Sept 4) 1933

- Physiologic Significance of Weber's Law and Color Contrast in Vision J S Haldane—p 121
Effect of Estrin on Rectivity and Spontaneous Activity of the Rabbit's Uterus J M Robson—p 139
Simple Photo-Electric Colorimeter G A Milikan—p 152
Kinetics of Blood Pigments Hematocyanine and Hemoglobin G A Milikan—p 158
Ovulation After Blood Dilution and Cross Circulation M K McPhail A S Parkes and W E White—p 180
Retinal Action Potential of the Human Eye Note Sybil Cooper R S Creed and R Grant—p 185
Albuminuria in Normal Male Rat Muriel E Bell—p 191
Diffusion of Lactate in and from Muscle S C Devadatta—p 194
Isolated Mammalian Heart Preparation Capable of Performing Work for Prolonged Periods I de B Daly and W V Thorpe—p 199
Influence of Parathyroid on Metabolism of Creatine and Phosphoric Acid C G Imrie and Constance N Jenkinson—p 218
*Excretion of Prolan After Intravenous Injection in Rabbit A S Parkes and W E White—p 226
Extra Uterine Survival of Spermatozoa W E White—p 230
Histamine in Canine Gastric Tissues Gertrude Gavin E W McHenry and M J Wilson—p 234

Excretion of Prolan—Parkes and White injected 30, 50 and 100 mg of prolan into gonadectomized rabbits, or about three, five and ten times the amount required to produce ovulation with certainty in an estrous animal. After prolant injection, urine was collected for times up to nine hours. Collection for more than nine hours produced highly toxic samples. Of two animals receiving 30 mg of prolant, one gave active urine nine hours later, so that rather less than one-third of the hormone appears to have been excreted during this time and recovered. Of two tests on one-fourth of the urine obtained nine hours after the injection of 100 mg of prolant, one was positive and the other negative. In other experiments, injection of all the urine and also of half of the urine collected nine hours after injection of 100 mg produced positive reactions. These results suggest that about one-third or less of the material is excreted in nine hours. It would thus appear that the blood threshold, if any, which the hormone must attain before excretion can begin is comparatively low. The results suggest that excretion continues up to nine hours

Thus, in the groups receiving 30 and 50 mg of prolant the urine appears to be more active after nine than after six or seven hours. After the administration of 100 mg of prolant, active urine was obtained during the first three and also between three and nine hours. The authors state that a pregnant woman excretes from 500 to 1,000 rabbit units of prolant a day, or, roughly, 10 units a day per kilogram of body weight. The amount which can be excreted by a rabbit is therefore of the same order as that which actually is excreted by a woman. It may thus be concluded that the failure of the pregnant rabbit to excrete prolant is due not to an inability on the part of the kidneys but more probably to the lack of the hormone in the blood.

Lancet, London

2 573-626 (Sept 9) 1933

- Chemical Organization in the Living Cell G Hopkins—p 573
Oral Cancer in Hot Chewing in Travancore Its Etiology Pathology and Treatment I M Orr—p 575
*Laboratory Diagnosis of Typhoid Infections A Compton and I A Sand—p 580
Hypertensive Encephalopathy in Nephritis H Evans—p 583
Treatment of Scurvy in Man with Intravenous Injection of Ascorbic Acid P Schultzer—p 589
Method for Increasing the Sensitiveness of the Wassermann Reaction R W Fairbrother—p 590

Laboratory Diagnosis of Typhoid Infections—In order to determine the practical value of Felix's method of differentiating between inoculation and infection agglutinins, Compton and Sand tested, without any special selection, some seventy blood specimens sent to their laboratories for routine Widal examination during nine consecutive months of 1931. To this end they supplemented their two ordinary methods of laboratory serodiagnosis: (1) hemoculture with the clot and (2) quantitative microscopic agglutination toward H emulsions of T A and B organisms with the serum, by (3) testing in addition the agglutinating action of the serum against an O emulsion of T. They observed that in the presence of negative and non-diagnostic (1/50) results of sero-agglutination the diagnosis is improved by approximately 4 per cent when a sensitive phenolized O emulsion is included in the technique of the Widal test. It is improved by approximately 10 per cent when systematic hemocultures are carried out with all specimens the clots being utilized to this end. Whether a sero-diagnosis improved to the extent of 4 per cent may or may not be thought a justification for complicating laboratory reports with the vaguer diagnosis of 'enteric group' infection is an open question. The bacteriologist and the clinician can only decide that between them. The greater improvement and precision of laboratory diagnosis arising from the systemic carrying out of hemocultures cannot be sufficiently insisted on. Yet this is far from being the general practice of laboratories in Egypt. In the authors' experience, practitioners do not avail themselves sufficiently of the help which the laboratory can afford by bacteriologic examinations of specimens of feces and urine in obscure typhoid conditions characterized by negative or doubtful Widal results. The agreement of 10 per cent of Widal positive specimens showing supplementary evidence of the presence of inoculation agglutinins and the calculated approximately floating proportion of 10 per cent of the population being inoculated within two and one-half years is striking.

Ascorbic Acid in Scurvy—Schultzer presents a case of scurvy in a man of 68 who was cured with ascorbic acid. The daily intravenous injection of 40 mg of ascorbic acid resulted in rapid recovery from the scurvy. He believes it doubtful whether the 40 mg of ascorbic acid if given by mouth would have produced the same effect, especially in view of the fact that the patient suffered from gastric achylia.

Sensitiveness of the Wassermann Reaction—Fairbrother investigated the practicability of Wyler's modified reaction of the Wassermann reaction in a laboratory, in which some 500 serums are examined weekly. Various serums giving either negative or doubtful results when tested by his usual laboratory technique were selected for examination. This consisted of a further test in which increased strengths of serum were used. He observed that undiluted (1/1) serum was unsatisfactory, owing to the fact that (1) in several instances

at this strength the serum exhibited distinct anticomplementary properties and (2) that the amount of serum required for the test was too large for the many specimens received. Therefore it was decided to compare the results obtained with a large series of serums diluted 1:2 and 1:5. The results obtained support the assertion of Wyler that the sensitiveness of the Wassermann reaction can be increased without loss of specificity by increasing the quantity of the serum to be tested. For routine work, however, it is necessary that a definite dilution or series of dilutions should be adopted. An increase in the sensitiveness of the reaction is a most useful step, especially in treated cases. One objection might be that another serum dilution in the quantitative method would make the test too cumbersome. This may be so, but it seems preferable to replace the largest dilution, such as 1:45, and substitute a dilution of 1:2. Thus a series of dilutions of 1:2, 1:8 and 1:32 would be more valuable than a series of 1:5, 1:15 and 1:45.

Medical Journal of Australia, Sydney

2 299 332 (Sept. 2) 1933

- Contracted Pelvis J S Green—p 299
 *Hypoglycemic Angina Report of Five Cases C Sippe—p 302
 Ocular Torticollis Inferior Oblique Tenotomy and Its Indications E T Smith—p 307
 Blow Fly Problem W M Sinclair—p 308
 Chronic Paronychia Due to Monilia I Connor—p 312
 Repeated Lumbar Puncture in Epilepsy A T Edwards—p 314

Hypoglycemic Angina—Sippe states that it has been said that a blood sugar reading of 0.08 per cent does not constitute sufficient evidence to warrant a diagnosis of hypoglycemia. On the other hand, undoubted symptoms of hypoglycemia can occur when the blood sugar is much higher. In his experience a blood sugar reading of 0.08 per cent should always be looked on with suspicion. The diagnosis is verified by the clinical history and the therapeutic test which follows the administration of dextrose. The person with acetonemia lacks the power of utilizing the dextrose obtained from an average diet and needs the addition of dextrose as well as a reduction of the intake of fat in spite of a normal blood sugar. It would appear that the changes in the electrocardiographic record must now be regarded as giving important diagnostic criteria in hypoglycemia and acetonemia and afford a valuable indication of the results of treatment. The importance of this observation is obvious, since failure to recognize the condition and to institute appropriate treatment has left the way open for the diagnosis of coronary thrombosis with its grave prognostic significance. The author describes four cases of hypoglycemia and one of ketosis which showed anginal symptoms suggestive of cardiac disease. The electrocardiograms showed characteristic changes. The author concludes that changes in the cardiac muscle are only one of the many manifestations of hypoglycemia and ketosis. A great deal of evidence has been collected to show that these conditions are of extreme importance in the production of sinusitis and nontuberculous pulmonary fibrosis. The electrocardiographic changes in hypoglycemia and ketosis consist of any of the following combinations: (1) flattening or inversion of the P waves, (2) low voltage QRS complexes, (3) depression of the ST interval, (4) flattening of the T waves.

Practitioner, London

131 221 324 (Sept.) 1933

- Birth Control Introduction Horder—p 221
 Id H Ellis—p 228
 Ethics of Birth Control E A Barton—p 239
 Is the Practice of Contraception Injurious to Health? E Holland—p 247
 Choice of a Contraceptive C P Blacker—p 256
 Contraceptive Methods Description of Museum in the London School of Hygiene and Tropical Medicine C I B Vogt—p 268
 Birth Control in Practice (I) General Practice (II) The National Movement E F Griffith and Helena Wright—p 278
 Small Birth Control Center Notes Alice L L Robson—p 286
 Therapeutic Aids to Diagnosis J W Linnell and H A Dunlop—p 288
 Treatment of Infections of the Urinary Tract T E Hammond—p 296
 *Syphilis of Esophagus E Watson Williams—p 310

Syphilis of Esophagus—Watson-Williams describes four cases of syphilis of the esophagus and two in which that diagnosis appeared correct. Dysphagia was the first symptom

four of the six showed wasting, and only one had real pain. The local appearances include (1) general esophagitis tending to affect the middle two fourths of the esophagus, but in one case the whole, (2) maceration of the epithelium, with longitudinal desquamation going on to complete shedding of the epithelium and (3) formation of leukoplakic patches consisting of thickening of the epithelium only. In 350 consecutive esophagoscopies the appearance of general esophagitis affecting the middle two fourths of the esophagus and maceration of the epithelium were not seen except in the six cases described. There were eleven cases of aneurysm causing dysphagia during the period covered by these esophagoscopies.

South African Medical Journal, Cape Town

7 603 638 (Sept. 23) 1933

- Combined Anesthesia in Surgery F D du T Van Zyl—p 605
 The Mechanism of Allergy W P Mulligan—p 616

Presse Medicale, Paris

41 1877 1900 (Nov. 22) 1933

- Work of Pasteur Pasteur Vallery Radot—p 1877
 Role of Amino Acids in Evolution of Experimental Ulcer Influence of Histidine A G Weiss and E Aron—p 1880
 *New Sign of Lumbago G S Demianoff—p 1883

Sign of Lumbago—Demianoff describes a sign that permits the differentiation of pain originating in the sacrolumbalis muscles from lumbar pain of any other origin. The sign is obtained by placing the patient in dorsal decubitus and lifting his extended leg. In the presence of lumbago this produces a pain in the lumbar region which prevents raising the leg high enough to form an angle of 10 degrees, or even less, with the table or bed on which the patient reposes. The pain is due to the stretching of the sacrolumbalis. To make certain that the pain is not due to sciatica (Lasegue's sign), the patient's leg is lifted a second time. This time the physician fixes the pelvis on the same side by pressing heavily with his hand on the region of the homolateral anterior superior iliac crest. The fixation of the pelvis prevents the stretching of the sacrolumbalis and permits raising the leg to an angle of 90 degrees without, or practically without, the production of lumbar pain. If the pain produced by raising the leg is due to sciatica it is not suppressed by fixing the pelvis, as this does not prevent the sciatic nerve from being stretched. The more acute the angle (between the leg and the table) at which lumbar pain is first experienced, the more severe is the involvement of the sacrolumbar muscle. The test should be performed on both legs. This sign of lumbago is usually manifest on both sides but the angle to which the legs can be raised may vary, as the muscle pain may be more intense on one side. If lumbago and sciatica coexist on the same side, the author's sign is negative on that side but it will be positive on the other side. In the rare case of simultaneous lumbago and sciatica on both sides the author's sign will be excluded by Lasegue's sign.

Policlinico, Rome

40 721 804 (Nov. 1) 1933 Medical Section

- Mercury Bismuth, Arsenic and Iodine in Treatment of Cardiovascular Syphilis G Sabatini—p 721
 Clinical Roentgenologic Study of Pulmonary Vascular Pattern in Normal and Pathologic Conditions Gastone Meldolesi and Gino Meldolesi—p 738
 *New Clinical Picture of Atypical Purpura Hemorrhagica Associated with Nodular Tuberculosis of Spleen A Omodei-Zorini—p 790

Atypical Purpura Hemorrhagica—Omodei-Zorini made a study of two women patients presenting atypical purpura, nonthrombopenic but thrombasthenic in type, associated with nodular tuberculosis of the spleen. The two patients developed hemorrhages of the skin and mucosae during premenstrual periods and during the spring season, and one of them also showed hemoptysis. In both cases the tuberculosis was latent and the spleen was involved in the form of chronic miliary tuberculosis in one patient and of an isolated caseous nodule in the other. In the second patient the author was able to isolate a tuberculous strain of attenuated virulence and of human origin. He believes that two concomitant factors account for this condition: a predisposing congenital factor of thrombasthenia and an acquired toxic infective tuberculous factor. In both cases the splenectomy interrupted the produc-

tion of tuberculous toxin and helped to stop the hemorrhagic manifestations. Tuberculin treatment reduced the fever and finally aided in establishing a lasting cure.

Medizinische Klinik, Berlin

220 1163 1502 (Oct. 27) 1933

- *Protracted Radium Treatment of Inoperable Carcinomas of Rectum. H. T. Schreus—p. 1464
- *Roentgen and Radium Irradiation of Inoperable Ovarian Carcinoma. L. Vogt—p. 1464
- Topography of Calcified Lymph Nodes in So Called Hilus Shadow. G. Herrnhöfer—p. 1466
- Task of Practitioner in Roentgen Therapy. F. Hardach—p. 1470
- Numeroscapular Periarthritis. W. Altschul—p. 1474
- Efficiency of Stereogrammetric Measurement of Pelvis in Borderline Cases of Narrow Pelvis. R. Dyroff—p. 1475
- Methods and Practical Application of Stereoscopic Examination of Roentgenograms in Internal Medicine. W. Teschendorf—p. 1478
- Benign Esophageal Polyp and Malignant Gastric Polyp. A. Deutel—p. 1482
- Estimation of Roentgenomorphologic Observations in Gastroduodenal Diagnosis Particularly in That of Pyloric Region. G. Steiner—p. 1484
- Polydactylism. Clinical Aspects and Etiology. Lilly Pokorny—p. 1486
- Os Acromiale. H. Gurniak—p. 1488
- Development of Concept of Dose in Roentgen Therapy. H. Hothhusen—p. 1489

Radium Treatment of Inoperable Carcinomas of Rectum.—Schreus resorted to protracted roentgen irradiation and to radium treatment by contact in inoperable carcinomas of the rectum and in those no longer amenable to radical ray treatment. The radium is applied in the intestine. Since strong reactions are not desired, the author gives a first dose of from 500 to 600 mg. element hours by means of a brass container 3 cm. in length and having a wall thickness of 1 mm. The radium container is introduced with the aid of the rectoscope and is fixed in place by adhesive tape. The radium is introduced from three to four times, at intervals of from eight to ten days. This procedure generally produces a mild reaction on the mucous membrane and often a noticeable retrogression of the carcinoma. After from two to three months, a new series of radium treatments may be given. This treatment may be combined with protracted roentgenotherapy according to Courty's method with a focal dose of from 2,000 to 4,000 roentgens. In order to avoid severe reactions, frequent controls with the rectoscope are advisable. The author found that favorable palliative results may be produced with this method, for not only do the hemorrhages cease and does the tumor decrease but the patient's general condition also improves. Cicatrization may produce strictures that necessitate the formation of a preterminal anus. The author's results were such that an artificial anus could be dispensed with. He is unable to say to what extent the protracted roentgen-radium treatment would prove useful in cases that are not yet as far advanced as those treated by him. He thinks that surgical treatment with subsequent prophylactic irradiations should be the method of choice in operable cases but that in the more advanced cases the described method is the best, since it is sufficiently effective and yet preserving.

Irradiation of Ovarian Carcinomas.—According to Vogt the surgical treatment of operable ovarian carcinomas is generally followed by a prophylactic roentgen irradiation with the full carcinoma dose given as soon as the wound is healed. In case of a relapse the carcinoma dose is again applied, but the interval between the roentgen treatments should be at least three months. In exceptional cases a third carcinoma dose of roentgen rays may be given after another three months. The incompletely removed ovarian carcinomas, or the inoperable ones, the inoperability of which has been established by exploratory laparotomy with biopsy and microscopy, are treated by the author with a combination roentgen-radium treatment. From three to four weeks after the operation, radium (from 1,800 to 2,200 mg. hours) is introduced into the uterus. A few days later this is followed by roentgen irradiation with the full carcinoma dose. The second intra-uterine radium treatment is given six weeks after the first, and the third is given after another six weeks. This third radium treatment is again followed by an irradiation with roentgen rays. The author gained the impression that the combined roentgen and radium treatment gives better results than the roentgen irradiation alone, and he recommends the application of this method.

Munchener medizinische Wochenschrift, Munich

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- *Intestinal Helminths and Their Extra-Enteral Occurrence Especially During Childhood. H. Brüning—p. 1765
- Diagnostic Significance of Sedimentation Reaction in Acute Infectious Diseases. H. Curschmann—p. 1767
- Significance of Diseases in Animals for Human Pathology. K. Poppe—p. 1768
- Bacteria of Chicken Enteritis and Atypical Forms of Gartner's Bacillus in Gastroenteritides Caused by Foods Prepared with Eggs. R. Müller—p. 1771
- *Treatment of Pernicious Anemia with Duodenal Juice. W. Kuban—p. 1772
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Intestinal Helminths and Their Extra-Enteral Occurrence.—Brüning mentions several types of *Taenia*, *Ascaris lumbricoides*, *Oxyuris vermicularis* and *Trichocephalus dispar* as the helminths most frequently found in the Baltic provinces of Germany. He points out that the complications which may be caused by these helminths make it necessary to expel them. For the expulsion of *Taenia* he recommends extract of male fern, and he treats ascariasis, oxyuriasis and trichocephaliasis with oil of chenopodium. However, these anthelmintics are effective only as long as the helminths are present in the gastro-intestinal tract, for these intestinal parasites may also lead an extra-enteral existence. The larvae of ascarides, for instance, may pass through the veins of the intestinal tract to the liver, into the heart and lungs, and up the bronchi until they reach the pharynx. After being swallowed, they again enter the gastro-intestinal tract, in which they grow into the adult form. Such an extra-enteral course of development is not known about *Oxyuris* and *Trichocephalus*, and the extra-enteral occurrence of *Taenia* is a great rarity, although cases have been reported in which a tapeworm was found in the gallbladder and even reached the liver. The occurrence of *Taenia* in the abdominal cavity or in an abscess of the abdominal walls likewise has been reported. From the duodenum, ascarides occasionally enter into the biliary tract. Occasionally they penetrate the intestinal wall, particularly, in cases of ulceration or following operations, and then cause peritonitis, but there is also some evidence that even the intact intestinal wall may be penetrated by *Ascaris*. *Oxyuris* has been found in the surroundings of the anus or of the genitalia, or in the region of the coccyx, for it is known that the females emerge from the intestine to deposit their eggs. Through the vagina they may travel upward and reach the oviducts or the peritoneum. Extra-intestinal occurrence of *Trichocephalus* is not known. The author thinks that, in most instances of extra-enteral occurrence of helminths, cure can be effected by surgical treatment.

Sedimentation Reaction in Acute Infectious Diseases.—Curschmann reports his experiences with the sedimentation reaction in a number of acute infectious diseases. In typhoid the sedimentation speed was either reduced or normal during the first week. During the second week there usually developed an acceleration which persisted during the third, fourth and fifth weeks. During the sixth week the values decreased, to remain only slightly accelerated, and this slight acceleration frequently persisted throughout a prolonged convalescence. Paratyphoid was characterized by similar changes. In *Alcaligenes abortus* infection the author gained the impression that in the first stages the sedimentation is either low or normal and that during the subacute or chronic stages it is usually increased. He considers the sedimentation reaction a valuable aid in the diagnosis of *Alcaligenes abortus* infection, for the low sedimentation during high fever is even a more frequent symptom than is leukopenia with lymphocytosis and monocytosis. Observations on cases of dysentery convinced him that in this disorder the sedimentation speed is of no particular value. In scarlet fever, he found it more uniform. The sedimentation was considerably increased at the onset. Uncomplicated cases

showed a decrease as soon as the fever decreased and, with advancing convalescence, normal values were reached again gradually. A persistence of the high values or a further increase during the time when the fever was decreasing indicated a complication or a superinfection. Measles was characterized by a high sedimentation speed at the beginning, but, as soon as the exanthem faded and the temperature fell, there was a rapid decrease, except when complications developed, in which case the sedimentation either remained high or increased again. During the first stages of the various forms of tonsillitis or of diphtheria, it was observed that the sedimentation did not increase as rapidly as did the number of leukocytes. Leukocytosis and deviation to the left are therefore of greater diagnostic value than the sedimentation reaction. At the severest stage of these infections, the sedimentation and the leukocyte formula showed practically the same behavior, but during convalescence it could be observed that an increased sedimentation often persisted for a considerable time after the fever, leukocytosis and deviation to the left had disappeared.

Gastro-Enteritides Caused by Eggs—Muller discusses his studies on micro organisms resembling those of typhoid, but nonmotile like those of dysentery. He made two cultures from the feces of patients who developed gastro-enteritis after eating potato salad and blood sausage, and two from the ingested foods. He found that the four cultures were of the type *Bacterium gallinarum*, which is the cause of chicken enteritis but so far has not been considered pathogenic for human subjects. However, it is known that this bacterium has four variants, and further studies disclosed that the four cultures were of the type referred to as *Shigella flexneri*. Of four chickens that were fed with the cultures, three died in less than five days, and the pathogenic micro-organism was isolated from their heart blood; one of the animals recovered. The author concludes that the potato salad eaten by the patients contained infected eggs. The presence of bacteria in hen's eggs was demonstrated as far back as 1911, and their pathogenicity for human subjects has been denied by some but demonstrated by others. The author thinks that febrile diarrheas of this origin may have been overlooked so far, because of their mild course, or a thorough bacteriologic investigation may have been neglected. He relates cases of gastro-enteritis in which atypical forms of Gartner's bacillus were the cause. The food that caused the disturbance had been prepared with the fresh white from a hen's egg and with the white of a duck's egg that had been kept for several days. The author thinks that the latter was the source of the infection, and he assumes that the storage of the egg white, by permitting a multiplication of the organism, was an essential factor. He also cites other reports on the transmission of enteritis organisms (types Gartner or Breslau) by eggs from ducks or chickens.

Treatment of Pernicious Anemia with Duodenal Juice—In comparing the value of liver therapy and of stomach preparations, Kühnau points out that extracts of the gastric mucous membrane are as effective as the best liver preparations and that in cases of funicular myelitis the stomach extracts are even superior. The fact that in pernicious anemia not only the chemistry of the stomach but also the function of the duodenum and of the entire small intestine is impaired justifies the question whether the upper portions of the intestine do not produce an antianemic principle. Studies on this problem have given contradictory results, but the author reasons that it ought to be possible to compensate for the cessation of the production of ferment in the duodenum during pernicious anemia by the administration of normal duodenal juice. Moreover, the duodenal juice always contains some bile and there is a possibility that the antianemic principle of the liver is carried with the bile into the intestine, so that the duodenal juice ought to be doubly rich in the antianemic principle. The author resorted to the administration of normal duodenal juice in cases of pernicious anemia which proved refractory to liver therapy and in which the anemia had become extremely severe. After the production of duodenal juice has been stimulated in a healthy subject, from 40 to 200 cc of it is withdrawn by means of the duodenal tube, and with the aid of a stomach tube, this juice (200 cc) is introduced into the stomach of the anemia

patient. Then 5 cc of diluted hydrochloric acid and two teaspoonfuls of dextrose are mixed in 200 cc of water, and this mixture is given to the patient. The procedure is comparatively simple and vomiting is never observed. On the basis of results obtained with this method, the author concludes that in cases in which other methods fail this procedure may yet be effective. He suggests that the duodenal juice at first be given three times each week, and later, after some improvement has been obtained, once a week.

Zeitschrift für Kinderheilkunde, Berlin

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*Dangers of Overdosage of Borderline Rays in Growing Organism Mathilde Kolrep—p. 546
*Investigations on Immunity in Whooping Cough A. Kairies and Sigrid Goetze—p. 551
Reticulocytes and Their Clinical Significance During Childhood I. I. Michaelis—p. 567
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Id. Lead Anemia in Nurslings and Small Children M. Kasahara and M. Nagahama—p. 583
*Metabolic Studies in Glycogen Storage Disease W. Hertz—p. 588
Metabolic Processes in Acetone Vomiting. Acetone Vomiting and Hypochloremia H. Biedermann and Duken—p. 602
Id. Acetone Vomiting and Carbohydrate Metabolism H. Biedermann—p. 613
Colic Due to Renal Calculi During Early Childhood W. Behrens—p. 637

Dangers of Overdosage of Borderline Rays—Kolrep's irradiation experiments on young rats corroborate former tests, in that they demonstrate that borderline rays are not harmless. If applied in large doses, they inhibit the growth of bones. A tabular report indicates that an injurious effect may become manifest after the application of a total dose of 2,000 roentgens. However, a sure impairment of the bone growth in all animals requires a total dose of from 3,200 to 3,500 roentgens. Another table indicates that irradiation begun at an early age apparently produces no greater impairment of bone growth than is the case if irradiation is begun in slightly older animals. The irradiation with the large doses produced a temporary epilation. The latter was the more pronounced in animals in which the intervals between irradiations were short. In the evaluation of these tests the author points out that roentgen rays may cause impairment of the growth of bones. She reviews experiments which indicate that the harmful dose is much lower for roentgen rays than for borderline rays, but, although the therapeutic dose of the borderline rays is much higher than that of roentgen rays, sight should not be lost of the fact that borderline rays may become harmful if given in excessive doses, and particular care should be taken whenever the growth zones of bones are exposed to irradiation.

Investigations on Immunity in Whooping Cough—Kairies and Goetze made studies on fourteen children having whooping cough and on fourteen healthy children who had been vaccinated against whooping cough. They found that the complement fixation reaction with the Bordet-Gengou bacillus was strongly positive in thirteen children having whooping cough and that it was doubtful in one child. Antibody formation was not demonstrable in four healthy nurslings who had been vaccinated, but complement fixing antibodies were demonstrable beginning with the eighth day after the first injection of vaccine in all children who were vaccinated after they had passed the first year of life. The reactions reached their maximum between the tenth and twenty-fifth days. In four of the children the complement fixation reaction had become negative again five weeks after the first injection. The serologic conditions seem to indicate that, particularly in nurslings, the prospects of a successful vaccination are doubtful. On the basis of theoretical considerations, the vaccination of children presenting allergic reactions, of those whose defense mechanism is impaired and

of those suffering from other bacterial infections, should be dispensed with. Complement fixation reactions with the Bordet-Gengou bacillus may occur also in the serum of patients having disorders other than whooping cough. Moreover the serum of children vaccinated with Bordet-Gengou bacilli may give temporarily nonspecific reactions with Wassermann antigens, gonococcus vaccines, staphylococci, colon bacilli and influenza bacilli. The occurrence of nonspecific reactions is largely dependent on the reaction capacity of different individuals. A better differentiation of the various receptors that are contained in the serum can probably be effected by an elective absorption.

Metabolic Studies in Glycogen Storage Disease—Heriz made metabolic studies on a boy, aged 11, who has glycogen storage disease (called also glycogenosis, von Gierke's disease and so on) and who has been under observation for several years. It was found that the nitrogen exchange was not increased. The amino acid metabolism was normal, and the gelatin-water tolerance test (according to Morawitz-Mancke) disclosed no abnormalities. These observations are important for the differentiation of glycogenosis from cirrhotic disturbances of the liver. The results of the liver tolerance tests with amino acids on the one hand, and with insulin sugar-water (Althausen-Mancke) on the other hand, correspond to each other, and the prolonged increase in the fat content of the blood following a fat tolerance test in patients suffering from glycogenosis likewise agrees with this. The creatine-creatinine elimination was found to be unusually high. The examination of the blood serum and of the urine revealed a temporary acidotic tendency in the metabolism. The water exchange was not noticeably disturbed in this case of glycogenosis, although other patients having glycogenosis have shown an abnormal water economy. The author reaches the conclusion that in glycogen storage disease it is not so much the liver that is diseased but that there is a disturbance in the metabolism which brings into prominence the storage of glycogen in the liver and in other organs. In the metabolic equilibrium there is a shifting toward polymerization. An increased elimination of urobilin bodies, which is the most exact indicator of impairment of the liver, has never been observed in glycogenosis.

Zeitschrift für klinische Medizin, Berlin

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- *Electrocardiographic Studies in Hyperthyroidism B. Misske and G. Schöne—p. 387
- High Position of Electric Axis of Heart E. Flaum and F. Nagl—p. 414
- Epidemiology of Haff Disease H. Habs—p. 431
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- Studies on Mechanism of Pale Hypertension H. Bohn—p. 458
- Effect of Heparin on Sedimentation Rate of Blood K. L. Zirm and G. Scherk—p. 475
- Kymographic Studies of Normal Heart W. Brednow and U. Schaare—p. 480
- *Pathogenesis of Sense of Anxiety in Angina Pectoris E. Hausner and H. Hoff—p. 493
- Mechanism of Oxygen Inhalation K. Hinsberg and A. Ruhl—p. 508
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- Diagnosis and Pathogenesis of Atrophy of Spleen H. Hirschfeld and L. Dunner—p. 536
- *Cardiac Complications of Grip E. Egedy—p. 547
- Mechanism of Alimentary Blood Sugar Curve After Double Tolerance Test C. V. Medvei—p. 554

Electrocardiographic Studies in Hyperthyroidism—Misske and Schöne report electrocardiographic studies in 113 patients with hyperthyroidism. The severity of a case was estimated by determination of the basal metabolic rate. The highest rate in any case was +107 per cent. Two hundred electrocardiograms were studied. Disturbances of the cardiac rhythm were frequent. The pulse varied between 70 and 130 per minute. Bradycardia with a pulse below 70 was observed in four patients, in one of these there was a pronounced hyperfunction of the thyroid and a basal metabolic rate of +42 per cent. Sinus tachycardia was noted in only five cases, all of which were typical instances of exophthalmic goiter with a basal metabolic rate ranging between 87 and 90 per cent. Sinus arrhythmia was found in practically all the graphs. Extrasystoles were rather unusual. There were two instances of

auricular and two of ventricular extrasystoles. Auricular fibrillation was present in twelve cases. The disturbance disappeared after surgical removal of the thyroid. The authors were not able to influence fibrillation by internal therapy. Disturbances in conductivity were rare, only three cardiograms showing a blocking of the sinus impulse. The time of conduction between the auricle and the ventricle oscillated, in the majority of the cases, between 0.12 and 0.19 second. The authors did not see an instance of a complete block or of a disturbance of intraventricular conductivity. In their opinion, the duration of the systole was conditioned by the frequency of the pulse: the faster the pulse, the shorter the duration. The study of an individual complex revealed a rise of the P wave in thirteen graphs, of the T wave in thirteen and of the ventricular phase in twenty-nine. A simultaneous rise of the P and T waves was recorded in only six graphs. This is opposed to observations of previous workers who considered the simultaneous rise in the two waves characteristic of exophthalmic goiter. The authors have seen this sign quite frequently in neurasthenic persons. They have gained the impression that sinus arrhythmia is a fairly constant sign in thyroid hyperfunction. All the cases exhibiting fibrillation belong to the severest type of thyrotoxicosis, a fact suggesting that the damage to the heart was of a purely thyrogenous origin. No instance of permanent arrhythmia of the pulse was noticed in cases in which a thyroidectomy was performed. In one case radium application was followed eight days later by fibrillation. The authors conclude that fibrillation of thyrotoxic origin is best treated by strumectomy.

Pathogenesis of Anxiety in Angina Pectoris—Hausner and Hoff state that the relationship between the anxiety occurring in an attack of angina pectoris and in edema of the brain stem was suggested to them by the following clinical observations. A young man, in whom Denk removed a cyst of the left cerebellar hemisphere developed four hours later a sense of anxiety and a feeling of impending death. This lasted four hours and disappeared without giving rise to any disturbance in the cardiovascular or the central nervous system. Two patients, in whom a cerebellar tumor was removed developed shortly after the completion of the operation a sense of anxiety and of impending death. This was accompanied by bulbar signs, such as blurred and double vision and a characteristic disturbance of the speech. Both died a short time later. Postmortem examination revealed edema of the lower portion of the pons and of the medulla oblongata on macroscopic and microscopic studies. The similarity of their anguish to that of patients having an attack of angina pectoris was striking. The authors next report postmortem observations on nine patients whose death was caused by coronary thrombosis. Six of these exhibited symptoms of anguish during the anginal attacks and five presented an occlusion of the left coronary artery. In five of the six last mentioned, edema of the stem of the brain was found on macroscopic and microscopic examination. On the other hand edema of the brain was not found in patients dying of various forms of cardiovascular disease other than angina pectoris. The authors ligated branches of the coronary artery in sixteen dogs and found edema on macroscopic and microscopic examination in ten. They feel that they have advanced sufficient proof to substantiate the suggestion that the feeling of anxiety and a sense of impending death occurring in an attack of angina pectoris are the result of edema involving the lower third of the pons and the medulla oblongata.

Cardiac Complications of Grip—Egedy has studied 100 cases of grip since 1929 and found that twenty-seven of these exhibited signs of cardiac involvement. Of the twenty-seven patients presenting cardiac complications, twenty-one gave electrocardiographic evidence of the disorders. The study of these twenty-one patients revealed that approximately 50 per cent of the alterations were due to a lesion of the path of conduction and about 25 per cent to a lesion of the myocardium and the coronary arteries. These figures do not include instances of bradycardia for the reason that the author is not certain whether the latter is caused by the toxic blocking effect on the excitability of the sinus nodes or by extracardiac causes. He had not observed any lesion of the endocardium or of the pericardium. The cardiac symptoms not infrequently may have

their onset simultaneously with the onset of fever and be demonstrable in electrocardiograms. Approximately two thirds of all cardiac complications occur after the disease is over or still later during the convalescence. The author points out that physical examination alone is incapable of detecting many cardiac complications. Retardation of auricle conductivity as well as the appearance of atrioventricular rhythm will not give physical signs save for bradycardia and positive venous pulse in the latter. Mild lesions of the myocardium likewise do not produce physical signs. The electrocardiogram often reveals surprising information in this group of cases. The therapeutic indication in such cases is absolute rest. Intravenous injections of dextrose and cardiazol are of value. Strophantus and digitalis are exhibited in the presence of decompensation. The prognosis is favorable, all the symptoms disappear in from two to six weeks, and the sinus rhythm and cardiac activity return to normal.

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Parathyroidectomy in Ankylosis of Vertebral Joint—Jasienksi agrees with Leriche that the removal of the parathyroids in ankylosis of the vertebral joints is beneficial and should not be delayed even to await a rise in the calcium of the blood. He operated on four patients with ankylosis, three men and one woman, ranging in age from 27 to 45 in whom the duration of the ankylosis averaged fourteen months. Roentgenograms disclosed acute involvement of the processes of the vertebral joints, narrowing of some of the joints and the presence of ridges on the surfaces of some of the vertebrae. General examination of the patients revealed no changes in the respiratory tract, the circulation and the abdominal cavity. After operation the patients showed almost instant subjective and clinical improvement, which has persisted. In operating the author endeavored to adhere strictly to the recommendations of Chisolm and Ameline. He believes that their method is best, since the collar incision of Rocher permits both sides of the thyroid to be seen and allows observation of the parathyroids if found necessary.

Klinicheskaya Meditsina, Moscow

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Raw Apples in Treatment of Chronic Colitis with Diarrhea L B Berlin B S Levin and P L Isaev—p. 793

Diseases of Liver—Barkhash emphasizes the intensive study of early forms of hepatic diseases with the view of preventing their passing into incurable types, such as cirrhosis or acute yellow atrophy. The early diagnosis of hepatic disease is made difficult by the absence of reliable functional tests. As a minimum of laboratory investigation in the study of hepatic function the author suggests (1) determination of galactose in the urine and of sugar tolerance after dextrose and levulose, (2) determination of the amino-acids in the blood and urine, (3) determination of bilirubin and cholesterol in the blood, (4) determination of biliary acids in the urine and of bile pigments in the urine and in the blood (5) roentgen study of the gastro-intestinal tract and cholecystography and (6)

esophagoscopy (for the detection of varices). A careful history is of the greatest importance. The early forms of hepatic disease are reversible and their timely recognition enables one to bring about the restoration of normal function. This is true not only of hepatitis without jaundice and with mild disturbance of hepatic function but of precirrhotic states with a profound disturbance of most of the liver functions as well. While isolated lesions of the liver or the bile tracts undoubtedly exist as such, more frequently the latter lead to the involvement of the liver, and vice versa. The author regards the so called hepatolienal syndrome as a precirrhotic state which not infrequently, passes into a typical cirrhosis of Laënnec, the patient for a long time preserving fair health and working capacity. The most important therapeutic measure in chronic hepatitis and in precirrhotic states is a liver-sparing diet, e. g. one rich in carbohydrates and limited as to albumins.

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Cardiac Pacemakers E I Turbina Shpuga and O P Chulkova—p. 860
Application of Physical Exercises to Cardiovascular Patients in Clinic V N Moshkov—p. 866

Pathogenesis of Angina Pectoris—Kudrin states that, of 500 instances of sclerosis of coronary arteries found by him on postmortem, only 50 offered a history of attacks of angina pectoris. These figures militate against the theory that coronary sclerosis is the direct cause of anginal attacks. On the other hand, the author points out that Neuberger found coronary sclerosis present in all of his thirty-three patients suffering from angina pectoris, Osler in thirteen out of seventeen (76.5 per cent), and Romberg in twenty out of twenty-eight (71 per cent). The author found in his postmortem studies frequent narrowing of the lumen of the coronary arteries and, at times, occlusion. Chronic aneurysm of the heart and an even greater incidence of sclerotic changes in the heart muscle, the result of thrombosis and infarction, were found. Cases which had a history of anginal attacks showed greater pathologic changes than those which did not have anginal symptoms. Narrowing of the lumen was found in 22 per cent of the cases presenting anginal attacks and in only 5 per cent of the remaining material. Coronary occlusion was found in 30 per cent of cases of stenocardia and in only 4.6 per cent of the remaining cases. Of all occlusions, 82.4 per cent involved the left coronary artery. Of these, 75 per cent were in the anterior descending branch. In six cases of thrombosis of the right coronary artery, myelomalacia was found four times in the left ventricle and not in the right. The author concludes that occlusion as well as narrowing of the coronary arteries bears a definite relation to angina pectoris. Sufficient evidence, however, does not exist to justify the belief of adherents of the coronary theory that the organic or functional narrowing or occlusion of coronary arteries is the direct cause of an attack of angina pectoris. That narrowing or occlusion of coronary arteries does not always cause attacks of angina pectoris is abundantly proved by postmortem studies. In the author's material, anginal symptoms were present in only eleven of thirty-four cases of coronary stenosis and in fifteen of thirty-six cases of coronary occlusion. A sudden ischemia the result of infarction of the heart muscle, does not always cause pain. The author cites a case in which the patient was dying within one and one-half hours after the onset of circulatory symptoms not accompanied by anginal pain. Postmortem showed that death was due to coronary thrombosis with infarction and myelomalacia. Thus the coronary theory fails to explain why in some cases changes in the coronary arteries give rise to a painful anginal status while in others they do not. The same objections may be advanced against the aortic theory maintained by the Wenckebach school. The author leans to the theory that spasm of the heart muscle rather than of the coronary artery, is the cause of the painful syndrome. In a special study of the heart muscle in fifty

cases of stenocardia and coronary sclerosis, he found degenerative parenchymatous changes, such as hyaline atrophy and fatty degeneration. A comparative study of the heart muscle of syphilitic patients who exhibited anginal attacks and of syphilitic patients who did not reveal a preponderance of myelomatosis in the former. Thus the well known role of syphilis as an etiologic factor in angina pectoris appears to be due to the pathologic process induced by it in the heart muscle. Irregularity in the sclerosing process of the coronary artery leads to irregularly distributed focal lesions in the myocardium. These may lead to focal functional disturbance of conductivity or irritability, to disturbance of coordination of the cardiac components and, thus, to local spasmodic contractions the cause of painful sensations. Fatty degeneration of the myocardium may be caused by other conditions than coronary sclerosis, namely, by syphilitic virus, by anemia and by infections. Since the work of Leriche and that of Pletnev and Khesin, the role of the autonomic nervous system has come to be recognized as another important factor in the pathogenesis of angina pectoris.

Hospitaltidende, Copenhagen

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- Diagnosis of Osteomalacia. Grave Case Cured by Vitamin D. P. Morville and P. Muller—p. 970
- Complete Congenital Atrioventricular Block in Boy Aged 9. I. Cjörup—p. 977
- Method for Measurement of Temperature in Short Wavelength Diathermy. K. Overgaard—p. 983
- Course of Bartonella Infection in Rats After Faded Anemia. G. Alsted—p. 984

Cutis Laxa—Reyn's cases were marked by changes in the collagenic connective tissue together with deficiency of subcutaneous tissue, and showed a tendency to hemorrhage in the skin and subcutaneous tissue. He says that dermatolysis probably depends on a malformation (mesodermal), in some cases originating on a hereditary basis, and appears mainly in men. Persons with this anomaly must seek occupations requiring little physical exertion and try to avoid all trauma.

76: 989 1016 (Oct. 5) 1933

- *Some Experiences with Pyelography. J. V. Jørgensen—p. 989
- Depressions Treated by a Liquid Preparation of Ergotamine Tartrate. Erna Christensen and P. Dickmeiss—p. 1007

Some Experiences with Pyelography—On the basis of about 200 cases of pyelography, Jørgensen concludes that the procedure should consistently be followed in all disorders of the urinary tract and the pyelograms made in the expiratory phase. The ureteral catheter should not be present in the part of the urinary tract undergoing examination. The diagnosis of obstacles depends on (1) the difficulty experienced in bringing the contrast material injected from below past the obstacle and (2) the establishment of retention above the obstacle. Obstacles in the ureter may cause deficient excretion of intravenously introduced contrast substances by the kidneys which shortly before gave abundant diuresis. Improvement of the passage may lead to considerable (life-saving) increase in diuresis. The author affirms that the normal pelvis of the kidney is emptied of the contrast substance dissolved in water, within ten minutes.

Norsk Magasin for Laegevidenskapen, Oslo

84: 1193 1304 (Nov.) 1933

- *Decerebration Rigidity and Gas Metabolism. Study on Nervous Factors in Regulation of Combustion. W. Hoffmann—p. 1193
- *Esophagobronchial Fistula with Cancer Infiltration in Heart. J. Hald—p. 1224
- Foreign Bodies in Digestive Tract. Large Number of Nails in Stomach Removed by Magnet. I. Moene—p. 1229
- Foreign Bodies in Digestive Tract. Brief Review and Case. E. Thoresen—p. 1241
- Pulmonary Abscess Treated with Pneumothorax. Case. B. Longva—p. 1245
- Chronic Purulent Inflammation in Meibomian Glands Caused by *Bacterium Mucosum Capsulatum*. Case. S. D. Henriksen—p. 1248

Decerebration Rigidity and Gas Metabolism—Hoffmann found that the spontaneous variations in oxygen consumption in decerebrated cats, under fixed conditions of body temperature position and duration of experiments, were within 6 per cent during one hour, with a tendency to continuous rise in some specimens. The carbon dioxide elimination under

the same conditions, varied within 10 per cent in one hour. The respiratory quotient showed a steady decline for hours. The oxygen consumption per kilogram of body weight in the individual specimens did not depend on the degree of hypertension. Extremely rigid specimens sometimes showed relatively low values, and vice versa. Section of the spinal nerves of the musculature of the extremities caused either no change or a slight increase in oxygen consumption.

Esophagobronchial Fistula with Cancer Infiltration in Heart—Hald's patient was a woman, aged 56, who had been operated on for cancer of the uterus in January, 1928, and presented clinical symptoms of the heart and lungs since March 1932. The roentgen diagnosis in September, 1932, was pleuritis on the left side and infiltration of the right lung, and the electrocardiogram showed paroxysmal auricular flutter. In February, 1933, the patient was admitted for treatment with the diagnosis of pulmonary abscess. Roentgen examination now revealed a clarification of two fingerbreadths upward from the hilus and esophageal stricture, with passage of the contrast gruel mainly into the left bronchus and the lung abscess. Witzel's fistula was made for feeding. Death occurred about a month later from heart failure. Necropsy showed the right lung to be large and edematous, the pleura on the left side was totally adherent and the left lung small, with a cavity of the size of an orange partly filled with pus, and total destruction of the surrounding lung tissue. The cavity extended to the hilus, where a broad opening connected with the left bronchus. In the esophageal constriction a large ulceration opened into the left bronchus just above the opening into the lung abscess. The wall of the lung abscess infiltrated the pericardium passing through it into the left auricle, the wall of which was a thick tumor infiltrate. A large papillomatous tumor partly filled the auricle and infiltrated the left pulmonary artery in the hilus. The author considers this a case of cancer metastasis, related to the uterine cancer, with cancer both in the lung and in the lymph nodes. As the left pulmonary artery was stopped only by small, dry thrombus masses the absence of a fatal hemorrhage is regarded as surprising.

Ugeskrift for Læger, Copenhagen

85: 1207 1234 (Nov. 9) 1933

- *Facial Hemiatrophy—Vitiligo—Myxedema. K. Faber—p. 1207
- Bernardino Ramazzini. Father of Occupational Hygiene. On Occasion of 300th Anniversary of Birth. K. Roholm—p. 1211
- Empyema Trocar. O. K. Svaningsen—p. 1216

Facial Hemiatrophy—Vitiligo—Myxedema—These three disorders developed one after another in a woman, now aged 55, having tardy congenital syphilis presumably cured. Faber sees a close connection between the facial hemiatrophy, which appeared in childhood, and the universal pigmentation anomaly with pigmentation of the face, which set in during the third decade of her life, and ascribes to both a central origin with the starting point in the centers of the sympathetic or autonomic nervous system. The myxedema, which appeared more than twenty years after the vitiligo, seems to him, in view of the close relation between the autonomic nervous system and the endocrine glands, probably not an accidental coincidence but dependent on a deeper, common cause. The hereditary syphilis is thought to have affected the trophic centers as a weakening, predisposing factor, the definite cause of the three disorders being the pronounced psychic disturbances which have influenced the patient throughout her life.

85: 1235 1256 (Nov. 16) 1933

- *Remarks on Preliminary Test in Choice of Donor for Transfusion. O. Thomsen—p. 1235
- Modification of Extension Treatment in Fractures in Fingers and Metacarpus (Toes and Metatarsus). A. K. Christoffersen—p. 1239
- Some Auto-Observations During Thrombophlebitis. E. Dujardin—p. 1240

Choice of Donor for Transfusion—In the choice of suitable donors for transfusion, Thomsen proposes to institute a preliminary test primarily based on the direct determination of whether the transferred blood will be hemolyzed or not, which, as he says, the most important determination for the course of the transfusion. The question whether so-called universal donors (type O) are more or less suited will also be answered by the outcome of the test.

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EARLY DIAGNOSIS AND TREATMENT OF CONGENITAL DISLOCATION OF THE HIP

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CINCINNATI

The early diagnosis of congenital dislocation of the hip is not difficult, even in the hands of physicians inexperienced in orthopedic surgery. It is true that in the normally adipose child it is rather difficult to palpate the femoral head whether it is dislocated or not. On the other hand, there are several signs that should suggest some abnormality about the hip joint and warrant a roentgen examination. After a roentgen examination has been made there should be no question whatever concerning the diagnosis.

In discussing the early diagnosis of dislocation of the hip, the etiologic factors must be considered first. Of the many hypothetic explanations as to why a hip should be dislocated at the time of birth, none seem entirely satisfactory. Excluding the factor of trauma, because of the frequent existence of the deformity in children born of multiparas following normal delivery, an anatomic explanation must be found. There are three anatomic abnormalities existing in varying degrees in all congenital dislocations of the hip: unusual obliquity of the acetabular roof, annular constriction in the abnormally elongated capsule, and anteversion or antetorsion of the femoral neck. The anatomic variations of the superior femoral epiphysis from a roentgen point of view will be discussed later. Of great significance, however, is the constant observation of the fact that the femur itself, though the head is dislocated, is the same length as the corresponding normal femur in a unilateral dislocation. In the infant under 6 months of age, with relatively few exceptions, there has been no occurrence of muscular contractures or compensatory shrinkage of the skin in the leg with the femoral dislocation.

In considering the early diagnosis of congenital dislocation of the hip, the obvious, visible abnormalities play the most important roles. Asymmetrical skin folds in the thigh, though stressed for over twenty-five years in this country,¹ are most frequently overlooked (fig. 1). If the creases on the mesial aspect of the thigh are deeper on one side than on the other, some explanation must be sought. Realizing that at birth and during early infancy there has been no compensation for the

shortening of the distance from the pelvis to the knee, which exists if the hip is dislocated, the soft tissues, skin and muscles, must fold or crease. After the child is 2 years of age, these soft tissue folds are less prominent because the skin and muscles compensate by shortening. In bilateral dislocations of the hip, no asymmetry of skin folds is seen, but abnormally deep folds on both sides may be noted.

Second in importance in the early diagnostic signs is eversion or external rotation of the affected leg. If this external rotation of the leg is noted and abduction is attempted passively, it will be found that this motion is markedly limited. A normal child's leg will abduct passively from 70 to 80 degrees. If abduction is limited to 40 or 50 degrees, some explanation should be sought.

Most deceptive of the early signs of dislocation is shortening of the affected leg. The actual shortening may be so slight that measurement with a tapeline is inconclusive. If, on the other hand, the knees are flexed, and the hips are flexed so that the feet rest evenly on a firm examining table, an inequality in length of the legs becomes apparent. In this position, if one leg is shorter than the other, there will be a definite variation in the level of the knees (fig. 2).

After the preceding signs have been noted, a careful palpation of the hip joint area will elicit further abnormalities. The trochanter on the affected side will feel more prominent laterally, and it will be nearer to the anterior superior spine of the ilium than on the corresponding normal side. If the child is adipose, it may be impossible to palpate the femoral head, but when the leg is rotated the absence of the femoral head beneath the femoral artery in the groin may be noted.

The presence of one or all of these abnormalities of the hip joint and leg should suggest a roentgen examination. In small infants the superior femoral epiphysis may not appear on the roentgenogram, but the break in the normally symmetrical obturator-cavo-femoral line is readily seen (fig. 3). In this country it has become a rule in many of the larger hospitals to have roentgenograms made of all new-born infants to determine the presence of a persisting thymus. In one such hospital all roentgenograms are now taken so that the pelvis and hip joints may be included as well as the thorax. This method of early diagnosis is infallible although it may not be feasible in all instances.

The anatomic variations found in congenital dislocations of the hip are quite constant in character. Whether these variations from the normal are the cause of the dislocations, or the result is a moot question. Suffice it to say, the older the child, the more pronounced do the variations become. Up to 6 months of age, and sometimes until the walking period, the dislocated femoral head lies lateral to the acetabulum and level with the superior margin of the acetabulum. The anatomic variations that are found during this age

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¹ Freiberg, A. H. The Diagnosis and Treatment of Congenital Displacement of the Hip in Infancy. *Am. Med.* 7: 394-396 (March 5) 1904.

period are confined to the hip joint proper. The acetabular roof, or that portion of the acetabular cavity formed by the ilium is abnormally oblique as compared with the normal hip joint in a unilateral case. As the superior femoral epiphysis does not develop a center of ossification until the child is approximately 5 months of age, a roentgen examination does not elicit abnormalities until this age period.

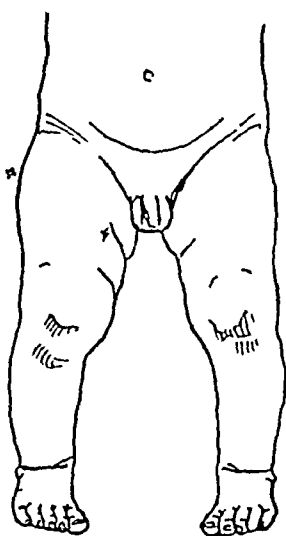


Fig. 1—Congenital dislocation of right hip before reduction. Slight prominence of right greater trochanter is noted as compared with left. Two deep creases shown on mesial aspect of right thigh and only one crease on left and a slight apparent shortening of right leg. For comparison of legs external rotation of right leg has been corrected.

As the center of ossification of the superior femoral epiphysis develops, in a unilateral dislocation a marked discrepancy in size may be noted by roentgen examination. On the side of the dislocation not only is the ossification center delayed in appearance but also it remains smaller and more irregular in outline. A third important anatomic variation is an inconstant degree of anteversion or anteversion of the femoral neck. Again until the infant is approximately 6 months of age this deformity does not become marked. After weight bearing has begun, however, there is a rapid increase in the anteversion deformity.

Julius Wolff² propounded the theory, accepted almost universally, that bone develops depending on the functional stresses placed on

it. Is a further explanation required for the developmental anomalies seen in congenital dislocations of the hip? In a congenital dislocation of the hip there is an absence of the normal functional stimulation of the acetabulum and the femoral head, and a delayed or pathologic development ensues. On this basis, the earlier the dislocation is reduced, the less severe will the secondary bony abnormalities have become, and the more perfect will be the end-result.

A careful search of the literature, which has become quite voluminous on this subject, will reveal only two reasons why early reductions have not been advocated until recent years. The foremost obstacle to early reduction has been the frequent soiling of the post-operative cast by children who have not yet become cleanly in their habits. The danger of anesthesia in the young infant, and the frequency of fevers and diarrheas of infancy, formidable dangers, to be sure, three decades ago, are no longer important items. It will be found, however, that these were the reasons offered for postponing reductions of congenital dislocations of the hip until the child was 2 years of age.

Up to 6 months of age, the normal infant is essentially a sedentary individual with less acute reactions to its surroundings than the older child. For this reason a method of reduction of congenital hip luxations that requires continual recumbency is not contraindicated. To accomplish a reduction at this age, the femoral head lying lateral to the superior margin of the acetabulum must be brought downward and inward, and rotated. As the femoral head has not been forced upward by

weight bearing, abduction will suffice to bring it downward. By application of plaster casts to the extended legs fastened together by ordinary turnbuckles from a hardware store, all the necessary forces to accomplish reduction may be readily applied (fig. 4).

While the turnbuckles are being incorporated, both legs are held in external rotation. This rotation is then maintained automatically by the two rigid turnbuckles. As gradual abduction is begun, the femoral heads may be forced outward by opening of the upper turnbuckle. When the femoral head has cleared the superior margin of the acetabulum by continued opening of the lower turnbuckle, accompanied by a closing of the upper turnbuckle, as the legs are widely abducted the head is gently forced medially into the acetabulum. In order that the circulation in the legs may be watched closely at all times a narrow wedge of plaster is removed from the entire lateral aspect of the casts. Undue pressure on the soft tissues is easily recognized by a slight blanching of the exposed skin areas. At no time should sufficient force be required to cause the child to be fretful or sleepless. Because the casts need only extend to the midthigh area, the cleanliness of the child may be cared for in the usual manner. If it is desirable to maintain slight traction on the legs during the period of reduction this may be done by placing the child on a slight incline with the head lowered and the lower turnbuckle tied to the foot of the crib. When wide abduction of the legs has been obtained, the upper turnbuckle may be replaced by a cord, so that a simple

Spanish windlass³ to exert constant mesial traction may be used. Once reduction has been accomplished by this method, as proved by roentgen examination it can be maintained simply by leaving the apparatus in place for from two to three months.

Several factors that do not exist in the younger infant must be considered in the treatment of congenital hip luxations in children who have reached the age of 6 months. With occasional exceptions, anteversion or anteversion of the femoral neck has become pronounced when the child has reached the age of 6 months. This is true even though the child has not attempted weight bearing. A normally active child, when awake, is in almost constant motion kicking the legs and waving the arms. If the femoral head lies above and posterior to the acetabulum, the functional bone stimulation caused by motion produces or increases an existing cervical ante-

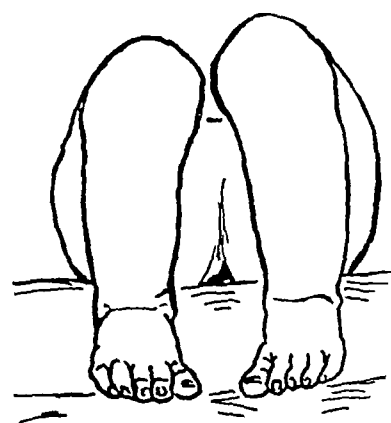


Fig. 2—Congenital dislocation of right hip. Child is lying on a firm table with knees and hips flexed and with feet together. In this position shortening of leg on side of dislocated hip is readily noted by difference in knee level.

torsion. Likewise, as compensatory shortening of the soft tissues about the hip joint and thigh are well advanced at 6 months of age more vigorous force is required to abduct the legs sufficiently to accomplish reduction. The secondary developmental abnormalities associated with congenital hip dislocations progress rapidly through the second six months of life.

² Wolff Julius. Das Gesetz der Transformation der Knochen. Berlin August Hirschwald 1892.

Until the child is approximately 18 months of age, manipulative reduction of congenital hip luxations is a relatively simple procedure and not associated with severe trauma when correctly carried out according to the method of Paci. For this reason I feel that in children more than 6 months of age manipulative closed reduction under anesthesia should be done. Great force

the bed pan is held firmly in place. The child may then be moved from bed to go-cart, or if desired he may be taken in an automobile. The exposed areas of the cast in the region of the perineum are covered with oiled muslin and require very little attention.

At the end of two months when the first cast is removed and the leg or legs are brought down from complete abduction to 45 degrees of abduction and are internally rotated the "bracket" may be reapplied, as it holds the cast sufficiently high from the bed to prevent pressure on the feet, which are now directed posteriorly.

Open reduction of congenital luxation of the hip is indicated in the very small percentage of cases that cannot be handled satisfactorily by the closed method. Two large series of end-results reported from the continent, including some 5,000 dislocations,³ show that closed reduction is successful in approximately 90 per cent of the cases. It is shown in these reports, furthermore, that the trauma associated with the closed methods of reduction is not an important factor. Lange³ is unable to find evidence that some of the less satisfactory results, even in the older children, may be attributed to the trauma associated with bloodless reduction. Both Putti and Lange found that the reductions done in children up to 3 years of age gave the most satisfactory results.

In the past, the late changes, following reduction, seen in the superior femoral epiphyses have been attributed to the trauma associated with the closed or so-called bloodless reductions. These late changes after reduction, frequently simulating *coxa plana*, or Legg's disease, were found by Lange in equal numbers after the employment of the open and closed methods. Deformities of the femoral head, likewise, have been found in a greater number of congenital luxations of the hip in which reduction has not been attempted. Lange³ also reports three instances in which *coxa plana* has developed in the normal hip joint of children hav-

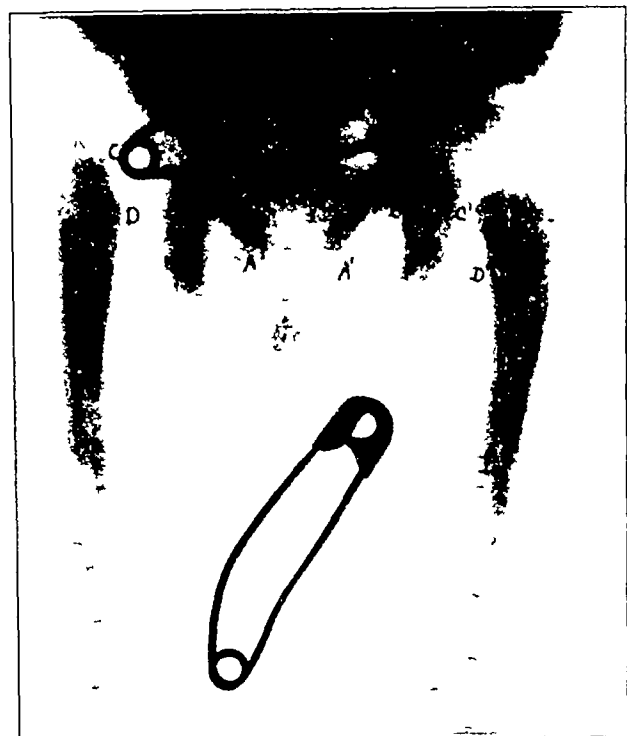


Fig 3—Congenital dislocation of right hip in a child 10 weeks old. Superior femoral epiphyses have not developed centers of ossification. Lateral and upward displacement of the right hip is easily seen if the obturator-covofemoral lines are compared. A, B, C, D on left side form four points in a symmetrical curve. A', B', C', D' on right side show dissolution of normally symmetrical obturator covofemoral line. External rotation of right femur may be noted also.

is never required in the young child. If gentle pressure does not result in reduction, either the procedure is not being carried out correctly or the case is one of a very few with an unusually firm, small and wide capsular constriction. In a series of cases I have not encountered such a case. In fact, open reduction has been necessary in only one case out of twenty in children under 6 years of age. This was a bilateral congenital dislocation of the hip in which manipulative reduction was successful on one side.

Once the reduction has been satisfactorily carried out and the postoperative cast has been applied, some method is required to prevent soiling of the cast in the young child not yet cleanly in its habits. Free drainage must be allowed. This may be done by placing the child on a Bradford frame, but this necessitates constant recumbency and confinement. Figure 5 illustrates a simple appliance that has been most useful in preventing soiling of the cast. The areas that come in contact with the cast are covered with leather. It is not necessary to fit the "bracket" in each individual case, as a slight discrepancy in size may be accommodated for by loosening or tightening of the leather straps. With the "bracket" applied tightly to the cast, two average sized pillows are placed beneath the head and shoulders of the child. A small bed pan is inserted beneath the buttocks, and the "bracket" is so bent originally that



Fig 4—Ten weeks old child with congenital dislocation of right hip. Two turnbuckles are shown incorporated in plaster casts extending from midthigh area and including feet. Equinovarus deformity of the right foot and calcaneovalgus deformity of the left foot have not yet been treated. Dislocation of the right hip is being reduced by gradual abduction of the legs. This is a case of arthrogryposis.

ing reduced congenital luxations in the other hip. These cases, though few in number, offer further proof that the manipulative reduction in itself is not necessarily the cause of the development of the *coxa plana*.

3 Lange, Max. The End Results of Bloodless Therapy of Congenital Dislocation of the Hip. *Verhandl. d. deutsch. orthop. Gesellsch.* 52: 119, 1929. Putti, V. Congenital Dislocation of the Hip. *Surg., Gynec. & Obst.* 42: 449-452 (April) 1926.

Ludloff⁴ in 1902 stated that the superior femoral epiphysis in a luxated hip prior to reduction was always smaller than in the corresponding hip. This accords with the experience of every one nowadays.

SUMMARY

1 The diagnosis of congenital dislocation of the hip may be made during infancy, before the age of 6 months, by simple methods of observation and examination.

2 Up to the age of 6 months, reduction of congenital dislocation of the hip may be accomplished by gradual abduction of the legs by one of several methods.

3 The original manipulative reduction of Paci is still the most satisfactory method in infants more than 6 months of age.

4 Soiling of the postoperative cast may be prevented, thereby eliminating the principal reason that has been brought forward for deferring reduction until the child is 2 years of age.

5 In infancy, reduction of congenital dislocation of the hip is easily accomplished by closed or manipulative methods. Open reduction is indicated in a very small percentage of cases when closed reduction is unsuccessful.

707 Race Street

ABSTRACT OF DISCUSSION

DR JOHN L. PORTER, EVANSTON, ILL. I believe that the earlier the hip is reduced the less is the danger of distortion and atrophy of the head of the femur. About twelve years ago I operated on a girl, aged 12 years, with a single congenital dislocation. I put her to bed for a month with traction on the leg in order to secure as much lengthening and loosening of the muscles as possible. Dr Lewin and Dr Edwin Ryerson were beside the table when the reduction was performed and we all distinctly heard and saw the head go into the acetabulum. Later I regretted that I had attempted to reduce that hip because the head of the femur was so atrophied and became so badly distorted by subsequent pressure that the patient practically

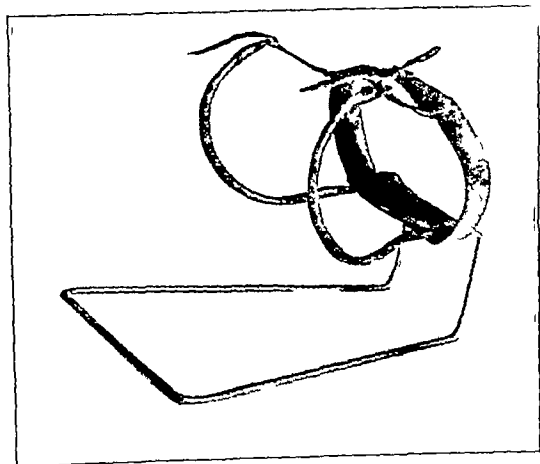


Fig. 5—An apparatus that may be attached to the plaster cast of a reduced congenital dislocation of the hip. The bracket is constructed of one fourth inch round steel and the areas coming in contact with the plaster cast are covered with leather.

lost most of the motion in the hip. Today I would have turned down a shelf over the head of that femur. I would not even attempt to reduce by open operation a dislocated femoral head in a patient 12 years old. About that time Harry Sherman of San Francisco called attention to the fact that the older

the child and the longer he walks without the head in the acetabulum the greater becomes the atrophy and distortion of the head of femur. The early diagnosis of congenital dislocation of the hip should not be difficult, even in children who have never walked. Dr Freiberg has called attention to the asymmetry of the femoral creases. In my estimation the asymmetry of the gluteal creases is much more distinct and more



Fig. 6—The bracket is so constructed that a small bed pan will fit firmly into it and so that it will rest stably on a level surface. This prevents soiling of the cast by children who are still untrained. The shoulders of the child are supported on ordinary pillows. With this apparatus the child may be taken out either in a buggy or in an automobile.

easily noted even with a child who has never walked. The crux of the whole situation, as regards congenital dislocation of the hip, lies in the education of the pediatrician, the obstetrician and the family physician who happen to have supervision of children during their early months to learn to suspect and take notice of dislocations. In 1929 when Putti first published his article on early reduction of congenital dislocations of the hip, by the same method exactly that Dr Freiberg has discussed, except as to technique, I was impressed with the difficulty of the technique in Dr Putti's method. He abducted the legs with a triangular mattress and then for the triangular mattress substituted a splint which came clear up to the perineum and it was spread apart by an angle. That required continual attention and readjustment of the splint or mattress every time the child's toilet had to be attended to, and it required the constant and everlasting and intelligent supervision of the mother or nurse. I was much impressed with the simplicity of Dr Freiberg's technique with the plaster cast, which comes up only to the middle or upper part of the thigh and does not interfere with the toilet of the child. One turnbuckle can be used to abduct the lower end of the leg and the other one to adduct the other end. The child can be turned over on the stomach. It seems to me to be a very ingenious advance and of great encouragement to undertake reduction at the earliest possible moment.

DR RALPH K. GHORMLEY, Rochester, Minn. My impression is the same as Dr Porter's, that early diagnosis of these cases is becoming more and more important. Certainly nowadays the case seen at the age of 3 or 4 years is considered a very late case, whereas a few years ago it was considered a fairly good average time for reduction. I want to compliment Dr Freiberg on his excellent presentation of what appears to be a simple, adaptable and accurate method.

DR W. P. BLOUNT, Milwaukee. I want to emphasize one point that Dr Freiberg mentioned. It is perhaps the only important thing that has been learned about congenital dislocation of the hip since 1900 when Lorenz summarized the literature in a monograph. It is that the hips have to be reduced early. I have just gone over all the cases of old con-

⁴ Ludloff, Pathogenesis and Therapy of Congenital Dislocation of the Hip. Jena, Gustav Fischer, 1902.

genitally dislocated hips that I have had. I got some of them back as late as eighteen or twenty years after reduction. In reviewing the methods of treatment, nothing seemed to make much difference except the question of how early they were reduced. Considerable mauling of the hip in the early days did not prevent excellent results in a few cases. In others the hips were worse than if nothing had been done in spite of gentle handling. There certainly is a factor that is not understood. I should like to elaborate another point, the matter of roentgen diagnosis. Dr. Freiberg says it is infallible. I would say it is infallible as to the condition of the hip at the time the roentgenogram is taken. It is not infallible in disclosing what has taken place or what will take place.

DR. JOSEPH A. FREIBERG, Cincinnati: I learned yesterday of the death of Dr. Morrison, roentgenologist, in Boston who in November published an article in which he discussed the epiphyses about the hip joint. He emphasized, as he had in a previous paper in 1929, the importance of the superior acetabular epiphysis. This is a small epiphysis which is not apparent on the x-ray film in children under 12 years of age. It is this epiphysis which forms a small projection laterally of the acetabulum, and it is the absence of this epiphysis, in Dr. Morrison's opinion, which causes some dislocations of the hip joint. I don't think that explanation will hold for all cases, but certainly I think it explains certain cases of subluxation which later are apparent as spontaneous reductions of dislocations of the hip. I didn't mention Dr. Putti's splint for early reduction because of lack of time. I devised the cast method to take care of the children when they were sent home. Dr. Blount made one statement which I should like to change slightly. He stated that a great deal hasn't been learned about dislocated hips since Dr. Lorenz's first paper. I should like to add that Dr. Pacis' paper preceded Dr. Lorenz's paper by several years and that he was never given due credit for the manipulative reduction and for his excellent work on dislocated hips.

TREATMENT OF DISEASE OF THE UPPER PART OF THE DIGESTIVE TRACT

PREOPERATIVE AND POSTOPERATIVE

JAMES F. WEIR, M.D.

AND

WALTMAN WALTERS, M.D.

ROCHFESTER, MINN.

The principal lesions of the upper part of the digestive tract for which preoperative and postoperative treatment have been found advantageous are carcinoma of the stomach, benign ulcers of the stomach and duodenum, and obstructions of the biliary tract. The complications associated with the lesions in the stomach and duodenum are penetration or perforation, hemorrhage producing anemia, obstruction leading to starvation, dehydration, hypochloremia, alkalosis and toxemia. Jaundice is a predominant complication of obstruction of the biliary tract, with it are associated varying degrees of hepatic and renal insufficiency, and often hemorrhagic tendencies are present. We shall present here measures which we have found of value in the preoperative and postoperative care of complications that arise in such cases.

PREOPERATIVE TREATMENT OF LESIONS OF THE STOMACH AND DUODENUM

Penetrating Lesions—Patients with penetrating lesions due to ulcer become exhausted from pain, lack of sleep and decreasing intake of food and fluids, these

also lead to loss of weight and dehydration. A similar decline in health occurs more commonly and is more prominent in malignant disease when impairment of appetite and decreasing capacity of the stomach decrease the intake of food and fluid. In many of these cases a few days' rest, plenty of sleep, relief of pain by an approved dietary regimen for ulcer, alkalis, sedatives or occasional laxage will restore waning recuperative power. Filling up the reservoirs of the tissues with fluids, orally, rectally, and occasionally intravenously or subcutaneously, is of decided advantage. If carbohydrate is added either in the diet or as dextrose in the solutions given rectally or intravenously, an adequate store of glycogen in the liver and muscles is assured. Occasionally a large inflammatory lesion, at times palpable, is present. In such case rigid medical care for from ten to fourteen days may cause absorption of the inflammatory products and change the lesion from nonresectable to resectable.

Hemorrhagic Lesions—Anemia, secondary to gross or microscopic hemorrhage, often accompanies these lesions, and the advisability of transfusion must be considered in each case. Opinions differ as to when transfusion should be done if bleeding is acute and severe. Some physicians are guided by the level of hemoglobin content of the blood, others by the falling blood pressure. Some transfuse during active bleeding, whereas others prefer to wait until gross bleeding has ceased. Treatment in each case must be individual. Our practice favors the conservative plan, that is to defer transfusion if possible until after active bleeding has ceased. Then, if the anemia is sufficiently marked, transfusion can be given without much danger of starting bleeding again. If the bleeding is chronic one or two transfusions are given when the concentration of hemoglobin is less than from 30 to 40 per cent. In cases of carcinoma in which anemia is moderately severe, surgical intervention seems to be fairly well tolerated. Furthermore, transfusion frequently does not raise the value for hemoglobin enough to warrant the procedure except in the more severe cases or in those in which the chances of resection of the lesion seem good. Certain authorities state that, if transfusion is being contemplated, it should be done at once. However, in all these cases the blood grouping should be determined so that transfusion can be carried out either immediately or remotely after operation, as seems advisable.

Obstruction—Alleviation of gastric retention with its various manifestations is the chief concern in these cases. Once initiated, this retention tends to persist in the untreated cases. Obstruction leads to vomiting, with a loss of fluids and electrolytes. The chief changes are hypochloremia, alkalosis, dehydration, and increased nonprotein nitrogen in the blood and urine. This condition may progress and lead to tetany, renal insufficiency and death. The loss of electrolytes from the blood and tissues can be accounted for by the loss in emesis and urination. Some authorities believe that these changes account for the symptoms and explain death in cases of obstruction high in the intestine. Similar changes occur if fistulas are present. It has also been shown that administration of solutions of sodium chloride in adequate amounts prevents or controls these changes, but other solutions have little effect. McVicar and Weir¹ have pointed out that the condi-

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¹ McVicar, C. S. and Weir, J. F. Nature and Treatment of the Toxemia of Intestinal Obstruction and Ileus. J. A. M. A. 92: 887-892 (March 16) 1929.

tion cannot be ascribed to the chemical changes in the blood and that it is dependent on some third factor or series of factors which appears at present to be a primary motor inhibition or ileus.

From the clinical standpoint these changes are noted most commonly in cases of pyloric obstruction, either benign or malignant and either before or after operation. The severity of the changes seems proportional to the degree and duration of the obstruction. The patients seem to tolerate even the higher grade of obstruction fairly satisfactorily for varying lengths of time. Subsequently chemical changes in the blood and toxic symptoms may develop. With the onset of this disturbance, definite hypersecretion appears in the stomach. These changes may occur when the patient is undergoing preoperative treatment, especially if the obstruction is marked. With adequate treatment the chemical disturbances in the blood are corrected and the relation of gastric output to intake is reversed without demonstrable changes in the degree of pyloric obstruction.

Clinically, pyloric obstruction presents varying degrees of loss of strength and weight and dehydration. Although there is no hope or necessity of restoring the patient's weight before operation, an adequate reserve of glycogen protects the body in such a crisis. This is partially accomplished by giving 200 cc of concentrated liquid or semisolid carbohydrate food every two hours. This food is not mechanically or chemically irritating to the stomach. The small amounts do not distend the stomach and retained residue returns readily through the stomach tube.

Dehydration is combated as a routine measure by administration of fluids orally and by proctoclysis, and if necessary intravenously or subcutaneously. The output of urine is carefully watched. This should amount to from 1,000 to 1,500 cc daily and usually requires an intake of fluids of from 2,000 to 3,000 cc daily. If obstruction is marked, dehydration is severe and the fluid intake otherwise is inadequate, we do not hesitate to resort to intravenous administration of 10 per cent dextrose and 1 per cent sodium chloride solution, given from one to three times daily.

Gastric lavage is carried out from one to three times daily, depending on the degree of retention. This not only relieves distress but removes accumulations of food and barium, lessens irritation of the mucosa and aids healing of inflammatory reactions. Tension of the gastric musculature is relieved and its tonus is regained. The patient becomes accustomed to the use of the stomach tube, so that it can be tolerated with less discomfort if lavage is necessary postoperatively. Finally, the stomach is lavaged immediately before operation to lessen the danger of aspiration of regurgitated material into the lungs during anesthesia and the liability of soiling the abdomen during operation.

The blood is examined as a routine to determine the content of chlorides and urea and the carbon dioxide combining power for diagnostic reasons and also as an index of the results of treatment. The frequency of such determinations depends on the presence of any alterations in and the degree of obstruction. If there is evidence of retention of urea, hypochloremia or alkalosis solutions of dextrose and sodium chloride are given promptly in 1 liter doses, two, three or even four times in twenty-four hours depending on the degree of change found in the blood. Such changes can be controlled by adequate treatment, thus restoring the patient to a favorable condition for operation.

Icterus, although rarely seen in such cases, is indicative of severe disturbance of the acid-base mechanism. It is almost always associated with severe alkalosis. The painful spasms can usually be relieved by the administration of 5 cc of 10 per cent solution of calcium chloride with or without sedatives. Treatment should however, be directed at the underlying ileus and changes in the blood, following which relief will be prompt.

As a rule from two to four days of preoperative preparation is sufficient. If the obstruction is severe and the dehydration marked, the time of preparation may be prolonged slightly. However, the obstruction is the fundamental fault and it should be relieved as soon as operation can be done safely. During the preparation the patient should not be kept constantly in bed but should be urged to be up and to move about as much as possible. Muscular and circulatory tonus, pulmonary ventilation and the patient's morale are improved.

POSTOPERATIVE TREATMENT OF LESIONS OF THE STOMACH AND DUODENUM

If toxemia is manifested before operation, close observation should be maintained for signs of its recurrence afterward. It seldom recurs however, and treatment usually readily controls it. The intake and output of fluid should be observed carefully, this is important in any operation but especially in gastric operations. Decreasing urinary output may be the first sign of developing ileus. Lavage is not practiced as a routine but is done if any symptoms develop that suggest possible retention then it is carried out two or three times daily or until the condition is relieved.

Retention after gastro-enterostomy sometimes occurs, usually from the seventh to the fourteenth day after operation. By early recognition and improved methods of treatment, the condition is usually relieved promptly. Treatment consists of lavage and intravenous administration of dextrose and saline solutions and the withholding of food and fluids by mouth. If retention persists in spite of treatment, the abdomen may have to be reopened. A secondary operation such as enteroanastomosis, liberation of adhesions, jejunostomy, or even disconnection of the gastro-enterostomy may be necessary.

The necessity for treatment of the average patient with ulcer recovering from operation is not great. However, regulation of the mode of living and eating, correction of certain habits, and eradication of focal infection seems warranted in many cases. The stomach, handicapped by disease and the temporary trauma of operation should not be insulted by indiscreet eating. We endeavor to avoid engendering functional disturbances in susceptible cases by individual care, and we follow definite indications for any restrictions of diet. Patients who have had mild or vague symptoms of ulcer, whose acidity is normal or subnormal, and who have a tendency to bleed, should in particular have food removed. The young, careless patient or the high-tensioned, nervous man may require constant supervision. In some cases a regimen suitable for the mild ambulatory type of ulcer, with two or three doses of alkalis daily, seems indicated. Although there is no proof that recurrent ulcers have been prevented by such treatment, many observers believe that medical treatment should be rigidly followed subsequent to operation.

PRIOPERATIVE AND POSTOPERATIVE TREATMENT
OF LESIONS OF THE BILIARY TRACT

Jaundice—This is the chief complication of diseases of the biliary tract, liver and pancreas that increases the risk of operative procedures and requires preoperative care. It adds to the seriousness of the condition because of the tendency to hemorrhage and hepatic and renal insufficiency. For several years it has been our custom to hospitalize all jaundiced patients for several days before operation. During this period an effort is made to arrive at an accurate and complete diagnosis of the cause of the jaundice, evaluate the presence or possibilities of complications, prevent or alleviate them, and select the most satisfactory time for operation.

Hemorrhage—The cause of the hemorrhagic tendency in these cases is unknown. It may be latent and detectable only by laboratory tests. In other cases numerous manifestations of bleeding may be noted, and no definite changes may be demonstrable by the usual tests of coagulability of the blood. In an occasional case, thrombocytopenia occurs. There is much evidence to show that this hemorrhagic tendency is an indication of hepatic insufficiency. In the majority of cases the hemorrhagic tendency can be adequately controlled by the administration of calcium salts, solutions of dextrose, and especially by transfusions. It is our practice to give 0.5 Gm. of calcium chloride intravenously daily for three days and to give one or two transfusions to all patients before operation. Occasionally intramuscular injections of whole blood or irradiation of the spleen have been of value. Coagulation tests of the blood are repeated frequently during this treatment. If further development of purpura or prolongation of the coagulation occurs after this treatment, we defer operation. This bleeding phenomenon may occur in cycles, with some tendency to spontaneous remissions. Treatment is continued and operation is undertaken when all factors seem propitious.

Hepatic Insufficiency—This is perhaps the most serious complication in cases of jaundice. Many factors enter into its production, including duration and degree of obstruction, individual tolerance of the patient to jaundice, degree of cholangitis, hepatitis, and biliary cirrhosis. Preoperatively, indications of significant injury to hepatic cells and potential hepatic insufficiency are obtained chiefly from frequent determinations of the serum bilirubin. High levels, fluctuations without change in the degree of obstruction, and the tendency to increase are indicative of injury to hepatic cells. Postoperatively, a slow decline or a rise in the serum content of bilirubin indicates serious or progressive injury to the hepatic parenchyma or failure of its function. Walters and Parham² have pointed out that, if the drainage of bile is pale and thin and its volume has increased, the import is serious and indicates failing hepatic function. We also occasionally encounter severe acidosis, diagnosed chiefly by examinations of the blood. Determinations of bilirubin, urea and carbon dioxide combining power of the blood should be made in all cases in which progress is not satisfactory.

In all these conditions, preoperatively and postoperatively, a high intake of carbohydrates and fluids is the chief recommendation. A high intake of carbohydrates may be accomplished by the use of Karo syrup, honey, candy and the like. In addition, solutions of dextrose are given intravenously freely in doses of 1 liter once

or twice daily. At times this may be increased to 20 per cent strength, 500 cc being given at one dose. There is abundant evidence of the value of this from both the experimental and the clinical standpoint. Our experience strongly confirms the value of such procedures. The patient's preoperative condition is improved, surgical procedures are better tolerated, convalescence is less stormy, and symptoms suggesting beginning hepatic insufficiency can frequently be controlled. Acidosis is combated by sodium bicarbonate, given intravenously if necessary. Sodium chloride and dextrose also are given intravenously. Usually, when the drain is removed from the common bile duct and the fistula closes, marked improvement occurs. During the last two years we have also been giving solutions of sodium lactate in racemic form to some patients with evidence of more severe forms of hepatic injury. This is given on more or less empirical grounds, but occasionally startling results have been obtained.

Renal Insufficiency—This occurs most commonly in cases in which there is evidence of severe hepatic degeneration and is often indicated by abnormal urinary manifestations and a rise of concentration of urea in the blood. Following operation there is often a decreasing flow of bile from the common bile duct and the degree of jaundice may increase. There are progressive signs of uremia. Therapeutically, the chief indication is the use of diuretics. Dextrose in solutions of from 10 to 20 per cent, with or without sodium chloride (1 per cent), fulfils these requirements best.

Biliary Fistula—The organism as a rule tolerates loss of bile satisfactorily even for prolonged periods. Prolonged loss of bile occasionally leads to serious trouble.³ However, not infrequently patients complain of anorexia during the period of drainage of bile externally. This usually disappears when the fistula is allowed to close. Administration of the patient's own bile by duodenal tube may give considerable relief.

In cases of prolonged loss of bile, as in stricture, evidence of hepatic injury may be found by tests of bromsulphalein excretion. Whether this disturbance is due to the loss of bile or to the cholangitis so commonly associated in such cases is uncertain. However, it is known that patients do not tolerate surgical procedures well because of the hepatic disturbance and the often associated hemorrhagic tendency. Adequate preoperative and postoperative care, however, has decreased the risk in these cases materially.

SUMMARY AND CONCLUSIONS

1 Preoperative and postoperative treatment is definitely indicated in the complicated diseases of the upper part of the digestive tract and has markedly lowered the operative mortality and the postoperative morbidity.

2 In the gastroduodenal cases such treatment is important, especially in cases of anemia and obstruction.

3 Obstruction is the most common complication in such cases and requires attention to the stomach locally and to the systemic effects of starvation, dehydration and toxemia. Intravenous saline and dextrose solutions constitute the chief therapeutic weapons.

4 Immediately after operation continued careful observation is necessary in cases of obstruction, with resumption of intravenous medication if any untoward symptoms occur.

² Walters, Waltman and Parham, Duncan. Renal and Hepatic Insufficiency in Obstructive Jaundice. Surg. Gynec. & Obst. 35: 605 (Nov.) 1922.

³ Wangenstein, O. H. Complete External Biliary Fistula. A Potential Serious Postoperative Complication. J. A. M. A. 93: 1199 (Oct. 19) 1929.

5 In an occasional case in which gastro-enterostomy otherwise is successful, symptoms of retention develop about seven to fourteen days after operation and usually the response to adequate treatment is satisfactory.

6 Subsequent care of the patient with ulcer should be judicious and not engender psychoneurotic tendencies.

7 In cases of jaundice, accurate and complete diagnosis, evaluation of the presence or possibility of hepatic or renal insufficiency or the tendency to hemorrhage, institution of measures for their control and selection of the most opportune time for operation are the chief preoperative indications.

8 A high intake of carbohydrates and fluids and administration of calcium salts, solutions of dextrose and transfusions constitute important therapeutic procedures.

9 Postoperative continuation of these procedures improves the patient's condition, aids in warding off hepatic or renal insufficiency, and shortens convalescence.

10 Frequent chemical examination of the blood before and after operation gives important information as to the course of the disease and the need of more intensive treatment.

ABSTRACT OF DISCUSSION

DR. WALTER L. PALMER, Chicago. In the case of obstructive lesions, a great deal is to be gained by a few days of preoperative treatment. The dehydration and occasional alkalosis may be relieved by the subcutaneous or intravenous administration of fluids containing dextrose and sodium chloride. Frequent gastric lavage removes the stagnant gastric contents, cleans the mucosa, and leaves it in much better condition for surgery. These procedures relieve the distress, improve the patient's sense of well being, allow him to obtain rest and sleep and thereby make him a much better operative risk. It is important to follow closely the daily urinary output during this time and also during the postoperative convalescence. In the cases of massive hemorrhage, my custom with regard to transfusion is quite in accord with that described by the authors. Transfusion is not carried out in the stage of active bleeding unless the blood pressure falls so low and the pulse rises so high that complete exsanguination is feared. With only a moderate drop in blood pressure and a moderate rise in the pulse rate I prefer to delay a day or two until gross bleeding has ceased. Convalescence may be shortened or the patient prepared for operation more rapidly by two or three transfusions over a rather short period of time. Opinions differ greatly as to the need for continued medical treatment after gastro-enterostomy. Regardless of the conflicting statistics on this point, the fact remains that ulcer commonly recurs after gastro-enterostomy. In my experience, recurrent ulcer formation is much more common than is a postoperative dietetic neurosis. I therefore prefer to keep the postoperative patient on a prolonged, moderately strict ulcer regimen in the hope that it may help to protect against a recurrence of the lesion. The crises of jaundice in which a hemorrhagic tendency is present seem to me to be particularly difficult and puzzling. I should like to ask the authors whether or not they have made any determinations of the fibrinogen content of the blood and what success they have in controlling the hemorrhagic tendency, once it has developed.

DR. RUSSELL L. HADEN, Cleveland. The surgeon or the internist in charge needs to know the extent that dehydration can be demonstrated by adequate determination of blood proteins, urine output, the amount of sodium chloride in the plasma, the circulating carbon dioxide in the plasma and the quantity of urea in the blood. The question arises: If there are variations from normal in the constituents of the blood, what is to be done about it? Fortunately all these variations can be relieved for the most part by the administration of simple

solutions of dextrose and sodium chloride. Perhaps the most desirable solution is one containing 10 per cent dextrose and 1 per cent sodium chloride. Patients with marked vomiting and intoxication or intestinal tract obstruction cannot be relieved by a solution of 1 per cent sodium chloride. In such cases I have been using 3 per cent sodium chloride with 10 per cent dextrose and in many instances the sodium chloride content of the solution has been increased to 5 per cent or even 10 per cent. It is interesting that the more concentrated hypertonic solutions of sodium chloride, such as those of 10 per cent, not only relieve the lack of chlorides but also stimulate peristalsis. That is shown beautifully in some of the exhibits Dr. Orr has in the Scientific Exhibits. I am convinced that transfusion is one of the most valuable of all preoperative and postoperative measures, quite aside from its relief of anemia. No one knows just what occurs with transfusion, but the fate of the patient depends on the judicious use of transfusion and on the proper use of certain types of solution.

DR. HORACE W. SOPER, St. Louis. Gastric lavage as usually performed with the ordinary stomach tube often terrifies the patient, produces straining, retching and vomiting and is far inferior to gastric siphonage. I introduce the Levin duodenal catheter immediately into the stomach following operation. The end of the tube is connected by means of a glass tube with the second tube that leads into a bottle on the floor by the bedside. Continuous siphonage of the stomach contents is instituted giving positive information as to the character of the gastric secretion. One can readily determine the presence of hemorrhage, reflux of small intestinal contents and similar conditions. Nausea and vomiting are prevented thus adding much to the patient's comfort. With the tube in place, one can give water early and thirst is assuaged. The nurse frequently disconnects the tube and washes it out with a large glass piston syringe removing excess of mucus and blood clots. The complicated suction apparatus that has been described in the literature for the maintenance of siphonage is not necessary. The objection has been made that siphonage withdraws the essential fluids from the body. As the authors stated, this loss of body fluid is quickly replaced by the employment of intravenous dextrose and saline solutions. In regard to the preparation for operation on the colon, I have found a preliminary course of liquid petrolatum enemata to be of great value. The oil retention enema is given every night for a period of a week or so prior to the operation. The liquid petrolatum, in contradistinction to the cottonseed and other oils used in enemata, inhibits the growth of bacteria, thus adding to the safety of colonic operations. If the time element is important, one should lavage the colon with a 5 per cent solution of sodium sulphate instead of using the usual water, soap-suds or saline solution. As Goldsmith and Dayton showed, the colonic wall is impermeable to the passage of the sulphates, while the saline solutions are readily absorbed.

DR. WALTER W. WALTERS, Rochester, Minn. Two important features in the preoperative preparation of patients with obstructing lesions of the stomach or duodenum are (1) control of the dehydration, toxemia and (2) emptying of the stomach and keeping it free from retained material. Thus the surgeon will have a clean stomach of normal size to work with. In the preparation for operation of patients with obstructive jaundice observation and study in the hospital are of additional value. It enables one to determine whether the jaundice is increasing or decreasing, to estimate the type of obstruction, and to weigh the risk of operation against the risk of delay. One should never hesitate, as Dr. Soper has said, to siphon, not lavage, any retained fluid that may be within the stomach after any surgical procedure. A small tube gently inserted, never does harm. Fluid can be administered by clavis or intravenously to replace that lost by vomiting or by inability to take and absorb fluid through the gastro intestinal tract. Above all, as indexes of the patients' condition are their appearance, the force and rate of the pulse, and the blood pressure. A patient with large degrees of retention usually looks ill, the pulse is usually weak and the blood pressure is lowered. A rapid pulse, or the repeated vomiting of small amounts of fluid subsequent to operation indicates the necessity of passage of a stomach tube. The intake of fluid should always be greater than the output. After operation for obstructive jaun-

since the bile should be carefully observed. Thin, watery bile secreted in greater than normal amounts usually means that the liver is not functioning adequately, and one can sometimes compensate for that in part by administration of dextrose solutions intravenously, and by transfusion of blood. The presence of blood in bile draining from a T tube indicates that the liver is functioning abnormally. It should not be allowed to continue. A continuous drip, introduced into the common duct through the T tube, which had been inserted at the time of operation has had good effect on the bile and on the bleeding. Physiologic solution of sodium chloride or solution of dextrose can be used, and, more recently, we have used solutions of sodium lactate (2 per cent). Whether or not the effect is on the hepatic cell directly, or whether the bile is diluted and drainage is assisted is a question. Whether or not the value for blood urea is rising and whether or not the urinary output is good are indications of the patient's progress after operation.

DR R. R. BEST, Omaha. Dr. Haden spoke of the chemical rights of the patient. I should like to say a word about the mechanical rights of the stomach. I don't believe that any stomach that has been operated on should receive anything by mouth for at least forty-eight hours. This may seem a little radical. I don't believe that the patients should even be allowed to have an ice bag to the abdomen, because of the danger which exists that they might be tempted to commit a gastric indiscretion at this period. I usually see very little distention postoperatively. I am sure a stomach that has been handled by a rubber glove has had more insult to it than one which has had a dietary indiscretion, when bloating usually follows and the treatment is absolute rest, especially in the operative case. Mechanical rest is thus almost insured, and vomiting and distention do not occur. The second point is about the postoperative treatment of operative ulcer cases. I don't believe that these ulcer cases, surgical ulcer cases, belong to the surgeon any longer than they remain in the operating room. After they leave the operating room, such cases should be turned over to the medical colleague with the sincere hope and desire that he will give that patient particular care regarding his diet and medication over a rather long period of time, not just a few weeks postoperatively. A trip to the operating room does not entirely relieve the average patient of his ulcer syndrome.

DR A. L. LEVIN, New Orleans. I wish to emphasize a point. When upper abdominal distention develops postoperatively, the most suitable remedy for that condition is a gastric lavage instead of hot stupes. In 1921 I designed the Levin gastroduodenal catheter to be introduced through the nose. Its introduction is very simple and does not entail hardships on the patient. It is left in place for constant drainage as long as reverse peristalsis exists and duodenal contents are being gushed into the gastric cavity. The relief from this simple procedure is often instantaneous. I wish to call attention to a physiologic point of procedure. When the stomach has been emptied of its duodenal contents, dilute hydrochloric acid, 30 minims (2 cc) in 2 ounces (60 cc) of water, is introduced and the tube is clamped for one hour. This is repeated every two hours, preceded by a gastric lavage with plain water and not a sodium bicarbonate solution. The object is to close the pyloric sphincter, and this can be accomplished only by acidifying the gastric contents and not by alkalization.

DR FRANK SMITHIES, Chicago. One reason why certain surgeons get excellent results in abdominal surgery is that they give their competent internist-associate sufficient time for studying and treating patients before they operate. I will mention several simple features of preoperative preparation. First the twenty-four-hour urine. In how many clinics is it customary to test for albumin by the potassium ferrocyanide method? The nitric acid test usually is made. It takes very little excess nitric acid to convert albumin present into a soluble albuminate and in such circumstances a 'negative' test is reported. Second. How often are casts looked for by dark field? If not so looked for, granular casts often are missed. Third. How many times is a so-called normal blood count considered in relationship to total blood volume? Practically, the patient may have a 'normal blood count' as to red cells, white cells and probably hemoglobin but his blood volume may have been greatly reduced as a result of dehydration. The blood cellular ele-

ments should be estimated in relation to blood volume if one is to avoid false conceptions of these elements as working units, especially when, after operation, total blood volume is increased by intravenous (or by other routes) exhibition of fluids. In operations on the duodenum or the stomach I lavage patients on the table after operation and then siphon out all fluid present or introduced. Transfusion of anemic or shocked patients is done on the table, usually after operation, from 600 to 900 cc of whole blood being given. Furthermore, transfusion of patients who are bleeding as often as is necessary is done with whole blood. I do not wait long to see whether or not hemorrhage is going to cease but, if in spite of two or even four transfusions in twenty-four hours the patient still has a fall in blood pressure and hemoglobin, and an increase in pulse rate, I feel that that patient probably has a 'spurter'. This needs prompt surgical intervention and not waiting until the patient is exsanguinated. So-called liver insufficiency following operations is frequently not 'liver insufficiency' at all. Many of those instances in which the patient "simply melts away before your eyes" and is assumed to have 'hepatic insufficiency' and dies on the fourth day are instances of failure of the suprarenals. In these instances, in addition to solutions of salt, dextrose and the like, pancreatic substance and epinephrine should be administered early and freely, combined with lavage of the upper jejunum.

EXPERIMENTAL ASPECT OF FIXED ERUPTION DUE TO ALURATE, A COMPOUND OF ALLONAL

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In 1903, Fischer and von Mering¹ described the barbituric acid hypnotic diethylbarbituric acid (diethyl malonyl urea), introduced as Veronal. This is now official in the United States Pharmacopeia X as barbital. There were also introduced the sodium salts of barbital under the proprietary names Medinal and Veronal Sodium. Some years later a second derivative of the series was announced, in this, one of the ethyl groups was displaced by a phenyl group. This derivative, phenylethylbarbituric acid, was the proprietary designated as Luminal, the same substance is now official under the name phenobarbital.

In the meantime, numerous hypnotics of the barbituric acid series² in which the ethyl groups are replaced by other alkyl or aryl radicals have been developed, including, among the more common ones, amytal (isomylethylbarbituric acid), dial (diallylbarbituric acid), neonal (N-butylethylbarbituric acid), nostal (isopropyl bromallyl barbituric acid) and pentobarbital sodium.

In February, 1922, Allonal (Numal) was introduced to the medical profession, its special claims being that it contained a very high lipid coefficient, barbiturate (allylisopropyl barbituric acid), thus making it a most efficient hypnotic, and in addition a most effective analgesic because of its association with amidopyrine. In 1927, Elur Alurate was introduced, and in 1932 Alurate Injectable for intravenous or intramuscular therapy was developed. (These do not contain amido-

Studies and contributions of the Department of Dermatology and Syphilology, University of Michigan Medical School, service of Dr. Udo J. Wile.

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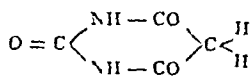
¹ Fischer E. and von Mering J. Ueber eine neue Klasse von Schlafmitteln. Therap. d. Gegenw. 44: 97, 1903. Lundy, J. S. and Osterberg A. E. Review of Literature on the Derivatives of Barbituric Acid. Proc. Staff Meet. Mayo Clin. 4: 386-416 (Dec. 8) 1929.

² Collins, G. W. and Leech, P. N. The Indispensable Uses of Narcotics. Chemistry of Barbital and Its Derivatives. J. A. M. A. 96: 1869 (May 30) 1931.

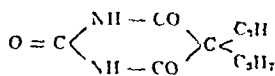
pyrimine) There is also an alurate tablet on the market which has made its appearance recently

CHEMISTRY AND PHARMACOLOGY

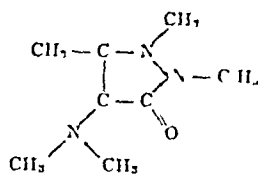
Allonal is a mixture of three parts of allylisopropyl barbituric acid to five parts of amidopyrimine (pyrimidon). This is the proportion present in each allonal tablet, which contains exactly 1 gram (0.065 Gm.) of the former with $1\frac{2}{3}$ grams (0.11 Gm.) of the latter. The trade name for allylisopropyl barbituric acid is Alurate, and in our further discussions this nomenclature will be employed.



Barbituric acid



Allylisopropyl barbituric acid (Alurate)



Pyrimidon

Reinert³ has been able to recover from the urine from 13 to 16 per cent of the alurate given to dogs. He found that most of this was excreted the first twenty-four hours and that he was no longer able to detect further quantities after three days. He compared this excretion with phenobarbital and barbital and concluded that the alurate was destroyed in the body more quickly and that the effect did not last as long as with either of the other drugs.

Cutaneous reactions from the barbiturates are relatively common, but fixed eruptions from these drugs are rare, although they have been reported or referred to by Wise and Parkhurst,⁴ Fowlkes, Goldenberg and Rosen,⁵ Ormsby⁶ and others. It is of interest to note that in Menninger's⁷ review of forty-one cases of skin eruptions from phenobarbital, with a report of three additional cases, there is no mention of the occurrence of any fixed eruptions, although two cases were mentioned as leaving hyperpigmentation.

Unger⁸ reported a case of cutaneous hypersensitivity to amidopyrimine in which the amidopyrimine was ingested in an allonal tablet. The patient experienced marked swelling of the eyelids, cheeks and lips, as well as blotches on the forehead, and the palms and the backs of the hands, accompanied by a generalized fatigue. These symptoms recurred on ingestion of an amidopyrimine tablet. Unger cites Crohn's¹⁰ case in which Crohn had recurrent attacks of urticaria and scrotal and genital edema on taking each of three proprietary barbituric acid preparations. One of the drugs was Allonal, which is chemically similar to Allonal. All three preparations, however, had several radicals in common and the exact cause of the idiosyncrasy was never proved, although Crohn himself believed the

phenyl or antipyrine group to be the offending agent. These two cases are the only two found in an extensive review of the literature on allonal and alurate cutaneous hypersensitivity. Somnifene contains diethylbarbituric acid (barbital) and allylisopropyl barbituric acid (alurate). Few cases of cutaneous reactions have been reported following its administration. However, in no case has it been proved that alurate was the cause of the reaction and in most cases more than one type of barbiturate had been taken.

The following experimental data concerning fixed eruption due to the alurate in allonal, made possible by the remarkable cooperation of our patient, are herewith reported.

REPORT OF A CASE

History.—F. M., a man aged 42, seen in the department of dermatology and syphilology, Nov. 10, 1932, complained of a lesion on the right hip. About three and a half years previously he had noticed two reddened areas on the right buttock. The lesions were moderately itchy and would remain so for three or four days after which they would no longer itch and would subside leaving pigmented areas which have never entirely disappeared. Similar attacks have occurred every three to six months and always in the same areas. No new lesions have ever been noticed. Each exacerbation would last three or four days and then fade. About one year before, the patient stated the lesions began taking on a stippled appearance. For the past four years the patient has had rather severe headaches and admitted taking three or four allonal tablets for relief. He stated that the two areas on the buttock would flare up each time he had a severe headache. He had taken no cathartic medicines and did not remember taking any other form of medication. For the eruption he had had only local therapy.

The patient had always been in good health and nothing in the past history was of significance. There were no unusual idiosyncrasies except that the patient used to have recurrent attacks from ray poisoning.

The family history likewise did not reveal any allergic tendencies.

Examination.—The patient was well nourished and well developed with an eruption on the right hip, posterior and a little inferior to the greater trochanter (fig. 1). This presented as two lesions, one the size of a fifty-cent piece (30 cm. in diameter) and the other nearly twice this size. Both of the lesions were sharply limited and were a peculiar purplish red, the borders of which were raised and the central portion of which presented areas of normal skin. These normal areas gave to the two lesions a stippled or mottled appearance. On palpation the borders and raised central areas were firm and slightly indurated.

A clinical diagnosis of dermatitis medicamentosa was made.

Laboratory examinations revealed nothing of significance. The Kahn test was negative. Examinations of the urine for albumin, sugar and phenolphthalein were repeatedly negative. Examination of the blood showed hemoglobin, 92 per cent; red cells, 4,750,000, and white cells, 6,250. The differential smear was normal. The blood examination was made during a remission.

EXPERIMENTAL DATA

Reproducing the Eruption.—After all signs of activity had disappeared from the two lesions only residual pigmentation being left, three 5 gram (0.3 Gm.) tablets of amidopyrimine were administered (the patient's usual dose). At the end of three days there was no exacerbation of the involved areas and four (the patient's usual dose) allonal tablets were taken by the patient at bedtime. The following morning on arising the patient complained of itching of the two areas on the buttock, and on examination the areas were seen to be similar in every detail to that when first examined in the clinic. It was felt that perhaps the three day interval between the drugs was too short so the experiment was repeated twelve days being allowed to elapse between the administration of the drugs. The results were the same in that there was a definite flare up in the pigmented areas. The result of this experiment showed that amidopyrimine failed to produce the eruption but that exacerbation definitely followed the administration of allonal.

3 Reinert, Marc. On the Excretion of Barbituric Acid Derivatives in the Urine of Dogs. *Arch. f. exper. Path. u. Pharmacol.* **130**: 49-60 (1928).

4 Wise, Fred and Parkhurst, H. J. Drug Eruptions from the Clinical Aspect. *Arch. Dermat. & Syph.* **6**: 542-564 (Nov.) 1922.

5 Fowlkes, R. W. Drug Eruptions. *Virginia M. Monthly* **55**: 28-31 (April) 1928.

6 Goldenberg, Hermann and Rosen, Isadore. Skin Manifestations in a General Hospital. *Arch. Dermat. & Syph.* **14**: 693-703 (Dec.) 1926.

7 Ormsby, O. S. A Practical Treatise on Diseases of the Skin. Philadelphia: Lea & Febiger, 1927, p. 184.

8 Menninger, W. C. Skin Eruptions with Phenobarbital (Luminal). *J. A. M. A.* **91**: 14-18 (July 7) 1928.

9 Unger, Leon. Drug Idiosyncrasy. *J. Allergy* **3**: 76-80 (Nov.) 1931.

10 Crohn, W. H. Ein schwerer Fall von Ueberempfindlichkeit. *Med. Klin.* **26**: 1451 (Sept. 26) 1930.

Alurate Since alurate (allylisopropyl barbituric acid) is the only component of allonal that is not contained in pyramidon, it was decided to test the patient to this drug. He was given two 1 gram (006 Gm.) alurate tablets at 9 45 a m and at noon and was aware of slight itching and erythema. At 4 p m he was reexamined in the clinic at which time there was noted a definite exacerbation of the eruption in the two previously active areas on the right buttock.

In order to rule out the possibility of any inert substance used in the manufacturing of the drugs producing the eruption, some chemically pure sodium alurate was furnished by Hoffmann-LaRoche, Inc. for administration. The patient was given 2 grams (013 Gm.) of this drug and reacted promptly with an exacerbation.

Effect of Other Barbiturates After all signs of activity had disappeared from the areas involved, the patient was given 0.2 Gm. of barbituric acid with negative results. Twenty-four hours later this dose was doubled and again administered, likewise with no cutaneous response. At intervals of from forty-eight to seventy-two hours the following drugs were given: barbital (0.65 Gm.), phenobarbital (0.97 Gm.), ipral (calcium ethylisopropylbarbiturate 0.26 Gm.) sandoptol (isobutylallyl barbituric acid 0.4 Gm.) and drial (diethylbarbituric acid 0.1 Gm.). In no case was there any cutaneous manifestation following ingestion of the drug.

Effect of Allylisopropyl acetyl carbamide (Sedormid) As it was thought that possibly the allylisopropyl group per se was the offending agent three Sedormid tablets were administered (0.26 Gm. each) to the patient with negative results.

Effect of Other Drugs Producing Fixed Eruptions Phenolphthalein, antipyrine, amidopyrine and neoarsphenamine are four drugs that in susceptible persons are prone to produce a fixed eruption. The patient had already been tested to amidopyrine with negative results so tests with some of the other drugs were carried out. The patient was given 0.97 Gm. of antipyrine and there was no reaction in forty-eight hours. He was next given 0.16 Gm. of phenolphthalein with no reaction. Neoarsphenamine was not given. This experiment corroborates the work of Novy¹¹ in connection with phenolphthalein.



Fig 1—Localized fixed eruption due to the alurate in allonal

namely that idiosyncrasy for one drug producing a fixed eruption does not necessarily indicate susceptibility to the whole group.

Local Cutaneous Tests—Patch Tests In order to help determine the site of the hypersensitivity in fixed eruptions

patch tests were carried out on both normal skin and the residual pigmented areas on the right buttock. The following drugs were applied to the normal skin and were all negative after ninety-six hours: barbituric acid, phenobarbital, barbital, amyral, amidopyrine, antipyrine and alurate. As the experi-

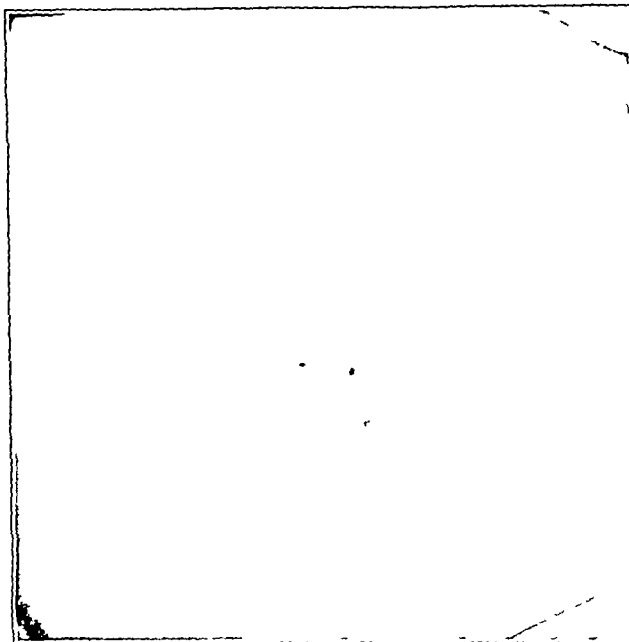


Fig 2—Residual pigmentation three weeks after injection of allonal

ments were consuming much of the patient's time only phenobarbital, barbital, allonal and alurate were tested on the pigmented areas. There were definite reactions to both allonal and alurate within twelve hours, similar in detail to the eruption produced by ingestion except that it was limited to the contact area (fig 3). Phenobarbital and barbital brought forth no cutaneous response.

Intradermal Tests Normal and pigmented areas were tested with 0.1 cc. of a 1 per cent solution of the following drugs: barbituric acid, barbital, phenobarbital, allonal and alurate. All tests were negative in the normal skin areas but there were definite reactions in the pigmented spots to both allonal and alurate. These reactions reached their maximum intensity in half an hour and had practically entirely disappeared within twenty-four hours.

Scratch Tests Percutaneous tests were performed with the following drugs: barbituric acid, phenobarbital, barbital, allonal and alurate. These tests were likewise performed on both normal and pigmented skin areas. All tests were negative in the normal skin areas, but there were definite reactions in the pigmented spots to both allonal and alurate. The results obtained by this method of testing were not as clear cut and as satisfactory as those obtained by either of the other methods.

Attempts at Passive Transfer—In an attempt to determine passive transferability 0.1 cc. of the patient's serum was injected into each of four persons. In two of these subjects, 0.1 cc. of a 1 per cent solution of alurate was injected into the local site at the end of twenty-four hours. In the other two, intracutaneous and patch tests were done on the area into which the patient's serum had previously been injected. The subjects were examined at frequent intervals for forty-eight hours and in no case was passive transfer of hypersensitivity successful.

Auto-Interchangeable Skin Transplants from Pigmented to Normal Skin—In 1930, Naegeli, de Quervain and Stalder¹² performed a most interesting experiment on a patient with a fixed eruption due to antipyrine. They transplanted a portion of the sensitive pigmented

¹¹ Novy F. G. Jr. Phenolphthalein Eruption. Experimental Data on Its Causation. Arch. Dermat. & Syph. 26: 125-130 (July) 1932.

¹² Naegeli Oscar, de Quervain F. and Stalder W. Nachweis des cellularen Sitzes der Allergie beim fixen Antipyrin Exanthem. Klin. Wchnschr. 9: 924-928 (May 17) 1930.

area to an area of normal skin and transplanted the piece of normal skin to the original pigmented sensitive area. At the end of three weeks the graft had taken nicely, and antipyrine was again given by mouth. There was a flare up in the pigmented transplant to the normal skin area, whereas the normal skin transplanted to the original sensitive area showed no reaction.

Wise and Sulzberger¹³ have recently repeated these investigations in a case of phenolphthalein fixed eruption. Their results were diametrically opposite to those of Naegeli. Similar experiments along the lines outlined by Naegeli were carried out as follows:

The skin was first cleansed with alcohol and iodine. The sites for removal of the tissue were marked with a heavy cross of iodine, which was later removed with alcohol. A local anesthesia was then infiltrated around this area—not into it. Two 6 mm. cutaneous punches were used and areas punched out to a depth of from 3 to 5 mm. These were snipped off smoothly with a scalpel and interchanged immediately, the one from the pigmented area being placed into the depression left in the normal skin area and vice versa. Four per cent xero-



Fig. 3—The lower darker area shows a positive patch test to alurate.

form (bismuth tribromphenate) impregnated sterile gauze was next applied, which was covered with a large bandage held firm by large strips of adhesive plaster. The patient was ambulatory and was allowed all privileges except bathing. At the end of five days the two areas were dressed and a sterile small bandage was applied. The superficial epidermis sloughed from portions of both areas, but at the end of four weeks the "grafts" had healed nicely. At the end of four and again at seven weeks the offending drug was administered. The result was directly opposite to that reported by Naegeli. The normal epidermis transplanted to the sensitive "soil" reacted, whereas the previously sensitive skin, which had been transplanted to the opposite normal buttock, showed no reaction.

This result parallels that of Wise and Sulzberger, but it should be emphasized that the grafts taken by these investigators as well as the ones here reported were deeper than those used by Naegeli and his co-workers. I agree with the former that the results of these experiments bring no proof that the epidermis or superficial cutis (or both) is the "shock site" and

seem rather to favor a theory of regional hypersensitivity dependent on deeper structures (nerves and blood vessels). However, I am unable to reconcile my positive patch tests exclusively with such a view. The experiments require further investigations, and it is suggested that in any future work larger full thickness grafts be used in order that the results may be more visible—especially since portions of the transplants are very likely to slough off. Since scar tissue may result from transplants, it would be worth while to allow the wound to heal by secondary intention and compare the results.

SUMMARY

A patient had an eruption which was clinically due to some drug. Exacerbation of the eruption was produced by the suspected drug, namely, allonal. As allonal contains both alurate and amidopyrine, these were administered separately in order to determine the offending agent. The patient reacted to alurate but showed no cutaneous sensitivity to amidopyrine. In order to rule out the "allylisopropyl" radical of allonal as the offending agent, this constituent was administered in the form of allylisopropyl acetyl carbamide, with negative results. Impurities in the drug as a possible causative factor were ruled out by the positive result following administration of pure sodium alurate. Numerous other barbiturates were administered with impunity. Other drugs producing fixed eruptions, namely, phenolphthalein, antipyrine and amidopyrine, had no effect in this case. Attempts at passive transfer were unsuccessful. Patch, intracutaneous and scratch tests were performed with allonal and alurate, as well as with numerous other barbiturates.

Autogenous skin transplants were done the results of which corroborated those of Wise and Sulzberger but were opposite to those of Naegeli, de Quervain and Strider.

CONCLUSIONS

- 1 Fixed eruptions similar to those produced by phenolphthalein may be produced by alurate (the barbituric acid component of allonal).
- 2 Cutaneous hypersensitivity to one barbiturate does not necessarily preclude sensitivity to other members of the group.
- 3 Sensitization to alurate in the case studied existed as a unique phenomenon and did not include sensitivity to other drugs known to produce fixed eruptions.
- 4 Patch, intracutaneous and scratch tests were all positive to allonal and alurate in previously active areas but produced no reaction in normal skin areas.
- 5 Normal skin transplanted to the previously active areas flared up with readministration of the drug, whereas previously reacting skin when transplanted to normal skin areas, did not react.

ABSTRACT OF DISCUSSION

DR. SAMUEL M. PECK, New York. The only basis for assuming that fixed drug eruptions are of an allergic nature lies in the fact that this type of eruption has been definitely proved to be based on idiosyncrasy. Skin tests are usually negative, both patch and scratch, and in the majority of instances antibodies have not been demonstrated. Any experiment, therefore, that throws more light on the pathogenesis of these eruptions is important. The specificity of the idiosyncrasy in Dr. Loveman's cases is especially interesting because of the work I have been doing with nirvanol. When 3 Gm. of the ordinary commercial product was given in about ten days in thirty-seven cases of epilepsy and chorea, a drug eruption developed in twenty-seven. The eruptions resembled serum sickness in many particulars. It came on in about ten days

¹³ Wise, Fred and Sulzberger, Marion. Drug Eruptions. I. Fixed Phenolphthalein Eruptions. *Arch. Dermat. & Syph.* 27: 549-568 (April) 1933.

after the first dose of the drug and when the eruption had subsided the patient usually remained sensitized so that a small amount of the drug given a month or more later could provoke the eruption. I was able to show that the commercial product was racemic in nature and I was able to split it into dextro and levo miranol. Tests on various animals show that the levo substance is 15 times as strong as the dextro substance both as to minimum effective dose and as to minimum lethal dose. The incidence of miranol disease was 28 per cent in a series of eighteen children who received an average of 28 Gm during a course of from eight to ten days. The incidence of miranol disease with the levo form was 64.5 per cent (series of fourteen cases) in spite of the smaller dosage. It is very difficult to understand why Dr Loveman was able to get positive scratch tests in his cases. Usually positive scratch tests apply to the urticarial type of lesions. I think too that instead of calling his tests patch tests he should call them Moro tests because of the analogy to the Moro type of tuberculin reaction. The results of the experiments of Naegeli and his collaborators seem to demonstrate that the antibodies in fixed drug eruptions were bound to the epidermal and perhaps the immediate subepidermal structures at the site of the eruption. It has not been possible for either Wise and Sulzberger or Loveman to confirm this. I think however, that positive experiments like Naegeli's merit consideration.

DR MARION B SULZBERGER New York. It is naturally gratifying to Dr Wise and to me that the author's transplant experiments turned out in the same way that ours did. I do not think that the difference in the experience of Naegeli, de Quervain and Stalder and those of Wise and myself, can be explained by the fact that our grafts were deeper than those made by Naegeli and his associates who took Thiersch grafts. Wise and I had a full thickness graft almost 30 mm in diameter and we could be sure that the major portion of the original epidermis was there and that it had not sloughed off. If in our case the sensitivity had resided and remained in the epidermis and could have been transferred with that tissue we should have accomplished it with our method. This was not a negative experiment only but also a positive one for when we took a previously unaffected full thickness skin graft and transferred it to a previously affected area we did get a positive result previously unaffected skin became sensitized when it was transplanted to a hypersensitive area. This observation suggests that the transplant has become sensitized and that the forces governing this sensitization probably originate below the thickness of our graft. This opinion is corroborated by the fact that in the histologic examination of phenolphthalein eruptions I have found vascular changes deeper down than is ordinarily believed. My hypothesis receives further support from the shape of the lesions in fixed eruptions. If one thinks of a small terminal artery or nerve as a tree with more or less symmetrically branching terminals, a section across these terminals at skin level would assume the round oval or irregular but sharply demarcated form of most fixed drug eruptions. Considering all factors it is probable, in Dr Loveman's case and in ours that the specific sensitization to the drug is dependent on a nerve or a blood vessel supplying the area that has become sensitized. As Dr Highman has so aptly pointed out this is a question of fundamental significance. The author's case seems to substantiate ours. However it seems to me possible that Dr Loveman's results were different from those of Naegeli and his co workers because the original epidermis did not survive in the healed transplants (the transplants were too small to be sure of this). Before reaching a conclusion in a matter of such importance I should like to see more experiments of this kind with large full thickness transplants. Only then would I be willing to regard our results as proof of a general and underlying principle regarding the role of the nerves and blood vessels in determining areas of fixed drug hypersensitivity.

DR JAMES HERBERT MITCHELL Chicago. Did this patient who was getting relatively large doses show any signs of catharsis? Three weeks ago a patient of mine who had been under observation for many years came in to tell me that he feared he was developing a cancer. He had catharsis each

morning, which disappeared about noon time. On investigation I found he had been taking six allonal tablets every night. I advised him to stop the allonal. He called me up yesterday to tell me that he had had no further catharsis.

DR WALTER J HIGHMAN, New York. This interesting paper recalls one read in Havana by Dr Wise, with whom Dr Sulzberger has collaborated. Quite apart from the technical data in Dr Loveman's work the remote implications of his work may throw light on the obscure question of localization of skin lesions due to systemic disturbances, as the so called disseminated lupus erythematosus. If the principles implicit in this paper and in that of Wise and Sulzberger of last year are applied to dermatoses of the type I have just mentioned, a beginning may be made toward clearing up the important problems of localization.

DR W U RUTLEDGE Louisville Ky. A patient of mine a woman had a macular solitary scaling patch on the left buttock about 30 mm in diameter which appeared periodically. For some time I had tried to find out the cause. I tried to associate it with some article of clothing she was wearing but finally elicited the fact that at night she took two or three teaspoonfuls of elixir of medinal every now and then and each time following the medication the area would flare up then exfoliate and subside. After talking to Dr Loveman, I told her to substitute a tablet of allonal for the medinal but this did not cause the eruption. Since she stopped taking medinal the area has become a smooth slightly pigmented spot.

DR GEORGE MILLER MCKEE, New York. Loveman's carefully executed work appears to corroborate the belief that sensitization may occur at various levels in the skin. Thus one may obtain a positive patch test and a negative scratch or intradermal test or vice versa. Positive patch tests are obtained in dermatitis venenata, positive scratch tests are seen in neurodermatitis disseminata positive intradermal tests are obtained in some types of dermatophytosis, and so on. Fixed phenolphthalein eruptions are likely to give a positive intradermal test while the eczematoid type of phenolphthalein eruption may give a positive patch test. When the so called shock center is in the skin, it may be in association with either the deep or the superficial vessels. This may possibly explain the discrepancy in the results of transplant experiments made by the Germans as compared with those made by Wise and Sulzberger and by Loveman.

DR ADOLPH B LOVEMAN Ann Arbor, Mich. I wish to thank Dr Peck for his suggestion about not calling the tests contacts or patch tests. I felt rather reluctant about this myself, so about four days ago I decided to perform a patch test on the transplants. I had not done this before, but I am glad to report that the results were the same as those produced by ingestion of the drug. The previously normal skin transplanted to a previously reacting soil reacted whereas the previously affected skin did not react when transplanted to a normal skin area. I wish also to thank Dr Sulzberger for his discussion and to assure him that the patient is still cooperating and willing to do so in the future. To Dr Mitchell I wish to say that on the contrary, the allonal produced constipation in my patient rather than catharsis. I am sure that following Dr Highman's remarks there will be a number of papers in the near future dealing with autogenous skin transplants in various dermatoses, especially psoriasis. I am glad that Dr Rutledge tried allonal in his case for it helps to bear out my conclusion that sensitivity to one barbiturate does not necessarily indicate sensitivity to other barbituric preparations.

Simple Sewing—Benedict studied a group of women in a large respiration chamber and determined the increase found in ordinary occupations. When they were standing their metabolism was 9 per cent above the basal simple sewing increased heat production 13 per cent dusting 134 per cent sweeping 150 per cent. He found that when a woman climbed an average flight of stairs she expended two calories. For the same expenditure of energy she could walk down three flights of stairs or could walk about 45 yards on the level.—Du Bois, E. F. Total Energy Exchange in Relation to Clinical Medicine *Bull New York Acad Med* 9:680 (Dec) 1933.

THE EFFECT OF PREGNANCY ON
THE URINARY TRACT

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Pregnancy causes definite and marked changes in the urinary tract. The most striking change consists of a dilatation of the ureter and kidney pelvis, usually more marked on the right side, this phenomenon is so common that it might well be said to be a normal concomitant of the pregnant state.

Probably the most widely recognized articles on the urinary tract of pregnancy are the papers by Hofbauer¹ and by Duncan and Seng² published in 1928. Hofbauer, working on ureters taken from women dying during pregnancy, showed by histologic methods that there was hypertrophy and hyperplasia of muscle and fibrous tissue of the ureter and the perireteral sheath, the greatest change taking place in the lower portion of the ureter, and from this he reasoned that there was produced an obstructive process which would account for the ureteral dilatation. Dugald Baird³ recently has confirmed this finding but states that the amount of hypertrophy and hyperplasia does not always correspond to the amount of dilatation present and that, regardless of the greater dilatation taking place on the right side the degree of hypertrophy and hyperplasia is the same in both ureters.

Duncan and Seng by means of cystoscopy and retrograde urography during all stages of pregnancy, and from the ninth to the twenty-fifth day post partum found that there was dilatation of the right ureter and kidney pelvis in all cases of pregnancy, and of the left ureter and kidney pelvis in 71 per cent of their cases. They found that dilatation began in multiparas as early as the sixth week of pregnancy and in primiparas as early as the tenth week, and that dilatation reached its maximum by the twenty-second week in multiparas and by the twenty-fourth week in primiparas and continued unchanged throughout the remainder of the pregnancy. They apparently were reluctant to perform cystoscopy and retrograde pvelography during the puerperal period, but they did study their patients from the ninth to the twenty-fifth day post partum and found that a majority of their cases showed a return of the urinary tract to the normal, nonpregnant condition by the ninth day. Many of their cases had not returned to normal by the twenty-fifth day and some of their cases showed dilatation of the upper urinary tract for a long time.

With the introduction of intravenous urography, a safe method was presented for studying the urinary tract in pregnancy and especially in the puerperium, or during that period from delivery to the tenth postpartum day. We decided to make such a study. A preliminary report of our results has already been made.⁴

We soon found that others had had the same idea, notably Crabtree and Prather⁵ and Cornell and Warfield⁶ in the United States, Dugald Baird³ in Scotland, Carreras and Figueras⁷ in Spain, and Paul Schumaker⁸ in Germany. All of these found that there was some degree of dilatation of the upper urinary tract in every pregnancy, 100 per cent on the right side and from 70 to 85 per cent on the left, and that the right side tended to be dilated to a greater extent than the left. These conclusions correspond to ours.

In addition we found that the reduction of the urinary tract to the normal nonpregnant condition took place rapidly so that a majority of our cases had returned to normal by the ninth or tenth postpartum day provided the pregnancy, delivery and puerperium had all been normal. We found definite reductions in the dilatation of the upper urinary tract as early as from six to twenty-four hours following delivery, and in some of our cases the urinary tract was apparently normal by the third postpartum day. In those cases in which delivery was complicated, as by forceps or by cesarean section or in which there was postpartum uterine or pelvic infection, the involution of the upper urinary tract was delayed, and in some cases there was even a tendency for the upper urinary tract to return to a dilatation as great as or greater than that which had been present during pregnancy.

This constant dilatation of the upper urinary tract in normal pregnant women with its prompt recession after the termination of pregnancy and its tendency to return to the antepartum condition when there is interference with the normal course of the puerperium prompted us to seek the cause for the dilatation. In reviewing the literature we found that various theories had been advanced but that none of them had been proved. The majority of these theories hypothesize the occurrence of obstruction in the lower portion of the ureters. Thus Hofbauer, believing that the hypertrophy and hyperplasia taking place in the ureter and ureteral sheath cause a narrowing of the lumen of the ureter, states that by the actual demonstration of an obstructive process in the lower urinary tract, the fallacy involved in much of the speculation concerning ureteral dilatation during pregnancy is rendered obvious for according to the evidence just adduced, a readily demonstrable anatomical factor stands out in the etiology of the condition.

Duncan and Seng while not agreeing with Hofbauer that there is actual narrowing of the ureteral lumen but believing that these changes are due to normal physiologic processes sum up their article by saying that the factors causing obstruction to the ureters are

- 1 Increased vascularity of the cervix and parametrium producing pressure capacity and congestion
- 2 Pressure from the general overcrowding of the pelvis from the growing uterus developing equally in all dimensions
- 3 Marked congestion and distortion of the vesical trigon
- 4 Dextrorotation of the uterus

5 Crabtree F. F. and Prather G. C. Urinary Diseases in Pregnancy J. Urol. 26: 499-517 (Oct.) 1931

6 Cornell E. I. and Warfield C. H. The Value of Kidney Visualization in Pregnancy. Am. J. Obst. & Gynec. 23: 755 (May) 1932

7 Baird Dugald. The Anatomy and Physiology of the Upper Urinary Tract in Pregnancy and Their Relation to Pyelitis. J. Obst. & Gynec. Brit. Emp. 38: 516-1931

8 Carreras F. and Figueras F. Abstract from Brit. J. Urol. 4: 16 (March) 1932

9 Schumaker Paul. Die Schwangerschaftsveränderungen der ableitenden Harnwege im Röntgenbild. Arch. f. Gynak. 143: 28 (1930) Ergebnisse der intravenösen Pyelographie und röntgenologischen Sufizienzprüfung der vesicolen Ureterostien bei der Pyelitis gravidarum. ibid. 147: 622-1931

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1 Hofbauer J. I. Contributions to the Etiology of Pyelitis of Pregnancy. Bull. Johns Hopkins Hosp. 42: 118 (March) 1928. Structure and Function of the Ureter During Pregnancy. J. Urol. 20: 413 (Oct.) 1928

2 Duncan J. W. and Seng M. I. Factors Predisposing to Pyelitis in Pregnancy. Am. J. Obst. & Gynec. 16: 537 (Oct.) 1928

3 Baird Dugald. The Upper Urinary Tract in Pregnancy. Lancet 2: 583-590 (Nov. 5) 1932

4 Mengert W. F. and Lee H. P. Urinary Tract Changes During Late Pregnancy and Early Puerperium. Am. J. Obst. & Gynec. 24: 205 (Aug.) 1932

Dugald Baird¹⁰ speaks of passing a ureteral catheter by a soft obstruction 10 or 15 cm above the ureteral orifice. He says: "The obstruction is due to increased vascularity and congestion of the cervix and parametrium and to pressure of the uterus in the pelvis as a result of growth of the uterus which enlarges in all directions." The dextro-rotation of the uterus may cause kinking of the right ureter and explain why

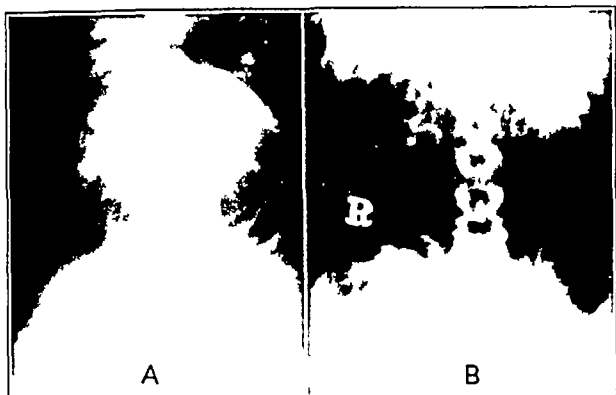


Fig 1—A normal dilated kidney pelvis and ureters in normal pregnancy one week ante partum in a primipara aged 18. B normal puerperium three days post partum showing rapid subsidence of dilatation.

there is nearly always more dilatation and delay on the right side. When the atony of the ureter reaches a certain stage, the mere fact of its falling over the pelvic brim causes its walls to come together and occlude the lumen." Baird³ in a later article states that he has performed cesarean section on women with a rotation of the uterus to the left, yet there was greater dilatation of the right ureter and kidney pelvis.

Crabtree and Prather⁵ state: "From our own observations and the literature now available, we are prepared to accept as a working hypothesis that pelvis and ureteral overdistention exists in all pregnant women as a result of a tight-fitting fetus in an inelastic abdomen. Other factors, such as the course of the ureter over the osseous pelvis, the ligaments of the uterus, fascial layers and the course of important vessels, conspire to produce a difference in degree of dilatation and preponderance of right-sided changes."

Paul Schumaker⁹ states that "the cause of dilatation of the ureter and kidney pelvis is a compression of the hypotonic ureter between the posterior wall of the uterus and the belly of the psoas muscle."

Williams¹⁰ is very definite in saying that pyelitis of pregnancy is due to pressure of the pregnant uterus on the ureters, while De Lee¹¹ states that, since the pregnant uterus has almost the same specific gravity as does the remainder of the abdominal mass, it cannot therefore cause pressure on the ureters.

It is thus seen that obstruction is advanced as the cause of ureteral dilatation, this obstruction resulting from one or more of three principal conditions: (1) actual decrease in the lumen of the lower ureter by hypertrophy and hyperplasia of the tissue of the ureter and periureteral sheath, (2) pressure between the enlarging uterus and the brim of the bony pelvis or the belly of the psoas muscle, and (3) increased vascularity of the structures surrounding the ureter.

Any one who has catheterized the ureters in pregnancy knows that comparatively large catheters may be advanced up the ureter to a point well above the brim of the bony pelvis or the belly of the psoas muscle. Caulk¹² and also Pugh¹³ have advocated draining the ureters in pyelitis of pregnancy with large catheters, and Pugh states that he has had no difficulty in passing sizes 12 and 14 F. We have had no difficulty whatever in passing sizes 8 and 10 F. If pressure from the enlarging uterus were responsible for the dilatation, one would not expect to see dilatation beginning at the sixth to the tenth week, at a time when the uterus is still a pelvic organ, and one would expect to see increasing dilatation as the uterus becomes progressively larger and heavier, instead of the actual finding that dilatation reaches its maximum from the twenty-second to the twenty-fourth week and then remains stationary.

When one views a series of intravenous urograms obtained on pregnant women, one is struck by the fact that there appears to be extremely good filling of the kidney pelvis and upper two thirds of the ureters. The ureters, however, seem to be cut off at a point corresponding to the brim of the bony pelvis and below this point are not visualized, suggesting that there is ureteral obstruction at this point; this is a finding often used as an argument for obstruction.

In order to determine whether or not actual obstruction existed in that portion of the ureter not visualized by intravenous urography, cystoscopy was done on ten pregnant women and ureteral catheters were introduced just beyond the ureteral orifices. Retrograde pyeloureterograms were made in stereo so that the kidney pelvis and entire ureter were visualized on each side, and careful study was made for any evidence of decrease in the size of the normal ureteral lumen, or ureteral constriction that might be produced from extra-ureteral conditions. While these ureterograms show bends in the ureter at about the junction of the lower and middle thirds, with usually marked dilatation above these bends, when they are studied stereoscopically

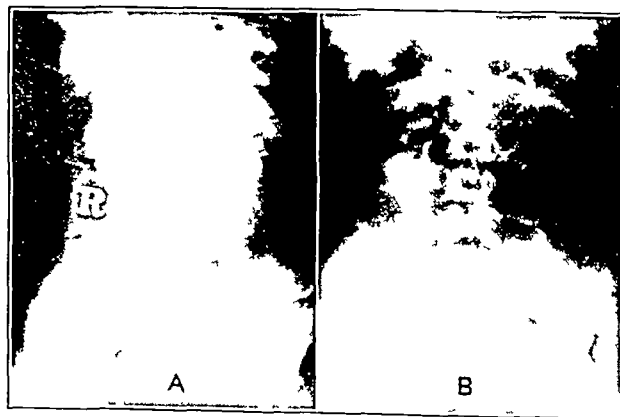


Fig 2—A normal pregnancy one month ante partum in a nullipara aged 17. B six hours post partum showing contrast of right pelvis and ureter with that in antepartum appearance.

cally it can be seen that these bends are nothing more than curves, without any actual kinking, and that they have no relation to the brim of the bony pelvis. None of these ureters present any evidence to suggest that

¹⁰ Williams J W. *Obstetrics* ed 5 New York: D Appleton & Co 1924 p 561.

¹¹ De Lee J B. *Principles and Practice of Obstetrics* ed 4 Philadelphia: W B Saunders Company, 1925 p 534.

¹² Caulk J R. Ureter Catheter Drainage in the Treatment of Renal Infections. *J A M A* 68: 675-677 (March 3) 1917.

¹³ Pugh W S. Pyelitis of Pregnancy. Its Treatment with the Indwelling Catheter. *J Urol* 18: 553 (Nov) 1927.

there has been a diminution of the ureteral lumen, and there is nothing to suggest pressure on the ureter from surrounding structures.

In our original study we were struck by the rapidity with which involution occurred in the upper urinary tract following parturition. In cases in which we had obtained intravenous urograms from six to twenty-four hours following delivery there was marked decrease in the dilatation of the pelves and ureters. At this early time the cups of the calices were beginning to change

The combined pelvis and ureteral capacity was determined by injecting sterile water to the point of discomfort or very mild pain. A retrograde pyelo-ureterogram was then made with 12 per cent sodium iodide solution injected into the ureter and pelvis to their capacity. This pyelo-ureterogram was compared with the intravenous urogram previously obtained. The catheters were then allowed to remain in situ for ureteral drainage for twenty-four hours. After draining twenty-four hours, the catheter ends were plugged and another intravenous urogram was made, followed by a retrograde pyelo-ureterogram. These pictures were then compared with the ones made the previous day to see if any change had taken place following the ureteral drainage.

There was no difference between the intravenous and retrograde pyelo-ureterograms so far as delineating the size and shape of the ureters and pelves was concerned. The retrograde films, of course, gave the better pictures. Edema could not be discerned about the ureteral orifices. No difficulty whatever was found in passing the ureteral catheters. In most cases the catheters did not pass the full distance to the kidney pelvis meeting with marked curves in the upper

ureter beyond which the catheters could not be passed, but in all cases the ureter was adequately drained. In one case with number 8 catheters 1,125 cc of urine was drained from the right side and 1,240 cc from the left, and after this drainage no urine could be aspirated from either side and the patient had passed no urine from the bladder. In another case, with number 7 catheters, 1,130 cc was drained from the right side

from the rounded, blunted character seen during pregnancy to the sharper more angulated character seen normally, and the width of the ureters had markedly diminished. This suggested that the cause of the dilatation had been removed with the emptying of the uterus.

If dilatation of the upper urinary tract during pregnancy is caused by obstruction in either by the enlarged uterus or by any other condition within the bony pelvis, and if significant reduction in this dilatation occurs in a short time (from six to twenty-four hours) following delivery, as a result of relief of this obstruction, a similar reduction in dilatation should occur if this obstruction can be relieved by any other means. The simplest means of overcoming lower ureteral obstruction is by draining the ureters with ureteral catheters introduced high enough in the ureters to insure their being above any point in the lower ureters where obstruction might occur.

For this study, fifteen women were chosen, all in their last month of pregnancy and all of whom had had normal courses during their pregnancies. Most of them were within a few days of term. An intravenous urogram was first made. Immediately following this, a cystoscope was inserted into the bladder and the ureteral orifices were carefully noted for any edema. A 7 or 8 F whistle tipped ureteral catheter was then inserted up each ureter as far as possible. The residual urine present was measured and a microscopic examination was made on each specimen of urine for pus

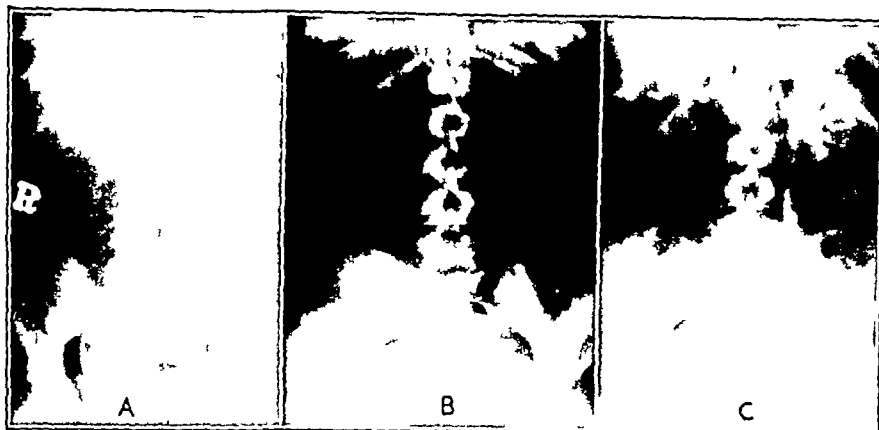


Fig 3—A normal pregnancy one week ante partum in a nullipara aged 18. B one day after normal delivery showing size of ureters and kidney pelves. C four days post partum with foul profuse lochial discharge. The patient had a temperature of 103 F. The left ureter and pelvis are larger than they were ante partum.

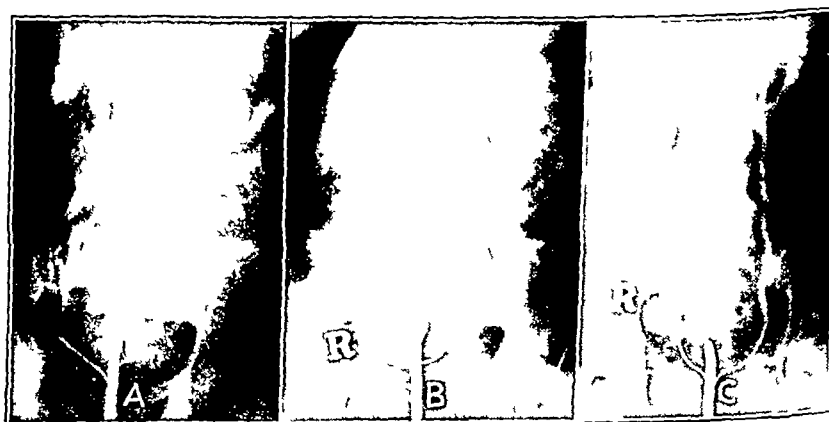


Fig 4—Lower ureters at term visualized stereoscopically. The marked curves are not points of kinking and no evidence of obstruction can be seen. A nullipara aged 18, B primipara aged 21, C secundipara, aged 18.

and 1,035 cc from the left side and again there was no residual urine in the kidney pelves or ureters on aspiration. None of these cases showed any diminution in the degree of dilatation after such drainage.

A series of intravenous urograms was also obtained on nonpregnant women with various types of pelvic disturbance. It is known that ovarian cysts will produce slight dilatation of the ureters and kidney pelves. This dilatation, however, is not nearly so marked as in

pregnancy In our series we have two cases of ovarian cyst, one tubo-ovarian abscess and one para-ovarian abscess that show slight degrees of dilatation in the upper urinary tract Abscess of the broad ligament, chronic pelvic inflammatory disease, carcinoma of the ovary, dermoid cyst of the ovary, and uterine fibroids failed to show any changes in the upper urinary tract One woman with a pituitary tumor and one female dwarf with glandular dystrophy, probably pituitary, failed to show any changes of the urinary tract

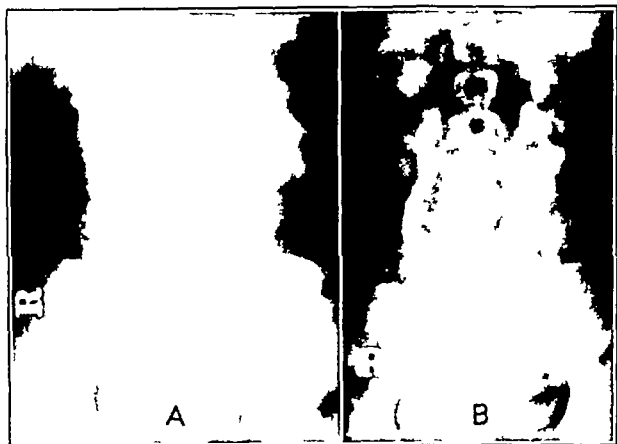


Fig 5—Normal pregnancy one month ante partum in a nullipara aged 19 A before and B after ureters had been drained twenty-four hours to overcome possible obstruction in lower ureters There has been no change in dilatation

In the light of these observations we are very skeptical that ureteral obstruction, from any cause whatever, is the reason for dilatation of the upper urinary tract in pregnancy It seems to us that the condition is the result of some cause inherent in and peculiar to the pregnant state, but what the cause is we are unable to say, and this is a problem that is yet to be solved

CONCLUSIONS

1 Dilatation of the upper urinary tract to some degree occurs in every pregnancy and is a normal concomitant of pregnancy

2 This dilatation subsides rapidly after the termination of pregnancy, provided the pregnancy, delivery and puerperium are normal, and in many cases a marked decrease in the size of the ureters and pelvis can be demonstrated within twenty-four hours following delivery

3 Abnormal delivery or an abnormal puerperium interferes with the return of the upper urinary tract to normal

4 In ten normal pregnant women, retrograde pyeloureterograms failed to show any evidence of obstruction anywhere along the course of the lower ureter

5 In fifteen normal pregnant women, draining the ureters with ureteral catheters for twenty-four hours, in order to overcome any obstruction that might possibly be present in the lower portion of the ureters, produced no change in the degree or character of the dilatation of the upper urinary tract

6 With the exception of ovarian cysts and ovarian abscesses, pathologic conditions in the female pelvis do not cause dilatation of the upper urinary tract

7 Evidence is presented which disproves the theory of lower ureteral obstruction as the cause for dilatation of the upper urinary tract in pregnancy

University Hospitals

ABSTRACT OF DISCUSSION

DR WILLIAM E STEVENS, San Francisco In my experience the majority of cases of pyelitis of pregnancy clear up subjectively after delivery The urine continues to show a few pus cells, however, cultures may or may not be positive, and a low grade infection persists indefinitely unless the patient receives treatment Many patients apparently cured by treatment during pregnancy or after delivery have a recurrence during the next pregnancy notwithstanding the absence of demonstrable pathologic conditions in the urinary tract It is well to remember that a clear urine, microscopically negative as to pus cells, may still be infected Treatment should be continued until the urine is culturally as well as microscopically negative In cases resistant to treatment, search for abnormalities of the urinary tract by means of pyelography, ureterography and cystography is indicated Obstruction and inflammation of the urethra or the ureters should not be overlooked In my experience, about 18 per cent of cases of pyelitis associated with pregnancy first show subjective symptoms during the puerperium These cases have responded better to treatment than cases of pyelitis occurring during pregnancy Compression of the ureter by the uterus shown in two of my pyelograms proves in my opinion that pressure is at least a contributory factor in dilatation of the upper urinary tract Urethral catheterization is inadvisable in urinary stasis without infection unless there is marked dysuria or discomfort, and unless there is a large amount of residual urine I find residual urine in 81 per cent of postpartum bladders One bladder contained a residual urine of 1,020 cc immediately after 750 cc had been voided The importance of the relief and prevention of bladder distention cannot be overemphasized Cases are on record in which the bladder has never regained its tone after labor and operation In my experience, excellent results have been obtained by catheterization of the ureters in pyelitis of pregnancy and by catheterization of the postpartum bladder in the presence of residual urine both with and without infection

DR R M NESBIT, Ann Arbor, Mich Regarding the ascendancy of pyelitis, Dr Helmholtz has laid the ghost of this very effectively In every case of pyelitis of pregnancy the patient should be followed carefully post partum until she returns to normal The excellent work of Crabtree and

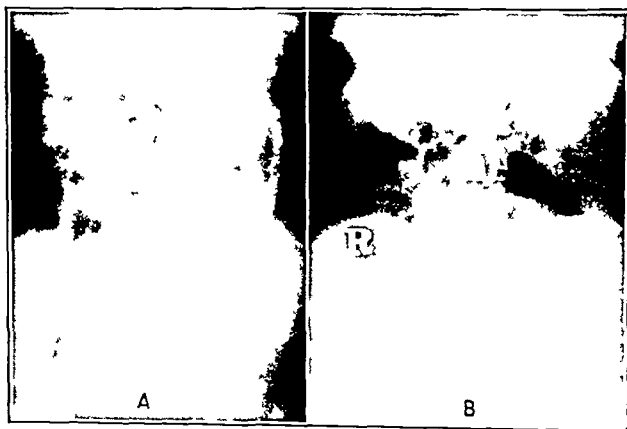


Fig 6—A normal pregnancy eight days ante partum in a nullipara aged 23 B one day post partum The decrease in dilatation has occurred in twenty-four hours after delivery

Prather emphasized the fact that the changes in pregnancy which may become more or less permanent should be looked for in every patient who does not have an immediate relief of symptoms and signs following delivery of the child For that reason it is important that this fact be emphasized I have recently studied two cases in which there have been repeated pregnancies The patients were two girls both of whom had three pregnancies, in all of which pyelitis of pregnancy occurred These girls appeared following delivery and both were found to have dilatation of the upper ureteral tract, both

bilateral, with distinct narrowing of the ureter at the parametrium. I could not believe that there had been a stricture until I saw these two patients, both bilateral in one and unilateral in the other. In one the ureter responded well but in the other an operation had to be performed. In all these the obstruction was at the parametrium and not at the bladder wall. If an indwelling catheter is left in place in patients without gross infection the urinary tract will be infected, unless there is gross urinary infection it should not be used.

Dr M. W. SHIRWOOD, Milwaukee. Last year a group of us who went to Iowa City to visit Dr. Alcock were much interested to see the results he was obtaining. Luchs states that the condition favoring an ascending infection in the last months of pregnancy is present in more cases than those in which pyelitis actually occurs, and he believes that the ascending pyelitis of pregnancy is only the infectious stage of the demonstrable changes conditioned by pregnancy. Hofbauer states that dilatation of the ureter and pelvis is physiologic in pregnancy, as so well demonstrated by Lee at the University of Iowa. Secondly he states that a large number of pregnant women have an asymptomatic bacteriuria and thirdly that a high degree of dilatation is accompanied by decreased local resistance. Heaney points out how intestinal infection is caused in the pyelitis of pregnancy and reports a case of severe intestinal infection. In a report from Berlin a patient developed pyelitis of pregnancy and the organism causing food poisoning was recovered. Better meat and food inspection eliminates and prevents pyelitis of pregnancy in many cases. DeLee takes the stand that bacteriuria is found in a large percentage of healthy pregnant women, probably the result of constipation. The ureters, particularly the right ureter, have been found dilated and filled with urine in two thirds of the cases coming to necropsy. Thus, DeLee asserts, is caused by torsion stretching and kinking of the ureters due to enlargement and dislocation of the pelvic organs. Harmacker believes that all pyelitis in pregnancy is due to pressure plus congestion. It seems that all cases of pregnancy are potential cases of pyelitis, the only necessity for completion of the circle being lowered resistance. The treatment advocated by Hofbauer 0.5 cc of solution of pituitary three times a day for two weeks is interesting. He claims there is no interruption of pregnancy. I should like to hear the results of those who have tried it.

Dr. JOHN K. ORMOND, Detroit. In most instances of pyelitis of pregnancy the acute symptoms clear up promptly under alkalization and forced fluids, but a bacteriologic cure is rare until the end of the pregnancy, when many cases clear up spontaneously. The ultimate fate of the remainder is of interest. One series of statistics is reported by Naujocks and another by Gladys Dodds. The latter had the opportunity of following a group of cases for two years and found that chronic pyelitis or chronic bacteriuria developed in about half. The clinic with which I am connected and other clinics have pediatric departments which observe many cases of pyelitis in childhood. Many of these patients will in later years be followed through pregnancy in the same clinic and I believe that in the next five or ten years some interesting figures should be obtained bearing on this point. The posterior urethra is a cause of continuation of symptoms is worth emphasizing. It is true of any case of pyelitis. It not infrequently happens that after a bacteriologic cure symptoms persist until the urethra receives treatment. I find the indwelling catheter useful in certain instances of postpartum urinary disturbance.

Dr. J. I. HOFBAUER, Baltimore. At Johns Hopkins I have not observed dilatation of the ureters in pregnant monkeys. My work (*J. Urol.* 20:413 [Oct.] 1928) stresses the presence of bile salts and cholesterol in the blood as probably accounting for the dilatation of the ureter during pregnancy. It is only in the human being that definite impairment of liver function is demonstrable during pregnancy, with bile salts present in the blood. Dr. Crabtree rightly emphasized long standing infection as the factor responsible for the persistence of dilatation of the ureter following pregnancy and for stricture formation. I fully share his views. In every case the presence or absence of ureteral narrowing should be ascertained and, in addition solution of pituitary in small doses should be given over a protracted period of time in order to restore ureteral activity. In Marburg, Germany, every case of pyelitis of pregnancy is

now being treated with solution of pituitary and splendid results are being reported. In a recent publication, intractable cases are reported which well responded to solution of pituitary. (Jonn, J. L. *Surg. Gynec. & Obst.* 53:640 [Nov.] 1931). In a previous paper, histologic evidence was adduced which showed that bladder damage may occur during obstructed labor with injury to the muscle fibers and diffusion of blood. During the puerperium the bladder may be induced to contract by solution of pituitary. Failing this, I insert the catheter.

Dr. J. S. LEWIS, Youngstown, Ohio. I first year at the New Orleans meeting Dr. Baker and I presented an exhibit in which we showed the distention of the upper urinary tract in pregnancy. Since then we have added almost 100 cases. At that time we felt this was a mechanical problem and still feel that most of it is mechanical. We have not overlooked the hormonal element that Dr. Hofbauer brought out but we think we have a few facts to back up the idea that it is chiefly mechanical. A ureteral catheter will not drain the pelvis completely. One cannot distend any normal cavity for a long time without having it lose its normal tone. Give these patients an intravenous dye after delivery and one gets an almost normal pyelogram, make a retrograde ureterogram and one cannot believe it is the same pelvis. They have a residual atony that persists for a long time. In regard to Dr. Hofbauer's remarks, I believe that monkeys bring by their tails even when pregnant. If this process is mechanical there are two things that it should be possible to show. 1. It should be present in tumors, cysts and some cases of tubal abscess, as I have shown. 2. It should be absent in the quadruped, so far I have been unable to show it in experimental animals.

Dr. F. H. LAMM, Chicago. Since the question of the use of solution of pituitary as a remedial agent in this condition has been brought up by Dr. Hofbauer, I wish to call attention to the fact that twenty-four hours before a woman goes into labor a marked diuresis occurs. This is the physiologic action of solution of pituitary in the blood. Also, it has been shown that the diuretic action of solution of pituitary cannot be demonstrated in pregnant dogs in the laboratory. Therefore there is something in the blood during pregnancy that inhibits the normal action of solution of pituitary during pregnancy. Its purpose is to prevent the uterus from aborting. Just before and during labor this inhibiting action is overcome possibly by physiologically produced solution of pituitary. I have repeatedly seen such cases. In one case the patient entered my clinic at the University of Iowa, diagnosed typhoid because of the toxic symptoms and the height and character of the temperature curve. She developed placenta previa and was delivered at seven months. She was advised to prevent conception for two years because of the severity of the pyelitis. She became pregnant in two months. She reported for observation every month for a period of three or four days. There was no recurrence of the pyelitis during the pregnancy, labor or postpartum. This brings up the important question of why all these women do not develop puerperal sepsis. It is very rare to have puerperal sepsis, and it is very hard to understand how a woman can be delivered from below without developing a puerperal sepsis. Acting on the theory that they must have a protective immunity, I found that these women had a high titer of agglutinins for the organisms found in the urine. I also found that a positive agglutination can be obtained and that one can take the organism of one woman and the serum of another woman with pyelitis. I wish also to remark on the anemia of pregnancy as predisposing to pyelitis. I think it might better be assumed that the anemia is caused by the pyelitis. This is important obstetrically for in anemia if the patient loses much blood post partum she may die. I have seen death occur after the loss of only 800 cc of blood and the postmortem reveal no other cause than anemia. As to the question of the cervix being an etiologic factor some work by Maryon in my clinic shows that the organism that causes cervicitis is not *Bacillus coli*, which is the most common organism in pyelitis, but the enterococcus. I do not feel that the use of the indwelling catheter during the acute stage of pyelitis is justified either in the bladder or in the ureter.

Dr. ABRAHAM RAVICH, Brooklyn. Why bring in a complicated mechanism such as the hormones involved in pregnancy to explain dilatation of the ureters and renal pelvis with

its frequent association of pyelitis of pregnancy when it can all be explained by mechanical pressure exerted by an enlargement and displacement of the uterus and adnexa during pregnancy? The same pathologic process in the ureter often occurs with fibroid uteri, yet no one would consider this an effect of hormones. Can one attribute gallbladder stasis so common in late months of pregnancy to hormones also? It seems to me that the entire problem is a mechanical one. For the same reason the varicosities seen on the vulva and legs during pregnancy may also be attributed to mechanical stasis. Owing to the pressure of the pregnant uterus on the pelvic portion of the ureter, it is very difficult to get a clear conception of the amount of dilatation present in this portion of the ureter either by retrograde or by excretory ureterograms. Several years ago a patient in her eighth month of pregnancy came to me with a very large calculus 1 by one half inch impacted in the left ureter at the pelvic brim. The dilatation of the ureter down to the ureterovesical junction, however, was so great that, within four days after the mere passage of a 6 F catheter beyond the calculus the stone was spontaneously expelled, with relief of the pyelitis on that side.

DR E. G. CRABTREE Boston Drs Lee and Mengert have given an excellent pyelographic demonstration that stony of the pelvis and ureter is not cured by delivery but persists for a considerable time. These kidneys are distensible without pain to an extent considerably above normal, but they will eventually return to normal. There are two kinds of patients as indicated by the readiness with which postpartum pyelitis follows bladder retention. In those instances in which infection already exists, febrile reaction occurs immediately with the onset of retention; in the other type of case, in which the urine is uninfected catheterization may be carried on for some days before a febrile reaction occurs because the infection must be introduced and cultivated before it reaches sufficient magnitude to produce fever. If then one knows that an infection already exists I feel sure that the wisest procedure, on the recognition of retention is to institute constant drainage immediately. The patient herself should not be forgotten. Good hygiene, including water drinking and care of the anemias of pregnancy and a patient to develop tolerance for infection that her pregnancy may be both comfortable and safe even though those infections are seldom cleared in pregnancy. The anemias of pregnancy demand special attention and should be combated. Certainly the patient should be protected by hygienic measures after delivery that she may rid herself as quickly as possible through nature's own protective measures. A transfusion is good therapy in certain cases of pyelitis of pregnancy. Much can be done with proper diet, both to prevent the development of anemia and to restore the patient's general condition after it has occurred.

DR G. C. PRATHER Boston The lack of temperature reaction following delivery has been mentioned also the lack of febrile reactions. It has been my impression for some time that the patients with pyelitis whom I saw in its febrile form during pregnancy seldom got into difficulties with fever following delivery. I went over my figures for the past three years and found that in eighty cases of pyelitis in pregnancy sixty presented no rise in temperature following delivery. In twenty cases or 25 per cent, in which there was some hyperpyrexia post partum, by no means was the urinary tract infection the only factor responsible for this temperature. My impression, therefore has been correct that about 75 per cent of the patients with pyelitis during pregnancy will show no febrile complications following delivery, while the remainder may have a normal temperature during pregnancy but have a kick up following delivery.

DR W. J. WALLACE Oklahoma City Postural treatment is essential and I use it as a routine procedure. After parturition the foot of the bed is raised for a distance of from 4 to 6 inches and kept at that height as long as the patient is in the hospital. Twice daily after the third day the foot of the bed is raised an additional distance of 2 feet or an angle of about 35 degrees, for at least an hour at a time the height and length of time depending on the individual patient. During half of this hour I have the patient lie on her stomach without a pillow. The Trendelenburg position helps these conditions. In these

cases I find a complicating condition of posited kidney as well as the associated enteroptosis and a general sagging of all the associated organs. In all cases of pyelonephritis, a selected diet rest, alternating antiseptics and the positions as outlined will add materially to recovery.

DR ROBERT GUTTERRIZ New York In spite of all the valuable pyelographic and pyeloscopic data now available, it is obvious that the dynamic contraction of the upper urinary tract in its emptying time is inhibited in cases of pyelitis of pregnancy. The stasis produced in the upper urinary tract is responsible for its physiopathologic condition which causes hydro-ureters and hydronephrosis as well as pyelitis and pyelonephritis. I am still inclined to believe that there are instances in which cases of pyelitis of pregnancy may be treated conservatively with the method of the indwelling ureteral catheter. I have recently examined a young pregnant woman who had a hydronephrosis which the family surgeon mistook for acute appendicitis and on which he was ready to operate. Because the patient had pus in the urine and other urinary symptoms I was asked to examine her. I found that she had an infected hydronephrosis of large size. After inserting an indwelling catheter which I left in place for over five days, I was able to suction out about 50 cc of purulent urine from the right kidney pelvis. The temperature then dropped to normal the urine cleared up and, in agreement with the last speaker, I think that the knee-chest position for a half hour, three or four times a day, was also of great assistance in this case. The pressure of the uterus on the ureters was thus relieved and a better drainage secured. The patient's condition cleared up entirely and she had no further difficulty with her labor. I feel that the indwelling ureteral catheter has a definite use in the treatment of cases such as this, where a No 6 or No 8 ureteral catheter should be employed, having been previously boiled so as to be soft and not produce any trauma.

ROENTGEN EVIDENCE OF HEALING IN DUODENAL ULCER

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AND

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The most conspicuous defect in the present accepted methods for the management of peptic ulcer is the lack of any dependable means of establishing that the lesion is healed. The interval between the onset of symptomatic relief, which is usually effected within a few days after the institution of medical treatment, and the complete healing of the ulcer undoubtedly varies greatly, and the time at which the latter takes place in individual cases cannot be established by any known procedure. Besides enabling one to answer the patient's persistent question "Is my ulcer healed," such a procedure, if it could be brought to light, would result in other advantages. By its employment in a sufficiently large number of controlled cases, information might be gathered as to the relative effectiveness of the widely varying methods of treatment now in vogue, thus ending many an argument. The patient would be benefited more directly in an economic way. So-called recurrent ulcers are in many instances simply the result of permitting the patient to relax dietary restrictions and discontinue alkalinization before the healing process has been completed. Such patients might be saved the discouragement and added expense of a recurrence of symptoms. On the other hand, postmortem observations and the experience of many internists would indicate that there is a large group of cases in which peptic ulcers heal

with little or no treatment. In the latter event the patient would be spared the expense and tedium of an unnecessarily prolonged period of treatment. Any method by which information may be gained regarding healing of such lesions no matter how meager that information may be, seems to us a matter worthy of investigation and evaluation.

The idea of employing the roentgen ray to detect healing in peptic ulcer is not new. Until recently however, its use has been confined almost entirely to penetrating gastric ulcers. Friedenwald and Baetjer¹ were among the first to appreciate its usefulness in this direction, and the roentgen demonstration of niche disappearance in gastric lesions following treatment is now a commonplace observation. As a result a certain amount of information has been added to our knowledge of the prognosis in gastric ulcer but the greatest value of the procedure lies in establishing the benignancy or malignancy of ulcerating lesions of the lesser curvature the former almost invariably showing a sharp reduction in size, if not complete disappearance after a few weeks of medical treatment.

The roentgen demonstration of healing in duodenal ulcer has been quite another matter. Since the niche sign is the only pathognomonic roentgen evidence of an

success in only 13 per cent of cases. Kirklin⁴ later found niche evidence in 15.24 per cent of 1,791 cases of duodenal ulcer seen at the Mayo Clinic in 1930. Fluoroscopic observation is inadequate, moreover, in that one can scarcely remember the exact size and location of a niche seen momentarily several weeks previously.

COMPRESSION TECHNIC

As a result of the work of Berg,⁵ Akerlund,⁶ Albrecht⁷ and others a refinement in gastro intestinal technic has been developed which permits accurate visualization and film recording of a much higher percentage of duodenal ulcer niches than was heretofore possible. This procedure is known to roentgenologists as compression technic and consists simply of fluoroscopy and the making of roentgenographic studies while the part in question is compressed by some device. In this manner the walls of the duodenal bulb are approximated and all but a thin film of barium is squeezed out. The barium retained in the crater of the ulcer is thus brought into sharp relief. The procedure is not difficult, can be accomplished in a short time at small expense, and requires only slight additional equipment, but the correct interpretation of results demands considerable experience in its use.

Employing this method, Akerlund was able to obtain niche evidence in 60 per cent of 109 cases of duodenal ulcer. Berg was similarly successful in over 50 per cent of cases. Our own experience agrees quite closely with these figures.⁸ During the year 1932 we found positive niche evidence in 54 per cent of all cases of duodenal ulcer.

We have recently studied twenty five such cases on one or more occasions after the institution of treatment. In all instances, positive niche evidence has been obtained and recorded on film studies at the initial examination. Although the series is inadequate in several respects, we feel justified in drawing certain conclusions.

SIGNIFICANCE OF NICHE DISAPPEARANCE

The value of the roentgen ray in detecting healing in peptic ulcer depends in a large measure on what one may conclude from niche disappearance per se. Can one say that an ulcer is completely healed simply because the niche is no longer visible on roentgen examination? If niche disappearance does not mean that complete healing has taken place, then at what stage in the process of healing does it occur?

In three cases reported by Buckstein the patients were free from symptoms at the time niche disappearance



Fig. 1 (case 1) — Duodenal bulb under compression showing niche (N) with corona of edematous mucosa (C).

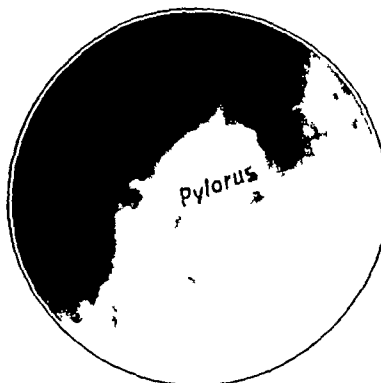


Fig. 2 (case 1) — Appearance after fifteen days of medical treatment. The niche has disappeared but the patient still has interstials of ulcer distress in spite of strict adherence to diet.

active peptic ulcer, healing can be observed only in those instances in which the niche is seen and permanently recorded prior to the institution of treatment. The fact that this can be readily accomplished in a high percentage of gastric ulcers accounts for the success commonly attained in showing changes in size or disappearance of such lesions following treatment.

The trouble encountered in applying the same procedure to duodenal lesions lies in the difficulty in demonstrating the niche. Certainly not over 10 per cent of duodenal ulcer niches are visible on film studies of the barium filled bulb in the general run of cases. As a matter of fact, the incidence is probably considerably lower than that. Buckstein² was able to demonstrate niche disappearance in three such cases, however.

It is true that the niche may be observed fluoroscopically in a somewhat larger group, but even as expert fluoroscopists as Carman and Sutherland³ reported

1 Friedenwald Julius and Baetjer F H On the Value of X Ray Examinations in the Diagnosis of Ulcer of the Stomach and Duodenum Tr A Am Physicians 28 157 1932
2 Buckstein Jacob The Duodenal Niche A Criterion in the Healing of Duodenal Ulcer Surg Gynec & Obst 51 109 114 (July) 1930
3 Carman R D and Sutherland C G The Duodenal Niche Am J Roentgenol 16 101 106 (Aug) 1926

4 Kirklin B R Duodenal Ulcers That May Escape Roentgenological Diagnosis M Clin North America 15 177 184 (July) 1931
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nice was demonstrated and he felt that in such instances it might be safely said that the ulcer was completely cured. Although it is not specifically mentioned, one assumes that the patients were no longer under treatment at the time the second examinations were made. That niche disappearance *per se* does not imply complete healing, however, has been repeatedly impressed on us by the fact that symptoms may persist or recur after all traces of the niche have disappeared even though the patient is still under strict medical management. The following cases illustrate the point.

CASE 1—M. G., a white man aged 35, had epigastric distress of a burning character for one week. On examination, an *en face* niche was demonstrated on the posterior wall of the bulb. A shallow incisura was noted at the same level on the greater curvature of the cap (fig 1). Fifteen days later the niche was no longer demonstrable, although the incisura was still present (fig 2). In spite of rigid adherence to diet the patient had typical ulcer distress at times for several months.

CASE 2—Mrs. D. L. aged 27 had typical ulcer distress for three weeks. On examination June 13, 1932, the duodenal bulb showed an elliptic deformity along the greater curvature. Compression studies revealed a pea-sized niche on the greater curvature toward the anterior wall (fig 3). The symptoms were relieved within twenty-four hours after the institution of

the human being does not lend itself well to experimental study, observations as to the method by which ulcers heal have been obtained through three sources: (1) peptic ulcer produced experimentally in animals, (2) patients who have been subjected to surgery after a preliminary period of preparation during which the patient was on an ulcer diet, and (3) patients who have died from some other cause during the course of ulcer treatment.

Mann and Williamson⁹ were the first to report success in the experimental production of peptic ulcer in dogs, after a secondary anastomosis which segregated the ulcer in such a way that no gastric contents passed over it. Mann¹⁰ made a thorough study of the manner in which healing takes place. "Macroscopically the first evidence of healing is a cleaning of the base of exudate and debris, and the formation of a smooth surface. Then the ulcer appears to grow shallow due to a filling in of the base by new granulation tissue. The overhanging mucosa and this granulation tissue completely fill the base of the ulcer. Gradually the edges of mucosa grow around the periphery toward the center, usually pushing the granulation tissue up and out like a plug. At first the mucosa is thin and smooth. Gradually it thickens and becomes thrown into folds."



Fig 3 (case 2) —Compression study of duodenal bulb showing large ulcer niche (N) surrounded by corona of thickened mucosa (C).



Fig 4 (case 2) —Similar study after three weeks of treatment. The niche is much smaller but still retains a small fleck of barium; the surrounding inflammation and edema have subsided.

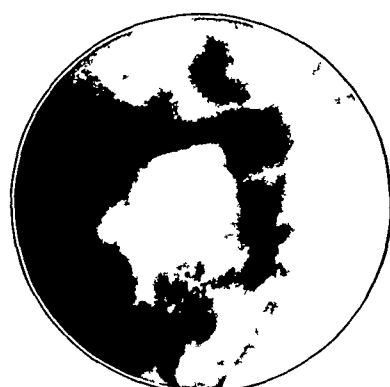


Fig 5 (case 2) —Appearance after a recurrence of symptoms six months later. The cap is deformed but no niche can be detected.

treatment. Reexamination, July 7 (fig 4), showed the niche greatly reduced in size but still quite definitely present. There had been no symptoms during the interval. August 22, no trace of the niche could be detected. The patient remained under treatment until the Christmas holidays, during which time indiscretions in eating and drinking caused a return of typical ulcer distress. Examination, Jan 9, 1933 (fig 5), failed to show any evidence of a niche, although the bulbar deformity was somewhat increased.

On the other hand, it is quite possible for a patient to be free from symptoms although the niche remains demonstrable. According to Akerlund, "it is not unusual that a niche may persist, even if diminished in size, after the pains have completely disappeared and that patients with obvious niches are on the whole free from pains." This evidence seems to us conclusive proof that there is no fixed relation between niche disappearance and symptomatic relief and that niche disappearance does not imply complete healing.

How then, can one explain the failure of an incompletely healed ulcer to retain barium? We feel that a satisfactory explanation is offered by the experimental and pathologic evidence. Although duodenal ulcer in

Caylor¹¹ described a similar process of healing and found a granulation bud present in twenty-five of thirty gastric ulcers in man which were healing at the time they were resected. Crohn, Weiskopf and Aschner¹² and others also observed this sequence in human beings. Bliss¹³ was unable to demonstrate the granulation bud in several patients who died following surgery or during the course of medical treatment or on whom duodenal ulcer was an incidental finding at autopsy. He nevertheless felt that the filling in of the defect by a granulation bud represented one phase, probably an early one, in the healing process.

To appreciate the true value of the roentgen ray in detecting healing in peptic ulcer, therefore, one must realize that although niche disappearance unquestion-

⁹ Mann F. C. and Williamson C. S. The Experimental Production of Peptic Ulcer. *S. Clin. North America* 5: 753-775 (June) 1925.

¹⁰ Mann F. C. The Chemical and Mechanical Factors in Experimentally Produced Peptic Ulcer. *S. Clin. North America* 5: 753-775 (June) 1925.

¹¹ Caylor H. D. The Healing Process of Gastric Ulcer in Man. *Ann. Surg.* 86: 905-917 (Dec.) 1927.

¹² Crohn B. B., Weiskopf Samuel, and Aschner P. W. The Life Cycle of Peptic Ulcer. *Arch. Int. Med.* 35: 405-422 (April) 1925. The Healing of Gastric Ulcers. *ibid.* 37: 217-224 (Feb.) 1932.

¹³ Bliss T. L. Healing of Chronic Duodenal Ulcers. *Am. J. Surg.* 15: 93-98 (Jan.) 1932.

ably indicates a favorable initial response to treatment, it does not necessarily mean that the lesion is healed. When the surrounding edema and infiltration subside and the crater becomes plugged with a bud of granulation tissue, the niche no longer retains barium and is not demonstrable roentgenologically. This probably occurs relatively early in the process of healing.

TIME OF DISAPPEARANCE OF NICHE

Mann made the following observations on his experimental ulcers. Within four days its base was clean and a thin protecting covering had formed over it. In ten days the ulcer usually had greatly decreased in diameter and depth. On the twentieth day three fourths or more of the base would be covered with mucosa. Before the thirtieth day it was almost impossible to find the site of the ulcer. It must be remembered, of course, that this occurred under artificial conditions unattainable in the human being. In one case reported by Bliss the patient died sixty-five days after an operation for perforation of a duodenal ulcer. The lesion was still in an early stage of healing. Another died fifty-three days after gastro-enterostomy. The healing process was well advanced but the crater was still present macroscopically.

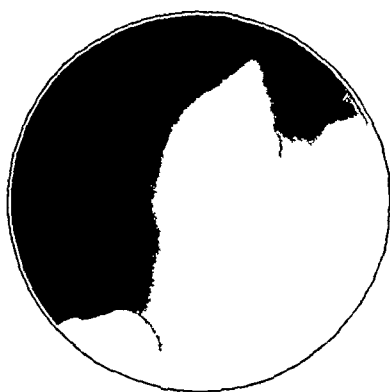


Fig. 6—Barium filled duodenal bulb showing a normal contour



Fig. 7—Compression study of the same bulb. A definite ulcer niche (N) is now clearly seen on the posterior wall

It has been impossible for us to strike an average time of disappearance, since many of the patients studied lived at distant points and returned for a check-up examination only after an interval of several months. Such an average would be of doubtful practical value, as there is undoubtedly the widest variation in the amount of time required for the niche to disappear. In one of our cases all roentgen evidence of the niche was gone after nine days of treatment; in another after fourteen days and in several after three weeks. In a few instances a much longer time was required. In one case the niche was larger after four months of careful management than at the original examination. The degree of chronicity of the ulcer, its size and depth and the age of the patient are among the factors responsible for the wide variation in time required for healing to take place.

Two cases in the series presented both gastric and duodenal niches and in both instances the gastric lesion was the first to disappear. Emery and Monroe¹⁴ studied five cases of coincidental gastric and duodenal ulcer. In all but one the duodenal ulcer appeared worse or no better, whereas in all but one the gastric ulcer

disappeared. It seems probable, therefore, that in general gastric ulcer niches disappear more quickly under treatment (heal more rapidly) than duodenal ulcers.

RELATION OF NICHE TO CONTOUR DEFORMITY

Owing to the difficulty heretofore encountered in demonstrating the niche in duodenal ulcer, roentgenologists have learned to recognize ulcers in this region by contour deformities of the barium-filled bulb. Much has been written on the subject and a high degree of diagnostic accuracy has been attained. This method of diagnosis has been based on the assumption that an ulcer in the duodenum predicates a characteristic deformity of the barium-filled bulb in the form of cicatrix and/or spasm. These deformities have been classified and attempts made to draw conclusions as to healing from changes in the contour deformity following treatment. Thus, Hamburger¹⁵ reported three cases in which he felt that he could detect a lessening of the deformity after treatment. His illustrations were not convincing. Emery and Monroe classified the different types of bulbar deformities and made comparisons before and after treatment. They concluded that no reliable information regarding healing could be obtained by this method.

The possibility of obtaining any information regarding healing from such studies seems to us extremely small. In the first place it is not at all rare to find an ulcer in a bulb which presents no characteristic contour deformity when filled with barium. If treated early and effectively such a lesion may heal without any deformity whatever. Such a case is illustrated in figures 6 and 7.

In a much larger group, characteristic bulbar deformity not only is present during the active stage of the lesion but persists practically unchanged for an indefinite period thereafter. This has been frequently commented on, so often in fact that it has given rise to the well known but erroneous roentgenologic dictum: "Once an ulcer, always an ulcer." The futility of drawing conclusions as to healing from this type of case is well expressed by Emery and Monroe: "It is obviously absurd to make a diagnosis of an active duodenal ulcer by the finding of a deformity, give some form of treatment and on finding the same deformity at a later examination explain its persistence on the basis of scar tissue and assert that the disease is cured." The persistence of deformity after healing of the lesion is well illustrated in figures 8, 9 and 10. Characteristic bulbar deformity per se, therefore, means that an ulcer is or has been present but does not permit one to conclude that the lesion is or is not active. The absence of bulbar deformity does not preclude the possibility of an active ulcer. Even in those instances in which a slight bulbar deformity noted at the original examination disappears after treatment, one can never be sure that the original deformity was not due to spasm rather than to ulcer.

EFFICIENCY OF VARIOUS FORMS OF TREATMENT

All but one of the patients studied were treated with conventional dietary measures. The exception was a woman who had failed to respond to a strict dietary

¹⁴ Emery, E. S. and Monroe, R. T. Peptic Ulcer. The Diagnostic Value of the Roentgen Ray Before and After Treatment, *Am J Roentgenol* 25: 51-64 (Jan.) 1931

¹⁵ Hamburger, W. W. Roentgenologic Studies in the Healing of Gastric and Duodenal Ulcers. *Am J M Sc* 155: 204-221 (Feb.) 1918

regimen Following our first examination, at which both gastric and duodenal ulcer niches were demonstrated, she was put on mucin treatment. Ten days later, all traces of the gastric niche had disappeared and the duodenal ulcer was definitely smaller. At the end of three weeks neither lesion could be visualized. This single case proves nothing in regard to the comparative value of the two forms of treatment but it does suggest the feasibility of using the speed of niche disappearance as an index in developing some real evidence as to the effectiveness of the different methods of ulcer management in use at present.

CONCLUSIONS

1 In more than half of all cases of duodenal ulcer the roentgen ray has a definite value in determining the response of the lesion to treatment.

2 Roentgen disappearance of a duodenal ulcer niche following treatment indicates a favorable initial response but does not mean that the ulcer is completely healed.

3 There is a wide variation in the amount of time required for disappearance of the niche. As a general rule, duodenal ulcers heal more slowly than gastric ulcers.

tion again to the fact that one can demonstrate these deformities by placing the patient in a proper position under the fluoroscope. Taking the films without moving the patient from that position will demonstrate the deformity and the niche much more often than if one just lays the patient down on the table and makes the exposures. I mean to say that I do not believe one can put the patient in the prone position to demonstrate pathologic conditions by the hit or miss method. It must be done under the fluoroscope. When the patient is in that position the films should be made without allowing the patient to move at all. Having done all these things I am still uncertain that the demonstration of a niche at one examination and the inability to demonstrate it at another examination is proof that the ulcer is healed.

DR B. R. KIRKLIN, Rochester, Minn. I understood the authors to say that one cannot depend on constant deformity alone for the diagnosis of duodenal ulcer. I assume they mean that constant deformity of the duodenal bulb without a demonstrable crater is not sufficient evidence for this diagnosis. If this is what they mean I am disappointed to hear the statement and must take exception to it. It is my opinion that many roentgenologists who have had wide experience in making diagnoses of duodenal ulcer and have had the opportunity of checking their diagnoses at the operating table or at necropsy will not agree to the statement. My associates and I have been making diagnoses of duodenal ulcer for many years in cases which presented constant deformity of the bulb, with or with-

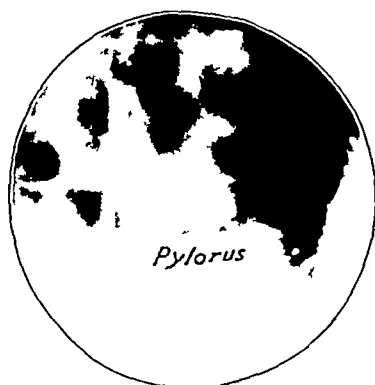


Fig 8—Similar study of same case after six months of treatment. The niche has disappeared; there is no residual deformity of the bulb; the patient is symptom free.

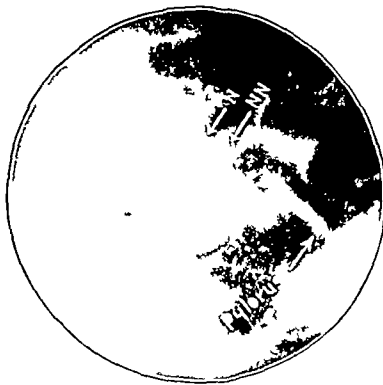


Fig 9—Compression study of duodenal bulb showing gross contour deformity and two well defined ulcer niches (N N).

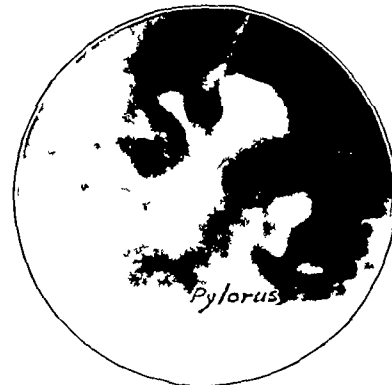


Fig 10—Same case after three months of treatment. The niches have disappeared and the patient is free from symptoms, but the contour deformity remains essentially unchanged.

4 Contour deformities of the barium-filled bulb are not entirely dependable in the diagnosis of duodenal ulcer, and they are of little or no value in determining the response of a lesion to treatment.

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ABSTRACT OF DISCUSSION

DR GEORGE W. GRIER, Pittsburgh. If the authors feel that the disappearance of the niche on x-ray films is not proof that the ulcer is healing, I agree with them. There are so many unknown factors regarding ulcer of the stomach and duodenum that such conclusions as these cannot be drawn until those uncertainties are cleared up. It is not known for certain whether cases of ulcer that keep recurring are entirely healed or whether they heal and break down again. I am not certain that the disappearance of a niche which might be caused by the growth of granulation tissue in the crater would mean an entire healing of the ulcer, because if epithelialization does not take place the ulcer is not yet healed. Unsatisfactory epithelialization may account for some of the cases that show symptoms after the niche has disappeared on the x-ray film. It is my impression that one sees the niche in duodenal ulcer very often if one gets the patient in a proper position and sees the niche in profile. I have not been able to demonstrate a niche in a duodenal ulcer as well with the compressor as by the older method of rotation of the patient. I should like to call atten-

tion to a crater, and in checking our results we have been gratified to learn that the errors amounted to less than 4 per cent. May I ask the authors on what experience they base this assertion? Reference has been made to the low percentage of craters reported by myself as compared with those reported by Akerlund and others. I am sure that if one selects a group of cases presenting clinical evidence of active duodenal ulcer, a high percentage of craters will be found, but if one examines as a routine all patients presenting the slightest gastro-intestinal symptoms, either past or present, many will show only a deformity representing an inactive ulcer or ulcer scar, and a smaller percentage of the group will show craters. The latter is the procedure at the Mayo Clinic, and, I am sure, accounts for the fact that fewer craters have been visualized. I think that radiologists are justified in interpreting deformity without a crater as duodenal ulcer, leaving it to the clinician to determine whether the patient is suffering from an active ulcer at the time of the examination, for I am certain that many patients with active ulcer show no crater at the time of examination. I think it would be misleading to teach that it is necessary to see a crater before a diagnosis of duodenal ulcer can be made. In order to elicit evidence of a crater it is necessary to study the mucosal relief, either by manipulation or by pressure apparatus, which has recently been emphasized on the continent. However, the latter method is not new, for roentgenologists have been studying the mucosal relief of the stomach and duodenum since Holzknecht's time. The only new

development has been the apparatus recently devised for making a record of a mucosal pattern on the film.

DR DANIEL M. CLARK, Santa Barbara, Calif. Dr. Grieco's understanding of our conclusions as to the significance of niche disappearance is entirely correct. We have tried to emphasize that disappearance does not imply complete healing. We briefly described the compression technique in this paper to explain the method by which the present studies were made and not to champion its efficiency as compared with conventional methods of gastro-intestinal study. Dr. Grieco's dissatisfaction with the method is not unusual. In our own experience its advantages were appreciated only after a prolonged period of persistence and patience. Dr. Kirklin has misunderstood our statement with regard to roentgen evidence of ulcer. We said that constant bulbous deformity means that ulcer is or has been present but that the deformity itself does not constitute sufficient evidence to establish the presence of an active ulcer. In other words, deformity may persist after the ulcer has completely healed. Niche evidence means active ulcer but its absence does not rule out ulcer. We can demonstrate the niche in only slightly more than half the cases in which we make a diagnosis of duodenal ulcer. We cited the Mayo Clinic statistics on niche visualization because it was the only available series on the subject in which compression technique had not been used. Their relatively low niche incidence does not in any way reflect against their accuracy in diagnosing duodenal ulcer.

PERFORATED PEPTIC ULCER WITH INTERMITTENT LEAKAGE

HARRY A. SINGER, M.D.
CHICAGO

It is universally believed that, following the initial violent pain the clinical picture and course of a perforated peptic ulcer are relatively uniform. The current teaching with regard to the symptomatology of ruptured ulcer subsequent to perforation may be summarized as follows. In the average case the intense pain of onset continues unabated unless relieved by large doses of morphine or by surgical intervention. If operation is not performed the clinical picture of a diffuse suppurative peritonitis supervenes preceded at times by a temporary subsidence of pain the so-called period of quiescence or repose. In all but a small proportion of cases, generally stated to be less than 5 per cent, the infection progresses rapidly and leads to death within a few days. The small group of patients who recover from the diffuse, purulent peritonitis pass through a stormy convalescence during which surgical drainage of one or more intra-abdominal abscesses is often required.

The classic picture and course following acute perforation as here presented, are by no means constant. In a large percentage of cases the intense initial manifestations rapidly subside and spontaneous recovery ensues.¹ Indeed, in a considerable number of instances within a few hours after the annihilating pain of rupture is experienced the patient feels relatively well and is free from pain except perhaps on sudden movement. If such a patient is first seen several hours or more after the perforation has occurred the clinical picture he presents will be far different from the one described in the classic case. Instead of eliciting the signs of a diffuse, progressive peritonitis in a toxic patient, one finds evidence of a localized, mild, receding inflamma-

tion in an individual who is comfortable and apparently well. As a matter of fact if the patient is not seen before twenty-four or more hours have elapsed, except perhaps for a localized residual soreness, the patient is found to be practically normal. On account of the tranquillity of the clinical manifestations in the post-perforative period Singer and Vaughan have designated this variety of perforation as *forme fruste* to distinguish it from the classic type. The *forme fruste* is closely akin to the "subacute" perforation of Lund² and of Moynihan³ and the covered (*gedeckte*) perforation of Schmitzler.⁴

The reason for the mild postperforative course in the *forme fruste* type is that, immediately or shortly following rupture and extravasation the hole becomes spontaneously sealed, plugged or covered. Because of this occurrence only a limited quantity of gastroduodenal content often trifling in amount, reaches the peritoneal cavity. The degree of soiling is so slight that the peritoneum readily neutralizes the irritating fluid and destroys the relatively few micro-organisms that escape from the stomach or duodenum. The permanent closure of the hole is accomplished by firm adherence to a neighboring organ, especially the liver, but also the pancreas and gallbladder by attachment to the anterior abdominal wall or a tag of omentum and by organization of a fibrinous exudate or of fibrin over a food plug.

In addition to the classic and *forme fruste* perforations there occurs a third type which although relatively uncommon is of both importance and interest to the clinician. In this third form the patient generally gives a history of a typical *forme fruste* rupture with the usual mild postperforative course. Instead however, of recovering completely and more or less permanently he develops in close succession a second similar attack which likewise may be followed by symptoms and signs of a benign localized peritonitis often with prompt recession. The improvement is not as in the so-called period of repose merely subjective and only apparent but is also objective and actual. A third and even a fourth attack may supervene. In most instances the second or third outbreak is followed by persistence of symptoms and the development of a clinical picture quite comparable to that referred to as classic. The unusual sequence of events is best explained by assuming intermittent leakage from a hole in the stomach or duodenum.

The mechanism involved in intermittent leakage is presumed to operate as follows. The initial rupture is apparently followed by extravasation of gastroduodenal content which is limited in amount by apposition of a neighboring structure or fibrin or by obturation with a plug of food mucus or coagulated exudate. The clinical manifestations are those of a *forme fruste* rupture. Separation of the loose adhesions or dislodgment of the plug after a period of time permits a recurrence of the leakage and its attendant manifestations. Should sealing of the hole follow before much material escaped into the peritoneal cavity, the symptoms and signs of a *forme fruste* perforation are

From the Department of Medicine University of Illinois College of Medicine and the Cook County Hospital.

1. Singer H. A. Spontaneous Recovery from Perforation of Peptic Ulcer into the Free Abdominal Cavity. *Arch. Int. Med.* 45: 926-947 (June) 1930.

2. Singer H. A. and Vaughan R. T. The *Formes Frustes* Type of Perforated Peptic Ulcer. *Surg. Gynec. & Obst.* 50: 10-16 (Jan) 1930.

3. Lund F. B. Subacute Perforation of the Stomach with Report of Three Cases. *Boston M. & S. J.* 152: 216-518 1905.

4. Moynihan B. G. A. Subacute Perforation of the Stomach and Duodenum. *Ann. Surg.* 45: 223-237 1907.

5. Schmitzler J. Ueber gedeckte Magenperforationen und ueber die Entstehung der penetrierenden Magenschwueere. *Med. Klin.* 1: 938-942 1912.

repeated. This performance may thus recur several times. At any time, however, spontaneous closure may fail to occur and the escape continue without restriction. In this event the severe pain will fail to abate but will persist and become associated with the usual signs and symptoms of a classic perforation. Repetition of the leakage is prone to occur when following the initial extravasation. Ordinary precautions in the prevention of further escape, viz., abstinence from ingesta and restriction of activity are not observed. A basis for the foregoing explanation of successive attacks of intense, more or less diffuse abdominal pain associated with peptic ulcer is found in a series of clinical observations, some of which will be recorded later.

In reading clinical reports on perforated ulcers, one occasionally encounters a case in which the description of the symptoms is very suggestive of intermittent leakage. An interpretation is generally omitted and when given is not at all in accord with the conception stated. A case in point is related by Walton⁶ in connection with his discussion of acute onset of perforated peptic ulcer. He writes:

A S., a married woman aged 42 had for many years suffered with the characteristic attacks due to a chronic gastric ulcer. Four days before admission she was suddenly seized with violent pain all over the abdomen, which later became localized to the epigastrium and was accompanied by vomiting, which only gave partial relief to the pain. The pain was more severe than any she had experienced in her previous attacks and was sufficient to confine her to bed. After two days it had improved and she was able to return to her work. At 5 P.M. on the evening before admission she was seized with another attack of severe pain which had not left her but had steadily increased and was now described as being agonizing in character. It commenced in the epigastrium and passed to the lower abdomen, "seeming to screw her up." She presented typical physical signs and at operation was found to have a large perforation near the pylorus.

This case is offered by Walton to illustrate the character of what he terms premonitory symptoms which precede perforation. The severe pain experienced by the patient in the foregoing case report four days before admission is apparently considered a premonition of the impending rupture. Walton presumably correlates the second attack of violent pain suffered the evening prior to entrance with the time of occurrence of actual perforation of the ulcer.

Pain which differs decidedly from that of ordinary ulcer distress and also from that of true rupture not infrequently precedes actual perforation. For a period of several minutes, hours or even days prior to rupture the patient experiences an intensification of his former ulcer distress, which, however, does not reach a degree sufficient to require morphine or to force the patient to take to bed. Vomiting frequently accompanies the pain. At times, in addition to the exaggerated simple ulcer discomfort, a sharp, stabbing pain is felt at intervals, generally provoked by sudden or forceful muscular contraction as coughing, sneezing, deep breathing or twisting. It would appear reasonable to ascribe the aggravated simple ulcer distress to penetration and the intermittent stabbing pain to a fibrinous deposit on the serosa as evidence of extension of the inflammation chemical, bacterial or both, to the peritoneal coat. These two types of pain heralding as they do an impending perforation are to be looked on as premonitory symptoms. However intense pain such as was

apparently experienced by Walton's patient four days prior to admission and such as is described in the reports to follow is quite characteristic of actual perforation with extravasation. Violent pain of sufficient severity to annihilate a previously healthy individual can hardly be considered prodromal.

REPORT OF CASES

CASE 1—E. M., a white man, aged 36, who was addicted to the use of alcohol, entered the Cook County Hospital, Aug. 3, 1931, at 11 A.M. He was rather uncooperative and on this account the history and physical examination were not entirely satisfactory. The essential statements recorded in the patient's chart are as follows: Four days prior to entrance, he began drinking heavily. On the second day of his debauch he noted epigastric pain, which, he stated, was mild at the onset but increased gradually in severity until it became quite intense. Physically, tenderness and rigidity were found in the epigastrium and over the upper half of the right rectus. The abdomen however was scaphoid, and peristaltic sounds were present, though diminished in quantity. The patient's breath

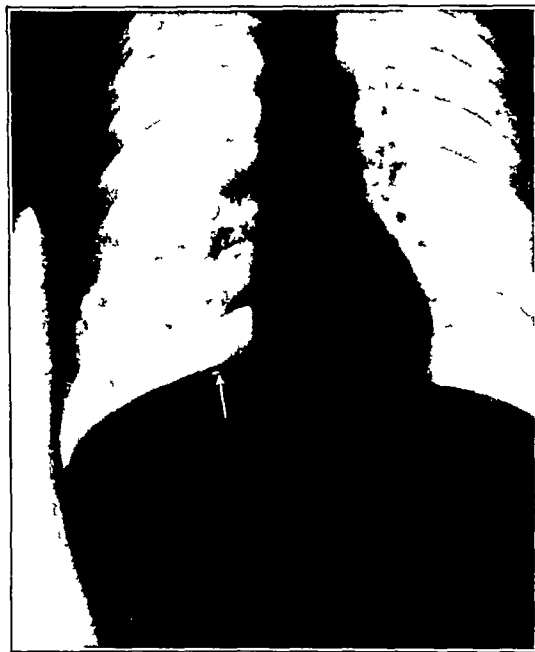


Fig. 1 (case 2)—Pneumoperitoneum in a patient with intermittent leakage from a perforated peptic ulcer. Fluoroscopically the air (indicated by arrow) could not be made to shift with change of position of the patient, demonstrating that the gas was encapsulated. As this roentgen observation was made very shortly after the fourth attack of pain too soon for encapsulation to have occurred as a result of leakage at that time it is logical to assume that the escape of air took place previously.

had a strong alcoholic odor. The diagnosis made by the admitting physician was alcoholic gastritis. This opinion was concurred in by two of the attending physicians after the patient had reached his ward. Here the stomach was aspirated and 1400 cc of a thin watery material obtained. It had an odor of alcohol and kerosene and on titration was found to have 25 degrees of free and 60 degrees of total acidity.

The patient was first seen by me at 6 P.M., seven hours after admission. At this time he was far more comfortable and quite cooperative. By exercising pains in questioning and devoting a requisite amount of time I obtained the following pertinent history. The patient had suffered from ulcer distress periodically for several years. His present attack, which began July 31, three days prior to admission was characterized by pain of a more severe character and was more continuous than his former ulcer distress. Although his sleep was disturbed by it the pain was at no time of such intensity as to require him to take to bed or to summon medical aid. However at 11 A.M. on the day of entrance August 3 the pain suddenly changed its character and became extremely violent. It began

⁶ Walton, A. J. *The Surgical Dyspepsias*, ed. 2, London: Edward Arnold & Co., 1930, pp. 102-103.

in the epigastrium but rapidly spread throughout the abdomen. He writhed about in agony and groaned loudly. Since the pain was so excruciating and since it showed no tendency to moderate he requested that he be moved to a hospital immediately.

The police ambulance was summoned and within ninety minutes of onset of the intense pain the patient was in the hospital admittance room. During the trip he suffered sharp, stabbing



Fig. 2 (case 3)—Minute amount of free air under the dome of the right diaphragm two days after the onset of perforation of a peptic ulcer with intermittent leakage. Clinically it was apparent that the aperture was securely closed.

pain with each jar of the automobile and although anxious to reach the hospital as soon as possible he repeatedly implored the chauffeur to drive slowly and cautiously. After the patient arrived in the hospital the pain began to moderate. As a matter of fact he noted that as long as he lay absolutely quiet on the hospital cart he was comparatively comfortable. Because of the pain occasioned by movement the patient talked as little as possible and resisted every attempt to move him during the examination. At the present time he was rather comfortable, although sudden motion still elicited pain.

In the light of this additional information the diagnosis of perforated ulcer seemed likely. At this time the tenderness had diminished in degree and extent and was practically limited to the epigastrium. A shifting zone of tympany over the liver, which could be demonstrated by light percussion, was confirmative. A fluoroscopic examination led to the visualization of free air, which for practical purposes established the diagnosis of perforated ulcer.

After the perforation was discovered, operation was recommended but the patient refused to submit. It was difficult for him to understand why during the height of his pain operation was not suggested and now that he had apparently recovered laparotomy was being advised. No great amount of time or energy was lost in urging operation, since it was believed that the perforation had undergone spontaneous closure and that leakage had ceased. Nothing by mouth was permitted, fluids being furnished by the subcutaneous route. The patient was instructed to lie continuously on his left side.⁷ The patient continued to feel comfortable throughout the evening and slept fairly well that night, being awakened only two or three times for short periods which were not painful.

The following morning, August 4, the patient felt hungry and asked that he be served breakfast. On being informed that the orders were to withhold food and fluids by mouth for two more days he surreptitiously obtained and ingested a cup of coffee, two slices of buttered bread and a dish of prunes. Approximately an hour later he was seized by intense pain,

which, he stated, was similar in practically all respects to that of the preceding day. When examined shortly after the onset of this second attack of intolerable pain the patient was found to be diffusely rigid and tender. It now required no persuading to obtain his consent to operation.

At laparotomy, performed within an hour of the onset of the second severe pain a small amount of turbid fluid was encountered, as well as an injection of the upper abdominal peritoneum. There was a relatively large amount of fibrin deposited in the right hypochondrium. Covering the pyloric region of the stomach and hiding it from view was the edge of the liver. When this structure was raised, a hole 2 mm. in diameter in the anterior wall of the stomach near the pylorus was exposed. A thick layer of fibrin, which surrounded the perforation, was found on the serosa of the prepyloric region of the stomach and the opposing portion of the under surface of the liver. The amount and character of the fibrin suggested a perforation of at least several hours standing. The hole was sutured and covered by a flap of omentum. Recovery was uneventful.

The pathologic changes encountered appeared to be compatible with the sequence of events suggested by the clinical course: perforation into the free abdominal cavity at the time of the first attack of intense pain; limitation of leakage due to spontaneous closure of the hole by the overlying liver, indicated anatomically by the deposit of a thick ring of fibrin and clinically by cessation of pain and recession of signs of peritonitis; reopening of the hole due to separation of the liver from the gastric wall following the intake of food and recurrence of leakage indicated by the second attack of annihilating pain.

CASE 2—I. R., an automobile mechanic aged 23, was admitted to the Cook County Hospital, Oct. 7, 1931, with an entrance diagnosis of penetrating ulcer. He related that in March of the same year he began to suffer from mild postprandial pain of ulcer type which continued to trouble him periodically until July 11, 1931. Beginning with this date his former ulcer pain became more intense, persistent and refractory. October 5, two days before admission at 5:30 p. m., while straining in an attempt to tighten a bolt with a wrench, he experienced an extremely severe pain in the epigastrium.



Fig. 3 (case 3)—In this film taken two days after figure 2 the air is seen to have been completely absorbed. The patient had fully recovered spontaneously.

He felt, he stated, as though something internal had been torn loose. He doubled over and rolled from side to side, groaning continuously. After writhing about for fifteen minutes or so without relief, he sat astride the front seat of the automobile he was repairing. He remained practically immobile for approximately forty-five minutes, after which time he cautiously changed clothes. He then returned home on the street car, sitting bent forward with his arms crossed over his abdomen.

⁷ Vaughan, R. T. and Singer, H. A. The Value of Radiology in the Diagnosis of Perforated Peptic Ulcer. Surg. Gynec. & Obst. 49: 593-599 (Nov.) 1929.

⁸ The rationale of this procedure is given by Vaughan and Singer.

The walk to his house from the street car entailed a great deal of effort and was attended by sharp lancinating pain whenever he stepped from the pavement to the street. He retired that night without eating and experienced no difficulty in falling asleep. However, throughout the night he was awakened by sharp stabbing pains, which were readily relieved by change in position.

The following morning, October 6, he arose at the usual hour feeling weak but free from sharp pain. He ate a little corn meal and proceeded to return to work. He occupied himself with light tasks which, however, in his present state required a good deal of effort to perform. At noon he felt the old epigastric gnawing which led him to partake of a bowl of soup which afforded relief. At 2 p. m. the distress reappeared and soon became associated with nausea. Vomiting promptly ensued and while still straining he experienced a second attack of extremely violent upper abdominal pain which again suggested to him the sensation of his entrails being torn from their attachments. He squirmed about in an effort to obtain relief but soon adopted the supine position and remained there fearful of moving. After five hours had elapsed his employer returned and he ventured to move about. Guardedly he washed his hands and face and changed clothes, procedures which ordinarily took five minutes but which on this day because of pain of motion occupied a full hour. He again returned home on the street car and while riding became aware of an additional pain in the right lower quadrant. Sudden starting and stopping of the trolley led to stabbing pains throughout the abdomen. In walking from the street car to the house he was forced to exercise a great deal of caution since the slightest jolt led to knife-like pain. After arriving home he reclined but did not eat. Within a short time he became fairly comfortable and remained relatively free from pain unless he moved suddenly.

At 11 p. m., thinking that he required a bowel movement, the patient took half a bottle of effervescent magnesium citrate. Within a short interval he was seized for the third time by most excruciating pain, which was perhaps even more intense than that of the two previous attacks. At least it was more persistent and on this account at the end of an hour's intolerable agony he summoned a physician. The patient noted himself that the abdomen was "firm as a rock." The physician diagnosed appendicitis, administered a hypodermic and advised hospitalization. The narcotic led to some amelioration of the pain but not complete relief. The patient entered the hospital, Oct. 7, 1931, at 2:30 a. m., at which time his temperature was 99.8 F., his pulse rate 100, and the respiratory rate 28. The abdomen was scaphoid. There were noted slight tenderness and moderate rigidity of the right upper quadrant. The peristaltic sounds were normal in quality but diminished in quantity. The white count was 16,000. The admitting physician, although suspecting that a perforation had occurred, could not reconcile this opinion with the paucity of physical signs. He decided, therefore, to admit the patient with the diagnosis of penetrating ulcer. During the night the patient was awakened at intervals by pain of a sharp nature located on the right side. In the morning he awoke feeling quite comfortable. Since the house physician who admitted the patient had failed to leave orders to the contrary, breakfast was served him at 7:30 a. m.

For breakfast the patient drank a few sips of coffee and ate a small portion of cooked cereal. Immediately following the meal he suffered a fourth attack of excruciating pain. He again doubled over writhed about in agony and broke out in a profuse, cold sweat. Examination by the senior intern shortly following this episode indicated that the right rectus was rigid and prevented satisfactory palpation of the underlying structures. I saw the patient for the first time at 11 a. m. that morning (October 7), at which time I elicited the foregoing history. The patient appeared to be quite comfortable and stated that he was but when asked to move he did so slowly and cautiously. He avoided deep inspiration and after talking for a period of time he would become dyspneic and be forced to pause. The shortness of breath was indicated also by dilatation at times of one or both nostrils during inspiration. Physically the patient presented no distention and in fact the abdomen was scaphoid. The right upper quadrant was moderately tender on deep pressure elsewhere the tenderness was

only slight. There was no actual rigidity, but muscle defense was noted when deep pressure was made in the right hypochondrium. The temperature was 99.8 F., the pulse and respiratory rates 96 and 24, respectively. Fluoroscopically (fig. 1) a very thin zone of radiolucence could be seen in the upright but not in the left lateral position.

The diagnosis of perforated peptic ulcer with intermittent leakage was made and operation advised. An upper right rectus incision was recommended, since the signs of peritonitis corresponded in location with a duodenal rupture. When the peritoneal cavity was opened a small amount of free fluid which was turbid was found. Throughout the right upper quadrant thick fibrin was deposited. The under surface of the filled gallbladder was in apposition with the anterior wall of the first portion of the duodenum. Raising the gallbladder led to the exposure of a 2 mm perforation surrounded by a thick gelatinous deposit. Palpation indicated that the wall of the duodenum was indurated and thickened for a distance of 1.5 cm radially. The under surface of the gallbladder was covered by an edematous fibrin similar to that deposited on the duodenum about the perforation. In addition to fresh fibrin there were veil-like strands in the right hypochondrium, which appeared to be older and in the process of early organization. The perforation was sutured with silk and covered by an omental flap. The patient made an uneventful recovery and was discharged October 18, feeling quite well.

CASE 3—M. B., a white man aged 47, was admitted to the medical service of the Cook County Hospital, April 16, 1932, at 7:40 p. m., with a diagnosis of penetrating peptic ulcer. He stated that for eight years he had suffered periodically from a rhythmic distress. This was of a burning nature, located just beneath the tip of the xiphoid process and possessed the characteristics generally ascribed to an uncomplicated ulcer. The night before entrance the patient felt nauseated and attempted to vomit but did not succeed. The following day, April 16, he felt well until 4 p. m., when, while sitting in a rocking chair, he experienced sudden, annulating pain. At the onset the patient felt as though his entire abdominal contents were being pulled asunder but within a few seconds the pain became sharp and knife-like. He was helped to bed, where he writhed about and groaned in extreme agony. A physician, on being summoned, responded within twenty minutes of onset. He found the upper abdomen boardlike and tender and advised immediate hospitalization. A police ambulance was ordered and arrived ten minutes later.

The patient had difficulty in dressing on account of the pain incurred by movement. He found it necessary to hold himself rigid (immobilize the abdominal muscles) in order to avoid the stabbing pain occasioned by motion. The ride in the ambulance was extremely distressing, since even the slightest jar provoked sharp, lancinating pain. When the patient reached the hospital, an hour or so after the onset of the intense pain, he was placed on a hospital cart, where he remained for fifteen minutes before he was examined. When lying quiet the patient felt rather comfortable and when questioned by the admitting physician made no complaint of pain. After a cursory examination the physician decided he was dealing with a "penetrating" and not a perforated ulcer. He gave the patient the option of remaining or returning home. The patient, who was feeling greatly improved, chose to leave and was given a prescription for a mixture of alkaline powders.

As the ambulance on its return was approaching his house, the patient experienced a second attack of violent pain, which was quite similar to the first. He did not return to the hospital then and there, since he expected to obtain relief from the medicament prescribed. With a great deal of effort and agony he managed to climb a flight of stairs. He returned to bed and sent the prescription that he had received at the hospital to a nearby drug store to be filled. The pain, however, was so intense that he was unable to wait until the messenger with the prescription returned. He requested a neighbor who owned an automobile to transport him to the hospital about fifteen minutes after he had returned from there. The second trip occasioned more suffering than the first, each bump in the road producing a sharp cutting abdominal pain.

After the patient had waited in the entrance room of the hospital for a few minutes, the pain moderated considerably.

He was again briefly questioned and hastily examined by the same physician who admitted the patient with a diagnosis of penetrating ulcer and assigned him to a medical service. In the ward the patient's temperature at 9 p. m. was found to be 99.6 F., the pulse 76 and the respirations 24. The nurse's notation made at this time read, 'Complains of pain in abdomen but does not appear acutely ill.' The resident physician, who was summoned on the patient's arrival in the ward observed that there was moderate tenderness and rigidity in the epigastrium and right upper quadrant slight tenderness throughout the abdomen and a positive peritoneal reflex. Although the history pointed to a ruptured ulcer the resident felt that the excellent general condition of the patient and the lack of apparent agony were incongruous. He therefore likewise assumed the presence of a penetrating ulcer rather than an actual perforation.

The patient without medication promptly fell asleep. At 1 a. m. it was noted by the nurse that his face was flushed. The rectal temperature was found to be 102.4 F., the pulse rate 92 and the respiratory rate 22. At 5 a. m. the temperature was 100.4 F., the pulse and respiratory rates 88 and 22 respectively. The temperature at 8 a. m. had dropped to normal the pulse rate had decreased to 60 and the respiratory rate was 18. At relatively long intervals throughout the night the patient was awakened by sharp pain. He would change position and almost immediately fall back to sleep. After 8 o'clock the following morning (April 17) the patient experienced no pain unless he moved suddenly. When first seen by me about noon of April 17 which was the day following admission the patient had already received a glass of water and several doses of cream and milk and Sippy powders. He was sitting in bed reading a newspaper without any sign of concern or discomfort on his countenance. Slight tenderness was elicited in the right upper quadrant, associated with muscular defense when deep pressure was made. Peristaltic sounds were normally present.

The history and clinical signs pointed directly to a perforated ulcer with the intermittent leakage. In order to determine if possible the correctness of the diagnosis a fluoroscopic examination was made. A collection of free intraperitoneal air was visualized and was assumed to have escaped from the stomach. As plate service is not available on Sunday, no film was obtained. The diagnosis of a perforation being established the question as to the patency of the hole arose. It was quite apparent at this time that no leakage had occurred subsequent to the time the patient had entered the ward. As the correct diagnosis was not made on admission the patient had received fluids and powders by mouth in spite of which no pain was experienced. It was safe to assume, therefore that the hole was effectually closed. On this account operation was deemed unnecessary and the patient was treated conservatively. In order to prevent as far as possible the reopening of the hole and subsequent leakage, the patient was ordered to lie on his left side and take nothing by mouth. Fluids were furnished rectally and subcutaneously.

The patient slept well that night except for an occasional mild pain. The following day he complained of hunger and stated in reply to a question that his pain was very slight. The temperature, pulse and respiratory rates were normal and remained so throughout the rest of the patient's stay in the hospital. After fluids and nutriment by mouth had been withheld for three days, the routine Sippy treatment for ulcer was instituted. In the meantime the radiologic examination (fig 2) made on April 18, two days after onset, showed a diminution in the amount of air as compared with the fluoroscopic observation of the previous day. April 20 four days after the acute manifestations, no free air was demonstrable (fig 3). The further course was entirely uneventful. The patient was discharged, May 5, nine days after onset, on a modified Sippy diet. He failed to return for further observation.

COMMENT

Knowledge of the clinical behavior of a perforated ulcer with intermittent leakage is essential if mistakes in diagnosis and management are to be avoided. A number of "medical" disturbances, including gall-

bladder disease, penetrating ulcer, coronary thrombosis, tabetic crises and diaphragmatic pleurisy, are erroneously diagnosed. Fortunately the mistake although embarrassing, is not as a rule very costly. Should the unrecognized perforation be securely closed, the recovery will generally occur in spite of food intake. If, on the other hand, owing to the administration of food, adhesions that originally sealed the hole are torn and further leakage is permitted the symptoms and signs are usually sufficiently definite to lead to a diagnosis of "surgical abdomen" and to operation. As the true cause of the symptoms under these circumstances is not known, the initial incision is often improperly placed. This occurred in a recent case of perforated ulcer which I saw for the first time following laparotomy. The history was that of recurrent attacks of intense pain and the physical signs were those of tenderness and muscle defense on the right side. Acute appendicitis was diagnosed and a right lower quadrant incision made. It was therefore necessary to make a second incision in the upper part of the abdomen to deal with the perforation. Fortunately, the patient made a good recovery.

The diagnosis can generally be made by eliciting a careful history. The occurrence of a periodic, rhythmic pain of ulcer character over a period of months or years is frequently obtained if pertinent questions are asked. An account of violent pain indicating the occurrence of perforation followed by mild postoperative symptoms is usually forthcoming but often requires adequate interrogation. It is necessary to have the patient relate the story minute by minute and when this is done it is surprising how accurately even patients with limited intelligence can recall each step in the development of the illness. The x-rays are often of value in establishing the diagnosis by permitting visualization of free air. However, the absence of a spontaneous pneumoperitoneum particularly in the cases with limited leakage is not uncommon⁹ and does not militate against the diagnosis of perforated ulcer.

The treatment of cases with intermittent leakage follows the rules accepted for ruptured ulcer in general. Since there is a tendency toward spontaneous closure in most of the instances presenting intermittent leakage those principles recommended for the treatment of forme fruste perforations¹⁰ are particularly applicable. To avoid misunderstanding it is again emphasized that laparotomy is resorted to in all cases of perforation in which the patient is seen early. Only in those instances seen relatively late, when spontaneous closure of the hole can be established with a reasonable degree of certainty, is operation not employed as a routine. Whenever the slightest doubt exists as to the patency of the perforation, operation is insisted on.

SUMMARY

In addition to the classic and forme fruste types of perforated peptic ulcer there is a third variety which is characterized by intermittent attacks of extremely violent pain. The atypical symptomatology is presumed to be due to intermittent leakage occasioned by alternate spontaneous sealing and reopening of the perforation. The reopening frequently follows the intake of ingesta which is not prohibited since the true condition

9 Vaughan R. T. and Singer H. A. Further Observations on the Value of Radiology in the Diagnosis of Perforated Peptic Ulcer. *Am. J. Surg.* 21: 392-396 (Sept.) 1933.

10 Singer H. A. and Vaughan R. T. Treatment of the Forme Fruste Type of Perforated Peptic Ulcer. *Surg. Gynec. & Obst.* 54: 945-952 (June) 1932.

is seldom recognized. At any time following recovery from the first attack of pain spontaneous closure may fail to occur and the picture of a classic perforation supervene. In two of the three illustrative cases described, operation was performed after the second and fourth attacks of pain, respectively. In the third case spontaneous recovery ensued following the second outbreak of annihilating pain. Knowledge of the clinical manifestations of a perforated ulcer with intermittent leakage is necessary to avoid errors in diagnosis and treatment.

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INFLUENCE OF TYPE OF CURRENT ON POSTOPERATIVE COMPLICATIONS IN TRANSURETHRAL SURGERY

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It was over a decade ago that the attention of American urologists was summoned to the efficacy of transurethral surgery for the removal of many of the large prostatic obstructions. Throughout these years they have been repeatedly advised of the ever increasing value that the Caulk cautery punch seemed to afford for the removal of such obstructions. This operation has fulfilled the obligations that were demanded of it as an acceptable surgical procedure, namely, simplicity of operative technic, applicability, freedom from complications and disabling sequelae, negligible mortality rate and, above all, satisfactory and lasting results.

The results of this operation have been detailed specifically on innumerable occasions and shown to be productive of excellent results in at least 80 per cent of all obstructions. Last year one of us¹ reported an analysis of 781 cases. In this series there were 100 very large prostates that were removed by this method, 70 per cent of these patients were completely relieved of obstruction for from three to ten years, and 22 per cent were sufficiently comfortable to refuse further operative relief. Throughout the whole series of cases attention has always been called to the necessity of repeat operations in order to spare the patient prolonged instrumentation and to protect him from the creation of too much raw surface for absorption and hemorrhage, as well as to allow nature to aid in the process of resolution through drainage. These factors still appeal to us as fundamental for the proper conduct of any type of transurethral prostatic operation.

The essential requirements for transurethral surgery are

- 1 The same preparation as for prostatectomy
- 2 A sincere respect for the urethra and an aim to protect it from unnecessary trauma
- 3 The selection of the best physical agent for the removal of the obstruction and the proper administration of this agent
- 4 Vigilant postoperative care

Our continued faith in and deep regard for this type of surgery makes us exceedingly anxious for its proper

development. It is gratifying to observe the tendency of urologists at the present day to adopt transurethral surgery in an increasing percentage of cases. The inclination at present is to employ various types of high frequency currents for the technical extraction of tissue. Whatever method of removal through the urethra is employed, it seems now to be definitely proved that permanent cures can be effected, and in this paper the late results will not be considered. The influence of the method of removal of tissue with reference to its effects on postoperative complications and on the mortality rate will be discussed.

Urologists find themselves today exceedingly disturbed concerning the whole problem of handling the obstructing prostate. This current surgical restlessness has resulted from a sudden epidemic of instruments and currents which have been thrust on them and placed, in many instances, in the hands of those who were entirely unprepared to cope with their intricacies. The child is showered with an intoxication and it is not yet known what the child's resistance will be.

It must be definitely understood that any type of transurethral prostatic removal is a delicate, highly technical procedure, requiring the utmost skill and thorough training on the part of the surgeon and that every sincere effort should be made to obviate the dangers that are lurking around in case of improper application. Unless the profession promptly comes to the realization of these important features, this type of surgery, which should have a brilliant future, will not survive.

Urologists are thoroughly cognizant of the necessity for accurate preliminary treatment and detailed postoperative care but as yet are without agreement as to the most satisfactory method of operative application. We have felt for a long time that the removal of obstructing tissue with the cautery punch was far safer than the extraction with high frequency currents. The cautery seems to remove the tissue effectively and to obviate hemorrhage and absorption through mild coagulation, it is not attended with complications that can be ascribed to the cautery, whereas the high frequency currents appear to possess natural inherent dangers and seem to create certain postoperative complications that can definitely be attributed to the effects of these currents. In order to verify this, and with a hope of protecting transurethral surgery from any unnecessary hazards, we have undertaken two phases of this important problem: the first, an experimental and clinical study of the effects of various high frequency currents and the actual cautery on experimental mediums, animal and human tissue; the second, a compilation of statistics secured from the members of this association relative to the effects of these methods on the postoperative course and the mortality rate.

EFFECTS OF VARIOUS HIGH FREQUENCY CURRENTS

The various electric currents have been used rather promiscuously for the removal of prostatic obstruction, the operators in most instances have been led to the belief that they possessed no dangerous qualities, were practically harmless, and certainly created no deleterious distant effects on tissue. Most urologists have been fascinated by the manner in which tissue can be removed by high frequency resection, but few have stopped to analyze any of the inherent potential dangers in the manipulation of these high tension currents, and most of them have been entirely ignorant of their physical characteristics. It was only after a late sec-

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¹ Caulk, J. R. Effects of Use of Cautery Punch Operation on Necrosis for Prostatectomy. J. A. M. A. 99: 1828 (Nov. 26) 1932.

ondary hemorrhage or a severe urinary sepsis or some other unpleasant sequel of an operation that had gone nicely, that they began to puzzle and wonder what branch of technic had been responsible for this consequence. The manufacturers had said that there was no heat except at the site of the burn. It was therefore supposed that something in the manner of manipulation,

TABLE 1—Comparative Temperature Changes of High Frequency and Thermal Cautey in Gelatin

Time Seconds	Distance 0.4 cm	Temperature Change Degrees C	
		High Frequency	Thermal Cautey
8	0.4 cm	8.17	0
		10.15	0
			0
			0.15
			0.610
			1.01
			1.1
			2.410
			2.90

Current value 900 milliamperes
Punch was heated from 5 volts

too much coagulation or too great a rapidity of the strokes had been responsible for this eventuality. Usually, however, a satisfactory explanation was not at hand. It seems therefore propitious that a more thorough knowledge of the fundamental workings of these currents be undertaken.

We were fortunate in securing Mr. Wilbur Harris of the Department of Physics to work with us for a period of nearly four months. During this time the effects of the various currents and the actual cautery were tested on experimental mediums, heart muscle, fat, meat, and animal and human tissue, particularly the prostate. The results of these experiments were reported in detail before the American Association of Genito-Urinary Surgeons in May. It was promptly determined that the deleterious effects of the various high frequency currents that are employed for the removal of prostatic tissue resulted from heat and that electrolysis and destruction of cells through electrical vibration played an insignificant role, if any. In order to determine the heat effects in tissue at definite distances and with definite current values and time exposures, the standard thermocouple galvanometer combination was used. The thermocouple was placed at different distances in the tissue, away from the actual site of application of the current or cautery, and the temperatures were recorded at repeated intervals following the applications.

In the experiments, an effort was made to mimic as closely as possible a typical transurethral operation, not only were the amount of current and the time of application regarded but the proper cooling time was allowed and the tissues were constantly flooded with water. In actual experiments on the prostate, the thermocouple was placed into the prostate through the perineum by means of trocars in a manner similar to the application of radon seeds and in the suprapubic operations both animal and human, the thermocouples were placed at measured distances in the gland away from the site of the burn. It was shown that with the high frequency currents which were usually employed, whether the gap or the tube machine, definite elevations of temperature were produced in the mediums or tissues away from the point of burning, and the degree of heat varied according to the distance, the current value and the time

of application, and depended not on conduction but on production in tissue as it came through between the two electrodes and concentrated at the point of burning. With cautery applications or removals, on the other hand, no such elevations of temperature were registered after repeated applications. For instance, at 0.8 cm. away from the site of the burn, it required seven applications of the cautery heat for three seconds each to reach an elevation of 0.03 degree C, whereas with the high frequency current of only 500 milliamperes, at this distance and with the same application time, a 132 degree elevation was recorded. Throughout the experiments it was found that high frequency currents often generated high temperatures. At 0.4 cm. away from the point of application with the use of a 900 milliamper current value, applied for two three second applications there was produced in gelatin a 25 degree elevation of temperature. The same high elevations of temperature were persistently recorded in the prostates of animals and man following the application of these electric currents.

Operators have been seriously deceived by the appearance of the tissue within the loop of the resection apparatus. Owing to its good preservation, it has naturally been thought that there could be no excessive heat in the tissue left behind. This is fallacious for the reason that the tissue within the loop is beyond the heat path between the two electrodes and receives its heat only through conduction from the loop, whereas the remaining tissue beneath the burn is exposed not only to the conduction heat from the loop but more particularly to the concentrated heat between the electrodes.

EFFECTS OF THE ACTUAL CAUTERY

In no instance did we find, even after repeated applications of the actual cautery to the various tissues or with the cautery punch removals of prostatic obstruc-

TABLE 2—Temperatures Produced in a Transurethral Prostatic Resection Employing High Frequency Currents

Temperature Before Cut Centigrade	Temperature Immediately After Stroke Centigrade	Duration of Cutting Stroke Second	Current Value Milli amperes	Comment
37.60	40.40	5	900	Four minute pause
37.70	40.3	8	900	
37.7	41.7	6	700	
37.70	40.05	12	700	
38.01	41.37	7	900	Cutting high
38.00	42.11	9	700	
38.04	41.05	8	800	
38.70	40.7	10	900	
38.70	40.8	6	900	On lateral lobes
38.60	41.78	8	900	
38.0	41.06	8	7.0	
38.11	41.05	7	8.0	
38.37	41.83	9	800	Cutting near median portion
38.1	41.73	5	900	
38.2	40.31	7	8.0	Internals again Median incision
38.14	41.85	6	900	
38.14	41.25	7	8.0	

tion, an elevation of over 3 degrees. Table 1 expresses this comparison admirably. At a distance of 0.4 cm. from the point of application, it is noticed that following an application for three seconds of a 900 milliamper current value there was nearly a 9 degree rise of temperature, the second application produced 19 degrees, whereas with the cautery punch applied to the same surface under the same condition it required four applications to reach 0.1 degree and nine applications to produce 2.9 degrees.

Table 2 shows the temperatures recorded during a prostatic resection operation in which the high frequency current was employed. The patient had a bilateral hypertrophy. The thermocouple was inserted into the prostate through the perineum. Resection was done chiefly on the lateral lobes, mostly away from the site of the thermocouple. It is noticed in the fourth

of a centimeter away which are entirely incompatible with the life of cells, the thermal death point of tissue being from 45 to 47 C.

HISTOLOGIC STUDIES

We have made numerous histologic studies at different intervals of the tissue remaining after the application of high frequency currents, and it has been uniformly observed that there are three definite zones produced:

1 Coagulation necrosis

2 A zone of fragmentation in which the cells have lost their staining qualities and are broken up, in many instances. The nuclei are pyknotic, and the cytoplasm shows vacuolization and fragmentation. This zone shows copious hemorrhage throughout the tissue.

3 A more or less normal zone, but the cells show desquamation and evidence of shrinkage.

It is this deep heat effect that is evidently responsible for many of the late sloughs and the erosion of vessels that creates the tendency to secondary hemorrhage and sepsis. These deep effects are never observed following cauterization.

It was also determined that the paths of heat throughout the body follow the deep vessels and the highly vascular tissues and possess a selective effect for electrolytic fluids, for instance if the rectum is crushed with a clamp and exudate is allowed to accumulate, the heat will concentrate on this point even though the electrodes were not in the vicinity. This should have a definite bearing on the clinical application to resection and signifies the necessity for a thorough understanding of the bowel condition at the time of operation. A constipated stool, infected fissures or hemorrhoids would tend to concentrate heat and might enter into the creation of a recto-urethral fistula. In many of the experiments it was noted that high elevations of temperature were produced in the rectum, at times more pronounced than in the prostate.

The conclusions to be deduced from these experiments are that high frequency currents produce heat in tissues away from the site of actual burning, often

TABLE 3—*Temperatures Produced in a Human Prostate by Applying Cutting Currents from a 1 Mm Coagulating Ball in an Operation Preliminary to Prostatectomy*

Temperature Before Application Centigrade	Temperature Immediately After, Centigrade	Duration of Application Seconds	Current Applied, Milli amperes	Comment
37.40	46.02	2	700	Water running suction functioning, thermo couple approximately 2 cm from point of application of current.
38.00	41.26	2	700	
38.72	47.01	2	700	
38.96	43.70	3	700	
38.96	46.86	3	600	
39.70	41.74	4	600	
38.28	41.90	3	600	about 2 minutes except in two cases in which it was longer.
38.36	47.71	4	500	
38.64	49.66	6	00	
37.4	42.1	1	1100	In rectum
49.1	43.2	1	1100	In rectum
59.3	63.0	1.5	1100	In prostate 1 cm from application
40.9	51.9	1	700	
41.7	41.9	1	700	In prostate 1 cm from application
41.3	50.5	1	700	In prostate 1 cm from application

from the last line and in the last line, when the current applications were made near the median portion, that the temperature elevations were exceedingly high. It is fair to assume that these elevations were produced in other portions of the gland but could not be recorded because of the distance from the thermocouple.

Table 3 shows temperatures recorded in the human prostate following suprapubic exposure with the thermocouple placed in the gland at a distance of 2 cm from the site of application of current. At this distance, temperature elevations of from 8 to 12 degrees are recorded following very short applications of current. The lower part of the table shows an elevation of 26 degrees in the third line, at a distance of more than 1 cm from the source of application with a high current value but with a short application of only a second and a half.

Table 4 gives temperature records produced during the process of a cautery punch operation. With the thermocouple in the prostate placed through the perineum and exactly in the same manner and apparently at the same distance as for the high frequency measurements, the highest rise of temperature was less than 2 degrees.

The slight heat elevations following the cautery applications are due entirely to conduction, that is, they extend from the point of application down into the tissue, but the high frequency currents are entirely different; the heat in tissue is produced as the heat waves come from one pole to the other. It was furthermore demonstrated that the low coagulating currents, which apparently cause more visible surface necrosis, generate far less heat in the tissue. For instance, with the usual coagulating current of 300 milliamperes or about one third of the cutting type, the amount of heat generated in the tissue is one ninth of that produced by the corresponding cutting current. In most instances following the application of the high frequency current, temperature elevations have been recorded even at a distance

TABLE 4—*Temperatures in the Human Prostate Produced in a Transurethral Operation Employing the Cautery Punch*

Temperature Before Cut	Temperature After Cut	Time Employed Seconds		Comment
37 50	37 50	3	}	Two minutes between cuts
37 59	37 59	3		
37 83	37 83	2 5		
Four other cuts were made in this operation but data could not be obtained				
Data below are for a different case				
37 62	37 62	3	Temperature in 1/2 minute 39 06 C	
37 62	38 22	3	in 1 minute 37 08 C	
37 87	37 87	4 5	Temperature in 1/2 minute 38 96 C	
39 06	39 06	4	maximum reached 39 18 C	

beyond the thermal death point of the tissue, that cautery heat does not penetrate to such depths, its only heat resulting from conduction and being superficial, that the coagulation currents produce far less heat in tissue than the cutting, that the heat generated by high frequency currents is accumulative and that hence a proper cooling time should always be given between current applications, in order to preserve as closely as possible the normal blood flow through the prostate. This normal flow was determined in our experiments

to be 0.68 Gm of blood through a cubic centimeter of tissue per minute. With this in mind, it is highly essential in removing prostatic tissue with these currents to use currents of as low value as possible, to apply them quickly, to move from one place to another, never repeating the application at the same place, and, in case

TABLE 5—Total Number of Punches (711)

19 operators	
Total hemorrhage	
Primary mild	01
Primary severe	11
Cystotomy necessary	40
Secondary, mild	11
Secondary severe	41
Cystotomy necessary	1
Total cystotomies required in 0.7% of all cases	
Severe hemorrhages primary and secondary 2.1% of all cases and 2.1% of all hemorrhages	
Recto-urethral fistulas	0
Temporary incontinence	1
Permanent incontinence	1
Urinary sepsis mentioned by 22% of the operator and as a cause of death in 20 cases one fourth as many as the resections	
Extravasation	1
Stricture of urethra	1
Perivesical abscess	1
Phlebitis	1
Rupture of bladder	1
Peritonitis	2
Mortality	10.7%

of hemorrhage, to use low coagulation. Extensive resections requiring excessive application of current is to be condemned, since the penetrating heat produced near the outer surface of the prostate might lead to late sloughing and erosion beyond the confines of the gland and produce extravasation, bladder and urethral ruptures and possibly recto-urethral fistulas.

TABLE 6—Total Number of Resections (1,073)

196 operators only 7.67% cases had definite data concerning hemorrhage	
Total hemorrhage	917 10.1%
Primary mild	272
Primary, severe	161 2.1% of total
Cystotomy necessary	8 10.2% of hemorrhage
Secondary mild	278
Secondary severe	106 1.3% of total
Cystotomy necessary	20 9.4% of hemorrhage
Total cystotomies required in 1.7% of all cases	
Severe hemorrhages primary and secondary 3.4% of all cases and 3.4% of all hemorrhages	
Recto-urethral fistulas	5
Temporary incontinence	113
Permanent incontinence	33
Urinary sepsis mentioned by 5% of the operators and as a cause of death in 91 cases four times as many as the punches	
Extravasation	7
Stricture of urethra	4
Perivesical abscess	4
Phlebitis	2
Rupture of bladder	1
Peritonitis	1
Gangrene of bladder	4
Perforation of bladder	2
Rupture of diverticulum	1
Ischio-rectal abscess	1
Perineal abscess	1
Triangular injury	1
Pelvic abscess	1
Torn bladder neck	1
Peri-urethral abscess	1
Electrocution	1
Mortality (deaths 392)	3.74%

It seems certain also that the repeated applications of heat to the region of the internal vesical sphincter could devitalize the muscle sufficiently to create incontinence of urine, and, finally, that the slough produced by excessive burning might be productive of necrosis of a sufficient extent to cause late secondary hemorrhage and urinary sepsis.

In dealing with the large obstructions, it is therefore obvious that repeat operations rather than extensive single stage procedures must be employed for the sake of safety. We have demonstrated with the Caulk punch operation, on frequent occasions, that large amounts of obstruction can be easily removed at one operation, but the postoperative course is not as smooth as in the less radical removals. In extensive resections two of the important principles of surgery are ignored, namely, the insult to the urethra through prolonged instrumentation and the creation of an extensive raw surface with inadequate drainage, such as can be afforded by an indwelling urethral catheter. In the tremendous prostates which we feel should demand repeat operations, considerable time is often necessary to effect a proper functional result. If the subject is a poor surgical risk it is particularly important to minimize each procedure, and the time element must play no role. In a younger subject, who is physically sound, where time may be important, we should prefer to do a prostatectomy.

In order to compare the effects resulting from the various operative procedures and in an effort to determine whether the experimental results possessed a true clinical significance, we have tabulated data relative to

TABLE 7—Serious Complications Which Caused Death Aside from Ones Already Mentioned*

Punch		Resection	
Total punch death	81	Total resection death	30
Sepsis	20	Sepsis	91
Embolus	1	Embolus	1
Apoplexy	2	Apoplexy	7
Cardiac	6	Cardiac	24
Shock	2	Shock	19
Septicemia	2	Septicemia	8
Pyelonephritis	11	Pneumonia	20
Uremia	2	Uremia	21

In comparing the two series it is noteworthy that embolus occurred almost ten times as frequently following electrical resection. Uremia resulted over five times as commonly following resection as it did with the punch operation which unquestionably testifies to the lack of proper preparation in many of the cases in which operation has been performed by the resection method and urgently signals the strict necessity for following in the precepts of urology in the way of preliminary preparation.

The complications that have ensued from these different operations performed by numerous operators throughout the country. We are indebted to the men who have furnished us with their operative material.

COMPARATIVE STATISTICS

Questionnaires were sent to more than 800 urologists, and replies were received from 244. These 244 operators have performed an aggregate of 15,488 trans-urethral operations. Of these, 7,415 were performed with the various punch techniques and 8,073 with high frequency resections. The various punch operations were performed by 159 operators, 196 had done the resection, and 141 had done both.

The total number of punch cases, 7,415, were done chiefly by the Young, the Caulk and the Braasch-Bumpus method, that is, the cold cutting, the cautery, and the preliminary coagulation with removal afterward. There were eighty-one operators who used the Caulk cautery punch method, fifty-four of whom used it to the exclusion of all others. The cautery punch was used in 2,774 cases. Many of the reports stated that the punch had been used but did not state the type of instrument utilized. Of the 8,073 resections, 5,560 were done with the McCarthy instrument, 855 with the Stern Davis, and the remaining 1,658 were done by various

high frequency methods, but the operators did not designate the method employed.

From this large series of cases, we have tabulated data with reference to postoperative complications resulting from the different types of transurethral surgery and have noted particularly hemorrhage, primary and secondary, the number of cystotomies required to control bleeding and the incidence of urinary sepsis, incontinence and other serious complications. There is a general comparison of the resection operations and the various punch procedures as well as a study of the complications resulting from the two chief types of electrical appliances, namely the gap and the tube machines, a comparison of the postoperative course of the punch and the resection cases done by operators who are using both techniques, and finally a statistical analysis of the postoperative complications of the patients on whom the cautery punch has been used.

In surveying tables 5, 6 and 7, one is immediately impressed with the fact that postoperative hemorrhage occurs much more frequently with the resection instruments than with the punch, the ratio of severe hemorrhages being almost two to one. Cystotomy to control the bleeding was required twice as often for the resections. Permanent incontinence resulted in an astounding

TABLE 8—Comparison of the Complications Resulting from the Two Types of Electrical High Frequency Resections

Gap Machine		Tube Machine	
106 operators	294 cases	144 operators	1,440 cases
Severe hemorrhage	90 2.8%	Severe hemorrhage	97 6.7%
Primary severe	1 0%	Primary severe	67 4.6%
Cystotomy necessary	24	Cystotomy necessary	30
Secondary severe	3 1.1%	Secondary severe	30 2.0%
Cystotomy necessary	9	Cystotomy necessary	15
Total cystotomies required	10%	Total cystotomies required	3.0%
Rectal fistulas	3	Rectal fistulas	2
Temporary incontinence	48	Temporary incontinence	42
Permanent incontinence	1*	Permanent incontinence	11
Sepsis	84 2.8%	Sepsis	121 8.3%

percentage following resections, and only one case was reported following the punch technic. Urinary sepsis was mentioned by two and a half times as many resection operators as it was by the punch operators. Other severe complications such as extravasation, rupture of the bladder, and abscess formations, were reported thirty-nine times with resection and in nine instances with the punch. It is interesting to note that five rectourethral fistulas were reported as complications with the resection operations and we have been told of many more, and not a single one occurred with any of the punches. These severe sequelae unquestionably result from the penetrating heat deep in the tissues, which has been previously described, occur only with the electrical resections, and serve as a definite record of the dangers of the electric currents unless properly appreciated and definitely controlled. The mortality rate in the two series reveals that death occurs more than three times as frequently with the resection as it does with the punch. We are thoroughly aware that some operators have reported large series of cases with few attendant postoperative complications and a very low mortality rate, but most of these operators, in the beginning, had a death rate entirely disproportionate to what should be expected with this type of surgery. There is no operation that should require such a tremendous sacrifice in order to perfect a technic.

A comparison of the two types of machine (table 8) discloses that severe hemorrhage occurred almost three

times as frequently with the tube machine. Temporary and permanent incontinence occurred much more frequently, and sepsis accompanied the tube machine three and a half times as frequently as with the gap.

In a comparative study of the results secured with the punch and resection, performed by operators who

TABLE 9—A Comparison of the Results Secured with the Punch and Resection by 141 Operators Using Both Methods

Punch		Resection	
Number of cases	6,005	Number of cases	4,885
Primary hemorrhage	22 5.5%	Primary hemorrhage	292 6.0%
Primary mild	21 7.0%	Primary mild	147 59.0%
Primary severe	84 2.0%	Primary severe	145 59.0%
Primary cystotomy	23 or 0% of total cases	Primary cystotomy	6 or 1% of total cases
10.0% of primary hemorrhages		22.0% of primary hemorrhages	
Secondary hemorrhages	154 2.5%	Secondary hemorrhages	322 6.5%
Secondary mild	117 76.0%	Secondary mild	277 74.0%
Secondary severe	37 24.0%	Secondary severe	85 26.0%
Secondary cystotomy	13 or 0.2% of total cases	Secondary cystotomy	7 or 0.7% of total cases
8.4% of secondary hemorrhages		10.2% of secondary hemorrhages	
Of the total number of cases 0.6% had severe secondary hemorrhage		Of the total number of cases 1.8% had severe secondary hemorrhage	
Mortality (deaths 58) 0.9%		Mortality (deaths 231) 4.7%	

were using both (table 9), some interesting data may be observed. The occurrence of primary hemorrhage was about the same except that severe primary hemorrhage occurred twice as frequently with the resection, and cystotomy was required to control primary bleeding more than twice as often. Secondary hemorrhage on the other hand, occurred almost three times as often with the resections as it did with the punches and the mortality was more than five times as great with the resection, being 4.7 per cent with resection and only 0.9 per cent with the punch technic. This surprisingly high mortality following electrical resection operations should make one pause and appreciate the seriousness of this type of surgery. Such a mortality is higher than should occur with prostatectomy properly performed. It is indeed gratifying to those who are using the punch technic to see that in more than 6,000 cases there is a comforting mortality of less than 1.0 per cent.

In table 10 an analysis of 2,774 cases done by the cautery punch is detailed. The total hemorrhages

TABLE 10—Postoperative Complications of the Cautery Punch

Cautery punch cases	2,774
Total hemorrhage	189 6.8%
Primary mild	121
Primary severe	36 1.3%
Cystotomy necessary	10
Secondary mild	24
Secondary severe	8 0.28%
Cystotomy necessary	2
In other words only 1.6% had troublesome hemorrhage	
Total cystotomies required in only 0.4% of these cases	
Temporary incontinence	11
Permanent incontinence	1
Urinary sepsis	42 1.5%
Stricture of urethra	1
Mortality	0.9%
In this series postoperative complications of any consequence amounted to only 3.6%	

occurred less frequently than with the combined punch procedures and almost half as commonly as with the resections. In only 1.6 per cent of all cases did troublesome hemorrhage occur, and cystotomy was required in only 0.4 per cent of the cases almost half as often as with the total punch group and one fifth as commonly as with the resections. Other serious complications were

negligible. Only 15 per cent of the patients had urinary sepsis, and only 3.6 per cent of the total number of cases showed any complications of a serious nature. The accompanying mortality rate was 0.9 per cent.

COMMENT

It is thus evident that the smallest incidence of hemorrhage, the slightest demand for cystotomy, and the fewest number of complications occurred following the Caulk cautery punch operations performed by numerous operators. The superficial heat produced by the punch is sufficient to minimize hemorrhage and sepsis and does not produce the troublesome complications that accompany the various types of electrical resections.

It is without question that the high frequency currents possess inherent dangers which must be thoroughly appreciated, and even when appreciated are often beyond human control. Therefore, if transurethral surgery is to be safeguarded such currents must be materially modified or discarded.

There can be no doubt therefore from the testimony afforded through the experimental investigation as well as the accumulated data, that the removal of prostatic obstruction through the urethra is more safely performed by the punch procedure, by means of the cold cutting followed by coagulation by preliminary coagulation supplemented by punching or by the cautery punch. The evidences afforded through this analysis prove to us conclusively that the cautery punch is the safest of all.

It is still our belief that the original cautery punch offers the quickest, safest and most effective method of removing prostatic obstruction. The vision obtained by reflected light reveals the natural orifice and affords an unmistakable picture. For some reason, operators have felt a timidity in relying on this type of vision but this is due entirely to inexperience. Most of the ideas have been purely impressionable rather than actual.

MODIFICATION OF PUNCH

In order to satisfy the demand for cystoscopic visualization and irrigation, a modification of the punch instrument which embodies a cautery current and telescopic visualization, has been developed.² We submit this instrument for consideration. The shell of the instrument consists of an outer sheath which carries a small sealed channel down to the punch-shaped fenestra for the McCarthy Foroblique telescope and light. This channel imparts a slightly oval shape to the sheath, which is also equipped with a beak similar to the former punch and which allows easier introduction into the bladder than straight instruments.

The working element embodies a platinum-iridium knife in the form of three fourths of a circle connected to metal electrodes. The absence of a complete circle allows the knife to slide over the telescope and light and gives vision of the movement of the knife during the entire cut.

The metal electrodes, which correspond in shape to the knife, are prolonged backward out of the sheath and contain large irrigating and exhaust ducts, through the former of which a fulgurating electrode may be inserted to control hemorrhage, should this arise.

The connection to the transformer is effected through a terminal on the working element which allows connection on either the right or the left side, as convenience demands.

This connection also acts as a handle to push the working element through the fenestra.

The current is supplied by a stepdown transformer, delivering a low voltage high amperage current. This transformer is equipped with a foot switch that does away with the need of another assistant and gives the operator complete control during the operation.

After the instrument has been inserted and the working element has taken the place of the obturator, the operator is accorded a view that allows no mistake in his orientation of the piece of tissue that will be removed when he sends the blade home. Thus, before him is the hollow end of the sheath at the end of the fenestra and filling into the fenestra may be seen the lobes of the prostate as the sheath is rotated. The offending lobe is selected and the sheath raised or lowered, whichever the case may be to bring the portion of tissue to be excised more firmly into the fenestra, just as in the original punch.

With the water running the operator pushes the blade up until it touches the entrapped gland. While still exerting a moderate pressure on the working element, the surgeon steps on the foot switch and immediately feels the knife begin to travel through the tissue, and in approximately two seconds he recognizes the click as the blade enters the distal end of the fenestra, signaling that the cut is complete and to release the foot switch.

If he has been observing the procedure through the telescope he will have seen the blade advance to meet the tissue, hesitate a moment as the foot switch is depressed and then see the edges of the blade advance rapidly toward the distal end of the fenestra. As the blade moves forward it is possible to see the tissue in the fenestra drop free of the gland as it is cut, and the free tissue in the slot after the cut is terminated.

The water is then shut off to avoid washing the excised tissue from the fenestra and the working element removed, which contains the loose piece of tissue.

The ability to cut under water with the cautery current has been a gratifying feature of this instrument. It cuts as quickly and as cleanly as any of the electric currents, and visualization is not disturbed by bubbles. In many instances the blade can be observed throughout the incision, and the inspection with this instrument has been more complete than with any other that we have employed.

If there is a bleeding point, the fulgurating electrode may be pushed forward and allowed to protrude from the slot and be brought against the bleeder under excellent visualization. This act is facilitated by the to and fro movement of the knife blade which acts as a deflector. As a matter of fact, in the few instances in which we have observed bleeding it has been controlled by the to and fro movement of the cautery blade over the site of the hemorrhage.

In actual operation there has been very little hemorrhage which has been readily controlled, and the field of vision has at all times been clear.

The accomplishment of the technique of the operation is not difficult to one who is at all familiar with telescopic vision.

Thus, the first operation that was completed successfully from a technical standpoint with the new instrument was accomplished in twenty minutes. The ensuing operations have all been carried out in less than half an hour.

The instrument is readily introduced into the bladder owing to the coude-like beak, and, once introduced,

² This modification was developed by Dr. Caulk with the aid of Dr. Cackley, one of his postgraduates and with the assistance of Mr. Kenneth Drucker of the Philip-Drucker Instrument Company, in St. Louis who carried out the engineering problems of the instrument.

visualization is at all times present. The use of a fenestrator allows tissue to be brought into a position in which it remains until it is cut. The so-called punch grip, which has been many times described must be firm in order to squeeze the tissue tightly within the slot of the instrument. In this way one has a definite sense of security that the tissue will be accurately removed and that the instrument will not wobble in its position, as is frequently the case in instruments without a beak.

SUMMARY

In summing up the benefits offered by the instrument we wish to emphasize the following:

1 The instrument uses a cautery current, which has been proved to be the safest and offers the least mortality of all procedures in successfully attacking the obstructing prostate.

2 There is more complete visualization of the field and of the piece of tissue to be removed during the thrust of the blade than with any of the other instruments we have employed.

3 The technic of the operation is simple and will allow perfection to be obtained with a minimum sacrifice of life.

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THE RELIEF OF PROSTATIC OBSTRUCTION

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Prostatic obstruction is relieved in one of two ways through the cysto-urethroscope or through a suprapubic or perineal incision. It is of vital importance to the patient that the bladder neck obstruction be removed—if not, the resultant renal insufficiency will probably remove the patient.

Prostatectomy is too well known to most surgeons for me to comment on any particular feature of the operation. However, it is my present belief that a patient suffering from benign enlargement will be better off with a prostatectomy than with transurethral surgery in the hands of many urologic surgeons (especially those who perform only the odd transurethral operation).

Prostatic bars, obstructing prostatic carcinoma and scars, slight and moderate intra-urethral lateral and median lobes are ideally suited for urethroscopic excision by the trained transurethral surgeon. The markedly enlarged prostate, bulging into the rectum and urethra, had best be removed by prostatectomy.¹

A report of observations during the past ten years in relieving ward and private patients of obstructions of the neck of the bladder is presented.

SYMPTOMS

A patient with obstruction at the vesical outlet usually complains of frequent and painful urination. One sometimes sees a patient carrying a large residual urine with very little discomfort, and then again a patient with a small fibrous obstruction may have little or no residuum and marked frequency. Every urologist has seen patients with only slight urinary symptoms

suddenly develop an attack of acute complete retention. However, the usual story is one of slowly developing frequency of urination, in a few months infection occurs, and burning and urgency supervene.

In the group of private patients the chief complaints were frequency 33 per cent, burning 21 per cent, urgency 19 per cent, difficulty 17 per cent, acute complete retention 6 per cent, dribbling 2 per cent, chills and fever 1 per cent and urine through a suprapubic opening 1 per cent.

The duration of symptoms was recorded as six months or less, 21 per cent, from one to three years, 37 per cent, from four to ten years, 30 per cent, and from eleven to forty-two years, 12 per cent.

The age incidence varied from 5 to 92 years, in the first three decades, 12 per cent of the patients, in the fourth, fifth and sixth decades, 74 per cent, after these periods, 14 per cent.

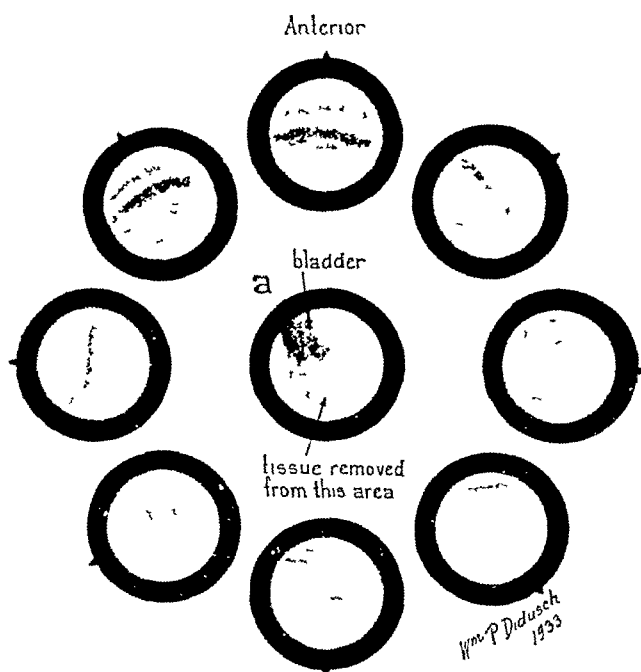


Fig 1—Condition present on examination June 7 1933 J. I. R. a man aged 70 underwent a transurethral excision of a prostatic bar in April, 1923.

DIAGNOSIS

The diagnosis of prostatic obstruction was made by rectal examination, usually cystoscopy, but sometimes with the cystogram and urethrogram. The residuum varied from 0 to 870 cc. eleven patients had complete retention, and in four urine escaped through a suprapubic wound.

OPERATION

Forty-seven per cent of the patients had a bar operation, 21 per cent, bar and slight intra-urethral lateral lobes and carcinoma, 20 per cent, moderate intra-urethral and median lobes, and 5 per cent, scar following prostatectomy.

On the majority of patients I prefer to perform an electrical excision of the prostatic obstruction with the knife electrode (as described in 1925). One can predict the postoperative course and know that the complications will be unimportant, the patient will be up and about in a few days.

It is not easy to tell what is going to happen after an extensive resection with a loop electrode. Urologists

From the Departments of Urology, Bellevue Hospital and New York University Medical School.

Read before the Section on Urology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 15, 1933.

¹ Collings, C. W. J. Urol. 28: 529 (Nov.) 1932.

have all seen marked urethral chill with a temperature of 105 and 106 F, kidney infection, severe hemorrhage, incontinence, injury to the bladder neck by the 28 F bakelite sheath—at times uremia, septicemia and death. In my hands the marked intra-urethral and median lobe enlargement so encroaches on the lumen of the urethra as to make transurethral surgery extremely difficult. One cannot help causing traumatic bleeding which interferes with clear vision. After a prolonged operation, the patient sometimes develops a septic temperature. One then has the feeling that more adequate drainage could be obtained by a suprapubic tube. Mr. John A. Andrews of London stressed this point in discussing my paper on this subject before the Royal Society of Medicine in 1931.

Transurethral surgery is bound to be regarded unfavorably if indiscriminate attempts are made to remove every type of prostatic obstruction. The beginner should certainly observe a qualified trans-

neck. One excises from 3 to 9 o'clock until a distinct concavity is seen (all visible obstruction removed).

COMPLICATIONS

Eleven per cent of transurethral patients had severe urethral chills and fever. All these patients had had the loop and knife excision of the obstructing portion of the prostate. It was rare that a knife excision patient had over a degree or two of fever.

Sixty per cent of the private patients had no bleeding following operation, in 32 per cent the urine was pink for one or two days, in 7 per cent the urine was pink with small clots for three or four days. One patient had secondary bleeding fourteen days after operation, another clots off and on for nine days, both controlled by an indwelling catheter. One patient continued to bleed so much following operation that I had to do an immediate suprapubic cystotomy. A tear was found in the bladder neck (thought to have been caused by forcibly passing the 28 F sheath through the tight bladder neck). In a Bellevue patient incontinence developed after operation. Because of a weak rotary converter I was using a coagulating instead of a cutting current. Twelve days after operation the patient had a secondary hemorrhage and the posterior layer of the triangular ligament sloughed away.

FREQUENCY AFTER OPERATION

Patients with nocturia of from one to eight times before operation gave the following reports after operation. Sixty-one did not get up at all at night, 23 per cent got up sometimes once, and 16 per cent got up once or twice. Judging the results from a broader angle 84 per cent were relieved of burning urgency and frequency, 10 per cent were partially relieved, 4 per cent the symptoms were the same, and in 2 per cent of the patients could not be followed.

RESIDUUM

The residuum after operation was recorded as follows. Ninety per cent of the patients empty the bladder completely, 9 per cent carry from 7 to 45 cc, and in 1 per cent the amount was undetermined. The time since operation was, in 62 per cent, from one to five years and in 38 per cent from five to ten years.

CYSTO-URETHROSCOPIC EXAMINATION

In the majority of these patients, urethroscopy was done after operation. Eighty-eight per cent showed a wide open valley in the posterior urethra, the obstruction all removed, and a normal appearing mucous membrane with little or no scarring, the intra-urethral lobe cases showed a concavity when there had been a convexity before, 7 per cent developed small intra-urethral lobes a year or so after a bar operation or recurrent carcinomatous obstruction of the bladder neck and required a second operation, 5 per cent developed small intra-urethral lobes from one to five years after a bar operation but are free from symptoms or residuum.

The following are some of the reasons for doing transurethral surgery instead of prostatectomy. Twenty-two patients were physicians or the father of a physician, and transurethral surgery was requested, twenty-three patients refused to have a prostatectomy (often because of some friend's experience), fourteen patients had a medical complication, such as a cardiac condition, renal insufficiency or advanced age, precluding prostatectomy, for eleven patients the referring physician requested transurethral surgery (if at all possible), two

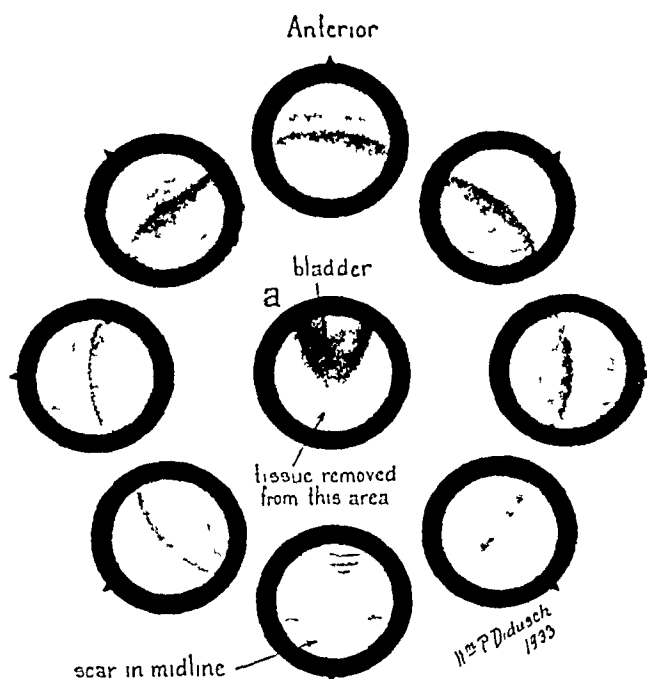


Fig. 2—Condition present on examination June 7, 1933. U. C. a man aged 68 underwent a transurethral excision of moderate enlargement of intra-urethral lateral and median lobes in February, 1932.

urethral operator several times before attempting the operation himself. Furthermore, he should work on minor obstructions until thoroughly familiar with all landmarks, carefully perfecting his technique. I have had three patients develop traumatic strictures at the bulbomembranous junction following the use of a 28 F bakelite sheath. I use a 24 F cysto-urethroscope with the knife electrode and 26 F bakelite sheath with the knife and loop electrodes.

The floor of the bladder neck is excised from 5 to 7 o'clock in patients with fibrous obstruction. By turning the knife blade sideways, small intra-urethral lateral lobes are excised by pushing the electrode in and out (from the verumontanum and just through the bladder neck). With the newer types of spark gap machines, the operation may be performed with great care and precision in approximately ten or fifteen minutes.

For moderate intra-urethral lateral and median lobe obstruction, the knife and loop electrodes are used. The loop is moved by hand from the verumontanum down the posterior urethra and through the bladder

patients, aged 5 and 25 years with congenital bari, were best relieved by transurethral excision

DIATHESIS

Six patients died of cardiac failure, an average of one year and two months after operation, the ages being 70 71, 74 75 77 and 92

Three died of pneumonia

J G aged 80, with extensive carcinoma of the prostate, died two weeks after operation

W V aged 70, with metastasis from carcinoma of the prostate died one month after operation

P G aged 73 with moderate enlargement of intra-urethral and median lobes died one month after operation. As further complications he developed gangrene of the lung and bilateral pyelitis

F B, aged 70 with extensive carcinoma of the prostate with metastasis to the bones and abdominal cavity, died three days after operation of paralytic ileus

Dr J L L, aged 62 committed suicide two and one-half years after operation

I have not included in this series the operative results on patients admitted to New York University. This rather large group was made up of fibrous and small and moderate benign enlargement of the prostate. Patients with marked enlargement are sent to Bellevue Hospital (usually for a prostatectomy). Because of the difficulty in following these patients over a period of years, a complete report is not available. There were no operative deaths or serious postoperative complications. Two patients had secondary hemorrhage. The clots were removed by means of a Bigelow evacuator, after which an indwelling catheter stopped any further bleeding.

In Bellevue Hospital from January, 1928 to June, 1933, we performed 260 prostatectomies (in the main a two-stage suprapubic operation). Following prostatectomy, twenty-two, or 8.5 per cent, of the patients died. These figures do not represent the prostatic surgery record (such a record would include the patients who died following vasectomy or suprapubic cystotomy only). There were thirty-three patients operated on by loop resection, of these, two died. Twenty-eight had electrical excision with the knife electrode, with no deaths. The percentage of deaths following both types of transurethral surgery was 3.2 per cent as compared to 8.5 per cent following prostatectomy.

Throughout this country the pendulum of transurethral surgery has swung high and low. As I stated before this section in Portland in 1929, time alone will accord this method its proper place in relieving prostatic obstruction.

SUMMARY

1 It is important to remove prostatic obstruction, or the obstruction will probably remove the patient

2 If the patient would heed the first danger signals of frequency, burning and difficulty, many lives could be saved

3 Slight and moderate prostatic obstruction can be efficiently excised through a cysto-urethroscope. Marked enlargement can best be relieved by prostatectomy

4 Transurethral surgery requires special skill even in the hands of a trained cystoscopist

5 Bleeding has been unimportant with the latest type of spark gap machine

6 After operation, the cysto-urethroscope shows a deep, concave valley in the prostatic urethra. The relief may be permanent, as some of these patients are in their eleventh year

983 Park Avenue

ABSTRACT OF DISCUSSION

ON PAIRS OF DRS. CALIK AND LATTON AND DR. COLLINGS

DR. F. E. B. FOLLY, St. Paul. The further appraisal and rationalization of this fascinating new departure is quite obviously the main event in urology today. It is said repeatedly that the limitations, dangers and shortcomings of resection are kept concealed. That may have been true at the start, but at the present moment the contrary is true. Not only must the patient be individualized as pointed out by Dr. Engel and Dr. Lower, but the surgeon in his relation to these new methods also must be individualized. An appraisal of resection adequate for one surgeon may be entirely erroneous for another. Urologists have gone far enough to recognize this fact definitely and should abandon further attempts at blanket conclusions as they are useless. What instrument to use, what generator to use is entirely a question for the individual surgeon, beyond these there is no question.

DR. T. J. KIRWAN, New York. The projection of heat into remote portions of the prostatic tissue when the high frequency cutting current is being used hardly seems possible to me. Cell change takes place only after a 20 degree rise in temperature which could scarcely be generated at so remote a point with the currents ordinarily used. No material conducts heat instantaneously, it requires time to flow and its passage is accompanied by rapid decrease in effect. I am in accord with the views of Dr. Collings concerning the promiscuous employment of intra-urethral methods by those who have not had much experience. The method he first described wherein he cuts a wedge between 7 and 5 on the clock dial and then whittles away the intervening tissues, would seem to me certain to leave coagulated tissue which will later slough and cause trouble. Coagulating just what is caught in the fenestra and then cutting this away with a sharp knife seems to me preferable. The clean wound heals readily. Tissue destroyed in situ is more likely to be infected and delay recovery. Tremendous stress has been laid on the design and type of instrument with which vesical neck resection is to be accomplished. These are of little importance. Diagnosis is most vital, together with the ability to remove the obstruction with little damage. Urologists should standardize the management of the electrical element in vesical neck resection. A committee might be appointed by the American Urological Association—including electrical engineers if possible—to pass on the different types of current used in the work and to establish scientifically just what each is able to accomplish. Just this is now being done with the shrinkage method. Because of the exactness with which radiofrequency currents may be controlled with the vacuum tube generators at present available, the amount of heat can be regulated in a way never before possible. This makes available current densities ranging between the mild effects used in diathermy, to the high densities needed for cutting. It has been established that tissue cells succumb to the lethal effects of heat before those of blood or lymph are seriously injured. Therefore it is reasonable to assume that the products of tissue cell death may still be carried off by the circulation of the area thermatized. This ought to prevent necrosis and its untoward reaction. These ideas are in their infancy, but the prospect of instituting a nondestructive procedure for the relief of many forms of obstruction in the urinary tract seems good.

DR. C. H. DE T. SHIVERS, Atlantic City, N. J. I agree with Dr. Collings that the operation is one that requires special training and aptitude in the use of urethral instruments. The current used in this work is a matter of individual choice. I

have used the spark gap machine and have been well satisfied with the results. I have not attempted in the clinic to resect any very large intravesical intrusions either lateral or median, with but one exception, and that was a failure because of the accompanying hemorrhage. This patient later had a two stage prostatectomy with an uneventful recovery. I feel not only that the large prostate is difficult to resect but also that the accompanying danger of hemorrhage and infection is much greater. I do not advise a repetition of the resection unless sufficient time has elapsed between operations. I have been particularly interested in the length of time it takes before urethral convalescence has been completed. I have seen ulceration of the prostatic urethra three months after the operation in cases in which resection was done elsewhere and in my clinic I have noted a delay in convalescence in certain cases. I feel that it is extremely important to control the bleeding as one proceeds with the operation. I do it entirely with ball and loop electrodes. If properly done this does not coagulate tissue to any degree beyond the point of bleeding. In my service at the Atlantic City Hospital we have been using the high tension spark gap machine of Collings and the hal elite sheath lens and loop electrode of McCarthy now for a year and a half and have made eighty-two resections thus far without a death. All of these with the exception of three had excellent functional results. One had an incomplete resection because of a hemorrhage. The other two patients have a moderate sized vesical diverticulum but owing to their advanced age and poor physical condition it was deemed inadvisable to do a diverticulectomy. I should like to speak about the preparation of patients for resection. I feel that they deserve the same care as patients who are to undergo prostatectomy. This is too serious a procedure to make it an office operation.

DR ABRAHAM RAVICH, Brooklyn. I am in accord with the remarks of Drs. Caulk and Patton about the Caulk method of prostatic resection. In 1926 I had presented what I believe was the first cautery punch with visualization under water at the meeting of the American Urological Association in Baltimore, and reported about thirty cases in which resection was done with this instrument. With the cautery punch method I do not recall the extremely troublesome bleeding, the ascending kidney infections, the persistent pyuria and invalidism that so frequently follow the present methods of prostatic resection by high frequency current. With improvement in the instrumentation such as Drs. Caulk and Patton have presented it seems to me that the results will be superior to those obtained by many of the high frequency currents now in use.

DR JOHN R. CAULK, St. Louis. I am glad to hear Dr. Ravich say that he noticed less trouble when he was using my cautery punch than with the high frequency resection. Both experimental and clinical evidence bear this out. It has been definitely determined that there are produced in the tissue varying degrees of heat, more pronounced near the active electrode, as a result of the waves concentrating at the active electrode. This one must realize. It is actual. On the supposition that there should occur only a 3 mm. destruction of tissue it is easy to see that, if one should be operating in the outer confines of the prostate the slough produced could easily cause extravasation. We have found that the waves of current select the blood stream and if temperatures are taken at different places in the body it will be found that the highest temperatures are recorded along the large vessels. One of the first effects of even a short current application is the cutting down of the blood flow in tissue which is responsible for late reactions. The currents seem to act specifically on the vascular system.

DR C. W. COLLINGS, New York. Dr. Foley has brought out the important point of the size of obstruction—small and moderate enlargement may be relieved transurethrally, large obstruction by prostatectomy. As Dr. Kirwin has stated one should use the transurethral operation one is familiar with—the method that works best in one's hands. Dr. Shivers has mentioned the unfortunate commercialism practiced by some of the manufacturers of electrical machines. I urge as I did several years ago that the operator try out several types of these machines and choose the one that best suits his needs.

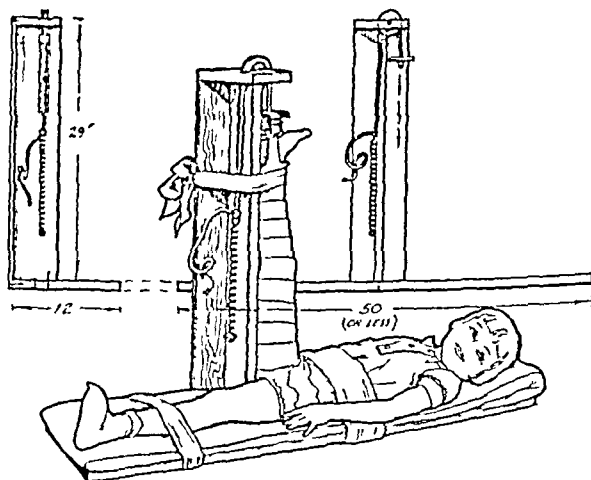
Clinical Notes, Suggestions and New Instruments

A DEVICE FOR TRANSPORTING PATIENTS WITH REDUCED FRACTURE OF FEMUR

CARL J. HOLLINGWORTH, M.D., PORTLAND, ORE.

Occasionally it is necessary to move, sometimes for a considerable distance, a patient with a fractured femur which has not yet united but which has been reduced by traction. The problem then arises of how to make such a change with the least pain and distress to the patient and, if possible, without loss of the extension that has already been gained. Of course, a Thomas splint can always be used if one is available but for the benefit of those who may not have such an apparatus at hand I want to suggest a very simple device, which was used recently with great success.

It was desired to move a child, aged 2 years, to her home across the city. She had been in the hospital three days during which time overriding of the fragments had been eliminated by weights and vertical overhead extension of the injured leg. The father of the child devised a frame such as is shown in the accompanying illustration, which very satisfactorily solved the problem. The details of construction are quite clearly shown so that further explanation along this line is unnecessary.



Device for transporting a patient with a reduced fracture of the femur

The patient was placed on the frame, to which she was securely fastened, as shown, while the weights were still attached to the extended leg. Steady traction was maintained while the weights were detached and the cord was reattached to the coil spring. The patient on the frame was placed on the back seat of the automobile where she rode undisturbed, even by the jolting when crossing street car tracks, and thus, what we had anticipated as a very painful journey was made with complete comfort.

An overhead frame had been prepared for the home care of my patient. The transporting frame was placed on the bed and the cords, pulleys and weights were attached to the injured leg before removal of the frame. In this manner there was the minimal loss of extension as well as a minimum of discomfort to the patient.

While this frame was devised for moving a small child, it could easily be made to accommodate any child in whose case vertical extension is being used. For any patient under treatment with Buck's extension, the same principle can readily be utilized merely by changing the upright portion of the frame so that it is more nearly parallel with the body. Any degree of elevation that is desired can thus be secured and, by varying the size and strength of the coil spring, full extension could be maintained.

Medical Arts Building

UNUSUAL REACTION SIMULATING ALLERGIC SHOCK

C I WALDROTT MD AND M S ASCHER MD DETROIT

Reactions following injections of antigens manifest a great variety of symptoms. In addition to the urticahc type of reactions, during the course of which the known symptom of allergy may arise there are many reactions that have no association with allergy, for instance, reactions due to fever-producing substances, to certain drugs syncope and the like may appear following therapeutic injections. Thus the clinical appearance may become greatly confused. An unusual reaction presenting a rather serious aspect and found to be entirely on a neurotic basis without any relationship to the antigen injected is here-with reported.

M K, an obese woman, aged 40, had been treated successfully for fall fever with extracts of grass and short ragweed for the past three years without having experienced other than local reactions. In July, 1933 after she had received several small doses of pollen extract without disturbances she suddenly began to have a paroxysm of coughing dyspnea and yawning following an injection. This condition was promptly alleviated by the use of a tourniquet and the injection of a few minims of epinephrine. With each successive treatment the symptoms became more aggravated even though the doses were decreased. While at first there was a time interval of from ten to twenty minutes between the time of the injection and the appearance of the symptoms this interval gradually lessened so that a severe attack of coughing, dyspnea and yawning followed almost immediately after the injection. The pulmonary manifestations resembled closely those of a severe attack of bronchial asthma. There were many rhonchi and a marked emphysema throughout the chest. Urticaria was not noted. The symptoms became so severe that it was decided to discontinue with further treatment.

The occurrence of yawning and, particularly, the absence of urticaria and the short interval of reaction aroused our suspicion. Physiologic solution of sodium chloride was substituted for the pollen extract without the knowledge of the patient. The symptoms occurred with the usual severity. After the patient was informed of the deception, the symptoms perceptibly abated and subsequent treatments could be carried out without any further disturbances.

Since the patient had not previously given us reason to suspect that she was neurotic, and since this is the only case encountered in a large series in which therapeutic injections were given, this report is deemed to be of sufficient value to warrant publication. Moreover, it offers an excellent demonstration of the fact that attacks of 'asthma nervosum' may be practically identical with those of true allergic asthma.

602 Professional Building

CONTACT ECZEMA DUE TO CLOTHING

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BOSTON

Ecze-ma due to contact with various substances in the environment is a well recognized condition to which the literature contains many references.¹ The diagnosis of the cause in the individual patient is not easy, and the case reported here demonstrates the need of prolonged study and observation and the good results that will reward the effort. It also shows how widely distributed the cause of trouble may be.

REPORT OF CASE

A man aged 29 developed a small area of ecze-ma on the left wrist in November 1928. Similar lesions soon appeared on the dorsal aspect of both hands and fingers. They were of the acute vesicular type, with oozing and thickening of the skin. It is of interest to note that the lesions made their first appearance at the site of an abrasion caused by a stiffly starched

cuff. Various local applications had no apparent effect on the course of the disease. Roentgen therapy in the spring and again in the fall of 1929 resulted in temporary improvement.

In April, 1930, an acute exacerbation of typical vesicular 'dermatitis venenarum' of the hands, forearms, neck and ears confined the patient to the hospital for two weeks. Improvement was rapid, and at the time of discharge the skin was almost normal in appearance. Immediately after the patient left the hospital, the lesions recurred on the hands and persisted until June, 1930, when in the course of a month's vacation they disappeared entirely. During this vacation he was camping out and did not wear his 'city' clothing. In July, when he returned to work the lesions recurred on the hands as before, and similar lesions appeared on the feet and ankles.

In the meantime, repeated microscopic examinations and cultures failed to reveal fungi. A general physical examination gave no evidence of focal infection. The possibility of sensitization was considered at this time. Skin tests by the scratch method with extracts of all foods in the patient's diet and with many epidermal products and pollens all gave negative results.

The lesions on the ankles did not extend above the top of the socks and disappeared when white socks were substituted for those previously worn. These facts suggested clothing as a cause of the lesions elsewhere, so a patch test was made by applying a piece of fabric from a blue serge suit to the skin and holding it in place with adhesive tape. In twenty-four hours a typical patch of ecze-ma was produced with redness, swelling, and vesicles which corresponded exactly in size and shape with the patch. Patch tests were made with other articles of clothing and positive results were obtained from a brown suit, a dark blue overcoat, black hse socks, and a piece of black rayon. All gave negative tests on a control subject.

From the fall of 1930 to the spring of 1933, ecze-ma continued intermittently, and every time the cause of the recurrence was identified by a study of the location of the lesions, by the history of activities and of contacts, and finally by patch tests. Proof was obtained in every instance by a disappearance of the lesions when the contact was avoided.

The following were the most important and most interesting of these recurrences: lesions on the neck from the collar of the overcoat, on the forehead from the hat band, on the legs from garters, on the feet and ankles from socks and shoes, on the feet, legs, hands, arms, face and neck from bed clothing, on the hands from automobile upholstery, on the hands and forearms from the varnish on a mahogany table, the linings of two suits, his wife's dresses, and the upholstery of living room furniture. Lesions on the face, eyelids and genitals were shown to result from transference of the allergen by the fingers. On one occasion the eyelids were so swollen that the eyes could not be opened.

Since the spring of 1933 (four months) the patient has been free from ecze-ma with the exception of a few very mild and very brief recurrences, which were checked immediately by discovering the source of contact and avoiding it. By exercising great care in avoiding certain contacts, he is now able to follow his regular occupation and lead a normal life. However, he has learned that every dyed fabric in clothing or furniture must be tested by the patch method before it can be purchased and used by him.

Further study of the patient was interesting. In order to determine which constituent of the fabric was responsible for the hypersensitiveness, patch tests were made with several 'pure' substances: (1) clean wool (2) clean unbleached cotton, (3) undyed silk (4) four mordants used in dyeing, (5) a bleaching agent and (6) six commercial dyes. All solutions were tested by moistening a piece of gauze with them and applying it to the skin with adhesive tape. All the pure substances gave negative tests except three of the dyes, which produced typical areas of ecze-ma. When however these substances were tested by the scratch method, no reaction occurred. All tests on a control subject were negative. In order to show that the reaction depends on the dye and not on a combination of the dye with protein or some other constituent of the fabric asbestos instead of gauze was used for some of the tests, and with similar positive results.

Later on patch tests with twenty-six different 'pure' dyes were made. Eleven of them gave positive results on the patient.

Read by the M C H Asthma Fund.
1 Bloch Bruno. The Role of Idiosyncrasy and Allergy in Dermatology. Arch Dermat & Syph 19 173 (Feb.) 1929. Sulzberger M B and Weinberg C Berend's Dermatitis Due to Insect Power J A M A 95 111 (July 12) 1930. Hannah Louis. Ragweed Dermatitis. Ibid 72 853 (March 22) 1919. Huber H L and Harsh C F A Summer Dermatitis Caused by a Common Weed J Allergy 3 5:8 (Sept.) 1932.

and negative results on the controls. All of these were repeated at least once with the same result. All the 170 dyes tested gave positive tests, some strong, others weak. Other types of dyes were all negative with the exception of three triphenylmethane dyes, which were weakly positive.

An attempt was made to determine what part of the dye molecule carries the specific properties by making patch tests with comparatively simple chemically pure compounds related to the dyes in chemical composition. Twenty-six substances varying in complexity from aniline and trimethophenol to alpha-naphthylamine and resorcinol were applied as patch tests but all gave negative results. The simplest compound that gave a positive test was dimethylnitrobenzene which was strongly positive on the patient and negative on each of ten controls.

A study of the influence of side chains and of the physical properties of the compounds would be interesting, but would require the use of a number of rather uncommon chemically pure compounds, which were not available. The triphenylmethane compounds have not been investigated.

Local passive transfer (Pruisnitz-Kustner reaction) was studied, the strongly reacting 170 dyes being used to test the site in the normal recipient treated by the patient's serum but the result was entirely negative as was to be expected from the results of similar studies in other laboratories.

SUMMARY

1. A man, aged 29 long suffering from localized areas of eczema, was found to be sensitive to the dyes in a wide variety of fabrics.

2. The patch test was of the utmost importance in diagnosis and continues to be of great importance in treatment as a means of preventing contact with new clothing and other materials likely to cause trouble.

3. Study showed that a variety of dyes and not a single dye was responsible for the symptoms.

Massachusetts General Hospital

TUBERCULOSIS OF THE BREAST

CALF L. WILSON, M.D. SEATTLE

Primary tuberculosis of the breast is still a relatively uncommon pathologic lesion, in spite of the fact that it was first described by Sir Astley Cooper in 1829 in a paper entitled 'Scrofulous Swellings of the Breast'. A short time later Velpeau mentioned tuberculosis as occurring in the mammary gland, only to be flatly contradicted by Virchow who wrote in his famous 'Treatise on Tumors' that tuberculosis never occurred in the breast. At the close of the nineteenth century, Durbar first demonstrated the tubercle bacillus in breast tissue. In 1902 Binda de Vecchi was able to find seventy-seven cases reported in the literature and added one of his own. Four years later, Briandle reported eleven additional cases from the Tübingen clinic. In 1913, Powers of Denver reported four cases, bringing the total reported to ninety-three. De Costa in the ninth edition of 'Modern Surgery,' stated that of the hundred cases reported, only eighty were actually histologically or bacteriologically confirmed.

REPORT OF CASE

Mrs. A. C., aged 62, an Italian widow, first seen at home Sept. 26, 1932, complained of swelling of the left breast and arm, swelling of the feet and ankles, weakness, and shortness of breath. The family history was negative for familial disease.

The past history was negative for any serious illness. The patient was the mother of eight children, all normal pregnancies. Five children, all of adult age, are still living. There had been no miscarriages or stillbirths.

The present illness began about two years before with a lump appearing in the lower outer quadrant of the left breast. The lump enlarged and other lumps appeared in the upper outer quadrant of the same breast. There was no pain. The breast gradually enlarged during the following year until it was half again its normal size. About eighteen months after the first lump appeared the left axilla began to enlarge and for the first time pain occurred in the arm, beginning in the axilla and extending down the inner side of the arm and forearm. At this time the patient consulted a physician, who

removed one of the axillary glands and performed a Wassermann test. He told the patient that she had syphilis and gave her a course of sixteen treatments with arsphenamine, with no improvement in her condition.

About one week before she called me she became very weak and had difficulty in breathing, her left arm and both feet and ankles began to swell, and she could not get out of bed.

At the examination September 26, she was slightly icteric and was breathing heavily and rapidly. The lips were slightly cyanotic. There was a walnut sized nodule in the left supraclavicular fossa. The left breast was twice the size of the right, with 'pig skin' puckering over the entire lateral half of the breast but there was no retraction of the nipple. The entire breast was firm and filled with matted nodules all seemingly attached to the region of the nipple. The organ was still movable, but not as freely as the right breast. There was a chain of small firm almost stony nodules extending up along the lateral edge of the pectoralis major muscle, ending in three walnut sized masses in the left axilla. There was also a 3 inch biopsy scar in the axilla.

The heart was normal in size with a systolic murmur at the apex and systolic and diastolic murmurs at the base, with a rate of 135. The lungs showed moist rales at both bases but no demonstrable dullness. The liver was soft, smooth, doughy and tender and extended three fingerbreadths below the costal margin.

The left arm, forearm and hand show marked pitting edema, with tenderness along the course of the median and ulnar nerves in the arm. The feet and ankles showed marked pitting edema almost up to the knee.

The blood pressure was 150 systolic 65 diastolic the pulse, 135 the temperature 98.6 F. Analysis of the urine showed a specific gravity of 1.010 and a faint trace of albumin and no sugar, acetone or diacetic acid. There was no sediment.

The diagnosis at this time was bronchopneumonia, cardiac decompensation and carcinoma of the left breast, with metastases. The prognosis at this time was extremely poor.

The patient was immediately given supportive treatment including digitalis and responded very promptly, so that by October 7 the pulse was down to 80 and the temperature, which had risen to as high as 102 F. down to 98.6 once more. The lungs were free from rales breathing was more easy and the feet and ankles were almost back to normal size. The swelling of the breast and arm was constant however, and she still complained of great pain from the axilla to the elbow.

During the following two weeks there was no gain in strength and the axillary and supraclavicular masses increased in size so on October 21 the patient was sent to the Columbus Hospital to be made comfortable until her death. At this time the breast was about the same size as when first seen a month before but the axillary mass was now the size of an orange and the supraclavicular mass was the size of an egg. The posterior cervical lymph nodes had enlarged and at first discrete, became confluent and enlarged to form a mass almost the size of a hen's egg.

On admission the laboratory reported the hemoglobin 45 per cent and the red cells only 2,810,000 with 15,300 white blood cells, 78 per cent being polymorphonuclears. The urine and repeated blood Wassermann reactions were negative.

During the remainder of the month of October the heart and lungs remained normal, the liver gradually became reduced in size but remained tender, and the edema of the left arm and hand became somewhat reduced. The spleen, however, began to enlarge, so that from a normal size in September it reached the iliac crest by the end of October. Three Wassermann tests on the blood were negative. The breast became larger and more painful, and the line of infiltration of the pectoralis major muscle became so great that the entire muscle stood out prominently as though it belonged to the strong man of a circus.

On a high vitamin high caloric diet the patient seemed to improve slowly, so on November 19 transfusion was done, and the following week she was taken to the surgical department where the supraclavicular mass of glands was removed for diagnosis. At operation the glands were found to be matted together and adherent to the fascia, external jugular vein and spinal accessory nerve, from all of which they were removed.

by sharp dissection. The wound was closed without drainage and healed uneventfully.

The tissue that was removed grossly appeared to be metastatic carcinoma, but microscopically it showed a rather typical proliferative type of tuberculous lymphadenitis, with many young fibroblasts and many giant cells. There was no degeneration and no evidence of malignancy or of gumma.

When the patient came into the hospital she brought with her a bottle of a patent preparation of cod liver oil that contained among other things, 17 per cent of alcohol. She took her diet well, ridged and abetted by this alcoholic oil preparation and left the hospital December 8. When she left the hospital she was able to sit up out of bed most of the day, to walk to the lavatory alone and to wash herself without help.

In August, 1933, eight months after the patient left the hospital she was progressing nicely. She had kept on a high vitamin diet and her cod liver oil and had taken sun baths, and two months before she decided to take a boat trip to California, where she could get more sunshine and possibly some beverage with less cod liver oil in it.

COMMENT

Aside from the relative rareness of tuberculosis of the breast with no demonstrable focus of tuberculosis anywhere else, this case is interesting because it was first diagnosed as syphilis and treated as such, clinically it was definitely carcinoma, and histologically the metastatic glands showed it to be definitely tuberculosis. It is the first case of primary tuberculosis of the breast to be seen in more than 31,000 cases at the Polyclinic in Seattle.

American Bank Building

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
H. A. CARTER, Secretary

ULTRAVIOLET THERAPY IN ORAL DISEASES

The Council on Dental Therapeutics of the American Dental Association has adopted a report concerning the therapeutic use of ultraviolet radiation for the treatment of oral diseases and conditions. This report, the Council on Physical Therapy believes, will be of as much interest to the general practitioner as to the dentist.

While investigating ultraviolet radiation apparatus and reviewing propagandizing literature for the appliances, the Council on Physical Therapy noted in some instances that, along with clinical indications and therapeutic claims intended primarily for the attention of the physician, odontologic claims were recorded side by side. In other instances separate booklets were prepared for the attention of the dentist. In general, the following indications, conditions and diseases were found in the advertising matter: abscesses, alveolectomy (analgesic effects), antrum, bacteria, bactericidal action, biological effects, bone regeneration, calcium deposition, calcium fixation, degrees of reaction, dental caries, dry socket, extractions, fistulas, fractures, germicidal action, gingivitis, granulations, hyperemia, infection, neuralgia, neuralgia atypical, osteomyelitis, oxidizing pain after extraction, periapical infections, periodontoclasia, post-operative pain, prosthodontia, pyorrhea, rarefied area, rarefied bone regeneration tissue, sinus surgery stimulates stomatitis, tic douloureux, trismus, Vincent's angina, Vincent's infection, acute and Vincent's infection.

Before the Council on Physical Therapy could accept apparatus for which these claims were advanced, efforts were made to secure the proper evidence. Hence, manufacturers of the apparatus were asked to submit adequate evidence to substantiate the odontologic claims but to date the Council has received nothing that would warrant it in accepting ultraviolet radiation apparatus recommended for use in the treatment of oral diseases and conditions. Therefore the Council on Physical Therapy asked the Council on Dental Therapeutics to cooperate in the investigation.

Essentially, the Council on Dental Therapeutics reported that many of the claims made were greatly exaggerated and that the evidence given in the promotional literature or in references to dental literature does not justify the dental profession in adopting ultraviolet radiation as a useful therapeutic agency.

Before abstracting this report, the Council on Physical Therapy takes this opportunity to express to the Council on Dental Therapeutics of the American Dental Association its hearty appreciation of the cooperation it has rendered in connection with this problem.

Under the caption "Validity of the Evidence," the report of the Council on Dental Therapeutics states:

The physical characteristics of the light emitted by these various machines is not in dispute. From the foregoing it may be admitted that on a physical basis, all of these will agree with the claims advanced. The point at issue is how valid are the claims and suggested indications for the use of these instruments in the treatment of dental conditions?

Considering the subject as a whole, the report states:

The fact that local application of ultraviolet light has been used by some dentists for almost ten years with no more convincing evidence than that presented by its promoters and enthusiasts leads one to reiterate until more carefully controlled evidence is at hand it is not wise to recommend the machines to the dental profession.

In some cases, reprints of articles that appeared in dental journals regarding the use of ultraviolet radiation in dental surgery were utilized as merchandising literature. Discussing the extract from one of the reprints, the Council on Dental Therapeutics writes:

The extract is more in the nature of a high class testimonial. Indeed much of it has the appearance of being taken directly from promotional material of the firm. It is claimed that ultraviolet has bactericidal action, induces hyperemia and an accelerated deposition of calcium.

Reading further into the report:

This discussion is concerned only with the momentary local application of ultraviolet light by means of special dental applications. It may be admitted that ultraviolet light has some bactericidal properties *in vitro* but no adequate evidence or references to adequate evidence appear in the promotional material of the firm, to show the germicidal effects and what may be expected of them when used *in vivo*. No amount of seriousness can be attached to the claim that the deposition of calcium is accelerated when ultraviolet rays are applied locally. This is a definite statement which should be supported by adequate data—chemical, histological or otherwise and with suitable controls. It would be too far afield from the present purpose to discuss in detail calcium metabolism for this involves not only a discussion of the accessory factors such as irradiated ergosterol, vitamin D and light in the ultraviolet region but also involves a discussion of the calcium-phosphorus relation of the blood and tissues. Nor is there any valid evidence known to the referee that the Calcium and Phosphorus relations of the blood are greatly altered by local applications of ultraviolet light which would shorten the term of union of fractures. One cannot escape the impression that careful rest nursing etc. is of first importance. None of this fundamental information appears in the advertising.

In another portion of the report the advertising under discussion concerns the virtues of the use of ultraviolet radiation in connection with postoperative pain following the extraction of teeth or other surgical procedures, whether due to dry socket, infective osteitis or traumatism, during local anesthesia. The extract from the advertising matter recorded all these conditions as being readily suppressed with ultraviolet therapy. In the consideration of this point, the Council on Dental Therapeutics writes:

The response of individual patients following the extraction of teeth or any other surgical procedure whether due to dry socket, infective osteitis or traumatism during local anesthesia is variable and depends on a number of factors. Hence it would require a great deal of detailed descriptive and statistical evidence to permit one to reach a valid conclusion. As the statement stands it is nothing more than a testimonial.

How much of the supposed beneficial effect was due to heat and how much was due to light of short wavelength is difficult to tell from this account. Patients suffering from trifacial neuralgia are known to have periods of remission. Conservative neurological opinion holds that the only available method for alleviating trifacial neuralgia is by conservative or radical surgery. Since the claim is contrary to the well accepted findings of competent workers in the field it should be obvious that more evidence than is contained in these five lines is necessary. For example, what methods were used to fix the diagnosis, the condition of the patient, the natural periods of remission, the response to other forms of treatment, the comparative response to heat and short waves of light etc. etc.

In the concluding paragraph, the Council on Dental Therapeutics recommended that the Council on Physical Therapy be advised that no adequately controlled evidence had been presented in descriptive literature and advertising matter to warrant the use of ultraviolet radiation in the treatment of oral diseases and conditions.

Council on Pharmacy and Chemistry

Committee on Foods

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONTRIBUTING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES OF WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEPCH, Secretary

NEO-IOPAX—Di sodium λ -methyl-3,5-diiodo-4-pyridone-2,6-dicarboxylate— λ -NaOOC(CO)NC(CH₃)(COONa). The disodium salt of λ -methyl-3,5-diiodo-4-pyridone-2,6-dicarboxylic acid. Neo-Iopax contains 51.5 per cent iodine.

Actions and Uses—Neo-Iopax is used as a contrast medium in intravenous urography. It has advantages over Iopax in that a smaller dose is required, the volume of solution injected is much less and the drug is excreted in the urine in relatively higher concentration. Clinical reports indicate that systemic reactions occur uncommonly and are usually mild and fleeting. In some cases there is more or less severe pain in the arm radiating to the shoulder, usually this disappears on completion of the injection but in a small percentage of cases it may persist for a variable period. The pain may usually be relieved by local applications of heat and the administration of an analgesic when necessary. If only anatomic information is desired it is usually sufficient to take a single roentgenogram from twenty to thirty minutes after injection. In other cases a series of roentgenograms are taken at intervals of ten thirty and fifty minutes after injection. Before the second picture is taken the bladder is emptied in order that the shadow of the drug in the bladder may not obscure the lower parts of the ureters. If the first plates show that but little of the drug has been excreted it is presumed that the kidneys are functioning poorly and several hours should be allowed to elapse during which plates should be made at intervals. Impairment of renal function will allow but poor concentration of the drug, many hours are then required for its excretion. The use of the drug is contraindicated in patients with severe liver disorders, nephritis, tuberculosis or hyperthyroidism and great care must be exercised in cases of uremia. Caution must also be exercised in patients with any severe systemic disease. Preliminary liver and kidney function tests are advisable in suspected cases.

Dosage—Twenty cc of a solution containing 15 Gm. of neo-Iopax previously warmed to body temperature is injected intravenously, very slowly into the cubital vein. Children are given correspondingly smaller doses.

Manufactured by Schering-Kahlbaum, A. G., Berlin, Germany (Schering Corporation, New York distributor). U. S. patent applied for. U. S. trademark, 297,925.

Ampoule Solution Neo-Iopax 20 cc. Each ampoule contains neo-Iopax 10 Gm. dissolved in sufficient sterile distilled water to make 20 cc.

Neo-Iopax occurs as a white crystalline odorless powder, very soluble in water, insoluble in acetone, benzene, chloroform, ether and purified petroleum benzene. An aqueous solution is neutral to litmus.

Dissolve about 0.5 Gm. of neo-Iopax in 100 cc. of water, add an excess of diluted hydrochloric acid, collect the liberated λ -methyl-3,5-diiodo-4-pyridoxyl-2,6-dicarboxylic acid on a filter, wash and dry in a desiccator over sulphuric acid under a partial vacuum; it melts at about 174°C. with decomposition, heat the remainder of the resultant acid at its decomposition temperature (about 175 to 180°C.) until no further evolution of gas is noted; the residual substance, λ -methyl-3,5-diiodo-4-pyridone, thrice recrystallized from water, melts at 214°C. to 1 cc. of the foregoing filtrate add 10 cc. of urinary zinc acetate solution, a yellow precipitate results. Dissolve about 0.5 Gm. of neo-Iopax in 50 cc. of water, add an excess of hydrochloric acid, filter through paper and divide into two portions; to one portion add 1 cc. of chloroform and 0.1 cc. of ferric chloride solution, no coloration is imparted to the chloroform layer (absence of free inorganic iodide); saturate the other portion with hydrogen sulphide, no coloration or precipitation results (salts of heavy metals).

Dry about 1 Gm. of neo-Iopax accurately weighed to constant weight at 100°C. the loss in weight does not exceed 2 per cent. Transfer about 1 Gm. of neo-Iopax accurately weighed to a 500 cc. Kjeldahl flask and determine the nitrogen content according to the official method described in Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists, third edition, page 20, chapter 2, paragraph 22, the percentage of nitrogen corresponds to not less than 2.7 per cent nor more than 2.9 per cent when calculated to the dried substance. Weigh accurately about 0.5 Gm. of neo-Iopax in a tared platinum dish, add 10 cc. of sulphuric acid, gently heat while fumes of iodine and sulphur trioxide are evolved, repeat using two portions of sulphuric acid, respectively ignite cool and weigh as sodium sulphate, the sodium found corresponds to not less than 9.2 per cent nor more than 9.4 per cent when calculated to the dried substance. Transfer about 0.2 Gm. of neo-Iopax to a Parr sulphur bomb, determine the iodine content by the Lemp and Broderick Method (Journal of the American Chemical Society 39: 2069), the amount of iodine found corresponds to not less than 51 per cent nor more than 53 per cent when calculated to the dried substance.

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
RAYMOND HERTWIG, Secretary

"RESISTANCE" CLAIMS IN FOOD ADVERTISING

Food advertising abounds with vague "resistance" claim. Certain foods or their constituents are alleged to increase resistance, implying, body resistance, which popularly signifies ability of the individual to keep well or healthy or not to suffer untoward effects from bacterial infections, fatigue, exposure to cold and wet, loss of sleep and the like.

A healthy body is free from disease, and its parts function normally. The tissues are physiologically sound, body cells function efficiently, there is a normal production of internal secretions or hormone, a normal power to produce immunity antibodies, and the many reactions of metabolism proceed without interference. Such a healthy body possesses a maximum resistance for the particular individual. Any influence disturbing its functioning, metabolism or structure may adversely affect resistance. The potency and duration of the disturbing factor determine the degree of the breakdown of resistance and consequent effect on health. Slight but insidious disturbances may continue a long time before signs of positive ill health appear.

Scientific clinical and common experience shows that adequate nutrition (water, minerals, vitamins, proteins, lipins, carbohydrates and roughage, adequate in kinds and amounts), exercise, rest, hygienic environment and sane habits are among the important requisites for maintaining "resistance" and the conditions of health. There are, however, many other intangible and undefined prerequisites.

It is apparent that resistance depends on many other factors than diet or any one dietary essential. Insufficiency of a dietary essential may eventually break down health, but more than is necessary of one or more of these essentials for adequate body reserves does not lead to a "super resistance."

Resistance produced by adequate nutrition is not to be confused with immunity resulting from antibodies in the body fluids produced by the body cells in their defensive reaction against pathogenic organisms and their toxins. Food advertising should conform to this established knowledge.

THE PASTEURIZATION OF MILK

Milk is an excellent medium for many dangerous bacteria as well as an excellent food for man. Disease germs may enter the milk directly from an ailing cow, be introduced by insects or be transferred to the milk by the fingers or mouth-spray of persons having to do with the collection or transportation of milk.

Once in the milk, some of the disease germs may multiply enormously. Extensive epidemics of typhoid, scarlatina, diphtheria, septic sore throat and other diseases are sometimes caused by contamination of milk supplies. Numerous cases of tuberculosis and undulant fever have been caused by raw milk.

Even when great care is used in overseeing the health of the cattle and of the milkers and in maintaining the cleanliness of the dairy, there remain many possibilities of contamination. A milkster may become overnight an unwitting carrier of some disease germ in his nose or throat, a typhoid carrier might be unknowingly employed in a most carefully conducted dairy.

Since disease germs are readily destroyed by well established methods of pasteurization, all milk for direct human consumption or for use in ice cream, cheese or other milk products should be pasteurized according to officially approved methods. After pasteurization the milk should be so stored and protected that it will not be contaminated. Liquid pasteurized milk should be retailed in sealed bottles.

The pasteurization of milk is a public health measure. The public should demand pasteurized milk for drinking and the use of pasteurized milk in milk products. The dairy trade should universally adopt pasteurization in the interest of public health.

There is no cogent evidence that pasteurized milk is significantly inferior nutritionally to raw milk.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULE AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMOTION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG Secretary

PROTEIN S M A (ACIDULATED)

Manufacturer—S M A Corporation Cleveland

Description—Spray dried homogenized mixture of skim milk soluble casein (sodium caseinate) beef fat coconut oil cacao butter, cod liver oil, potassium chloride salts lactic acid (derived by culture with *Streptococcus lacticus*) and fresh lemon juice, contains vitamins A, B, C, D and G.

Manufacture—The milk used is collected in accordance with provisions of the sanitary code amendment No. 9 of the Cleveland Board of Health (see this section for SMACO 206 Powdered Whole Milk, *THE JOURNAL* June 6, 1931, p. 1953). The milk is warmed to about 37 C and centrifuged for separation of milk fat. The skim milk (approximately 0.01 per cent milk fat) is pasteurized by the holding method and cooled immediately to 7 C or less.

Skim milk, soluble casein (see this section for SMACO 201 Liquid Protein Milk, *THE JOURNAL* March 4, 1933, p. 663) and S M A fat mixture (beef fat coconut oil cacao butter and cod liver oil) are mixed, pasteurized homogenized and cooled to 20 C or less. Pure culture of *Streptococcus lacticus* is added. The mixture is allowed to "ripen" until the acidity is approximately 0.75 per cent expressed as lactic acid and fresh lemon juice is added to bring acidity to a pH of 4.6. The entire mixture is spray dried and automatically canned in an atmosphere of nitrogen gas to prevent oxidation of the fat and vitamins.

The lemon juice is extracted from fresh fruit immediately before use and added to the factory mix immediately before the spraying operation to protect the vitamin C content.

Analysis (submitted by manufacturer) —

	per cent
Moisture	2
Ash	6
Fat (ether extract)	22
Protein (N × 6.38)	35
Lactose (by difference)	28
Lactic acid	1
Citric acid	6
Chemical constants of the fat	
Melting point	37 C
Saponification number	206
Iodine number	46
Polenske number	2
Reichert Meissl number	12
(proximate analysis of dilution—1 ounce of powder to 9 fluidounces of water)	
	per cent
Ash	0.6
Fat (ether extract)	2.0
Protein (N × 6.38)	3.5
Lactose	2.8
pH	4.6

Calories—48 per gram 136 per ounce

Vitamins—Diluted according to instructions contains per quart

Vitamin A, 3,500 Sherman units

The B (complex) equals that of the milk and 20 cc of fresh lemon juice

Vitamin C approximates that of 20 cc of fresh lemon juice. Seven hundred and fifty A D M A (75 Steenbock) vitamin D units.

Claims of Manufacturer—A lactic acid (pure culture) antirachitic, antiscorbutic food for prematurely born and other infants requiring a high protein intake for the correction of nutritional disturbances.

HALES PRIDE TOMATO JUICE

Distributor—Hale-Halsell Company, McAlester Okla.

Packer—Gibson Canning Company Gibson City Ill.

Description—Tomato juice seasoned with salt retaining in high degree the natural vitamin content the same as Gibson's Finest Tomato Juice (*THE JOURNAL* Sept 16, 1933, p. 931).

CERTIFOODS CERTIFIED NURSERY FOODS—
SPINACH (SERVED)

VITAMIN CONTENT GUARANTEED, NO ADDED
SEASONING OR SUGAR

Manufacturer—Certifoods, Inc., New York, a subsidiary of the Maltine Company, New York

Description—Sieved spinach prepared by methods efficient for retention in high degree of the natural mineral and vitamin values no added seasoning or sugar.

Manufacture—Fresh spinach is cleaned washed, inspected, trimmed cut stem wilted, heated to 71 C, sieved in an atmosphere of nitrogen gas, canned, processed and packed as described for Certifoods Certified Nursery Foods—Green Beans (*THE JOURNAL*, Oct 3, 1931, p. 1003). The processing is for forty minutes at 116 C.

An alternative is the use of spinach that has been previously washed trimmed packed in No. 10 tins with hot water and processed for fifty minutes at 122 C. The canned spinach is subsequently treated as described above.

Analysis (submitted by manufacturer) —

	per cent
Moisture	95.0
Total solids	5.0
Ash	1.1
Fat (ether extract)	0.2
Protein (N × 6.25)	1.6
Reducing sugars before inversion as dextrose	0.1
Reducing sugars after inversion as dextrose	0.1
Sucrose (copper reduction method)	0.04
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	1.6
Calcium (Ca)	0.12
Phosphorus (P)	0.04
Iron (Fe)	0.0014

Calories—0.1 per gram 3 per ounce

Vitamins—The methods of preparation sieving and processing are efficient to conserve the natural vitamins in high degree.

The product is guaranteed to contain 560 units of vitamin A (Sherman method), 2 units of vitamin B (Chase and Sherman method) and 2 units of vitamin C (Sherman-LaMer method) per ounce.

Claims of Manufacturer—See this section for Certifoods Certified Nursery Foods—Green Beans (*THE JOURNAL*, Oct 3, 1931, p. 1003).

WHITE PEARL MACARONI ALPHABETS
WHITE PEARL MACARONI SHELLS
WHITE PEARL MACARONI RINGS
WHITE PEARL VERMICELLI

Manufacturer—Tharinger Macaroni Company, Milwaukee

Description—Alphabet, shell and ring macaroni and vermicelli prepared from durum patent flour and durum semolina the same as the accepted White Pearl Macaroni and Spaghetti (*THE JOURNAL*, April 23, 1932, p. 1455).

BEECH-NUT STRAINED SPINACH

(Slightly seasoned with salt)

Manufacturer—Beech-Nut Packing Company, Canajoharie, N. Y.

Description—Sieved spinach retaining in high degree the natural vitamin and mineral values, seasoned with salt.

Manufacture—Canned California spinach specially put up without salt is strained and salt (0.5 per cent) is added. The subsequent treatment and processing are the same as for Beech-Nut Strained Carrots (*THE JOURNAL*, Nov 11, 1933, p. 1562).

Analysis (submitted by manufacturer) —

	per cent
Moisture	92.9
Total solids	7.1
Ash	1.7
Sodium chloride	0.5
Fat (ether extract)	0.4
Protein (N × 6.25)	2.0
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	2.4

Calories—0.2 per gram 6 per ounce

Vitamins and Claims of Manufacturer—See Beech-Nut Strained Carrots (*THE JOURNAL*, Nov 11, 1933, p. 1562).

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SAURDAY, JANUARY 13, 1934

1934 SUBSCRIPTION AND DUES PAYABLE

For the convenience of those who have not yet paid their dues for 1934 or who have not yet completed their subscription to THE JOURNAL and the special periodicals published by the American Medical Association, a colored slip is enclosed in this issue. This statement is made in such form that it constitutes, when properly folded, a convenient envelop which does not require addressing or the affixing of postage stamps. When it is placed in any mail box in the United States it will be delivered to the headquarters of the Association, where the cost of postage is assessed.

There appears likewise in this issue an advertisement indicating some of the reasons why THE JOURNAL is necessary to the practicing physician, and also the special values associated with the publications in the specialties. Throughout the world, THE JOURNAL is recognized as the leading medical publication. In view of the material already in prospect for 1934, it is safe to say that the publication will advance during the year.

In addition to material derived from the annual session, THE JOURNAL has a choice each year from some three thousand voluntarily submitted manuscripts. Moreover several series of special articles are now in process of preparation. Physicians whose dues are not yet paid should, if possible, make prompt use of the colored slip and thereby ensure uninterrupted delivery of THE JOURNAL.

THE CLEVELAND SESSION

At a meeting held at the headquarters of the American Medical Association in Chicago recently, the Council on Scientific Assembly and the secretaries of the various sections announced some of the plans already made for the Cleveland session. These indicate the appearance of several new features as well as the maintenance of the extraordinary opportunities for graduate education in medicine that have been associated with previous meetings.

Prominent at the Cleveland session will be a series of General Scientific Meetings planned wholly for the advancement of the practitioner in subjects of current interest. For this purpose, clinicians and demonstrators are being chosen who have achieved note either for their special work on the topics to be discussed or for their pedagogic ability as demonstrated at various clinical meetings held throughout the country. In view of the now recognized wide dissemination of amebiasis and the extraordinary interest associated with the outbreak of a special form of amebiasis in two Chicago hotels during A Century of Progress Exposition, an entire afternoon of the clinical program is to be devoted to a complete consideration of this disease. In this program the leading investigators, epidemiologists and clinicians of the country will cooperate. At the same time, a demonstration in the Scientific Exhibit will make available opportunity for learning at first hand the steps in clinical and laboratory diagnosis of this disorder as well as the various drugs now available for treatment and the methods and routine of administration. Moreover, the Committee on Scientific Exhibit is planning a number of special exhibits in other fields, including particularly a demonstration of gross pathology with fresh material made available from Cleveland hospitals.

The secretaries of the scientific sections have been besieged by a deluge of requests for places on the program. In several sections more than two hundred applications have been received for the sixteen to eighteen places available. This indicates not only extraordinary interest in the session itself but an opportunity for the various sections to assemble programs of unusual merit.

Because of its central location and easy access, the Cleveland session should be one of the greatest ever held in the history of the Association. On previous occasions attendance at these sessions has been marked by the presence of from 5,000 to 7,500 physicians, representing by far the largest medical meetings held anywhere in the world. Since the facilities at Cleveland are exceptional, permitting all the meetings to be held under one roof, together with the scientific and technical exhibits, there is reason to believe that the Cleveland session may break all previous records for attendance.

Fellowship in the American Medical Association is a prerequisite to registration at the meeting. In this

issue of THE JOURNAL appears the usual slip for the sending of fellowship dues. Physicians should not delay in returning the slip since it is desirable that the records be fully in order well in advance of their attendance at the session.

EMERGENCY MEDICAL RELIEF AND THE CIVIL WORKS ADMINISTRATION

The innumerable activities of the government in relationship to medical practice during the emergency have been carefully recorded in preceding issues of THE JOURNAL. Through constant contact with authorities in Washington by representatives of the Bureau of Legal Medicine and Legislation through long distance telephone conversations with government officials and through special conferences held by various officers and committees of the Association with governmental bodies all this material has been assembled and published at the earliest possible moment. Every one officially representing the medical profession through the American Medical Association has been doing his utmost to secure a maintenance of the ideals of the medical profession in the organization of this work and at the same time to insure to the needy public the right type of medical service. How efficiently these various representatives have functioned is perhaps best demonstrated by the following letter sent with the latest information to be made available, by Harry L. Hopkins, who is at the same time administrator of Federal Emergency Relief and of the Federal Civil Works Administration. The letter reads in part:

The United States Employees' Compensation Act of 1916 as amended, requires that medical care be provided through United States medical facilities where these are available and adequate. This will be the case only in certain localities, chiefly in large cities. There is no intention of increasing Federal hospital bed capacity where existing facilities are not adequate.

The Civil Works Administration, as employer, knowing the high ethical standards of the American Medical Association, asks you to share the responsibility of providing the best medical care available, and securing the best possible end results for employees who incur injuries in the performance of their duties.

We wish to emphasize our recognition of the great service the medical profession has always rendered by freely giving medical care to the needy, and our especial appreciation of the profession's cooperation during the past few years in providing medical care for the unemployed, in many cases entirely without remuneration.

We shall rely upon the American Medical Association to do everything possible to secure wholehearted and disinterested cooperation from its member societies. We specifically urge that you solicit of your membership through editorials and at any forthcoming meetings, their cooperation.

HARRY L. HOPKINS
Administrator

In the special article concerning emergency medical relief and the compensation work for the Federal Civil Works Administration which appears under Association News in this issue, there is a memorandum from the United States Employees' Compensation Commission to state civil works administrators. It will be noted that

in this memorandum the government has affirmed again its confidence in the disinterested and public spirited attitude of organized medicine. It has requested the county societies, as the local organizations most immediately familiar with all of the medical profession, to include on their lists of physicians who wish to do this type of work well qualified members of the medical profession who may not be members of the county society. In this attitude the government expects the officials of the county medical societies to be fair, since it would manifestly not be just to omit the names of well qualified physicians who, for other than professional reasons, are not members of the county societies. It is, moreover, a question as to whether or not the government could officially fail to recognize the possibility that some qualified man might not hold membership.

Thus the government has put on the county medical societies, representing the functioning units of medical organization, the responsibility of proposing for such service only the names of physicians known to be well qualified by training and experience to handle the type of work involved. If any physicians are proposed for this service who fail to meet the requirements the responsibility will rest clearly on the county medical societies concerned.

Government authorities feel that, in order to be practical, the lists of physicians authorized to do this work must not be too extensive. This may require, in larger cities, some equitable selection of physicians from among those well qualified for the work, possibly based on the need of the physicians for the extra work during the emergency.

The government does not anticipate that the amount of medical service required to take care of injuries and diseases in the line of duty among workers of the Civil Works Administration will be exceedingly great. Indeed, because of the manner of selection of such workers, it is likely to be relatively small and specialized, as compared with the general medical care required for these 4,000,000 employees and their families.

Finally, as in all other government work, there will be required in this service a considerable amount of detail work in the filling out of forms, reports and records. Such forms are regularly used, however, in all types of insurance and compensation service and are recognized as necessary in the administration of compensation cases. For this reason the officials of county societies may render a special service to both the medical profession and the government by arranging special courses or other means for acquainting the group authorized to do such work with the forms, records and reports that are required.

Throughout the United States there is much confusion in relationship to these new activities of the government. Whereas some states have for more than a year been regularly engaging in cooperative effort for emergency medical care, other states have merely

reached the stage of establishing committees for conferences with relief administrators. Conditions differ so widely in different states that it is simply impossible for any one central authority either governmental or that represented by medical organization to outline any uniform scheme, fee schedule or other arrangement that would suitably care for the diverse conditions concerned. The American Medical Association has been alert in caring for the interest of the public and the medical profession in the development of these new regulations. Under the decisions that have been developed, it is possible for county medical societies to come to agreements with relief administrators and with officials of the Civic Works Administration that fill all the requirements of the various interests concerned. *THE JOURNAL* would emphasize again the importance of recognizing the emergency character of all these activities. The medical profession must insist on its ideals of personal medical care and mutual responsibility between patient and physician rather than any definite trend toward complete control of medical practice by the state.

POVERTY AND DISEASE

A report on national vitality, prepared many years ago by a governmental commission¹ pointed out that whatever diminishes poverty or increases the physical means of welfare has the improvement of health as one of its first and most evident effects. Therefore an important method of maintaining vital efficiency is to conserve natural resources—land, raw materials, forests and water. Only in this way can food, clothing, shelter and the other means of maintaining life be obtained. Conversely, the conservation of health will tend in several ways to the conservation of wealth. First, the more vigorous and long lived the race the better utilization can it make of its natural resources. The labor power of such a race is greater, more intense, more intelligent and more inventive.

In considering such problems of conservation as they affect human life, one usually thinks far more of mortality than of morbidity. The latter, however, has a serious bearing on public welfare. It has been estimated² that there are always about 3,000,000 persons in the United States on the sick list. Of these, approximately one third, or 1,000,000 persons, are in the working period of life. Without considering the effect of such conditions of life on the happiness of the population, a feature of the highest import in a social sense, the money cost of the illnesses involved, including such factors as loss of earning capacity and expenditures for care, amounts to hundreds of millions of dollars. It is stated, for example, that from tuberculosis alone the gross loss of earnings by illness and of potential earnings cut off by death, together with the expenses of ill-

ness, amounts to more than \$1,000,000,000 per annum. Of the sum mentioned, the loss to the consumptive themselves amounts to more than \$660,000,000, leaving \$340,000,000 as the loss to other members of the community. Obviously, if such costs are preventable there is alike a multiple advantage and an obligation to make vigorous efforts toward conservation of health—reduction of morbidity as well as of mortality. The call is for efforts to make life not only much longer but also more pleasant and efficient.

In writing of lengthening human life, Harris and Butt³ pointed out that there are no definite records to show whether or not the oldest persons living today have survived longer than the exceptional individual who lived many generations ago. The average length of human life is decidedly greater now than formerly, and the reduction in death rate has been particularly evident during the years that have intervened since science came to the rescue of mankind. While actual records of conditions prevailing during the middle ages are few, the best information indicates that the average length of life in Europe at that time was about 21 years as compared with 55 years in the United States today. Such records lead justifiably to the contemplation of how they have been attained.

It may not be comforting, but it surely is instructive to turn now and then to an objective contemplation of the problems that still remain in the field of health conservation. A stimulating illustration has just been reported from the heart of the Amazonian jungle. From Brazil Needles³ tells the story of a group of persons in the Amazon Valley who exhibit the acme of lethargy, shiftlessness and general lack of well being, for which they can scarcely be blamed. To help them it is necessary to realize the facts. According to Needles, the average native of the Amazon Valley is afflicted with what he has called the Amazonian pentad. The five major disabilities to which the "universal lethargy" is due are, in differing degrees of importance, (1) chronic malaria, (2) verminosis, (3) secondary anemia, (4) malnutrition and (5) splenomegaly.

To realize more adequately what this really involves, one must consider a few of the startling details. From various surveys "it is safe to state that the great majority of natives have chronic malaria." In more than 6,000 stool examinations for verminosis in a single hospital laboratory over a period of three and one half years, less than 700 negative observations were recorded. There are many multiple infestations. *Ancylostoma* is the most frequent invader, with *Trichuris* next and *Ascaris* third. Almost 90 per cent of those examined give evidence of suffering from secondary anemia. The explanation of some of the "lethargy" may be found in the widespread malnutrition. Needles has the impression that, while the diet lacks much of being ideally

¹ Fisher, Irving. Report on National Vitality, Its Wastes and Conservation. Bull. 30. Committee of One Hundred on National Health. Washington, D. C. Government Printing Office, July 1909.

² Harris, F. S. and Butt, N. I. Scientific Research and Human Welfare. New York, Macmillan Company, 1924.

³ Needles, R. J. Health Problems in the Amazon Valley. Science 78: 532 (Dec. 8) 1933.

balanced, the chief difficulty is not this so much as a less than normal quantity. The natives are for the most part miserably poor and unable to purchase enough for adequate maintenance. Here is a striking illustration of the vicious circle set up between poverty and disease, each of which tends to produce the other. That the situation is by no means hopeless is pointed out by Needles. "Where adequate mosquito control and adequate quinine are available, where venicufuges are freely and frequently given, and where the native has money with which to purchase adequate food, his physical status becomes remarkably better." A key to the opportunity for progress may be found in the words of a recent writer.² Physicians working throughout the ages were able to cope with infection and disease but imperfectly. It was only when trained research workers devoted themselves to a study of the fundamental causes of disease that real significant progress was made, more was then accomplished in a half century than in all the past history of the world.

Current Comment

ULTRAVIOLET THERAPY IN ORAL DISEASES

Because the promotional material for ultraviolet radiation apparatus includes odontologic claims as well as therapeutic claims intended primarily for the attention of the physician, the Council on Physical Therapy asked the Council on Dental Therapeutics of the American Dental Association to cooperate in the investigation of this form of therapy. After careful study, the Council on Dental Therapeutics reported that many of the claims were greatly exaggerated and that the evidence referred to in the promotional literature did not justify the dental profession in adopting ultraviolet radiation as a useful therapeutic agent. Furthermore, the dental council recommended that it was not wise for the dental profession to employ this treatment until more convincing evidence had been presented by the promoters and the enthusiasts to substantiate the claims made. In this issue of *THE JOURNAL* an abstract of the report mentioned appears in the columns of the Council on Physical Therapy. Briefly, the Council on Dental Therapeutics declares that the efficacy of ultraviolet radiation in connection with postoperative pain, following the extraction of teeth or other surgical procedures whether due to dry socket, infective osteitis or traumatism during local anesthesia, said to be readily suppressed by ultraviolet radiation, had not been established by critical research. The methods used to fix the diagnosis, the condition of the patient, the natural periods of remission and the response to other forms of treatment apparently were given no consideration whatever in these clinical writings. In conclusion, the Council on Dental Therapeutics reiterated that no adequately controlled evidence had been presented in the advertising matter or descriptive literature to warrant the use of ultraviolet radiation in the treatment of oral diseases and conditions.

HEIGHT OF FOREHEAD

It has recently been pointed out by the anthropologist Hrdlička¹ that, of all the various parts of the body, the forehead seems to have been neglected as to accurate measurements. This seems surprising, since the character of the forehead without doubt has played a large part esthetically in human relations, logically one might expect the height of the forehead to indicate cranial volume with some degree of accuracy and hence be correlated more or less directly with intellectual capacity. One of the difficulties has been to select reference points from which to make measurements. Hrdlička uses as the height of the forehead the difference between the chin-nasion height and the distance between the chin and the center of the arch of the hair line. To determine the correlation between the height of the forehead and intellectuality in males, measurements were made of 510 Old Americans with at least three generations American born on both sides of the family, of 118 Old Americans from the highlands of northeastern Tennessee, an extremely backward group, of 25 Old Americans, members of the National Academy of Sciences, and of 32 members of the same group, irrespective of nationality. (There were 118 members of the National Academy whose foreheads could not be measured owing to lack of hair over the forehead.) The maximum difference between the heights of the forehead in the four groups was found to be 0.02 cm, the average height of the forehead being 6.58 cm. This astonishing agreement between values for such divergent groups indicates the lack of correlation between the height of the forehead and intellectuality. Four groups of males representing different races were studied similarly, and the following average measurements were obtained: Old Americans, 6.59 cm; American Indians, 6.62 cm; full-blood young to middle-aged American Negroes, 6.98 cm; Alaskan Eskimos, 7.16 cm. Considering the character of the groups, the data show the fallacy of the idea that a high forehead in general indicates a high intellectuality or that it is a mark of racial superiority. Comparing the sexes in three important American races, it was observed that the height of forehead of the white woman is slightly lower absolutely but in relation to stature exceeds that of the male, absolutely and in proportion to body height the forehead of the Indian woman is decidedly lower than that of the male, in the Negro female the forehead is absolutely and in proportion to stature higher than that of the male. Such irregular variations in measurements according to sex are most unusual in anthropometry. It seems obvious that the height of the forehead as here defined bears little relationship to race, sex or the degree of intellectual attainment. Furthermore, this measurement appears to vary independently of the height of the frontal part of the skull. The obvious conclusion to be drawn is that it is definitely a function of the downward extension of the hair line which forms one of the points of measurement. The causes of the variation in position of the normal hair line have thus far not been determined.

¹ Hrdlička, Ales. *Proc. Am. Phil. Soc.* 72: 515, 1933.

Association News

MEDICAL AND HOSPITAL SERVICES FOR ILL AND INJURED EMPLOYEES OF FEDERAL CIVIL WORKS ADMINISTRATION

Four million five hundred thousand men and women have been given employment under the Federal Civil Works Administration since Nov. 16, 1933. They are being paid wages considered sufficient to enable them to provide, at their own expense, medical and hospital service for themselves and their families, such as may be necessary on account of ordinary illness and injury. Physicians and hospitals must therefore look to the individual men and women whom they serve for payment for such service. On a clear showing of necessity, federal emergency relief funds can be used to pay for medical service in such cases. That service however must be authorized by the proper state or local emergency relief administrator. Federal emergency relief funds cannot be used at all for payment for hospital service.

All civil employees of the United States including these employees of the Federal Civil Works Administration, and all employees of the District of Columbia except members of the police and fire departments, are entitled to medical and hospital service at government expense for all accidental injuries from which they suffer in the performance of their duties and for all diseases proximately caused by their employment. This prerogative they obtain under the provisions of the United States Employees' Compensation Act of 1916 as amended. The act provides:

That for any injury sustained by an employee while in the performance of duty whether or not disability has arisen the United States shall furnish to the employee all services, appliances and supplies prescribed or recommended by duly qualified physicians which in the opinion of the commission are likely to cure or to give relief or to reduce the degree or the period of disability or to aid in lessening the amount of the monthly compensation. Such services, appliances, and supplies shall be furnished by or upon the order of United States medical officers and hospitals but where this is not practicable they shall be furnished by or upon the order of private physicians and hospitals designated or approved by the commission.

Under the authority thus conferred the United States Employees' Compensation Commission has designated some 4,000 physicians in private practice to furnish medical service, when United States medical officers and hospitals are not available, to the 600,000 civil employees normally in the service of the United States government and the government of the District of Columbia. It has provided too, by regulation, that:

In localities where neither government hospitals nor dispensaries nor designated physicians are in the vicinity the injured employee or his official superior should secure treatment from the nearest available competent physician licensed to practice medicine and surgery. Such a physician need not be given any specific authority for treatment but should be informed that the commission will settle all reasonable charges for fees not in excess of those prevailing in that locality for patients receiving the average income of government employees.

The regulations promulgated by the United States Compensation Commission to govern medical and hospital service at government expense, for injured and ill federal employees entitled to such service, were supplemented, Nov. 27, 1933, by regulations promulgated by the Federal Civil Works Administrator applicable only to employees of the Federal Civil Works Administration. These regulations, however, were superseded by others issued December 12, but retroactive to November 16, so that the regulations of November 27 may be disregarded. These activities have been duly recorded in recent issues of THE JOURNAL. The regulations promulgated by the Federal Civil Works Administrator went further than those promulgated by the United States Employees' Compensation Commission by requiring that employees of the administration entitled to medical and hospital service at government expense be referred to available state, county or municipal hospitals and dispensaries when no federal medical facilities were available and that only in the absence of any such hospital or dispensary,

as well as the absence of federal facilities, should such an employee be referred to a designated or approved physician or private hospital. Under those regulations no physician not previously designated by the United States Employees Compensation Commission could be employed to treat a patient if a federal, state, county or municipal hospital, or a designated physician, was available.

To adjust the misunderstandings that arose out of the differences in interpretations of the act, of the regulations promulgated by the Compensation Commission, and of the regulations promulgated by the Federal Civil Works Administrator, and to insure as effective and fair distribution of medical and hospital services as practicable, conferences were held among representatives of the commission, the administration, the American Hospital Association, the Catholic Hospital Association, the Protestant Hospital Association, and the American Medical Association. As the result of those conferences instructions have been issued by the Compensation Commission that should go far toward accomplishing the ends sought. The present situation however, that denies to injured and ill employees free choice of the physicians who are to treat them and of the hospitals in which they are to be treated, can be corrected apparently only by act of Congress.

A copy of the instructions issued January 5, by the United States Employees Compensation Commission to state civil works administrators follows. The exact terms of the instructions concerning hospitalization that are to be issued by the commission are not available as we go to press but the terms of the working arrangement approved by the Compensation Commission and the Federal Civil Works Administration on the one hand and by representatives of the three hospital associations on the other, are shown in the appended extract from a memorandum that the associations named have undertaken to send to their respective member hospitals. The representatives of the hospital associations have appointed a committee to advise with the United States Employees Compensation Commission as occasion may require and to assist in adjusting any difficulties or misunderstandings that may arise.

Instructions Sent by the United States Employees' Compensation Commission to State Civil Works Administrators Concerning the Selection of Private Physicians for Compensation Work

The list of physicians and surgeons (Form CA 76), designated to provide treatment where Federal Government medical facilities are not available or are inadequate, was for temporary guidance only, as indicated by telegram sent December 22.

Please instruct your local administrations to consult the officers of their county or district medical societies at once to enlist the societies' cooperation as follows:

1. Ask them to share with you the responsibility of preparing a list of the local physicians authorized to provide treatment to supplement Federal Government medical facilities when these are not available or are inadequate. This list should include physicians in the locality (whether members of the local medical society or not) who are well qualified by training and experience to render compensation service, who are licensed to practice medicine in the state, and who desire to participate in this service under the regulations of the United States Employees Compensation Commission. These regulations provide for fees not in excess of those charged by physicians generally to patients in the same income class as the injured person.

2. Have them indicate on this list physicians who, by training and experience, are especially qualified to handle unusual and special types of cases.

3. Request that they work out with you a proper plan, mutually satisfactory, for distributing the compensation work among the physicians on the list in as equitable a manner as possible. Any plan should provide for the immediate treatment of emergency cases and for treatment by physicians well qualified to handle the particular type of case.

A cumulative record should be kept which will show the number of cases which have been assigned to each physician on the list

Memorandum Sent by Hospital Associations to Their Members

SECTION OF HOSPITALS

Civil Works Administrators will be instructed to use Federal hospital facilities as required by the United States Federal Employees' Compensation Act of Sept 7, 1916, wherever practically available and adequate, but there is no intention of increasing the bed capacity and equipment of Federal institutions or of interfering with availability for those whom they are primarily intended to serve

Furthermore, Civil Works Administrators will be instructed that this ruling shall not interfere with the prompt hospitalization of urgent cases

When Federal facilities are not available, the nearest suitable hospital will be used, suitability to depend on the following factors: proximity, type of service, e. g., whether the hospital is well qualified to handle the special type of case and general quality of service. Hospitals accepting Civil Works patients shall, thereby, be understood to agree to the stipulated rates

Public hospitals, other than Federal, will not be given preference but when they are used, physicians will be allowed to make charges for services, when such charges are permitted by their hospital regulations. The United States Employees' Compensation Commission will not attempt to send out from Washington any list of hospitals designated to serve, but will instruct the Civil Works Administrators to secure advice locally as to the suitability of hospitals, from one or more of the following sources: medical advisory committees which have already been set up under F. E. R. A. Rules and Regulations, No 7, hospital associations, hospital, health or similar councils, county medical societies, boards of public welfare and/or health

Physicians treating Civil Works Compensation patients will refer them to hospitals selected by such physicians, when they consider hospital care necessary. U. S. Employees' Compensation Commission reserves the right to have its medical representatives examine patients at the hospital, and examine the records of these patients and to cause the patients' removal when they consider it necessary in the interest of the patient or to prevent overcharge, etc. Hospital records of these patients shall be open to inspection by representatives of the U. S. Employees' Compensation Commission

Rates were agreed upon and it is understood that the charge is to include the day of admission, but not the day of discharge or death, that the bills already incurred for Civil Works' employees will be adjusted on the above basis that the hospital care, when recommended by the attending physician, must be approved in writing by Civil Works Administration officials or representatives of the U. S. Employees' Compensation Commission, that in emergency cases, where the patient is admitted before authorization is secured the hospital shall notify the office of the Civil Works Administration within forty-eight hours and obtain written authorization, that the hospitals participating will promptly provide the U. S. Employees' Compensation Commission with such reports, records, etc., as may be requested

THE CLEVELAND SESSION

Symposium, in the Scientific Exhibit, on the Treatment of Burns

There will be a symposium on the treatment of burns in the Scientific Exhibit at the Cleveland Session June 11-15, 1934 with the Section on Surgery, General and Abdominal the Section on Practice of Medicine and the Section on Pathology and Physiology taking part. The symposium will be composed of a group of exhibits taking up the various phases concerned with the treatment of burns. Persons desiring to take part may obtain applications for space from the Director Scientific Exhibit, American Medical Association 535 North Dearborn Street, Chicago

MEDICAL BROADCAST FOR THE WEEK

Talks over Network of the National Broadcasting Company

The American Medical Association broadcasts each Monday afternoon from 5 to 5:15 Eastern standard time (4 o'clock central standard time). The subject for Monday, January 15, is "Pure Foods and Drugs." The speaker will be Dr. Morris Fishbein, editor of THE JOURNAL. Subjects and speakers for subsequent broadcasts will be announced weekly in THE JOURNAL.

Radio Talks from Station WBBM

The American Medical Association broadcasts on Tuesday and Thursday mornings from 8:55 to 9 o'clock, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters)

The subjects for the week are as follows:

January 16 Causes of Illness
January 18 Health and Water Bills

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM

The subject for the week is as follows:

January 20 Respiration and the Lungs

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Medical Library Board—The Maricopa County Medical Society has formed a library board with the responsibility of developing and maintaining the medical library opened by the society in Phoenix early in 1932. Members of the board are Drs. Orville H. Brown, chairman, George E. Shields, secretary-treasurer, Fred G. Holmes, Louis C. B. Baldwin and Thomas W. Woodman. Dr. William Warner Watkins was elected librarian. At present an attendant is in the library from 11 a. m. to 3 p. m. and the hours will be lengthened later. The library has available about ninety medical journals and several hundred books.

ARKANSAS

Personal—Dr. Robert Q. Patterson has been appointed professor of dermatology at the University of Arkansas School of Medicine, succeeding the late Dr. William R. Bathurst.

Society News—Dr. Major G. Seelig, St. Louis, addressed the Pulaski County Medical Society in Little Rock, November 13, on "A Retrospect of Medical History."—The Southeast Arkansas District Medical Society was organized by physicians of Ashley, Chicot, Desha and Drew counties, November 28, at a meeting in McGehee. Officers elected are Drs. Henry T. Smith, McGehee, president, John S. Wilson, Monticello, vice president, and Matthew C. Crandall, Wilmore, secretary.

CALIFORNIA

Changes in Health Officers—The following changes in health officers have been announced by the state health department:

Dr. Joyce A. Albert of Newman, succeeding the late Dr. Howell V. Armistead.
Dr. James B. McGuire of Mount Shasta, succeeding Dr. Paul Wright.
Dr. Frederick C. Gregg, city health officer of Calexico, succeeding the late Dr. William T. Talbott.

Impostor Traveling Through the State—Physicians are asked to be on the alert for an impostor, James W. Carlisle, alias Charles B. J. Ness, who is traveling throughout California presenting fraudulent endorsements from life insurance companies. According to the state board of medical examiners, Carlisle requests physicians to give him \$25, so that their names will thereafter be included in a book known as the "Insurance Medical Directory."

Certified Clams—All persons who dig soft shell clams or who deal in them as wholesalers are required to hold certificates which set forth the wholesomeness of the product, in accordance

with regulations of the California State Department of Public Health, effective January 2. Uncertified clams in markets, stores, restaurants and other places will be subject to destruction. There exists in the state an imminent menace to the public health the board points out because the large areas of salt water bays where these clams are dug are polluted by sewage. Every clam bed must be registered with the state board. The regulations provide also that soft shell clams sold for bait purposes by persons or stores that purvey clams for human food shall also be from certified sources and fit for human food otherwise they are not to be handled. Clams sold for bait as in bait stores shall be distinctly marked 'clams for bait only and not for human food. Clams intended for human food shall not be placed or kept in polluted or unclean water.

COLORADO

Society News—Speakers before the Medical Society of the City and County of Denver December 19 were Drs. Philip W. Brown Rochester, Minn. on Anemias; Franklin G. Crough Hysterical Reactions Common in General Practice; William M. Perke Depressive Reactions Common in General Practice; and Charles A. Rymer Organic Reaction Types. —At a meeting of the Boulder County Medical Society in Boulder December 14 Dr. John G. Ryan Denver reviewed the diagnosis and treatment of arthritis and Dr. Atha Thomas Denver spoke on the preventive and corrective treatment of arthritic deformities.

Midwinter Graduate Clinics—The midwinter graduate clinics of the Colorado State Medical Society will be held in Denver January 17-19 with sessions at the Denver General, Denver Children's and Colorado General hospitals. In addition to clinics the preliminary program announces addresses by the following physicians among others:

Edward F. Dean Denver Beck Method of Drilling Ununited Fractures
John Andrew Longmont Treatment of Varicose Ulcers
William W. Haggart Denver Compressed Fractures of the Spine Without Cross Neurological Symptoms in Industrial Surgery
Rudolph W. Arnold Denver Cancer of the Thyroid
Theodore P. Sears Denver Hyperparathyroidism
Isadore D. Bronfin Denver Differential Diagnosis of Cancer of the Lung
Louis S. Trust Denver Amebic Dysentery
John G. Ryan Denver Rheumatoid Arthritis
William B. Yerge Denver Diagnostic Value of Liver Function Tests
Constantine F. Kemper, Denver Hormone Standards in Clinical Medicine
Royal H. Finney Pueblo Medical Care of Peptic Ulcer

DELAWARE

Society News—At a meeting of the New Castle County Medical Society in Wilmington December 19 Dr. Temple S. Fay, Philadelphia lectured on 'Practical Aspects of Dehydration.' —Dr. Arthur C. Morgan Philadelphia directed a conference on tuberculosis in Wilmington December 15, under the auspices of the Delaware Academy of Medicine.

Health at Wilmington—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million for the week ended December 30 indicate that the highest mortality rate (245) appears for Wilmington, and for the group of cities as a whole, 122. The mortality rate for Wilmington for the corresponding period last year was 162 and for the group of cities, 147. The annual rate for eighty-five cities for the fifty-two weeks of 1933 was 11, as against a rate of 112 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Cancer Control—The Delaware State Board of Health has made cancer a notifiable disease, making available special record forms for reporting cases. The recent establishment of tumor clinics in various hospitals in the state was the beginning of the active program of cancer control in Delaware (THE JOURNAL, Oct. 7, 1933, p. 1159). Dr. Douglas M. Gay, pathologist at the Delaware Hospital, Wilmington, has been appointed director of clinics, and a trained cancer worker supervises the follow-up work and record keeping. All records are centralized at the Delaware Hospital in charge of Dr. Gay. Seven clinics are contemplated, but diagnostic clinics are already under way at Lewes, Dover and Milford with treatment clinics now organized at the Delaware and Wilmington General hospitals. The program is in charge of a state committee of the American Society for the Control of Cancer composed of representatives of medical organizations, official agencies and laymen.

DISTRICT OF COLUMBIA

University News—Dr. Howard T. Karsner, Cleveland delivered the December lecture in the Smith Reed Russell series at George Washington Medical School on 'Rheumatic Heart Disease.' Prof. Max Bergmann, director of the Kaiser Wilhelm Institute in Dresden, Germany, lectured on 'Recent Work in the Chemistry of Proteins and Amino Acids' at the university, November 28.

ILLINOIS

Physicians Honored—The Springfield Medical Club honored Drs. George I. Stericker and Wilber P. Armstrong at a dinner meeting, December 19 in observance of their completion of fifty years in the practice of medicine. Dr. Stericker graduated in 1883 from Leeds School of Medicine in Leeds, England and Dr. Armstrong from Homeopathic Hospital College, Cleveland in 1884. Both physicians have sons associated with them in the practice of medicine.

Dental Hygiene—With the appointment of C. F. Deatherage, DDS, Chicago as state superintendent of mouth hygiene, the state department of health inaugurated a dental hygiene program that shifts the emphasis of educational activity from corrective to preventive work. L. I. Webb, DDS, Ashley has been appointed assistant to Dr. Deatherage. A better dietary is the chief objective of the program. The Illinois State Dental Society is cooperating through a committee that meets each month with the dental hygiene section of the state department of health.

Chicago

Personnel—Dr. Joseph Weltold has been appointed associate clinical professor in the department of genito-urinary diseases at Loyola University School of Medicine. —Dr. Charles F. Yerger has been promoted to associate clinical professor of ophthalmology at Loyola University School of Medicine. —Dr. Max Thorck has been elected a corresponding member of the Surgical Society of Madrid, Spain.

Change in Society's Programs—Dr. Francis A. Faught, Philadelphia will discuss medical economics and the Philadelphia plan before the Chicago Medical Society, January 1. Previously announced plans stated that Senator Royal S. Copeland, New York, would discuss the Copeland bill. In the symposium on the gallbladder in general practice, January 24 Dr. George W. Crile, Cleveland will present the surgical aspect instead of Dr. Everts A. Graham, St. Louis, as here before announced.

Memorial Meeting—The first official 'memorial meeting' of the Chicago Medical Society will be held January 14 at the Murphy Memorial Hall at 3 o'clock to honor the memory of members who died in 1933. The speakers will be Dr. James B. Herrick, president of the Society of Medical History who will review the life of Nathan Smith Davis, one of the founders of the Chicago Medical Society and the American Medical Association; and Preston Bradley, pastor, People's Church of Chicago, whose subject will be 'The Beneficence of Medicine.'

Course on Psychoanalysis—The systematic presentation of psychoanalysis is the theme of a course being conducted by Drs. Franz Alexander and Karen Horney at the Institute for Psychoanalysis. The titles of the lectures which began January 11 to continue on Thursday afternoons, are:

Nature of Psychological Understanding
Historical Development of the Main Concepts of Psychoanalysis
Concept of the Unconscious
Fundamentals of Psychic Dynamics (Repression, Regression, Reaction Formation, Sublimation)
Theory of Instincts
Theory of Dreams
Development of the Personality
General Concepts of the Structure of Neuroses and Psychoses
Principles of the Psychoanalytic Technique
Possibilities of Application of Psychoanalysis to Other Sciences

The Medical Park—Articles of incorporation were filed, January 3 as the first step toward the creation of a medical center in Cook County. With the objective of coordinating all the medical facilities in Chicago into one great medical center, it is planned to centralize in the vicinity of Cook County Hospital. Using the present facilities as a nucleus it is proposed to replace unrelated structures with new buildings and to improve the landscaping of the area. The purpose of the corporation, known as the Medical Park at Chicago is to promote and establish the medical center, effect passage of favorable legislation and arouse interest for the project. Among the directors are Drs. Bernard Fantus, Frederick Tice, Austin A. Hayden, Charles Davison and H. Edmond Quinn and Mr. Asa S. Bacon, superintendent of Presbyterian Hospital.

Sectional Meeting of Otolaryngologists—A joint session of the Chicago Laryngological and Otological Society and the middle section of the American Laryngological Rhinological and Otological Society was held at the Ambassador Hotel, January 9. The program was presented by the following:

- Dr. Howard C. Billinger: Bacteremia and Acute Upper Respiratory Infections
- Dr. William Mithoefer: Cincinnati Hypertonic Muscles of the Neck as a Cause of Headaches
- Dr. Harris H. Vul: Cincinnati Disease of the Sphenoid Sinus as a Cause of Reflex Pain in the Head
- Dr. Elmer W. Hagen: Anatomy and Pathology of the Petrous Bone Based on the Study of Fifty Temporal Bones
- Dr. Isaac A. Abt: Postangular Sepsis
- Leslie B. Grey, Ph.D.: The Crypt Systems of the Tonsils Throughout the Life Span
- Dr. John W. Carmack: Indianapolis Treatment of Lateral Sinus Thrombosis with Report of a Case of Canalization of the Sigmoid and Jugular Vein After Ligation
- Dr. Harry I. Pollock: Genuine Ozena in the Light of Recent Investigations

Arthur Isaac Kendall, Dr. P.H. professor of research bacteriology, Northwestern University Medical School was guest speaker at the dinner meeting on New Bacteriology.

INDIANA

Secretaries' Conference—The annual conference of secretaries of the component societies of the Indiana State Medical Association will convene in the Lincoln Hotel Indianapolis, January 21. Speakers will include:

- Dr. Harold Jackson Davis: Albany, N.Y. A Statewide Program for Medical Care to Indigent Persons in Their Homes Based on Federal Emergency Relief Administration's Rules and Regulations Number 7 and Data Drawn from Two Years' Experience in New York State
- Dr. William W. Bauer: director, Bureau of Health and Public Instruction, American Medical Association, Chicago. Duties of the Profession in Health Education
- Dr. Eldridge M. Shanklin: Hammond, Your Journal
- Dr. Nathan B. Van Ert: New York, Medical Economics
- Alphonse M. Schmitt: St. Louis, Business in the Practice of Medicine

Topics to be generally discussed will include the immunization and child health program, federal emergency relief act funds, and general activities of large and small county societies.

IOWA

Personal—Dr. William F. Boiler, Iowa City, was named president of the Iowa Academy of Ophthalmology and Otolaryngology at its recent annual clinical conference. Dr. William B. Armstrong has been appointed school physician of the Ames public schools, succeeding Dr. Andrew Ritan, who held the position for three years.

Society News—At a meeting of the Taylor County Medical Society, November 14, Drs. John C. Parsons and Carl E. Sampson, both of Creston, spoke on 'Sphygmomanometry in Cardiac Disease' and 'Diagnosis and Treatment of Mastoid Infections,' respectively. A symposium on tuberculosis was presented before the Woodbury County Medical Society, November 23, by Drs. Robert H. McBride, Howard I. Down and Mark C. Wheelock, Sioux City. The Davis County Medical Society was addressed, November 14, in Bloomfield, by Drs. Conda C. C. Heady on 'Progress of Medicine in the Last Forty Years' and William L. Downing, Moulton, 'Appendicitis.' Dr. G. Earl Garside, Chicago, spoke before the Black Hawk County Medical Society in Waterloo, November 21, on 'Intra-Abdominal Complications of Appendicitis.' Dr. James G. Carr, Chicago, spoke before the Scott County Medical Society, Davenport, December 5, on cardiovascular diseases and cardiac pain. Dr. Claude F. Dixon, Rochester, Minn., addressed the society, November 7, on 'Surgical Management of Cancer of the Colon.' Dr. Gabriel S. Westly, health officer of Manly, was elected president of the Iowa Public Health Association at its annual meeting in Des Moines, November 22.

LOUISIANA

Graduates from Foreign Schools—The Louisiana State Board of Medical Examiners, New Orleans, adopted a resolution, recently, requiring every physician from a foreign medical school to have, in addition to a foreign diploma, one from a medical college located in the United States and recognized by the board. The regulation was effective December 7.

Personal—Dr. Hiram O. Barker has been appointed superintendent of the Baptist Hospital, Alexandria, effective December 1, succeeding Mr. Edward Groner, who has resigned to become associated with the Southern Baptist Hospital, New Orleans. Dr. Carl C. Dauer has been appointed instructor in preventive medicine at Tulane University of Louisiana School of Medicine, New Orleans.

First Award of the Matas Medal—The Matas Medal for Vascular Surgery, named in honor of Dr. Rudolph Matas, emeritus professor of general and clinical surgery, will be awarded to Dr. Mont R. Reid, Cincinnati, January 23, in New Orleans. The medal will be provided through the Violet Hart Fund, which was created by Mr. Mike S. Hart in memory of his sister. The establishment of the award is a fulfillment of a request of Miss Hart, who was a patient of Dr. Matas. The fund will be administered by Tulane University and is to provide an award, to be known as the Rudolph Matas Award, to be made to that North American surgeon who has contributed outstanding work in vascular surgery. It is to be awarded as the occasion arises by a committee of surgeons selected by the Hart family and including the head of the department of surgery in Tulane's undergraduate school of medicine. The committee that selected Dr. Reid as the first recipient of the medal was composed of Drs. Emile Bloch, chairman, Lucian H. Landry, Isidore Cohn and Edward W. Alton Ochsner. Dr. Matas will personally present the award to Dr. Reid, who is Christian R. Holmes professor of surgery in the University of Cincinnati School of Medicine, Cincinnati. Fifteen years after his graduation from Tulane, in 1880, Dr. Matas returned to his alma mater as professor of surgery. He retired from active teaching at the institution in 1927.

MASSACHUSETTS

Personal—Dr. William E. Curtin, Plymouth, has been appointed medical examiner of the Third Plymouth District. Dr. Edward W. Whitney has been appointed superintendent of Northampton State Hospital, succeeding the late Dr. Theodore A. Hoch. Dr. Whitney has been assistant superintendent since 1917.

New Institute of Pathology—The Mallory Institute of Pathology of the Boston City Hospital was dedicated, December 13. It is named in honor of Dr. Frank Burr Mallory, who was pathologist from 1908 until his retirement last year, having been associated with the laboratory since 1891, when he was appointed assistant. The new building is the outgrowth of the old pathologic laboratory opened in December, 1895, and consists of a basement, four main floors and a penthouse. Quarters have been provided for the medical examiner service, which has been affiliated with the department for several years. According to the *American Journal of Pathology*, the medico-legal relation of the hospital received its first notice in the annual report of 1871 with a reference to the establishment of facilities for the reception and identification of unknown dead. Thus the purpose of the Mallory Institute of Pathology is to conduct routine pathologic and bacteriologic work of the Boston City Hospital and to investigate cases referred to the medical examiner's office of Suffolk County, South, in conjunction both with undergraduate and with graduate teaching.

MICHIGAN

New Department of Epidemiology—For the purpose of research in the control of communicable disease, a department of medical epidemiology has been added to the W. K. Kellogg Foundation, effective January 1, newspapers report. Dr. John E. Gordon, Detroit, will be in charge of the new department. Stress will be placed at present on the communicability of scarlet fever.

Dr. Kahn Awarded Prize—The American Association for the Advancement of Science at its winter meeting in Cambridge, Mass., December 31, voted its eleventh annual award of \$1,000 to Reuben L. Kahn, Sc.D., assistant professor of bacteriology and serology, University of Michigan School of Medicine, Ann Arbor, for his paper on "Tissue Reactions in Immunity," which presented experimental evidence of a new immunity principle. Dr. Kahn is prominently known for his discovery of the Kahn precipitation test for syphilis. He is 46 years of age and a native of Kovno, Lithuania. He received the degrees of bachelor of science from Valparaiso University, Indiana, in 1909; master of science from Yale in 1911; and doctor of science from New York University in 1916. He has been associated with the University of Michigan since 1928 as assistant professor and director of clinical laboratories of the University Hospital. He was bacteriologist with the New York Health Department 1913-1914; research chemist of the Hariman Research Laboratory, 1916-1917; and immunologist of the Michigan State Department of Health, 1920-1928. He served during the World War as lieutenant and later as captain in the U. S. Army Sanitary Corps, and is now a major in the medical reserve corps.

MISSOURI

President a Second Time—The inauguration of Dr. John C. Morfit as president of the St. Louis Medical Society took place, January 2. This is the second time he has held this office, having been elected first in 1907. It is the first time in forty-eight years that a physician has been recalled to the presidency of the society, although its records show that five other ex-presidents have been chosen two or more times. Dr. Bernard G. Farrar the first president was elected twice, 1836 and 1837. Dr. Hardage Lane the second three times, 1838, 1839 and 1847. Dr. Meredith Martin the fourth four times, 1840, 1842, 1845 and 1865. Dr. Thomas Rayburn the eleventh, 1854 and 1857 and Dr. Elsie Gregory, the twenty-fourth twice 1871 and 1886. Dr. Morfit is the sixtieth president.

Society News—Speakers before the Jackson County Medical Society, December 12, were Drs. David S. Dunn and Joseph Lawrence Jones on 'An Original Method for Internal Examination of the Neck of the Uterus and Its Clinical Application,' and Claude J. Hunt 'Resection of the Stomach for Carcinoma.'—Speakers before the St. Louis Trudeau Club, December 7, were Drs. David P. Burr on 'Uses and Abuses of Oxygen and Carbon Dioxide Therapy,' and Francis M. Pottenger, Monrovia, Calif., 'Clinical Aspects of Visceral Neurology of Lungs and Pleura.'—Henry I. Vaughan, Dr. P. H., health commissioner of Detroit, addressed the St. Louis Medical Society, December 15 on 'Preventive Medicine from the Family Physician.'—Dr. Charles L. North, New York, spoke before the St. Louis Medical Society, November 14, on 'Milk Sanitation and Its Effect on Public Health.'

NEVADA

Society News—Dr. Francis M. Pottenger, Monrovia, Calif., addressed the Washoe County Medical Society and members of the Nevada Public Health Association and State Nurses Association, Reno, November 14, on progress in the study of tuberculosis. He conducted a clinic at St. Mary's Hospital.

NEW JERSEY

Society Fifty Years Old—The Cape May County Medical Society celebrated its fiftieth anniversary at a meeting in Ocean City, November 14. A feature of the observance was a display of articles used by physicians of pioneer days among them a sword and cane presented by George Washington to Dr. John Dickinson said to have been the first physician in the county. One of the three surviving charter members, Dr. Eugene W. W., Sea Isle City, was present. Dr. James H. Ingram is in Peiping, China and the third living charter member, Col. Charles M. Grady, Ocean View, was unable to be present. Dr. Walter I. Illie, Philadelphia, made the principal address of the occasion.

NEW YORK

Personal—Dr. and Mrs. Francis Park Lewis and Mrs. Burr H. Nicholls, Buffalo, gave a reception at the Hotel Statler, January 1, in honor of their father, Mr. John Wesley Lewis, on the one hundredth anniversary of his birth.—Dr. Herbert U. Williams, professor of pathology and bacteriology, University of Buffalo School of Medicine, is on leave of absence until March, to visit the Philippine Islands and the East Indies.

New York City

Queens County Society Wins Immunization Award—The Bronx County Medical Society presented the Interborough Antidiphtheria Silver Trophy to the Queens County Medical Society at a ceremony in the offices of the health department, December 8, as the climax to an immunization campaign in the two boroughs (THE JOURNAL, Sept. 23, 1933, p. 1007, and Oct. 14, 1933, p. 1843). Bronx County lost by a slight margin in the contest.

Society News—Dr. Jean A. Curran addressed the Medical Society of the County of Kings, December 19, on 'Problems of Amebiasis,' and Dr. Warren L. Duffield showed motion pictures of the Lindbergh expedition to Labrador, Greenland and Iceland which he accompanied as medical adviser.—Dr. Armitage Whitman, among others, addressed the Ocean Medical Society, Brooklyn, November 20, on early diagnosis of orthopedic conditions.

Symposium on the Pituitary Gland—The Contin Society of the New York Homeopathic Medical College and Flower Hospital presented, December 16, the S. Franklin Adams Memorial Symposium on Metabolism. The subject was 'The

Pituitary Gland' and the participants were Drs. Abraham Rosenthal, who discussed the physiology and pathology, Linn J. Boyd, diagnosis, Philip J. R. Schmahl, medical treatment, and Karl Winfield Ney, surgery.

Illegal Practitioner Sentenced—Arthur Joseph Talamo, Brooklyn, was sentenced, December 11, to serve sixty days in the workhouse for having practiced medicine without a license. Talamo was licensed in New York in 1921, but this license was revoked the following year after it was shown that he obtained it with forged credentials from the University of Maryland Medical School. Using a different name, he had obtained a law student's qualifying certificate and had passed the bar examination but had not yet been admitted to the bar, as his case had not been passed on by the character committee. It was charged that Talamo paid Talamo \$50 for medical advice for his wife.

Dr. Goldwater Appointed Commissioner of Hospitals.—Dr. Sigismund S. Goldwater, hospital administrator, has been designated commissioner of hospitals of the New York Health Department succeeding Dr. John G. William Greeff. Dr. Goldwater was superintendent of Mount Sinai Hospital from 1903 to 1916, and director from 1917 to 1929. He was commissioner of health of New York City from 1914 to 1918 and, in 1908, municipal expert in hospital construction and administration of New York. In 1908 he was president of the American Hospital Association, in 1913, vice president of the New York Academy of Medicine, 1918-1921, vice president of the National Institute of Social Sciences and from 1924 to 1926, president of the American Conference on Hospital Service. He was medical counselor of the U. S. Veterans' Bureau in 1924.

OHIO

Personal—Dr. William H. Wenning, Cincinnati, was guest of honor at a dinner given by the Cincinnati Obstetrical Society, December 14, celebrating his fiftieth anniversary as a member of the society.

Historic Kidney Specimens—Three sections cut from the only three kidneys remaining which were described by Richard Bright were recently presented to the department of physiology of the University of Cincinnati College of Medicine by the nephritis clinic of Guy's Hospital, London. Physicians interested are invited to visit the department to see the specimens. One is stained with methyl violet to show amyloid changes and the other two with hematoxylin and eosin. The first was described by Bright in 'Reports of Medical Cases' in 1827 and the others in 'Guy's Hospital Reports' in 1838.

Promotions at the University of Cincinnati—The board of directors of the University of Cincinnati College of Medicine announced the promotion of Drs. Charles A. Helling Jr. and Horace W. Reid to assistant professors in the department of ophthalmology among other changes. Dr. Merrick F. McCarthy was advanced to associate professor of otolaryngology. A gift of \$25,000 from the estate of the late Mrs. Mary Hyndman to establish the James Gilmour Hyndman Fellowship in preventive medicine was announced. Dr. Hyndman was a member of the faculty of the college for several years before his death.

OKLAHOMA

Annual Banquet—The Ottawa County Medical Society held its annual banquet and homecoming in Miami, December 22, with physicians of the adjacent areas of Missouri and Kansas as guests. Addresses were made by Drs. Edward H. Skinner, Kansas City, Mo., on 'Cancer of the Cervix Uteri—Prevention and Treatment,' Charles C. Denme, Kansas City, Mo., 'Approach to the Treatment of Syphilis' and G. Fowler Border, Mangum, 'Thirty Years of Active Practice of Medicine.' Other guests made three minute talks.

PENNSYLVANIA

County Appoints Psychiatrist—Dr. Mary R. Bowman, Mount Joy, has been appointed psychiatrist and superintendent of service in connection with a new probation and parole system in Lancaster which was to have been effective January 1. It is expected that the system organized with the cooperation of the county commissioners, will facilitate the work of the criminal court.

State Tuberculosis Meeting—The annual conference of the Pennsylvania Tuberculosis Society will be held in Harrisburg, January 23-24. Among speakers will be Drs. Allen W. Freeman, Baltimore; Adrian V. S. Lambert and Kendall Emerson, New York, and Donald Guthrie, Sayre. Subjects

for discussion include school health programs, application of thoracic surgery in pulmonary tuberculosis and evaluation of tuberculosis programs.

Philadelphia

Cancer Records Presented to University—Frederick L. Hoffman, LL.D., Newark, N. J., consulting statistician, has presented to the Cancer Research Laboratory of the University of Pennsylvania his entire collection of material on cancer and collateral medical and vital statistics for permanent preservation and more convenient access to cancer workers. *Science* reports: "The collection includes data and statistics collected during the past fifteen years in association with the Prudential Life Insurance Company. Dr. Hoffman will move to Philadelphia and will have his office at the Cancer Laboratory."

Society News—The Philadelphia County Medical Society is to receive the medical and dental library of the late Luther Ashley Faught, DDS, father of Dr. Francis Ashley Faught. The collection will be placed in a separate library and named for the donor.—Dr. Wade H. Brown, New York, addressed the College of Physicians of Philadelphia, January 3, on "Hereditary Constitutional Peculiarities and Dietary Deficiencies."—Drs. John B. Montgomery and John T. Farrell, Jr., among others, addressed the Obstetrical Society of Philadelphia January 4 on "The Value of Postoperative Irradiation in Treatment of Carcinoma of the Ovary."—Dr. Cornelius G. Dyke, New York, addressed the Philadelphia Roentgen Ray Society, January 4, on "The Anatomy and Pathology of the Brain and Meninges, as Revealed by the Encephalogram."

TEXAS

Graduate Clinics—Baylor University College of Medicine, Dallas, is conducting graduate clinics for Texas physicians the first week-end in each month. Clinics are conducted at Baylor Hospital and scientific exhibits are shown in the Medical Arts Building. A wide variety of subjects is covered, varying each month. All ethical physicians are invited and no fees are charged.

Society News—Drs. Harold M. McClure, Chickasha, Okla., and Percy K. Smith, Wichita Falls, addressed the Wichita County Medical Society, November 14, on diagnosis in gynecology and Hodgkin's disease, respectively.—Dr. Eugene P. Norwood addressed the Navarro County Medical Society, Corsicana, December 4, on "Sinusitis Complicating the Acute Infectious Diseases."—The library of the El Paso County Medical Society has recently been placed in a special room connected with the headquarters of the city-county health department. It contains about 5,000 volumes.—The Panhandle (Third) District Medical Society held its semiannual session at Plainview, October 24-25 with the following speakers among others: Drs. James B. Coston, St. Louis, on "Agranulocytosis, Appearance of Early Pharyngeal Lesion" and "Diagnosis of Some Deceptive Head and Ear Symptoms"; Kenneth J. Wilson, Oklahoma City, Okla., "Trichomonas Vaginalis"; Harry Wilkins, Oklahoma City, "Diagnosis of Brain Tumors"; George H. Kimball, Oklahoma City, "Plastic Harelip."

VIRGINIA

Seaboard Medical Association in Norfolk—Dr. Paul F. Whitaker, Kinston, N. C., was elected president of the Seaboard Medical Association of Virginia and North Carolina at the annual session in Norfolk, December 5-7, and Dr. Clarence Porter Jones, Newport News, reelected secretary. Two public meetings were held, at which speakers included Drs. Walter E. Dandy, Baltimore, on "Treatment of Pains and Other Disturbances of the Cranial Nerves"; William H. Sebrell, Jr. of the U. S. Public Health Service on pellagra, and Rolla E. Dyer of the public health service on the Eastern type of Rocky Mountain spotted fever. Dr. Louis Hamman, Baltimore, addressed the scientific sessions on practical methods in examination of suspected heart disease.

GENERAL

Bequests and Donations—The following bequests and donations have recently been announced:

Mount Sinai Hospital, New York, \$1,000 by the will of Max Kops.
Beth Israel and Mount Sinai hospitals, New York, \$7,500 by the will of Otto Marx.
Chillicothe Hospital, Chillicothe, Ohio, \$5,000 under the will of the late Arthur B. Howson.
Huntington L. I. Hospital, \$10,000 by the will of the late Willard N. Byrles.
Mount Sinai and Montefiore hospitals, New York, \$7,500 each.
Lenox Hill, Lebanon Joint Diseases hospitals and the Tuberculosis Prevention for Children, New York, \$3,000 each by the will of the late Henry Ollesheimer.

Impostor in Prison—An impostor with many aliases, the most common of which are George Stanley Paris, George I. Paris, George Samuel Isaacman and Samuel Paris, is now in Folsom Prison, Folsom, Calif., serving an indeterminate sentence of not more than fourteen years, according to the California State Board of Medical Examiners. Paris was arrested in Los Angeles on a charge of passing worthless checks. In his travels about the country within recent years, Paris applied at various hospitals for staff membership claiming to be a licensed physician in California with reciprocal licensure in other states. No record has been found to show that he has ever attended a medical school or received a license to practice. Although records of the California State Board of Medical Examiners show that he did serve as an intern at Windsor Hospital, Glendale, Calif., which is not accredited. Paris served a short term in the Missouri State Prison in 1928 for obtaining money under false pretenses, and, in 1931 and 1932, a term in Alcatraz Island Prison (California) for desertion. Accounts of Paris's activities appeared in *THE JOURNAL*, Sept. 3, 1932, page 841, Aug. 6, 1932, page 484, and April 29, 1933, page 1351.

Society News—Dr. Theodore H. Weisenburg, Philadelphia, was elected president of the Association for Research in Nervous and Mental Disease at the annual meeting in New York, December 28-29. Drs. Lewellys F. Barker, Baltimore, and Clarence A. Patten, Philadelphia, were chosen vice-presidents and Dr. Thomas K. Davis, New York, was reelected secretary. The general subject discussed was "The Biology of the Individual." Among the speakers were Floyd H. Allport, Ph.D., Syracuse, N. Y.; Drs. William Healy, Roy G. Hoskins and Charles Macfie Campbell, Boston; Wingate Todd, Cleveland; Eugen Kahn, New Haven, Conn.; Charles R. Stockard and Walter Timme, New York.—Dr. William F. Braasch, Rochester, Minn., was elected president of the Clinical Society of Genito-Urinary Surgeons at its meeting in Iowa City, November 17-18, and Dr. Henry G. Bugbee, New York, was reelected secretary.—Dr. David M. Davis, Phoenix, Ariz., was chosen president-elect of the Medical and Surgical Association of the Southwest at the annual meeting in El Paso, Texas, in December. The 1934 convention will also be held in El Paso.—The sixty-third annual meeting of the American Public Health Association will be held in Pasadena, Calif., September 3-6.

FOREIGN

Health Institute for Tokyo—The Japanese cabinet has accepted the offer of the Rockefeller Foundation to donate 4,000,000 yen (about \$1,240,000) for the establishment of an institute of public health in Tokyo, the *Chicago Tribune* reports. The institute will be for the training of hygiene workers.

University News—A new department of preventive medicine has been opened at the University of Bristol with Dr. Isaac Walker Hall as director of laboratories and Dr. R. H. Parry, honorary professor of preventive medicine. Under an agreement with the city, the department will carry on the municipal bacteriologic, pathologic and preventive medical work.

Fiftieth Anniversary of Australian Medical School—The fiftieth anniversary of the Medical School of the University of Sydney, Australia, was celebrated, September 29. Sir William Cullen, chancellor, Dr. C. Bickerton Blackburn, dean of the medical school, and Dr. A. E. Mills reviewed the history of the school, pointing out that about 90 per cent of the physicians practicing in New South Wales are its graduates. The first class was graduated in 1888 and the first adequate building was opened in 1890. In the half century, 2,293 graduates have passed through the school. Little opportunity for research was available until a recent bequest provided for several full time professorships and direction of research. To accommodate the new departments the Rockefeller Foundation made the university a gift of a new building, which was opened September 28 as part of the jubilee ceremony. The building, which was erected at a cost of £100,000, has five floors, providing quarters for the departments of medicine, surgery, pathology, obstetrics and bacteriology, a library and a museum of pathology, with ample laboratories.

CORRECTION

Fever Therapy of Neurosyphilis—In the ninth line of the closing discussion by Dr. J. R. Driver in *THE JOURNAL*, Dec. 23, 1933, page 2020, following "103.5 F" the following words should be added: "A second dose of 25 millions was then given, followed two hours later by a peak temperature of 109.4 F." The discussion then goes on to say that this high fever was accompanied by convulsions and unconsciousness lasting for four hours.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec 16 1933

The Tax on Insulin

The demand of British chemical manufacturers for a 33 per cent tax on imported insulin instead of the standing 10 per cent, was reported in a previous letter. An outcry against the iniquity of increasing the cost of insulin to diabetic patients, many of whom can ill afford to pay the present price was made in a liberal paper the *Star*. It received no support in the medical press which is evidently afraid to touch the question because of its bearing on the free trade controversy, generally regarded as political though really purely economic. The Board of Trade Tribunal which has been appointed to decide on all applications for tariffs heard the application for the increase. This was made by all the leading drug manufacturers. The point that was contested before the tribunal was not the effect of the tariff on the price but whether insulin was a fine chemical. It was necessary for it to come into this class for the imposition of the tariff. Prof E. I. Armstrong, a chemist, said that he did not regard insulin as a chemical but as a protein. It was argued that insulin was no more a chemical than floss was silk. A majority of the tribunal decided that insulin and its salts must be regarded as chemicals liable to duty. The tax will therefore be increased. The British manufacturers stated that they had no intention of raising the price if the duty should be imposed. But the question Why do they want the power to charge 33 per cent more than the price at which insulin can be imported? does not seem to have occurred to any one. No doubt they will not increase the price of insulin—for the present. The scandal would be too great. But improved methods have already reduced the price of insulin, and if the foreign manufacturers—Danes in this case—succeed in further improving their methods and further reducing their price, the English manufacturers need not under the tariff, move in unison with this. They can continue to charge anything up to 33 per cent above the Danes. The statement of the British manufacturers has only a temporary value. For people who cannot or will not understand economics—the great majority of even the educated in this country just now—it may be pointed out that the whole experience of the protectionist countries of the world shows that tariffs always raise prices.

The Rat Problem

Dr C. F. White, port of London health officer described at the Royal Sanitary Institute the measures taken in the Thames to prevent an outbreak of plague. All dead rats were sent for bacteriologic examination and the authorities were constantly sampling the live rat population of ships and shore premises. He did not believe that there was any danger of an epidemic of human plague in this country, but limited rodent plague might occur, with possibly a few human cases. Though a number of kinds of flea are capable of carrying plague, one particular flea, *Xenopsylla cheopis*, is the principle danger so that the 'cheopis index' of a port is a measure of the danger. With an index of a port below 1, there is little danger of rat plague spreading. Last year 728 fleas were caught ashore in the port of London and examined without a single *Xenopsylla cheopis* being found. This year two were found. Thus the danger of plague is very small. However it is considered essential to keep the rat population down and to eliminate nesting and breeding places. Only one measure is permanently effective against rats—rat proofing, which means

not only eliminating nesting and breeding places but making food and water supplies inaccessible.

The rat referred to is the brown rat, which in England has largely replaced the old English black rat. The latter is held to be responsible for the plague epidemics of former times which caused the death of a large part of the population of London. The black rat lives in houses and therefore in much closer association with man than the brown rat, which inhabits sewers but raids houses. Hence the black rat is much more dangerous than the brown rat as a carrier of plague. Mr M. A. C. Hinton, deputy keeper of zoology at the British Museum, has pointed out that there is a growing danger of the revival of the black rat population. The modern rat proofing is tending to shut out the brown rat, but the black rat has been encouraged by the establishment of kitchens on top floors illuminated by means of open skylights linked up roofs and streets bridged with telephone wires and cables. At night, processions take place along the cables and over the roofs and new colonies are established. Mr Hinton holds that the swift progress made by this species in colonizing the new London in the last thirty years has given rise to risk of the recrudescence of plague.

The Reform of Medical Education

A conference under the presidency of Lord Dawson, president of the Royal College of Physicians and medical representative of the Universities of Oxford, Cambridge and London and of the Royal Colleges of Physicians and Surgeons has undertaken the task which has heretofore defied the authorities of remodeling the medical curriculum. They have to consider all the new methods of treatment such as psychoanalysis, physical medicine and manipulative surgery. In a press interview the president stated that while the conference realizes that students should have the advantage of the new knowledge it is even more essential that they should be trained to use their intelligence by being given a grounding in the general principles of their profession and not merely a smattering of a great variety of branches.

Decline in Convictions for Drunkenness

The total annual convictions for drunkenness in England and Wales have decreased from 43,343 in 1931 to 30,146 in 1932 a reduction of over 28 per cent. This is the lowest figure recorded excepting the war year of 1918. Convictions for drinking methylated spirit, however show a slight increase but the number recorded (596) is trifling.

Robert Pugh Rowlands

Robert Pugh Rowlands, senior surgeon to Guy's Hospital and a former vice president of the Royal College of Surgeons has died suddenly. A Welshman, born at Towyn, he had a brilliant career as a student at Guy's Hospital, winning gold medals in anatomy, medicine and surgery. He passed through the appointments of demonstrator of anatomy and surgical registrar and joined the surgical staff of the hospital in 1906. An indefatigable worker he soon gained a high reputation as a surgeon and as an author. W. H. A. Jacobson who had been his teacher got him to collaborate in preparing the fifth edition of his standard work "The Operations of Surgery." Rowlands published valuable articles on the treatment of appendicitis and various abdominal conditions and became recognized as an authority on the surgery of the gallbladder. In 1929 he delivered the Bradshaw lecture before the Royal College of Surgeons on the Surgery of the Biliary Tract.

John Joly

The death at Dublin at the age of 76 of John Joly, professor of geology and mineralogy in the university removes a dis-

tinguished scientist who, though not a member of the medical profession, rendered great services to it by his researches on radium. His work on radioactivity in geology furnished the solution to several pressing problems such as the age of rocks, and has been claimed to be as fundamental in stratigraphical geology as was the work of Darwin in biology. He also calculated the age of the earth by means of the sodium content of the ocean. He contributed to the theory of the ascent of sap in plants and explained on philosophical grounds the bright colors of alpine flowers. In association with a surgeon the late Walter Stevenson of Dublin he introduced the deep seated use of radium in hollow needles which effected a revolution in radium therapy and became known over the world as the Dublin method.

PARIS

(From Our Regular Correspondent)

Nov. 29, 1933

The French Congress of Therapeutics

IN THE JOURNAL, JANUARY 6 page 55, an account was given of the sessions of the section of medicine of the French Congress of Therapeutics. To continue that report. The section of pharmacodynamics was devoted to a consideration of epinephrines. Professor Tiffeneau explained the chemical composition of epinephrines and the peculiar action of the amino group, the alcohol group and the side chain that enters into their composition. Mr Dorlencourt described the effects of epinephrine on the organism. Mr Tournade referred particularly to intracardiac injection which is adapted to late syncope due to anesthetics but not to a syncope occurring at the onset of anesthesia. Professor Heymans of Ghent presented a paper on the pharmacodynamics of the vasomotor and cardiac action of epinephrine. Professor Burgi of Bern gave a critical study on combinations of drugs, pointing out that a heightened effect is secured only when substances are combined that produce the same physiologic result by different routes. In the section of physical therapy, Professor Bordier of Lyons discussed the treatment of radiodermatitis and its complications. Mr Joly enumerated the precautions to be taken to avoid radiodermatitis. Professor Binet described the physiologic reactions of the organism in hyperthermic treatments. A Dognon and his collaborators gave an account of the use of short waves in biology and in medicine. A comprehensive study was presented by Levaditi, Auclair, P. Haber, Henri de Rothschild, Vaisman and Mlle Schoen on experimental thermotherapy by means of short wave irradiations. They reached the conclusion that the germicidal action is not the most important factor but that the heat increases the defense reactions of the organism, irrespective of the type of pyrotherapy employed.

Vaccination Against Typhus Fever

Two new vaccines against typhus fever have recently been presented to the Academy. Heretofore the only vaccines in use have been the vaccine of Castaneda-Tinsser which protects only against mouse typhus, which is the least pathogenic and the phenicated vaccine of Weigt, prepared from the intestine of lice infected with *Rickettsia* which is not always effective. Professor Nicolle J. Laigret and P. Giroud utilized a greatly attenuated living virus which is capable of conferring immunity on man by the inoculation of very weak but steadily increasing doses with long intervals over a period of three months. Mr Blanc, director of the Pasteur Institute of Casablanca has presented to the Academy in collaboration with Nourv, Balthazard and Barheoud, a new vaccine derived from rats infected with typhus in Casablanca. This virus is a living vaccine, attenuated by cultivation with addition of bile but still pathogenic. It immunizes not only against mouse typhus

but also against ordinary exanthematous typhus. Twenty subjects treated in this manner showed themselves completely refractory to a virus that killed all the animal controls, including a monkey. The vaccinated subjects are not germ carriers, and their blood cannot infect lice that bite them. This vaccination is benign and produces no febrile reaction. This mode of vaccination would doubtless contribute to the eradication of typhus among the native populations of northern Africa.

The National Syndicate of French Surgeons

The Syndicat national des chirurgiens français held a meeting in Paris during the regular session of the Congress of Surgery. The chief subject discussed was "The Assignment of Surgical Services of Cities Solely to Surgeons with Approved Special Training." It will be recalled that the Academy of Medicine went on record as opposed to the creation of a surgical diploma based on special examinations. The syndicate has, however, decided to create a "brevet de chirurgien," or surgeon's certificate, which it will supply itself—first to its own members, and secondly to applicants who meet the following conditions: (1) professors and associate professors of surgery in a faculté de médecine or in an école supérieure de médecine, (2) former hospital interns of a city in which they are appointed on the basis of a competitive examination and who have spent three years in a surgical service, (3) other candidates who have passed a test before a special board of surgeons and who present their publications on surgical questions. The syndicate emphasizes that, in the smaller cities, the emergency services should be available preferably to surgeons with the foregoing qualifications. The law, of course, permits every doctor of medicine to practice surgery with perfect freedom. The syndicate however, hopes to awaken a discrimination in the public mind by increasing the prestige of the surgeon holding its special certificate.

The Crusade Against Narcotics

A decree signed by the president of the republic creates, under the direction of the Sureté générale, a special bureau designed to apprehend illicit dealers in opium, morphine, diacetylmorphine (heroin) and cocaine. The bureau will be directed by Mr Ducloux, with the assistance of Mr Mouganel, who, as police commissioner, has specialized in this field for some time. This new service will centralize all problems concerning narcotics, which heretofore have been distributed among various departments (agriculture, customs, commerce, pharmacy, justice, foreign affairs), which made it comparatively easy for illicit dealers to escape investigation. Henceforth, only a single file on the subject will be kept and that in this bureau, where all the information obtainable will be collected. It may be noted that France is no longer a producer of narcotics that figure in illicit selling, they all come from Germany, Turkey and the Far East. Narcotics do not assume relatively as big a role in France as in many other countries. But France is in line of transit for all these substances and, only recently, two tons of narcotics, destined for exportation were seized at Marseilles. Every instance of seizure of drugs will be reported by the ministry of foreign affairs to the consultative commission on opium of the League of Nations, with a view to facilitate the investigations of the commission.

Foreigners in Hospitals in France

The government is planning to revoke the convention entered into with Italy, Poland, Belgium and Luxemburg concerning reciprocity of treatment for their nationals in French hospitals and their participation in the benefits of social aid and of compensation allowances for the unemployed, the infirm and the aged. The convention was signed in 1920, immediately after the war, when 1,500,000 men had been killed and the

factories in the North destroyed by the Germans. It was necessary then to encourage immigration of workmen. Now the factories have been rebuilt and there are nearly a million unemployed in France. Furthermore the term 'reciprocity' is a misnomer, for there are but few Frenchmen in Poland and in Italy, whereas there are several hundred thousand Italians and Poles in France. The Italians who seek to avoid fascism are extremely numerous along the Mediterranean Coast. The city of Nice expended in 1929, for foreign patients 2,174,407 francs (\$86,000) in 1930 2,427,833 francs (\$97,000) and in 1932, 1,367,616 francs (\$54,000). In Marseilles the number of patients was so large that it was necessary to create a special hospital, which receives an appropriation from the Italian government. These expenditures when paid by the municipalities, make considerable inroads on their budgets. The present trend is to accept patients with acute disorders, confinement cases and patients with injuries but to return to their native country all chronic patients, the infirm and especially the tuberculous for the sanatoriums although the number is being constantly increased are still inadequate for the French patients. Furthermore, the countries bordering on France are following this course in dealing with French chronic patients.

The Sanatorium for Students

Although its construction was provided for by the decree of May 22, 1925 the Sanatorium des étudiants has only recently been opened to patients. There have been many delays owing to lack of funds. The sanatorium is located at St Hilaire du Touvet, in the department of Isère at an altitude of 1,150 meters, well protected on the north by mountains. A beautiful view of Mont Blanc is afforded. There are 180 beds with a separate pavilion of thirty beds for the admission later, of women students. Only students of French universities belonging to the Association nationale are ordinarily admitted. But the directing council has the authority to admit by way of exception, students who are not affiliated with this association pupils from higher institutions of learning not of university rank, and even university professors. The maintenance charge is placed at 40 francs (\$2.40 current exchange) per day the government assuming any deficit that occurs. Unless there are medical reasons requiring isolation, each room accommodates two or three boarding patients. Everything is provided for the comfort of the patient. To a partial extent students will be able to continue their studies here, the sanatorium being provided with study halls, a fine library and lecture courses held by professors from the University of Grenoble near by. All examinations on work done are given at Grenoble.

BERLIN

(From Our Regular Correspondent)

Nov 27, 1933

Criteria for the Interruption of Pregnancy

Recently, changes were made in the law concerning the medical interruption of pregnancy (*THE JOURNAL*, Sept 23, 1933, p 1011). Following the precedent of another *aerztekammer*, or chamber of physicians, the directorate of the Berlin *aerztekammer* has adopted criteria on the subject. To establish the indications for the interruption of pregnancy, special consulting physicians have been appointed, in every municipal district of Berlin, for all the specialties concerned internal medicine, gynecology, surgery, neurology, ophthalmology, otology, cutaneous diseases, urology and orthopedics. These consultants assume toward the directorate of the "chamber of physicians" the obligation of transmitting to the *aerztekammer* the protocol of their deliberations as drawn up with the aid of the attending physician. The consultants are provided with numbered blank forms for this purpose. The fundamental con-

dition for the interruption of pregnancy is reliable evidence that a danger threatens the life and health of the gravida which can be eliminated in no other manner. Interruptions of pregnancy may be undertaken only in the public hospitals and private clinics that have been expressly approved by the chamber of physicians. Decisions based on eugenic considerations must be left to the so called hereditary health courts, for the creation of which provision is made in the new sterilization law (*THE JOURNAL*, Sept 9 1933 p 866). Consulting physicians may render an opinion only in cases coming within the range of their specialty—the gynecologist for example, only in obstetric-gynecologic diseases or severe endocrine disorders including hyperemesis. If it is in any wise possible there should be an examination in common and a joint consultation by the two or more physicians concerned and the result of this consultation should be recorded in the blank form. If such a consultation is impossible (for example in the rural districts) the referring physician must send in detailed observations. The mere statement of a diagnosis such as heart defect, tuberculosis, catarrhal condition of the pulmonary apex, or the like will not constitute a sufficient basis for a decision. After the protocol has been signed the execution of the intervention must if possible be entrusted to a specialist. The special medical consultants have jurisdiction only in their districts, and they are not authorized to undertake the interruption in the cases in which they render an opinion. If the patient refuses to accept the special medical consultant or if she is not satisfied with the opinion of the consulting physicians she can apply only to a public hospital as no private practitioner is permitted in that case to undertake the interruption. Likewise in the hospital, a similar consultation of the specialists concerned must be held and a written protocol in the case be prepared. A consultation on the subject between medical directors and assistants is not permissible nor is a consultation between associated physicians allowed.

The *aerztekammer* gives the following further explanation of the situation. The new regulations will be accepted, by the upright and honorable physician as a matter of course. Physicians who are lacking in backbone will derive courage from them. But we feel it our duty to warn those of our colleagues who may try to protect their abortion plants by alleging that they handle only such abortions as are 'already under way'. Such physicians place themselves outside the pale of reliable and decent colleagues. The medical profession of Berlin does not take the attitude that a spirit of fraternal consideration requires it to enter the lists to protect the honor of these physicians.

It goes without saying that likewise illegal abortions undertaken by nonmedical persons will be punished. The present strict attitude of the courts toward crimes against budding life is revealed moreover, by the fact that recently a man aged 62 received an eight-year penitentiary sentence.

The Status of Venereal Diseases

At the meeting of the German Society for the Combating of Venereal Diseases, Dr Reiter, president of the public health service, stated that according to the 1927 census of venereal patients, Germany has to face annually an accretion of 372,000 venereal patients, 280,700 of whom have gonorrhea. The actual number is much greater, for numerous patients are not covered by the census. Venereal diseases are still the most widespread infectious diseases. In 1927, 7,500 children were born with external syphilitic manifestations, while in many more children the disease did not manifest itself until later. Furthermore, 1,500 children gave evidence of gonorrhea, in many cases associated with blindness. The age groups chiefly affected by venereal disease are 18-25. Divorced persons are the class most affected, next in order are unmarried persons. How

ever, 25.3 per cent of the male patients and 28.2 per cent of the female patients were married.

The cities, particularly the seaports, are the worst hotbeds of venereal disease. In Hamburg for example, the total number of cases annually of gonorrhea in the men and women of the 15-50 age groups is 109.25 per cent of the number of persons belonging to those groups which reveals that not a few are affected two or more times, since a considerable number of men and women remain exempt. In Berlin the corresponding percentage is 88.05.

The financial burden occasioned by venereal diseases amounts in Frankfurt-on-Main to 930 marks (\$140) a year for each person of the total population, which does not include the expenditures resulting from useless pregnancy, miscarriages and stillbirths, and deaths of the new-born. It is evident that Germany as a whole suffers an annual burden of more than \$100,000,000. By the creation of working mergers of the insurance carriers (the Krankenkassen and the like), the communes and the medical profession, to promote prompt thorough treatment, a rapid improvement of conditions might be brought about. Such mergers would be able to operate at an approximate cost of \$15,000,000 annually.

The chairman of the meeting Professor Spiethoff of Jena demanded, in addition to proper treatment the detection and eradication of the sources of infection, compulsory notification and suppression of prostitution. At the same time, early marriage must be promoted, the housing situation must be improved, and the relations between the sexes must be placed on an ethical basis.

Death of Prof. Christian Baeumler

Prof. Christian Baeumler, the Nestor of German clinicians and perhaps the oldest clinician in the world, died in Freiburg-in-Breisgau, at the age of 97. He had been a physician since 1860, having served for a long period at the German Hospital in London and later at the Victoria Hospital. In 1872 he became professor extraordinary at the University of Erlangen and later, ordinarius and director of the Innere Klinik in Freiburg which post he occupied until 1909. His numerous published works deal chiefly with diseases of the lungs and the heart, hydrotherapy and syphilis.

BELGIUM

(From Our Regular Correspondent)

Oct. 30, 1933

Results of Treatment in the Preventorium

Dr. Van der Smissen surveys statistics bearing on six years of work of the preventorium at Clemskerke during which period 5,886 children passed through the institution receiving an average of 124 days of treatment per child. Forty per cent of this group were children aged 5 to 6 who had not yet attended school. The principal diseases and the number treated were as follows: anemia, 1,420; debility, 2,208; tracheobronchial adenopathy, 898; cervical adenitis, 1,096; and asthma, 264. It may be said of the anemic and the weakly children that they are the classes most neglected in pediatrics; most of them belong to wealthy families. It would have been well to apply the skin reaction to all of them. Radioscopy was not applied as a routine measure. Tracheobronchial adenopathy which is difficult to diagnose requires a careful period of observation. Many cases of infected rhinopharynx simulate and are often taken for tracheobronchial adenopathy. The abdominal cases the number of which ranged around 50 per cent, are children in the period of growth with hepatic insufficiency, fetid breath, constipation and weak appetite. A visit at the seaside puts an end to these disorders in a few days. Asthmatic patients contrary to opinion, improve greatly from a sojourn at the seaside.

In fact of all the diseases that showed betterment at the preventorium asthma held first place.

As to the causes for these excellent results, one may mention (1) fresh air strict discipline assuring a complete air treatment in all weather, outdoor life being possible at the seaside so long as it does not rain, (2) exceptional quality of sea air, it being almost entirely free from bacteria (at the seaside one does not take cold except from an east wind, that is to say, from off the continent), (3) heliotherapy, which is not practicable in Belgium other than at the seaside, (4) the general diet of the group which is a factor in the improvement and (5) sea baths, which have a markedly stimulative effect on the appetite (the contraindications are few but imperative: otitis, eczema, nephritis). Summer is the most favorable season for the application of sea baths in the treatment of peritoneal tuberculosis, rickets, suppurative adenitis and certain anemias. In the other cases, or 90 per cent of the total, winter treatment is preferable.

Convention on Chronic Rheumatism

Under the chairmanship of Van Cauwenberghe and Nobelet the Royal Society of Medicine of Ghent organized recently a convention devoted to the consideration of chronic rheumatism. More than 150 physicians from all parts of Belgium, attended.

Mr. P. Weil, physician to the hospitals of Paris, discussed tuberculous rheumatism, the existence of which appears today unquestionable. After describing the various forms of tuberculous rheumatism (in acute form resembling acute articular rheumatism, and a chronic deforming type, symmetrical and generalized), Weil considered the value of diagnostic tests. He emphasized also the favorable prognosis of this form of tuberculosis.

Van Breemen of Amsterdam, general secretary of the Ligue internationale contre le rhumatisme gave the results of his long experience with chronic rheumatism. He emphasized the importance of cutaneous and vascular disorders presented by rheumatic subjects, and also the changes in hydrogen ion concentration and of the percentage of sugar in the articular fluid so carefully studied by American authors. He called attention to the rheumatism of the menopause in women which is characterized by peculiar clinical symptoms and which, if treatment is begun in time may give encouraging results.

Mr. Brogitter of Berlin, who for more than ten years has devoted himself to this problem gave an anatomopathologic demonstration of chronic forms of rheumatism, and particularly of gout. He illustrated his presentation with microscopic slides.

Mr. Isidore Cunzberg of Antwerp announced the objectives set by the Ligue belge contre le rhumatisme, and the results secured at the rheumatism center of the Brugmann Hospital in Brussels. He gave an outline of his classification of chronic forms of rheumatism based on certain anatomopathologic data.

Trachoma in Kasenga

Addressing the Cercle medical du Katanga (Belgian Congo), Dr. Dixon gave an account of his experiences in the crusade against trachoma in the province of Kasenga. Of 10,920 natives examined a diagnosis of trachoma was reached in 1,099, or 10 per cent. In the region of Kasenga, as elsewhere, trachoma presents frankly a familial distribution: one village may be seriously affected while another remains almost exempt. The percentage of cases of trachoma amounts to 13.6 along the Luapula River, while west of the Kundelungu Mountains it does not exceed 6.1. Cases of ordinary conjunctivitis are likewise more frequent along the river. The highest percentage (21) was observed in the district of Kikungu. Trachoma presents in this region only an average severity.

Of the trachomatous patients examined, pannus and trichiasis are observed in 8.5 per cent of the cases. This rather low figure represents approximately the percentage of patients whose vision is diminished. Unfortunately, a census and a systematic

examination of the blind have not been made, but it appears that trachoma is not responsible for more than 20 per cent of the cases of blindness. About 65 per cent of the trachomatous patients examined were under 15 years of age although the number of adults and of children examined was approximately the same. This fact appears to show that in the members of the black race of this region trachoma may heal and disappear without leaving any traces. Four antitrachoma centers have been created where likewise patients affected with other disorders are treated. More than 150 trachomatous children have been subjected thus far to regular treatment extending over one to three months and consisting simply of daily applications of a 2 per cent solution of silver nitrate. Trachoma has not been cured in many of these children. The treatment is however, appreciated (although rather painful) as is shown by the continued presence of the patients. The cure of ordinary conjunctivitis with silver nitrate by checking the lacrimation must have reduced perceptibly the contagiousness of trachoma in this region.

Seasonal Variations of Diphtheria

At the International Bureau of Public Health Gubler and Nels presented an article on the seasonal variations of diphtheria. It has been found in Belgium as in other countries that there is less diphtheria in summer than in winter. During the year 1931 and 1932, Dr. Nels performed 4084 Schick tests and he secured the figures shown in the adjoining table.

	Totals	Schick Positive	Percentage Positive	Schick Negative	Percentage Negative
Winter	1745	866	49	877	51
Intermediate season	1015	520	51	495	49
Summer	1324	190	14	1134	86
Totals or averages	4084	2076	50	2008	50

It is evident that there is not the least difference in the percentages of Schick positive tests with relation to the season. These results are in opposition to those reported by Lubisz who expressed the view that the variations in the susceptibility of the human organism toward the toxin were the cause of the seasonal variations in the incidence of diphtheria and that these variations of susceptibility effect a diminution or an increase of the percentage of antitoxin in the blood of subjects dependent on the period of the year.

Marriages

VIRGINIUS BITZLER HIRST New York, to Miss Harriet Angelina Ellison at Charlotte N. C., Dec. 27, 1933.

EDWARD J. WACNER New York, to Miss Frances Mae Daniels of Fort Edward, N. Y., Dec. 24, 1933.

HOMER LORLANZO HILES, Conneaut Ohio to Miss Miriam R. MacKenzie of Oil City, Pa., Dec. 20, 1933.

MARTIN J. PATRICK to Miss Caroline Bobbin, both of Shenandoah, Pa., at Detroit, Aug. 26, 1933.

DOUGLAS HEATH NISBET, Charlotte N. C., to Mrs. Pauline Hood Bowers at Kinston Dec. 16, 1933.

WILL MADDUX McCLARIN to Miss Emma Nan Harris both of Louisville, Ky., Dec. 16, 1933.

ROBERT J. HOLZBERGER to Miss Catherine Speer, both of Great Falls, Mont., Nov. 20, 1933.

MORRIS HARWITZ to Miss Fannie Y. Shevitz, both of Wilmington, Del., Dec. 24, 1933.

BERNARD I. COMROE, Philadelphia to Miss Grace Miller of Allentown, N. J., January 1.

BERNARD DAVID ROSENAK to Miss Fannie H. Kiser, both of Indianapolis, Dec. 14, 1933.

AUGUSTUS G. POHLMAN to Mrs. Helen B. Shartie both of Omaha, recently.

LOUIS O. WOOTTEN, Cordele, Ga. to Miss Kathryn Royal Nov. 29, 1933.

Deaths

Linsly Rudd Williams of New York, Columbia University College of Physicians and Surgeons New York 1899, director of the New York Academy of Medicine, managing director of the National Tuberculosis Association 1922-1928, past president of the New York Tuberculosis and Health Association, deputy commissioner of health of New York state, 1914-1917, member of the American Public Health Association, director of the Milbank Memorial Fund, member of the board of managers of the New York Association for Improving Conditions of the Poor, trustee of Columbia University, instructor in histology, 1902-1904, assistant in medicine 1904-1914, and chief of the medical clinic, 1906-1911 at his alma mater, served during the World War following which he served the Rockefeller Foundation as director of tuberculosis work in France, aged 58, died January 8, at the Rockefeller Institute for Medical Research.

Alexis Victor Moschcowitz of New York, College of Physicians and Surgeons Medical Department of Columbia College New York 1891, formerly professor of clinical surgery at his alma mater, member of the American Surgical Association and the American Association for Thoracic Surgery, fellow of the American College of Surgeons, served during the World War, on the staffs of the Mount Sinai Beth David and Bronx Maternity hospitals New York, the United Israel Zion and the Brownsville and East New York hospitals Brooklyn, aged 68, died Dec. 21, 1933, of coronary thrombosis.

John Stewart, Halifax N. S. Canada University of Edinburgh Faculty of Medicine Edinburgh Scotland 1877, formerly professor of surgery and dean Dalhousie University Faculty of Medicine, served overseas during the World War, past president of the Provincial Medical Board of Nova Scotia and the Medical Council of Canada, fellow of the American College of Surgeons, at one time on the staff of the Halifax Infirmary, aged 85, died Dec. 26, 1933.

George John Muellerschoen Philadelphia, Jefferson Medical College of Philadelphia 1904, member of the Medical Society of the State of Pennsylvania, the Medical Society of New Jersey and the American Urological Association, aged 50, on the staff of the Jefferson Medical College Hospital where he died Dec. 18, 1933, of complications, following a mastoid operation.

Charles Austin Willis, Waltham, Mass. Harvard University Medical School Boston 1897, member of the Massachusetts Medical Society, at one time medical inspector of the board of health of Waltham and member of the state board of health, formerly on the staffs of the Waltham Baby Hospital and the Waltham Hospital, aged 65, died, Dec. 10, 1933.

Julian Turnbull McClymonds of Berkeley, Calif., University of Michigan Medical School, Ann Arbor, 1894, member of the Kentucky State Medical Association, fellow of the American College of Physicians, served during the World War, formerly on the staff of St. Joseph's Hospital, Lexington, Ky., aged 63, died Dec. 4, 1933, of heart disease.

Henry F. Page of Philadelphia, University of Pennsylvania School of Medicine Philadelphia 1893, associate professor of medicine, University of Pennsylvania Graduate School of Medicine, formerly clinical professor of medicine, Woman's Medical College of Pennsylvania, medical superintendent of the Lankenau Hospital, aged 63, died, Dec. 21, 1933.

Wyman Dean Jacobs, East Poestenkill, N. Y. University of the City of New York Medical Department 1891, member of the Medical Society of the State of New York, for many years county jail physician, aged 66, died, Nov. 16, 1933, of coronary thrombosis and arteriosclerosis.

David Earl Yantis of Urbana, Ill., College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois 1902, past president of the Champaign County Medical Society, aged 63, died, Dec. 11, 1933, in the Carle Memorial Hospital, of diabetes mellitus.

Purdy H. Sturges, Plainfield N. J. College of Physicians and Surgeons Medical Department of Columbia College New York 1887, formerly on the staff of the Methodist Episcopal Hospital Brooklyn, aged 69, died Dec. 8, 1933, of chronic myocarditis and coronary thrombosis.

William Calvin Steele Mount Olive N. C. University of Maryland School of Medicine Baltimore 1891, member of

the Medical Society of the State of North Carolina president of the Wayne County Medical Society, aged 66 died, Nov 14 1933, of cerebral hemorrhage

Grover Cleveland Webb, Russellville, Ark., University of Tennessee College of Medicine, Memphis 1917 member of the Arkansas Medical Society served during the World War aged 40, on the staff of St Mary's Hospital, where he died Nov 27, 1933

Benjamin Oran Works, Brownsville Texas University of Texas School of Medicine Galveston 1906 past president and secretary of the Cameron County Medical Society served during the World War, aged 51 died, Dec 16, 1933 of heart disease

Bernhardt Jacob, Detroit Detroit College of Medicine 1891 formerly superintendent of the Detroit House of Correction, aged 63 died Dec 1, 1933 in the Grace Hospital of diabetic gangrene of the left leg and pulmonary embolus

Robert Fuller Hogsett, Albuquerque N. M. Jefferson Medical College of Philadelphia 1927 member of the New Mexico Medical Society, aged 30 died, Nov 26 1933 in St Joseph's Hospital of skull fracture the result of a fall

Henry Elijah Somers, Newport Vt. University of Vermont College of Medicine Burlington 1903 member of the Vermont State Medical Society served during the World War, aged 52, died, Nov 24 1933 of angina pectoris

George B. Cowell, Bridgeport Conn. College of Physicians and Surgeons, Medical Department of Columbia College New York, 1888 aged 67 on the staff of the Bridgeport Hospital, where he died Dec 11 1933 of heart disease

George Washington Graves, Brownfield Texas Memphis (Tenn.) Hospital Medical College 1902 president of the Dawson Lynn-Terry-Graves Counties Medical Society, aged 61, died, Nov 18 1933 of coronary thrombosis

Harry Lynn Beers, Youngstown, Ohio University of Michigan Medical School Ann Arbor 1909 member of the Ohio State Medical Association aged 60 died Dec 5 1933 of coronary thrombosis and acute nephritis

Donna Ann Waldran, Baltimore, Woman's Medical College of Baltimore 1890 Southern Homeopathic Medical College Baltimore, 1893, aged 74 died Dec 11, 1933, in a local hospital, of chronic nephritis and uremia

Walter Brown Willey, Jr., Everett, Mass. Tufts College Medical School, Boston, 1917, member of the Massachusetts Medical Society served during the World War aged 41 died suddenly, Dec 7, 1933, of heart disease

James Arthur Connor, Waverly Kan. College of Physicians and Surgeons, Medical Department Kansas City University, 1903, aged 56 died, Oct 30 1933 in St Francis Hospital, Topeka, of diabetes mellitus

James L. Cochran, Connellsville Pa., Western Pennsylvania Medical College, Pittsburgh, 1895 on the staff of the Connellsville State Hospital aged 63 died suddenly Nov 22, 1933 of coronary thrombosis

Frank Holyoke, Holyoke Mass. Harvard University Medical School, Boston 1883, on the staff of the Holyoke Hospital, aged 78, died, Dec 5, 1933 of cerebral thrombosis and arteriosclerosis

John Ignatius Urban, Chicago Jenner Medical College Chicago 1917 on the staff of the Norwegian-American Hospital aged 40 was found dead, Dec 1, 1933 of an overdose of sleeping potion

Carlos Brown Meadows, Valdosta Ga. University of Georgia Medical Department Augusta 1899 member of the Medical Association of Georgia, aged 61 died Dec 8 1933 of heart disease

Arthur David Henshey, Cleveland Georgetown University School of Medicine Washington, D. C., 1933, aged 26 intern at St Alexis Hospital, where he died, Dec 10 1933, of scarlet fever

David Graham, Duluth, Minn. Detroit College of Medicine 1893, formerly member of the state legislature physician and owner of the Duluth Hospital aged 74, died Nov 4 1933 of endocarditis

Robert Wallace, Louisville Ky. L.R.C.P. Edinburgh, and L.F.S. Glasgow 1880 and University of Glasgow Medical Faculty 1885 aged 80 died, Dec 1 1933 of parenchymatous nephritis

James Henry McSloy, Portland Ore. Rush Medical College Chicago, 1886 member of the Oregon State Medical Society aged 69 died Nov 16 1933 of uremia nephritis and hypertension

James William Wheeler, Coquille, Ore., University of Tennessee College of Medicine, Memphis, 1913, served during the World War, aged 51, died, Nov 13, 1933, of cerebral hemorrhage

Charles Robert Brown, Marion, Ind., Hospital College of Medicine Louisville, Ky., 1907, on the staff of the Grant County Hospital, aged 54, died, Dec 1, 1933, of cerebral hemorrhage

Alfred Robinson, Columbus, Ohio, Miami Medical College Cincinnati 1879 formerly sergeant at-arms of the House of Representatives, aged 82, died, Nov 23, 1933, of arteriosclerosis

James E. Trexler, Kansas City, Mo., University of Pennsylvania School of Medicine, Philadelphia, 1898, aged 59 died, Nov 23 1933, in Neosho, of injuries received in an automobile accident

George Dewey Gertson, Grand Forks, N. D., Northwestern University Medical School, Chicago, 1927, aged 35 died, Dec 1 1933, in Tucson, Ariz., of tuberculosis of the spine

Valentine Charles Lucas, Lakewood, Ohio, Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1888, aged 65 died Nov 23 1933

Cole Carroll, Apopka, Fla. Atlanta (Ga.) School of Medicine 1912 member of the Florida Medical Association, aged 48 died, Nov 9, 1933, of acute dilatation of the heart.

Otho C. Jackson, Brady Texas Dallas Medical College, 1903 member of the State Medical Association of Texas, aged 65 died, Nov 30, 1933, of coronary occlusion

Wilbur F. Clippinger, Evansville, Ind., Medical College of Ohio Cincinnati, 1888, aged 70, died, Dec 10, 1933, in the Protestant Deaconess Hospital, of arteriosclerosis

Frank Yeomans Neer, Paterson, N. J. Columbia University College of Physicians and Surgeons New York, 1905, aged 51, died, Nov 30, 1933, of heart disease

Edmond D. Barron, Pattison Miss., Louisville (Ky.) Medical College, 1888, aged 69, died Nov 29, 1933, of carcinoma of the stomach and chronic myocarditis

Frank Cecil Vause, Stewart Manor N. Y. Long Island College Hospital, Brooklyn, 1910, aged 53, died, Nov 14, 1933 in a hospital at Brooklyn, of pneumonia

Bruno Louis Sulzbacher, Kansas City Mo., University Medical College of Kansas City, 1895 aged 59, died, Nov 14, 1933 of a skull fracture received in a fall

Charles Victor L. Harbaugh, Lapaz, Ind., University of Maryland School of Medicine, Baltimore, 1889, aged 72, died, Dec 9, 1933, of pneumonia

Adam Rankin Johnson, Buffalo, Medico Chirurgical College of Philadelphia 1900, aged 64, died, Dec 5, 1933, of acute coronary occlusion

Charles E. Wright, Gurdon, Ark., Memphis (Tenn.) Hospital Medical College 1903, aged 62, died, Nov 30, 1933, of cerebral hemorrhage

Kenneth Keith MacAlpine, New York New York University Medical College 1896, aged 62, died, Dec 9, 1933, of coronary thrombosis

James Joseph Cole, Chicago, Northwestern University Medical School, Chicago, 1903, aged 55 died, Dec 15, 1933, of endocarditis

V. Verne Vance, Peru Neb., University of Nebraska College of Medicine, Omaha, 1903, aged 55, died, Nov 25, 1933, of pneumonia

Oscar P. Voigt, Gillett, Wis. Starling Medical College Columbus 1895, aged 61, died, Nov 19, 1933 of a self-inflicted bullet wound

William Berry, Omaha Starling Medical College, Columbus 1888 aged 71, died suddenly, Dec 3, 1933 of heart disease

Lynn Cecil Olmstead, Chicago Bennett Medical College Chicago 1912, aged 43, died, Dec 16, 1933 of cerebral embolism

Salem B. Town, Greencastle Ind., Chicago Medical College 1868, aged 86 died suddenly, Dec 5, 1933, of heart disease

Anthony Balcerzak, Chicago Illinois Medical College, Chicago 1909 aged 61 died suddenly Dec 2, 1933

S. Annie Yates, Cincinnati (licensed, Ohio 1896), aged 83 died, Dec 3, 1933, of pneumonia

Correspondence

YAWS AND SYPHILIS

To the Editor—An article appeared in the *Tropical Diseases Bulletin* for November, 1933, entitled "Yaws and Syphilis Two Diseases or One?" which, in all fairness should have some editorial notice.

Physicians in Great Britain have been fighting among themselves for a couple of centuries whether yaws and syphilis are or are not the same disease. A group of Americans principally U. S. naval medical officers, have for years sustained the unity idea but another group of writers is quoted extensively in Blacklock's article. Blacklock proves the proposition that yaws and syphilis are the same thing, but quotes the army writers.

As one of many Americans who have sustained unity, I have myself published the following papers on this subject during the past twenty years:

Butler C. S. The Application of Wassermann's Reaction to the Solution of the Etiology of Tropical Ulcerations (from the laboratory and native clinic of the United States Naval Hospital, Panama). I read before the Far Eastern Association of Tropical Medicine Third Biennial Congress Saigon in November 1913 and published in the Association's proceedings for that year. *U. S. Na. M. Bull.* 51, 1915.

Butler C. S. Some Facts and Some Fancies Regarding the Unity of Yaws and Syphilis. *U. S. Na. M. Bull.* 5, 561, 1911.

Butler C. S. and Petersen F. La treponematose et l'hygiene publique. *Presse med.* July 27, 1927, p. 941.

Butler C. S. and Petersen L. Treponematosis as Seen in Rural Population of Haiti. *Am. J. Syph.* 12, 251 (April) 1927; also in *J. Lab. & Clin. Med.* 12, 670 (April) 1927.

Butler C. S. Primitive Syphilis. *U. S. Na. M. Bull.* 20, 553 (July) 1928.

Butler C. S. Presidential Address (American Society of Tropical Medicine). *Am. J. Trop. Med.* 8, 363 (Sept.) 1929.

Butler C. S. Relation of Syphilis and Yaws. *Ann. Int. Med.* 7, 175 (Aug.) 1929.

Butler C. S. Diagnosis and Treatment of Yaws. *Internat. Clin.* 2, 1 (June) 1930.

Controversies on yaws and syphilis and origin of syphilis published in the *Lancet* between April and July 1931 reprinted in *U. S. Na. M. Bull.* October 1931.

Finish of Controversies on Yaws and Syphilis. *U. S. Na. M. Bull.* January 1932.

Butler C. S. Hero Worship and the Propagation of Illacies. *Ann. Int. Med.* February 1932.

The Trouble with Yaws editorial. *Am. J. Clin. Path.* May 1932.

Butler C. S. De la treponematose en marge des rapports du yawn et de la syphilis. *Ann. de dermat. et syph.* 1188 (Nov.) 1931.

The matter treated here is far from academic. Thousands of pages have been wasted and gallons of ink spilled, to say nothing of years of retardation of medical thought and centuries of fallacious teaching.

I hope that you will find it possible to give some recognition to American investigators who have done much good work in connection with this subject which the English authorities are unwilling to acknowledge.

C. S. BUTLER, M.D. New York

INTERPLEURAL SINUS OR MEDIASTINAL HERNIA?

To the Editor—In the interesting and rare case reported by Drs. C. R. Smith and H. S. Willis in *THE JOURNAL*, Oct. 14, 1933, page 1224, there evidently was no communication between the two pleural cavities, contrary to the conclusions of the authors. Instead there was a mediastinal hernia of the right lung invading the left hemithorax to an unusual extent. The pneumothorax needle repeatedly inserted into the left side of the chest was really in the right pleural cavity each time. The roentgenograms submitted by the authors show the mediastinal hernia of the right lung—it nearly reaches the left axilla. The roentgen examinations following the injection of air into the left side of the chest showed no collapse of the left lung, but the right lung was entirely separated from the chest wall. The manometric readings made with two needles, one in the

left side and one in the right side of the chest, show that the two needles were in one and the same pleural cavity. Post mortem "no channel of communication could be found" between the two pleural sacs although pains were taken to demonstrate such a sinus.

Dersheid and Toussaint (Pneumothorax artificiel droit par implantation d'une aiguille dans l'aisselle gauche, *Arch. med. Chir. de l'app. respir.* 7, 68, 1932) reported a similar case. A pneumothorax needle inserted into the left axilla produced a collapse of the right lung due to invasion of the left hemithorax by the right lung.

LEONARDO KOROL, M.D., Lincoln, Neb.

HAZARDS OF DRY CLEANING

To the Editor—I have just read the interesting editorial in *THE JOURNAL*, Dec. 16, 1933, on the hazards of dry cleaning.

My attention was called to the statement in the last part of the third paragraph on page 1970 to the effect that "the purchase of gasoline at a filling station may also involve a hazard other than fire—that of tetra ethyl lead poisoning."

Based on a study carried on by the Public Health Service, regulations for the protection of the public were prepared by a committee of scientists appointed by myself with Dr. W. H. Howell as chairman. You are no doubt well acquainted with this committee and its work. I would, however, call your attention to Bulletin 163 from the Public Health Service, The Use of Tetra-Ethyl Lead Gasoline in Its Relation to Public Health which gives these regulations. You will note that the committee recommends, among other things, that the gasoline containing tetra ethyl lead be colored and that it be used as a motor fuel only. The color was added to prevent the use of this gasoline as a cleaning agent.

It is our belief from investigation and from available data that these regulations satisfactorily protect the public from any possible additional hazard in the use of ethyl gasoline.

H. S. CLARK, M.D. Washington, D. C.
Surgeon General U. S. Public Health Service

INJECTIONS OF PROCAINE FOR SPRAINS AND DISLOCATIONS

To the Editor—The Paris correspondent under date of September 20 (*THE JOURNAL*, November 4, p. 1492) states that the medical profession is indebted to Professor Leriche of Strasbourg for a method of treatment of sprains and mild luxations, which consists in injecting a cubic centimeter of a solution of procaine hydrochloride (1:1,000) at the level of the painful areas. A person with a sprain thus treated can walk immediately after the injection.

A person so treated can walk immediately, but should he do so? I think that he should not, unless the sprained part is efficiently splinted (as with adhesive strapping). If by medication one stops pain and muscle spasm and then permits strain to be thrown on the injured tissues those tissues have not a good chance to heal by first intention. Prolonged convalescence and impaired function are likely to be the result.

The correspondent continues: Schulmann and Benassy have applied this method to persons with rheumatic pains with complete success. Even in cases of chronic arthritis the injection of procaine at the insertions of the ligaments and the articular tendons brought about quickly not only relief from the pain but also restoration of the movements.

If the aim in treatment of arthritic patients is anything more than ephemeral relief from pain the treatment of these patients by the injection of a local anesthetic is just as illogical as the proposed treatment of sprains.

No doubt the Paris correspondent knows whereof he speaks when he states that the medical profession is indebted for this form of therapy. Would it not be well to inquire into the facts on which this indebtedness is based before subjecting patients to this form of treatment?

RALPH R. FITCH, M.D., Rochester, N. Y.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

TREATMENT OF VINCENT'S ANGINA

To the Editor—Kindly give me information as to further advice and treatment in the following case. A woman aged 45 yrs had a Vincent spirillum infection verified by microscope of the gums and mouth for about a year. Sodium perborate (a teaspoonful in a third of a glass of water) was used as a wash every hour. An injection of neoarsphenamine was followed by a very violent reaction with swelling of the face and lips dyspnea fever a blotchy eruption on the face and body burning of the mouth nausea weakness and indisposition for several days. The teeth were scaled and cleaned. Crowns and bridgework were removed. The patient discontinued brushing the teeth applied an antiseptic mouth wash and omitted fruit juices for a while in the hope that maybe the food was too acid. This was without effect. Tartroquinomine was used locally and intramuscularly, two days later there were pain redness infiltration over the buttocks about the size of a hen's egg fever and increased soreness of the gums. A week later I administered another injection of potassium bismuth tartrate in dextrose solution both being 0.1 Gm with an identical reaction soreness redness of the skin over the buttocks infiltration fever, weakness nausea and indisposition with increase in soreness and redness of the former injection area. I bathed the buttocks first with rubbing alcohol and sterilized the syringe and needle using a 2 inch needle and depositing the bismuth deep in the gluteus muscle. Is it possible that this was an allergy to bismuth, as it must have been to the neoarsphenamine also? There is no mention in the literature of bismuth preparations resulting in such reactions though it is said that they may cause pain but to last with infiltration and redness in the skin for ten days is certainly unusual. The patient has a nasal allergy of seven years standing and I have thought that perhaps these injections acted as a foreign protein exciting the reactions. What treatment would you advise for the infiltration, soreness and redness? If you can suggest anything different for the treatment which must be mild as the mouth gums and throat are very sensitive to strong medication I would greatly appreciate it. The condition has been of long standing, while energetic medication seemingly has been of no avail. Please omit name.

M. D. Oklahoma

ANSWER—It is extremely hazardous to give advice in such a case without immediate examination of the oral lesions and of the smears. Several general principles must be considered:

1. The lesion must present the characteristics of Vincent's infection, hyperemia and passive congestion of the mucous membrane at the base, a gray to yellow-gray pseudomembrane which when removed, reveals a bleeding surface pain on palpation, a foul, putrescent odor and a predilection for the spaces between the teeth and destruction of the interdental papillae.
2. The smear must show a predominance almost to the point of pure culture of the spirillum and the fusiform bacilli. These organisms are normally present in the mouth in small numbers. There is evidence that other organisms must also be present for the characteristic lesion (Smith, D. T. Oral Spirochetes and Related Organisms in Fusio-Spirochetal Disease Baltimore: Williams and Wilkins Company 1932).
3. Systemic disorders must be ruled out: scurvy, diabetes mellitus which often in patients of this age gives rise to swelling redness soreness and often suppuration of the gingival mucous membrane with alveolar bone destruction, poisoning, as from lead and bismuth oral syphilitic manifestations and others.

In this instance, if the lesion is indisputably Vincent's infection, one may advise discontinuance of arsphenamine and bismuth and attack the lesions locally with frequent topical applications of sodium perborate in hydrogen dioxide packing the paste between the teeth and into the pockets for from seven to ten minutes every three hours followed by irrigation with hydrogen dioxide washed forcibly in the interstices between the teeth with a small pointed syringe and used as a mouth wash. A mild laxative may be used. A soft sustaining diet should be advised and extreme caution observed against the spread of the infection by towels, wash cloths dishes and personal contact to avoid infecting other members of the household. Most cases of Vincent's infection will respond to this treatment if rigidly carried out.

Vigorous local treatment is the most efficient, but in order to have it carried out with sufficient aggressiveness it is often necessary to hospitalize the patient.

The reaction to bismuth compounds is not uncommon and should not be compared to an allergic reaction. It should also be noted that the administering of arsphenamine in syphilis is quite often followed by acute reactions in the mouth and gums.

An interesting article appeared in the September issue of the *Dental Cosmos* and one by L. J. Belding and P. H. Belding on evaluation of the various reagents used in the treatment of the spirochetoses in the September issue of the *Journal of the American Dental Association*.

SYNOVITIS AND ARTHRITIS

To the Editor—What is the clinical and pathologic difference between synovitis and traumatic arthritis? Please omit name. M. D. Indiana

ANSWER—Technically speaking, one cannot have synovitis without arthritis. One may have arthritis without synovitis. Synovitis is a symptom, like a cough or fever, and by many is considered not a complete diagnosis. Inflammation of any part of the joint structure is called arthritis. An injury to the internal semilunar cartilage may produce traumatic synovitis and a true arthritis. A somewhat analogous situation may occur in the big toe joint and in the subastragalar and other joints. Osteochondritis dissecans and osteochondromatosis may produce traumatic arthritis.

The etiology of synovitis includes infection, trauma, allergy, metabolic disturbances, neurologic conditions, exposures to extremes of cold and moisture, poisons and drugs. The pathology of synovitis includes hyperemia and swelling of the synovial membrane, increased synovial fluid and later pathologic changes in the synovia, including atrophy, hypertrophy, degeneration and destruction.

The symptoms include pain, swelling, tenderness, limitation of motion and local increase in temperature. Physical examination reveals pain (except in the neuropathic joint), swelling, obliteration

Differential Diagnosis

	Clinical	Pathologic
Synovitis	Pain Swelling Heat Redness Free fluid	Hypertrophy of synovia Round cell infiltration Giant cells Pannus formation
Traumatic arthritis	Pain Swelling heat redness or free fluid may or may not be present	Cartilage erosion—later Osteochondritis dissecans Osteochondromatosis Loose bodies Osteophytes

tion of the normal bony landmarks, limitation of movement, muscle spasm, increased local temperature and atrophy of the local musculature. The synovial fluid is examined for its physical properties, for blood for a mixture of blood and synovial fluid, and for pus or bacteria.

The roentgen observations in synovitis are usually negative except in cases in which thickening is demonstrable. The joint space may appear hazy, from the presence of fluid exudate or thickening of the synovial membrane.

In a discussion on traumatic synovitis, Brickner stated that the effusion in joint sprain is not clear serum but is bloody. Often in traumatic synovitis, especially that due to external violence, the distention is caused by pure blood. Such a hemarthrosis is not distinguishable except by aspiration from a hyarthrosis. In acute traumatic synovitis there must be a tear of the synovial membrane and some injury to ligaments, bone or cartilage. A cartilage fracture, such as occurs on a femoral condyle which is not demonstrable roentgenographically, may be the cause of chronic traumatic synovitis with persistent or recurrent effusion.

Hemorrhagic synovitis is characterized by an injury, following which there is an increase in size of the joint with obliteration of the normal bony landmarks. Aspiration of the joint reveals a bloody fluid.

Leriche described a condition of traumatic vasomotor synovitis. He and Policard believe that many traumas are so comparatively insignificant that they leave no visible signs yet may be followed by serious vasomotor disturbances in the fibrous tissues.

Traumatic arthritis is that type in which it seems plausible to attribute the pathologic changes and therefore the symptoms and roentgen observations to a definite trauma. Trauma may be due to the occupation of the patient when there is strain

on the joint, as in the hands of laborers. A static abnormality may be the cause. The trauma may be due to indirect violence, such as the injury to a shoulder caused by a fall on the outstretched hand which may produce a Colles fracture. Trauma may be one severe one or multiple minimal ones.

Putti believes that, regardless of what the primary or secondary cause of osteo arthritis may be there always enters into the pathogenesis the factor of trauma—not the direct type which produces fracture but that of the persistent chronic type of moderate degree of intensity which occurs under various circumstances. Bone and joint structures make similar responses to unlike factors, such as irritation, traumatic or infectious.

If trauma itself can cause arthritis a classic example is fracture of the os calcis producing subastragalar arthritis. Another example is arthritis which occurs in the shoulder following a Colles fracture.

Hench states that because of their particular function joints must take in addition more physical jolts than any other part of the body functioning with and in spite of an enormous amount of physical trauma which up to a certain degree constitutes physiologic trauma. Beyond this point it constitutes potentially pathologic trauma and may produce chronic arthritis. Hench believes that obesity is one of the important causes of hypertrophic arthritis the weight-bearing joints being constantly subjected to trauma.

APLASTIC ANEMIA WITH PURPURA

To the Editor—A man aged 25 was in excellent physical condition June 9, 1933. His past history and family history were uneventful. On that date following a minor wound of the leg, he was given 100 units of antitetanic serum (age and manufacturer of serum unknown). The next day he developed several areas of water blisters over the shoulders at first thought by his physician to be urticaria and later diagnosed as shingles. These seemed to break down and today there are noteworthy scars at these points. From the date of the serum injection he has gradually but steadily lost ground. There has been a good appetite and a feeling of well being, but he has tired easily and has dyspnea on exertion and he noted a marked tendency to bleed easily. He was first seen by me August 18. There has been no other medical treatment since June 9. He presented marked pallor but no icterus, no weight loss and a few petechiae here and there. The general examination was negative save for a soft systolic murmur at the base of the heart. The urine was normal. Blood examination revealed red blood cells 1,175,000, hemoglobin 35 per cent (Sahli), white blood cells 3,500 (40 per cent polymorphonuclears, 60 per cent lymphocytes). The red cells were only slightly changed in size and shape and there were no embryonic forms or any macrocytes; platelets were 90,000, the bilirubin figure normal, the bleeding time sixteen minutes and the coagulation time eight minutes. A diagnosis was made of an aplastic anemia accompanied by a symptomatic purpura. Three transfusions were given at intervals of forty-eight hours of 500 cc of blood by the citrate method. Three different donors were used, none were grouped but all were cross matched with the recipient. No reaction followed the first two and the red blood cells numbered 2,000,000 and the hemoglobin 47 per cent. Twelve hours after the third transfusion there was a severe reaction of chills and fever. He has now had nine days of this reaction, the temperature being from 99 to 102 F. There is a marked and painful swelling of the right epididymis (there is no history of a gonorrheal infection and the prostate is normal); there has been much suprapubic pain and frequent urination and a very marked hematuria is present. The gums bleed easily and there is only a slight blood reaction in the stool. The spleen is not palpable. Blood examination at this date gives essentially the same results as at the first examination; the clot retracts well and the bleeding and coagulation times are about six and eight minutes. The blood culture is negative for any organisms. The volume index today is 0.82, platelets 100,000. Is this an aplastic anemia and a symptomatic purpura or an essential purpura and secondary anemia? 2. What possibility is there that this whole affair has followed and been caused by the serum? Can you refer me to cases in the literature of serum injections causing such a condition?

P. R. BILLINGSLEY, M.D. Sioux Falls, S. D.

ANSWER—1. Based on the history and examination is given the diagnosis of aplastic anemia with symptomatic purpura seems most applicable to the condition described. In the study of blood dyscrasias, including the severer anemias, leukemias and purpuras, many cases conform with fair accuracy to the typical forms, which have been given disease names based on certain distinctive clinical features, but still other cases present variations from the typical forms, so that question is raised as to whether they belong in one or another disease category. This is true of some atypical cases of aplastic anemia with purpura and hemorrhagic purpuras.

2. It is extremely unlikely that the serum injection was a causative factor in the production of the anemia. It is stated (presumably the patient's statement) that he was in good physical condition, June 9. But a few weeks later at the time when he is said still to have had a "good appetite and a feeling of well being" he already tired easily, was dyspneic on exertion and bled easily. The anemic disease may therefore have already begun to develop either before June 9 or subsequently, so far as was ascertainable from the patient. The occurrence of the minor wound, for which antitetanic serum was

given was coincidental. The herpes or "shingles" that followed the injection of serum may have been due to the serum. Neuritis, sometimes with herpes, has been observed following other serum injections, such as that of antidiphtheric serum.

CHOLESTEROL IN DIET AND SCLEROSIS

To the Editor—In myocardiosis and coronary sclerosis is a diet containing a minimum of cholesterol be beneficial in retarding the advance of sclerosis? Can you suggest to me a dietary containing a minimum of cholesterol? Would a diet free of cholesterol be depriving the body of a necessary dietary constituent?

CHARLES E. IUKENS, M.D. Albuquerque, N. M.

ANSWER—There is no good reason for assuming that a diet containing a minimum of cholesterol would have any influence in retarding the advance of degenerative changes in the arteries or heart muscle. Rabbits fed on a high cholesterol diet have been reported to show changes in the arteries but similar changes may occur in rabbits under other abnormal experimental conditions. There is no convincing clinical evidence that a high fat diet in man has any effect on the arteries. Races such as the Eskimos, living on a diet with a high ratio of fat and protein do not show an increased incidence of arterial changes.

A dietary containing a minimum of cholesterol would eliminate all fats including butter and cream and fat meats, egg yolk, liver, kidney, brains and other valuable and necessary foods. There is some reason for assuming that the body can synthesize cholesterol if withheld from the diet. The blood cholesterol values fluctuate even during fasting and more than normal amounts of cholesterol administered in the food have no significant effect on the blood cholesterol values.

Cholesterol probably performs an important function in the body mechanism. The amount of cholesterol in the blood decreases during infection and returns to normal in convalescence. It is increased in pregnancy and returns to normal after delivery. Cholesterol inhibits hemolysis and is decreased in the blood of pernicious anemia and in other anemias. The cholesterol in the blood is increased in certain pathologic conditions, as obstructive jaundice, diabetes and lipoid nephrosis.

Cholesterol is closely related to vitamins D and A. Ergosterol found in association with cholesterol produces vitamin D when acted on by certain ultraviolet rays. There is every reason for thinking that a diet containing cholesterol in less than the normal values would be harmful. Until a great deal more knowledge has been acquired than is available at present, one should be cautious in interfering with the normal mechanism of the body.

BRONCHITIS AFTER EXPOSURE TO HYDROCHLORIC ACID FUMES

To the Editor—A case of chronic bronchitis was seen recently with a history of six months duration. The patient declares that for the past four years he has been exposed to the fumes of muriatic acid which he used in cleansing metal water meters. During this period he was entirely free from symptoms. It is the patient's impression that his bronchitis is due to irritation from the hydrochloric acid fumes. In view of his freedom from symptoms for almost four years is it probable or even possible that this is true? It should be here stated that no change in working conditions occurred recently to account for greater concentration of the fumes. Please omit name.

M. D. Oklahoma

ANSWER—A marked divergence of opinion has developed with respect to the probability of prolonged disease states after exposure to substances such as chlorine, hydrochloric acid or sulphur dioxide. Investigators of conditions consequent to chemical war gas exposure have long emphasized that irritant gases and vapors produce only acute conditions (possibly with sequelae) in the lungs promptly followed by complete recovery if the initial action is survived. On the other hand industrial hygienists who have observed men working for long periods (eight hours a day) for months or years are disposed to believe that, in some instances, chronic states may arise from such agents as chlorine or hydrochloric acid. At least these hygienists point out the occurrence of chronic bronchitis, inflammation of the upper respiratory tract and rarely paroxysmal asthma. In the case mentioned in the query it does not appear probable that four years of exposure could be endured without involvement and that then, in the absence of any known increase in concentration, a noteworthy bronchitis would be produced. Such a set of circumstances is unlikely. Reference should be made to the chapter on chlorine and hydrochloric acid in Dr. Hamilton's book, *Industrial Poisons in the United States*, New York, Macmillan Company, 1929, and to a similar discussion by Henderson and Haggard in *Noxious Gases*, New York, Chemical Catalog Company, Inc., 1927.

HYPOTHYROIDISM

To the Editor—A boy aged 10 years is but 42½ inches (107 cm) in height and weighs 64 pounds (29 kg). He appears to be obese and has a protruding abdomen. The tissues of the extremities are of myxedematous character. His skin is pale and moderately moist and his hair is somewhat dry. There are large pads of fat over the pectoral regions, shoulders and across the upper dorsal area. His 6 year molars are present as well as the two upper incisors. The lymph glands and the thyroid are not palpable. No upper subcutaneous ducts are made out. The head is large, the eyes are wide set but there is no enlargement of the lips or tongue. His temperature was 98.1, his pulse 60 and regular and respiration 13. A basal metabolism test yielded a reading of 17 per cent. His intelligence quotient is 90 per cent. Flat plates of his wrists showed ossification of the humeri and carpal bones as well as the lower epiphyses of the radius giving an osseous age of about 2 years. His mother states that lack of growth was first noticed at the age of 2 years. A trial administration of 3 grains (0.2 gm) of thyroid given at twelve hour intervals sent the pulse rate up to 92. Can I expect improvement in ossification and increase in height by thyroid medication alone? Would anterior pituitary medication (growth hormone) be indicated? A flat plate of the sella shows a normal outline. Any suggestions will be appreciated. Please omit name. MD Illinois

ANSWER—The clinical description suggests for a considerable part at least, a condition of hypothyroidism. The dosage of thyroid medication in these cases deserves the utmost consideration. Since the remedy is to be used for a long time, one should begin with small doses and determine the tolerance of the patient to the remedy. The basal metabolic rate is an excellent guide to dosage and should be repeated at intervals. In general, it is better to begin with 0.03 Gm of the thyroid preparation twice daily and increase the dose gradually until the optimal tolerance is ascertained. One cannot say beforehand what the dosage should be in an individual case but by beginning with the minimum dose and increasing cautiously, the best results will be obtained. There does not seem to be any indication for the use of pituitary medication.

GEOGRAPHIC TONGUE

To the Editor—A woman aged about 55 and apparently in good health has had an irritation and pain along the left border of her tongue for about a year. As her sister died recently from cancer of the tongue and mouth she is alarmed and worried. I find an oval area measuring three fourths by one half inch looking like a common ring worm with a normal appearance in the center. I have never seen or heard of a case of trichophytosis of the mucous membrane and I get no help from my books. I cannot demonstrate the organism but this is my diagnosis. How can the condition be treated? Solutions are washed away too soon to do any good. Please omit name. MD Iowa

ANSWER—Benign migratory plaque geographic tongue resembles a patch of ringworm at first glance but is not caused by a fungus. Its etiology is unknown. It comes and goes without apparent cause, the lesions form enlarge, pass along the tongue and disappear, and then a new one appears and goes through the same cycle. The border is sharply defined, gray to yellow. The center is normal in color and appearance. Normally there is no sensory disturbance connected with it. Worry about cancer, however often causes pain and these cases are very hard to cure. The best procedure would be to have a specialist see the tongue and make a diagnosis and then try to treat the worry.

LOW BACK PAIN AND SCIATIC NEURALGIA

To the Editor—A patient of mine a woman aged 56 has had sciatica for the past four months which apparently was due to a pelvic tumor. A laparotomy was performed about two weeks ago and a partly calcified intraligamentous ovarian cyst the size of a grapefruit was removed. Her condition improved after the operation and the constant pain subsided when she is at rest in bed. However when she sits up on a bed pan the pain reappears in the same buttock. The other day I had her sit up in bed but the pain was so bad that she had to lie down. I would like to know the prognosis in sciatic neuralgia due to a pelvic tumor. Should the pain disappear as soon as the tumor is removed? What may be the pathologic basis of the sciatic disturbance in this case? Should I wait until the pain disappears completely or should I give the patient an injection in the epidural space? Please omit name. MD New York

ANSWER—The pain should disappear shortly after the removal of the tumor. The pathologic change in the sciatic nerve is one of pressure neuritis. The pain in the buttock may be due to superior gluteal neuritis. The patient should have a neurologic followed by an orthopedic examination. A caudal epidural injection may relieve the patient of pain, but it is not differentially diagnostic of the etiology.

The term sciatica is one of the most loosely applied in medicine. Solis-Cohen of Philadelphia asks his class the question 'When is sciatica not sciatica?' The answer is nine times out of ten. The physician should consider postural defects, bone or muscle insufficiency, ligamentous stress and strain disease

of bone and spinal cord tumor. Roentgenograms of the lumbosacroiliac region might offer some interesting data.

If every gynecologist would make simple neurologic and orthopedic examinations before the operation that is held out as a promise of relief from low backache and the sciatic syndrome, there would be fewer persistent symptoms which may be embarrassing after the operation. Every gynecologist should be qualified to make these examinations. If he needs further help, the neurologist and the orthopedist can be called on.

DRY STERILIZATION OF OPHTHALMIC INSTRUMENTS

To the Editor—Can you give me any methods for the efficient sterilization of the more delicate instruments used in ophthalmologic surgery which will not produce erosion of the metal? Distilled water has been used but oxidation processes have occurred on the surface of these instruments. Would ordinary autoclaving be efficient? I would appreciate references to reports on this subject.

HAROLD FELDMAN, M.D., Quincy, Ill.

ANSWER—Dry sterilization of instruments for ophthalmic use is in great favor among certain operators, especially those of the French school. Morax (Precis d'ophtalmologie, ed 5 1931) advocates dry sterilization at a temperature of from 160 to 170 (probably centigrade) for twenty minutes and states that there is no injury to the points or cutting edges below a temperature of 180. For the killing of organisms he considers 150 degrees the lower limit. Ordinary autoclaving is sufficient for sterilization, but the procedure has a bad effect on the fine cutting edges so necessary in ophthalmic instruments. Many of the operators in this country run the noncutting instruments through the ordinary hospital autoclave and sterilize the cutting instruments by immersion for twenty minutes in compound solution of cresol. This is followed by an alcohol and sterile water bath. The rusting mentioned results from failure to dry the instruments properly after use. It will be found that if the cutting instruments are dried and then dipped into petrolatum the thin film that adheres will be sufficient to prevent any rusting.

IODIDE METHOD OF STARR FOR CARDIAC FUNCTION

To the Editor—Will you be kind enough to publish in Queries and Minor Notes the iodide method of Starr to determine cardiac function? Please omit name.

MD Punene Maui T H

ANSWER—It will be necessary for the correspondent to consult the original article in regard to this method. The reference is as follows:

Starr Isaac Jr and Gamble G J Improved Method for Determining the Cardiac Output in Man by Means of Ethyl Iodide *Am J Physiol* 87 450 (Dec) 1928

USES OF SODIUM THIOSULPHATE—BITTERS

To the Editor—Is sodium thiosulphate (hyposulphite) given internally for any other purpose than as an antidote for certain poisons? I would like other indications named if any are known. I would also appreciate information as to whether the use of bitter orange peel, serpentaria, stillingia, quassia and gentian is justified for any other purpose than as bitters. Please omit name.

MD Michigan

ANSWER—Sodium thiosulphate is employed in parasitic skin diseases as in the prevention and treatment of ringworm of the feet (15 per cent foot bath, 20 per cent in boric acid as dusting powder). It has also been used as a cathartic (1 Gm in water every two hours).

Bitter orange peel is a pleasant flavor. Serpentaria has the reputation of being a "stimulant" expectorant, an emmenagogue, and useful as a gargle in angina. Stillingia is a laxative and a diuretic, as well as an 'alterative' of possible use as an adjunct to the specific treatment of syphilis or of malaria. Quassia is a parasiticide of use against head lice and an anthelmintic against threadworms. In large doses it acts as a cathartic. Gentian combined with alkali is recommended in gastric and intestinal catarrhal conditions.

INTRACAPSULAR FRACTURE OF FEMUR

To the Editor—Please advise me whether it would be possible for a capillary fracture of the femur to heal so that no signs would show in a roentgenogram that was taken of the leg five weeks after the fracture.

C O CASEY, M.D., Decatur, Ill.

ANSWER—Thorough inquiry has failed to reveal such a thing as capillary fracture. Possibly intracapsular fracture is meant. It is possible that a fracture can unite so well after five weeks that a thorough roentgen examination will not show it.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY Cleveland June Sec Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written (Group B Candidates)* The examinations will be held in various cities of the United States and Canada April 7 *Oral* (all candidates) Cleveland June 12 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY Cleveland June 11 Sec Dr William H Wilder 122 S Michigan Blvd Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

CALIFORNIA Los Angeles Feb 26 March 1 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

CONNECTICUT *Basic Science* New Haven Feb 10 *Prerequisite to license examination* Address: State Board of Health Arts 1995 Yale Station New Haven

ILLINOIS Chicago Jan 23 25 Supt of Regis Dept of Regis and Edu Mr Eugene R Schwartz Springfield

MINNESOTA Minneapolis Jan 16 18 Sec Dr I J Ingberg 350 St Peter St St Paul

NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Feb 14 16 May 25 27 and Sept 12 14 Ex Sec Mr Everett S Ilwood 225 S 15th St Philadelphia

NEW YORK Albany Buffalo New York and Syracuse Jan 29 Feb 1 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany

SOUTH DAKOTA Pierre Jan 16 17 Dir Dr Park B Jenkins Pierre

VIRGINIA Burlington Feb 7 9 Sec Dr W Scott Van Underhill

WASHINGTON Seattle Jan 15 16 Dir Mr Harry C Huse Olympia

WYOMING Cheyenne Feb 5 Sec Dr W H Haged Capital Bldg Cheyenne

New York June Examination

Mr Herbert J Hamilton, chief Professional Examinations Bureau, reports the written examination held by the New York State Board of Medical Examiners in Albany Buffalo, New York and Syracuse June 26 29 1933. The examination covered 19 subjects. An average of 75 per cent was required to pass. Five hundred and forty-two candidates were examined 452 of whom passed and 90 failed. The following schools were represented:

School	PASSED	Year Grad	Number Passed
University of Colorado School of Medicine	(1933)		1
Yale University School of Medicine	(1931 2)		2
George Washington University School of Medicine	(1932 3)		6
Georgetown University School of Medicine	(1930) (1932), (1933 6)		8
Loyola University School of Medicine	(1933 3)		3
Rush Medical College	(1929) (1932)		2
University of Illinois College of Medicine	(1931)		1
University of Louisville School of Medicine	(1933)		1
Tulane University of Louisiana School of Medicine	(1930) (1932)		2
Johns Hopkins University School of Medicine	(1921) (1930)		2
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932) (1933 12)		13
Boston University School of Medicine	(1933)		1
Harvard University Medical School	(1931) (1933)		2
Tufts College Medical School	(1931) (1932) (1933)		3
University of Michigan Medical School	(1930) (1931) (1932 2) (1933 3)		7
St Louis University School of Medicine	(1932 4) (1933 3)		7
Washington University School of Medicine	(1932) (1933)		2
Creighton University School of Medicine	(1933 2)		2
University of Nebraska College of Medicine	(1929)		1
Albany Medical College	(1931) (1932) (1933 11)		15
Columbia University College of Physicians and Surgeons	(1931) (1932 4) (1933 25)		30
Cornell University Medical College	(1931 2) (1932 3) (1933 5)		10
Long Island College of Medicine	(1930) (1933 75)		76
New York Homeopathic Medical College and Flower Hospital	(1932 2) (1933 49)		51
New York University University and Bellevue Hospital Medical College	(1932 2) (1933 63)		65
Syracuse University College of Medicine	(1933 28)		28
University of Buffalo School of Medicine	(1932 2) (1933 38)		40
University of Rochester School of Medicine	(1933 12)		12
Ohio State University College of Medicine	(1932)		1
University of Cincinnati College of Medicine	(1929)		1
Hahnemann Medical College and Hospital of Philadelphia	(1932)		1
Jefferson Medical College of Philadelphia	(1930) (1933 4)		5
Temple University School of Medicine	(1930), (1931 2) (1932) (1933)		5
Univ of Penna School of Medicine	(1929) (1931) (1932)		3
University of Pittsburgh School of Medicine	(1929) (1932)		2
Medical College of the State of South Carolina	(1933)		1
Vanderbilt University School of Medicine	(1931)		1
University of Virginia Department of Medicine	(1933)		1
Dalhousie University Faculty of Medicine	(1932)		1
Queen's Univ Faculty of Medicine	(1929) (1931 2) (1933)		4

University of Toronto Faculty of Medicine	(1928) (1929)	2
Laval University Faculty of Medicine	(1927)	1
McGill University Faculty of Medicine	(1928), (1929) (1930), (1932 3) (1933 2)	8
Medizinische Fakultät der Universität Wien	(1932)*	1
Facultate of the Royal College of Physicians England	(1933)*	1
Albert Ludwigs Universität Medizinische Fakultät Germany	(1936)	1
Universität Heidelberg Medizinische Fakultät	(1937)	1
Facultate of the Royal College of Surgeons, Ireland	(1930)	1
Regia Università di Palermo degli studi Facoltà di Medicina e Chirurgia	(1938)	1
Regia Università di Roma degli studi Facoltà di Medicina e Chirurgia	(1931 2)	2
Universität Regensburg Ferdinand I und III Facultatea de Medicina e Farmacie	(1926)	1
University of Aberdeen Faculty of Medicine Scotland	(1933)*	1
University of Edinburgh Faculty of Medicine	(1937)*	1
University of St Andrews Conjoint Medical School Scotland	(1932) (1932) (1933)*	3
Université de Genève Faculté de Médecine Suisse	(1933)*	1
Osteopaths		7

School	FAILED	Year Grad	Number Failed
Georgetown Univ School of Med	(1931 3) (1932) (1933)		5
Howard University College of Medicine	(1931) (1937)		2
Loyola University School of Medicine	(1931)		1
Loyola University School of Medicine	(1933 2)		1
Rush Medical College	(1933)		1
University of Louisville School of Medicine	(1926) (1931)		2
Boston University School of Medicine	(1932) (1933)		2
Tufts College Medical School	(1933)		1
University of Michigan Medical School	(1931)		1
St Louis University School of Medicine	(1924)		1
Creighton University School of Medicine	(1930)		1
Albany Medical College	(1933)		1
Columbia Univ College of Physicians and Surgeons	(1932)		1
Long Island College of Medicine	(1933 7)		1
New York Homeopathic Medical College and Flower Hospital	(1925) (1932) (1933 7)		9
New York University University and Bellevue Hospital Medical College	(1933 2)		2
Syracuse University College of Medicine	(1933 5)		5
University of Buffalo School of Medicine	(1932) (1933 3)		4
University of Rochester School of Medicine	(1937)		1
Hahnemann Medical College and Hospital of Philadelphia	(1929), (1937)		2
Temple University School of Medicine	(1932)		1
Medical College of the State of South Carolina	(1937)		1
University of Vermont College of Medicine	(1937)		1
University of Virginia Department of Medicine	(1933)		1
Queen's University Faculty of Medicine	(1931)		1
Laval University Faculty of Medicine	(1925) (1931)		2
McGill University Faculty of Medicine	(1927), (1933)		2
Medizinische Fakultät der Universität Wien	(1926) (1928)*		3
Deutsche Universität Medizinische Fakultät Cze	(1925)		4
(1927) (1929) (1932)*			
Ležarský Fakulta University Komenského Cze	(1929)*		1
Regia Università di Genova degli studi Facoltà di Medicina e Chirurgia	(1930)		1
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1920) (1923) (1924) (1927) (1931)		5
Regia Università di Padova degli studi Facoltà di Medicina e Chirurgia	(1932)		1
Regia Università di Palermo degli studi Facoltà di Medicina e Chirurgia	(1920) (1929)*		2
University of Aberdeen Faculty of Medicine Scotland	(1905) (1930)		1
University of Edinburgh Faculty of Medicine	(1930)		1
University of St Andrews Conjoint Medical School Scotland	(1932)* (1933 2)*		3
Universität Bern Medizinische Fakultät	(1931)		1
Osteopaths			7

One hundred and seventy nine candidates were licensed by endorsement from May 12 to November 1. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
College of Medical Evangelists	(1933) California		
Yale University School of Medicine	(1928) Connecticut		
(1932 2) N B M Ex			
Georgetown University School of Medicine	(1927)		Penn.
(1932) (1933 2) Maryland			Ohio
Howard University College of Medicine	(1931) Maryland N B M Ex		
(1932) Maryland N B M Ex			
North Carolina Virginia	(1926)		Georgia
University of Georgia Medical Department	(1906) N B M Ex		
College of Physicians and Surgeons of Chicago			
Hahnemann Medical College and Hospital Chicago	(1886) (1917) Illinois		
Loyola University School of Medicine	(1933) N B M Ex		
Northwestern University Medical School	(1929) Iowa		N B M Ex
Rush Medical College	(1922) Illinois (1932 2)		(1933) N B M Ex
University of Illinois College of Medicine	(1931)		Tennessee
Indiana University School of Medicine	(1930)		(1932) Indiana
State University of Iowa College of Medicine	(1929), (1930 2) (1931) (1932 5) Iowa		
University of Louisville Medical Department	(1917)		Mass
(1921) Kentucky			
Tulane University of Louisiana School of Medicine	(1921)		Louisiana
(1927) Mississippi (1932) Tennessee			
Baltimore Medical College	(1913)		Maryland
College of Physicians and Surgeons of Baltimore	(1907)		Virginia
Johns Hopkins University School of Medicine	(1927) N B M Ex		
(1920) (1925 2) (1930 2) (1931) (1932 2)			Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons	(1925)		Alabama
(1929 2) (1931) Maryland			

Boston University School of Medicine	(1899)	Mass
Harvard University Medical School	(1911)	Maryland
(1917) (1920) Massachusetts	(1915), (1929 3),	
(1930 2) (1931, 2) N B M Lx		
Tufts College Medical School	(1910)	Mass
(1920) New Hampshire, (1928), (1931, 2) N B M Ex		
Univ of Michigan Med School (1918) Michigan	(1932) N B M Ex	
Univ of Minnesota Medical School (1911) Minnesota	N B M Ex	
St Louis University School of Medicine (1931), (1932 2) N B M Ex		
Washington University School of Medicine (1930) N B M Ex		
University of Nebraska College of Medicine (1925) N B M Ex		
Albany Medical College (1911) (1932 2) N B M Ex		
Columbia University College of Physicians and Surgeons	(1926) (1929 2), (1931, 5) (1932 3) N B M Ex	
Cornell University Medical College (1931) N B M Ex		
Long Island College of Medicine (1911) (1932) N B M Ex		
New York Homeopathic Medical College and Flower Hospital	(1932, 2) N B M Ex	
New York University University and Bellevue Hospital Medical College	(1931) N B M Ex	
Syracuse University College of Medicine (1932) N B M Ex		
University of Buffalo School of Medicine (1931) (1932 5) N B M Ex		
University of Rochester School of Med (1930 2) (1931) N B M Ex		
Eclectic Medical College Ohio (1929) Ohio		
Ohio State University College of Medicine (1928) (1931) Ohio		
University of Cincinnati College of Medicine (1920) (1929) Ohio		
Western Reserve University School of Medicine (1927), (1929 2) (1930) Ohio		
University of Oregon Medical School (1931) California		
Hahnemann Med College and Hosp of Philadelphia (1932) Maryland		
Jefferson Medical College of Philadelphia (1926) Tennessee		
University of Pennsylvania School of Medicine (1910) N Carolina		
(1925) Pennsylvania		
University of Pittsburgh School of Medicine (1914) Penna		
Woman's Medical College of Pennsylvania (1926) California		
University of Tennessee College of Medicine (1931) Tennessee		
Vanderbilt University School of Medicine (1928) (1933) Tennessee		
Baylor University College of Medicine (1931) Texas		
University of Texas School of Medicine (1928) (1931 2) Texas		
University of Vermont College of Medicine (1931) N B M Ex		
Medical College of Virginia (1926) W Virginia		
(1928) (1929) (1930 3) Va., (1931) N Carolina		
University of Virginia Department of Medicine		
Marquette University School of Medicine (1925) (1927), (1932) Virginia (1932) N B M Ex		
Queen's University Faculty of Medicine (1927) Wisconsin		
University of Toronto Faculty of Medicine (1917) (1922) Ontario (1923) Penna		
McGill University Faculty of Medicine (1923) Quebec (1928) New Brunswick (1930) (1931) N B M Ex		
University of Montreal Faculty of Medicine (1925) New Jersey Quebec		
Medizinische Fakultät der Universität Wien (1927)* Diploma		
University of Cambridge Faculty of Medicine (1932)* N B M Ex		
Medizinische Fakultät der Friedrich Wilhelms Universität Berlin (1919)* Germany		
Universität Heidelberg Medizinische Fakultät (1923) Germany		
Magyar Királyi Pazmany Petrus Tudományegyetem Budapest (1915)* (1928)* Diploma		
Regia Università di Napoli Facoltà di Medicina e Chirurgia (1914)* Diploma		
Universitatea din Iasi Facultatea de Medicina, Rumania (1926)* Diploma		
University of Glasgow Medical Faculty (1923) Diploma		
Universidad Central de España Facultad de Medicina Madrid (1925) Puerto Rico		
Universität Bern Med Fakultät (1922) Diploma (1927) Maryland		
Moscow State University Faculty of Medicine (1923 2)* U S S R		
Osteopaths New Jersey 4		

* Verification of graduation in process

with him by the taxpayer. This application must contain a full recital of the causes for the delay. Failure to make a return may subject the taxpayer to a penalty of 25 per cent of the amount of the tax due.

The normal rate of tax on individual citizens or residents of the United States, under the Revenue Act of 1932, is 4 per cent on the first \$4,000 of net income in excess of the exemptions and credits, and 8 per cent on the remainder.

WHO MUST FILE RETURNS

1 Returns must be filed by every person having a gross income of \$5,000 or more, regardless of the amount of his net income or his marital status. If the aggregate gross income of husband and wife, living together, was \$5,000 or more, they must file a joint return or separate returns, regardless of the amounts of their joint or individual net incomes.

2 If gross income was less than \$5,000, returns must be filed (a) by every unmarried person, and by every person married but not living with husband or wife, whose net income was \$1,000 or more, and (b) by every married person, living with husband or wife, whose net income was \$2,500 or more. If the aggregate net income of husband and wife, living together, was \$2,500 or more each may make a return or the two may unite in a joint return.

If the status of a taxpayer, so far as it affects the personal exemption or credit for dependents, changes during the year, the personal exemption and credit must be apportioned, under rules and regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, in accordance with the number of months before and after such change. For the purpose of such apportionment a fractional part of a month should be disregarded unless it amounts to more than half a month, in which case it is considered as a month.

As a matter of courtesy only, blanks for return are sent to taxpayers by the collectors of internal revenue, without request. Failure to receive a blank does not excuse any one from making a return. The taxpayer should obtain one from the local collector of internal revenue.

The following discussion covers matters relating specifically to the physician. Full information concerning questions of general interest may be obtained from the official return blank or from the collectors of internal revenue.

GROSS AND NET INCOMES WHAT THEY ARE

Gross Income—A physician's gross income is the total amount of money received by him during the year from professional work regardless of the time when the services were rendered for which the money was paid, plus such money as he has received as profits from investments and speculation, and as compensation and profits from other sources.

Net Income—Certain professional expenses and the expenses of carrying on any enterprise in which the physician may be engaged for gain may be subtracted as "deductions" from the gross income, to determine the net income on which the tax is to be paid. An "exemption" is allowed, the amount depending on the taxpayer's marital status during the tax year, as stated before. These matters are fully covered in the instructions on the tax return blanks.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The following statement shows what such deductible expenses are and how they are to be computed.

Office Rent—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as

Medical Economics

THE PHYSICIAN'S INCOME TAX—1934

The following instructions are based on the Revenue Act of 1932. That act, unless the congress now in session modifies it, will govern the collection of federal income taxes for the tax year 1933. It is believed likely, however, that Congress will modify the present law. What those modifications will be if there are any, and to what extent they will call for a procedure materially different from that required by the Revenue Act of 1932, no one can foretell. Two courses are open to the physician. He may file his income tax return at once for 1933, on the basis of the Revenue Act of 1932, and then, later, if new legislation so requires, he may make a supplementary return. If he prefers, however, he can wait until toward the close of the period allowed for filing returns, which is March 15, and then file his return in accordance with the legislation then in force. The choice between these two plans had best be determined by each physician to suit his own convenience.

The taxpayer who is required to make a return must do so on or before March 15, unless an extension of time for filing the return has been granted. For cause shown the collector of internal revenue for the district in which the taxpayer files his return may grant such an extension on application filed

a residence as well as for office purposes he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in his dwelling house or apartment he may not, however, deduct any part of the rent of such house or apartment as professional expense, to entitle him to such a deduction he must have an office there with regular office hours. If a physician owns the building in which his office is located he cannot charge himself with rent and deduct the amount so charged.

Office Maintenance—Expenditures for office maintenance as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using for instance dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies, and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment the useful life of which is short, may be deducted, but if such articles have a more or less permanent value their purchase price is a capital expenditure and is not deductible.

Equipment—Equipment comprises property of more or less permanent value. It may ultimately be used up, deteriorate or become obsolete, but it is not in the ordinary sense of the word consumed in the using; rather, it wears out.

Payments for equipment or nonexpendable property for professional use cannot be deducted. As property of this class may be named automobiles, office furniture, medical, surgical and laboratory equipment of permanent value and instruments and appliances constituting a part of the physician's professional outfit and to be used over a considerable period of time. Books of more or less permanent value are regarded as equipment, and the purchase price is therefore not deductible.

Although payments for equipment or nonexpendable articles cannot be deducted, yet from year to year there may be charged off against them reasonable amounts as depreciation. The amounts so charged off should be sufficient only to cover the lessened value of such property through obsolescence, ordinary wear and tear, or accidental injury. If improvement to offset obsolescence and wear and tear or injury has been made and deduction for the cost claimed elsewhere in the return claim should not be made for depreciation.

A hard and fast rule cannot be laid down as to the amount deductible each year as depreciation. Everything depends on the nature and extent of the property and of the use to which it is put. Five per cent a year has been suggested as a fair amount for depreciation on an ordinary medical library. Depreciation on an automobile would obviously be much greater. The proper allowance for depreciation of any property is that amount which should be set aside for the tax year in accordance with a reasonably consistent plan not necessarily at a uniform rate, whereby the aggregate of the amounts so set aside, plus the salvage value, will at the end of the useful life of the property in the business equal the purchase price of the property or if purchased before March, 1913, its estimated value as of that date or its original cost, whichever may be the greater. The physician must in good faith use his best judgment and make such allowance for depreciation as the facts justify. Physicians who, from year to year claim deductions for depreciation on nonexpendable property will do well to make annual inventories as of January 1 each year.

Medical Dues—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

AUTOMOBILE

Payment for an automobile is a payment for permanent equipment, and is not deductible. The cost of operation and repair and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tire, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeurs' wages, etc.

Deductible loss through depreciation is the actual diminution in value resulting from obsolescence and use, and from accidental injury against which the physician is not insured. Its depreciation is computed on the basis of the average loss during a series of years; the series must extend over the entire estimated life of the car, not merely over the period in which the car is in the possession of the present taxpayer.

If the automobile is used for professional and also for personal purposes—as when used by the physician for recreation, or used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses. He is regarded as using his car for his personal convenience and not as a means of gaining a livelihood.

What has been said with respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Laboratory Expenses—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of other corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire, etc.—Loss of and damage to a physician's equipment by fire, theft or other cause not compensated by insurance or otherwise recoverable, may be computed as a business expense and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits—Expenses incurred in the defense of a suit for malpractice are deductible as business expense.

Sale of Spectacles—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should in such cases show charges for services separate and apart from charges for spectacles, etc.

Book Notices

The Diseases of Infants and Children By J. I. Crozer-Griffith M.D., Ph.D. Consulting Physician to the Children's Hospital Philadelphia and A. C. Mitchell M.D. B. K. Bachford Professor of Pediatrics College of Medicine University of Cincinnati Third edition Cloth Price \$10.15 with 281 illustrations Philadelphia & London W. B. Saunders Company 1933

This edition is in one volume but is more than a mere condensation of material. Almost every recent advance in pediatrics since the last edition has been included. One of the features of the former edition was the well selected bibliography offered after the discussion of each subject. This has been revised to include only those historical references which are pertinent to the discussion and a large amount of new pediatric literature. The previous editions enjoyed a well deserved popularity among practitioners of medicine, but because they appeared in two volumes the use of the work for undergraduates was limited. The present edition should serve the practitioner and the student equally well. The work is one of the most comprehensive treatises on diseases of infants and children available in one volume. The material is clearly presented and the discussions are to the point. Therapeutic measures receive adequate consideration and are presented in a rational and practical manner. The book is highly recommended as a reliable source of information and as a well organized and systematic discussion of pediatric subjects adapted to the needs of the student.

Lehrbuch der Gynäkologie Von Prof. Dr. W. Stoeckel Geh. Med. Rat Direktor der Universitäts-Frauenklinik zu Berlin Fourth edition Paper Price 33 marks Pp. 748 with 527 illustrations Leipzig S. Hirzel 1933

In spite of the fact that the third edition appeared only two years ago, the present book is called the fourth edition and advertised as having been newly revised. However, the reviewer, after a fairly careful search, was able to find only a few new illustrations among the 462 illustrations in the text and the 65 colored plates. Furthermore, the wording in the text compared at random in more than fifty different parts of the book was exactly identical except in few instances. In other words, the present edition is almost an exact reprint of the previous edition except for the slight shifting in the numbering of the illustrations and for additional information in the section on carcinoma of the uterus. However, what was said in the review of the third edition (*THE JOURNAL*, Sept. 5, 1931, p. 730) holds true today. Stoeckel's book is still the best single volume in gynecology published in the German language.

The Eugenic Predicament By S. J. Holmes Professor of Zoology University of California Cloth Price \$2 Pp. 232 with 4 illustrations New York Harcourt Brace & Company 1933

The title expresses the author's conviction that the present dysgenic differential birth rate, through which those elements of the population whose perpetuation is least to be desired have the most children, is indeed a predicament. "We are forced to conclude that the more intelligent are being outbred by those on a lower mental level." A number of writers have exercised their ingenuity to discover reasons for not accepting this unpleasant conclusion. Others who admit that the present differential birth rate is dysgenic contend that it is nothing to be disturbed about. With the latter the author takes issue in a vigorous and yet temperate manner. He believes that heredity is a far more potent influence than environment in the ultimate development of individual capacity at least in limiting the progress which a given individual can make. He strengthens his position by freely admitting that nurture is important though less so than nature. He acknowledges that genius may be smothered by lack of opportunity, but he has no patience with those who hold that genius may spring full blown from a morose heredity. He sees the tendency of our racial development growing increasingly dysgenic. He disclaims for sensible eugenicists, any desire to see human marriages regulated "by a board" in the sole interest of eugenics but he does make a plea for a sensible recognition of the sufficiently obvious fact that certain types of individuals ought not to be permitted to reproduce their kind. This negative approach,

he holds, should be supplemented by a positive one, in the form of an effort, admittedly difficult and complicated, to induce persons with superior hereditary endowments to have more children. He discusses the plan of family allowances, based partly on earnings of the parents, as a means of encouraging greater fertility. By eliminating the very rich, to whom inducements of a financial nature presumably would not be significant, and the very poor, on the theory which he holds that habitual poverty is more or less *prima facie* evidence of inefficiency, and by laying the burden on industry through cooperative pooling plans in which the proposed beneficiaries will participate, he believes that a system can be worked out. Whether or not one shares the author's optimism concerning the chances for success of unselfish cooperative efforts which cost somebody money with no immediate return in sight, no sensible person can disagree with his main premise, that the birth rate is racially destructive and that something ought to be done about it. The book is well written, well documented, well printed. Intelligent lay persons will find it instructive and valuable. It should be read especially by those who are interested in social welfare movements.

Measles Report of the Medical Officer of Health and School Medical Officer on the Measles Epidemic 1931-32 London County Council Publication No. 2996 Paper Price 2s. 6d. Pp. 112 with one illustration London London County Council P. S. King & Sons Ltd 1933

This report deals with an epidemic of measles occurring from November 1931 to August 1932. It discusses the incidence of the epidemic, its mortality and hospital treatment. The conclusion is reached from the experience in the epidemic that when children can be suitably housed at home and can be provided with proper nursing care they have better chances of making a complete and rapid recovery without the development of complications than in a hospital. However, when such conditions cannot be met, early removal to a suitable hospital is urged. It is stated that many years' experience has definitely proved that the older methods of control by complete school closure or partial exclusion of susceptibles can show nothing in their favor and must be abandoned in favor of the modern and more scientific method of close daily surveillance of the school by the school nurse and of the home by the health visitor. Serum treatment was applied on an extensive scale. The conclusion was reached that serum has no effect in diminishing the severity of the attack or in preventing the development of complications after the disease has been established. However, if given in sufficient quantity within four days from exposure it will entirely prevent the disease, and if given from the fourth to the seventh day after exposure, or earlier in insufficient doses, it will render the disease extraordinarily mild. It was found that adult serum is only slightly inferior to convalescent serum in its protective and attenuating action. The method of collecting and storing and administering serum is discussed in detail. To those having to do with epidemics of measles, this report will be very helpful. It shows what can be accomplished in a practical way by intelligent application of scientific methods.

Histology By S. Ramón Cajal M.D. F.R.S. LL.D. Director Royal Cajal Institute for Medical Research Revised by J. F. Tello Muñoz M.D. Professor of Pathology University of Madrid Authorized translation from the tenth Spanish edition by M. Fernán Núñez M.D. Professor of Pathology Marquette University Medical School Cloth Price \$8 Pp. 738 with 535 illustrations Baltimore William Wood & Company 1933

Professor Ramón y Cajal has contributed more to the understanding of the structure of the nervous system than any other scientist ancient or modern, and no one has extended his inquiries over a wider field in general histology. All teachers of the subject will be interested to know his method of presenting the material to elementary students. He regards the course as a fundamental biologic discipline, not as a preparatory course for pathology. The cell is therefore thoroughly discussed from a dynamic point of view. Half of the book is devoted to a consideration of elementary tissues. The whole field of microscopic anatomy is covered but the descriptions of most organs are greatly condensed. The nervous system, however, is described in detail, nervous tissues and neurohistology comprising about a third of the total. As is to be expected in a work often revised, there are some discrepancies between figures

and text and similar inconsistencies. Naturally the results of the metallic impregnation methods are stressed for they have reached their highest development in his hands and those of his students. It is worth calling attention to the fact that few outside his school have realized the value of the Golgi apparatus in differentiating cell types. Cajal's period of active investigation is almost coextensive with that of modern histology, and his allocations of credit for fundamental discoveries are authoritative, sometimes they differ from those usually made. The translation is such that it is not likely to be recommended to beginners in this country. Many important recent advances in histology are not touched on. In all too many instances the translation completely obscures the original meaning. Thus, on page 208 one reads that 'chondrin is a mixture of chondrotic acid, albumin, cholin (glue)', on page 320, the nerve terminations are 'except of myelin and composed of glandular cells' with regard to the glia of the vertebrate optic nerve (p. 373) 'these cells in the spider possess' and on page 480 'the grafts should be of the very small ganglia of the tail of a horse (new born dog cat or rabbit)'. The literal translations perhaps add a certain picturesqueness, with which, however, all investigators are familiar and which are apt to confuse the beginner e. g. 'intestinal dermis,' 'evolution' for development 'preexistence' for preformation (which, by the way, Cajal emphatically denies) 'the callous body,' 'visceral and parietal leaves'. Lenhossék and Henneberg emitted the hypothesis, 'bundles of nerve fibers march between preages of cells,' 'the other centrosome emits a long filament which emerges from the spermatid and represent the sketch of the zoospermatid tail'. It is difficult to see any reason for coming English words from the verb 'ausstrahlen' or for persistently misspelling the names of certain authors. Typographic errors are not common. The illustrations are mostly originals, drawn in the clear crisp manner of Cajal occasionally with labeled structures unexplained in the legend. Credit is not always given for borrowed illustrations.

Experimentelle Studien over den overførbare hønseløkose (mit deutscher Zusammenfassung) [Experimental Studies on Transmissible Leukosis in Chickens] Af J. Engelbreth Holm. Paper. Pp. 161 with 40 illustrations. Copenhagen. Levin & Munksgaard 1933.

This is a dissertation by a candidate for the degree of doctor of medicine in the University of Copenhagen. It deals with transmissible leukosis in chickens, a disease or group of diseases of wide spontaneous occurrence the cause and spread of which is not understood. There are two main forms, the myeloid or myelosis, which resembles human myeloid leukemia, and the erythroblastic or erythroblastosis, in which develop large numbers of immature erythroblasts. Both forms resemble neoplasms much more than inflammatory or infectious processes. Both are transmissible by means of affected cells and also cell-free plasma from diseased chickens. The dissertation will be of interest to all who are concerned in any way with the study of leukosis and allied diseases.

What We Are and Why. A Study with Illustrations of the Relation of the Endocrine Glands to Human Conduct and Dispositional Traits with Special Reference to the Influence of Gland Derangements on Behavior By Laurence H. Mayers, M.D. and Arthur D. Welton. Cloth. Price \$3.15. Pp. 340 with illustrations. New York. Sears Publishing Company, Inc. 1933.

Here is a romance on endocrinology which has a unique purpose. It not only presumes to inform the reader on the physiologic implications of the endocrine secretions but it attempts to show the relation of the endocrine glands to human conduct. Illustrated serial case reports accompany the text. The author appreciates that the entrance in the field of endocrine psychology is venturesome but he apparently has decided that such an attempt should be made. There is reason to believe, however, that his purpose will not receive justification in this book. To the average lay reader, mumps will be dredged as a disease that made a dancing boy of Donald and relegated Clara to a drab existence. While this may be one method of calling the attention of the public to the fact that mumps is not always an insignificant infection, it is not the most desirable. It can do nothing more than instill an anxiety about the endocrine system that scientific medicine cannot pacify. The layman's enthusiasm for endocrinology is already far in advance of scientific knowledge.

Orthopädische Gymnastik Von Prof. Dr. med. Georg Hohmann, Direktor der Orthopädischen Universitätsklinik, Frankfurt a. M. und Lea Stumpf, Lehrerin für Heilgymnastik und Massage an der Universitätsklinik Frankfurt a. M. Boards. Price 7 marks. Pp. 156 with 241 illustrations. Leipzig, Georg Thieme 1933.

Prof. Georg Hohmann, director of the orthopedic clinic of Frankfurt University, collaborated with Lea Stumpf, instructor of gymnastics at the same clinic, in the preparation of this excellent book. The authors have clearly presented their views of the problems concerned in the treatment of the various postural variations and deformities of the back and extremities. The most important chapters are on the round back, sway back and scoliosis. There is a chapter on the paralytic, contractures of the limbs and war injuries and other disabilities. By means of line drawings and photographs they have depicted various exercises and mechanical devices that assist the patient in performing the corrective exercises. The instructive illustrations reveal at a glance the nature and method of the corrective exercise.

The Human Problems of an Industrial Civilization By Elton Mayo. Professor of Industrial Research, Graduate School of Business Administration, Harvard University. Cloth. Price \$2. Pp. 191. New York. Macmillan Company 1933.

The first efforts to treat human problems were by applying broad generalizations to specific situations. Fatigue was traced to the increase of toxins in the blood and was measured by declining output. Wide individual variations threw doubt on the generalizations and led to the conclusion that fatigue and monotony were not definite entities but were more like relations arising from the attitude of individuals to all their environment and hence could be treated only after individual and social diagnoses. An elaborate five year experiment in the Hawthorne General Electric Works finally involved psychiatry, anthropology, economics and the related sciences in the effort to diagnose and treat the problems of five individuals. The author follows the problems that arose in this study out into society, calling to his aid the allied sciences as they are being coordinated in the recently established Harvard Graduate School, and concludes that the conflicts discovered at Hawthorne are characteristic of the entire social structure, and that the elite of the several civilized powers is at present insufficiently posted in the biological and social facts involved in social organization and control. So we are compelled to wait for the social organism to recover or perish without adequate medical aid. This is one of the most fundamental action as well as thought provoking analyses of present difficulties that the present situation has produced.

Handbook of Chemotherapy By Dr. Viktor Fischl, Department Director of the Schering-Kahlbaum A. G. Berlin and Prof. Dr. Hans Schlossberger, Member of the Reich Board of Health, Berlin. Dahlem. Part I. Metal Free Organic Compounds. English translation from the German by A. S. Schwartzman. A. B. M. D. Cloth. Price \$8.50 per set of 3 volumes. Pp. 410. Baltimore. H. G. Roebuck & Son 1933.

The English translation of the German edition will be welcomed by others as well as by the investigator in chemotherapy, particularly as a source of information. The volume is everything claimed for it in a review of the original German which appeared in these columns Oct. 29, 1932. This volume constitutes the first of three books comprising a complete set. The publishers have advised that volumes 2 and 3 will follow as soon as receipt of the German manuscript and translation will permit.

The Science of Radiology By various contributors. Edited by Otto Glasser, Cleveland Clinic Foundation. [Authorized by the American Congress of Radiology.] Cloth. Price \$1.50. Pp. 450 with 108 illustrations. Springfield, Ill. & Baltimore. Charles C. Thomas 1933.

Dr. Otto Glasser and his collaborators, of whom there were twenty-five, limited themselves essentially to contributions of American co-workers, preserving the individuality of the contributions and making alterations only to maintain uniformity in the text. This work was ably done and, considering the size of the book, many notable achievements and valuable data have been crowded into its pages. The contributing editors were carefully selected, their names being sufficient warranty to assure quality consistent with conciseness. The chapters deal with historical sketches of Wilhelm Conrad Roentgen, the Curies, American pioneers, radiologic societies, physics of

radium and roentgen rays, apparatus dosimetry, radiologic diagnosis, military roentgenology, radium and roentgen therapy, biologic effects, protection, teaching of radiology, cosmic rays and the Gurnitsch rays. All the chapters are written in such a way as not to become tedious. Every radiologist or allied worker should possess a copy, especially for its historical value.

Röntgendiagnostik der Knochen und Gelenkkrankheiten. Von Professor Dr. Robert Kleinbock. Heft 1. Differentialdiagnose der geschwulstigen Knochenkrankheiten. (Abteilung Knochenkrankheiten.) Paper. 160 pages. 5.00 marks. 1 p. 103 with 26 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1937.

The subjects considered are multiple osteoma, multiple chondroma, multiple osteochondroma, osteogenic sarcoma, cystic fibroma, osteitis fibrosa cystica, von Recklinghausen's disease, multiple scleromatous, multiple myeloma, Ewing's sarcoma, multiple xanthoma, and metastatic carcinoma. All these subjects are discussed clearly and succinctly and are illustrated by excellent roentgenograms.

Medicolegal

Malpractice Failure to Make Preoperative Examination, Delegation of Professional Duty—The defendant-physician removed the tonsils of the plaintiff's husband, under general anesthesia. The husband died four or five days thereafter, the death certificate stating the cause of death to be "Acute dilatation of heart following anesthetic for tonsil operation." In this suit, the plaintiff alleged that the defendant so negligently performed the operation and so negligently failed to treat and care for the patient after the operation that death ensued as a proximate result. The trial court gave judgment for the plaintiff and the defendant appealed to the Supreme Court of Alabama.

The plaintiff testified that no preoperative examination was made of her husband by any one despite the fact that she told the defendant that her husband had recently had influenza and suggested that his heart had better be examined. Whether any preoperative examination was made and whether such examination would have disclosed the patient not in condition for an operation under general anesthesia, at least without the preparatory treatment indicated by the medical witnesses, were questions for the jury. The defendant argued however, that the complaint did not charge negligence in the matter of a preoperative examination, that the negligence charged was limited to the actual operation on the operating table and to the after-treatment. But said the Supreme Court, a preoperative examination is incident to an operation and reasonably necessary, in the nature of a diagnosis, determinative of the propriety of the surgical treatment employed. The undertaking to remove the tonsils by an operation includes such preoperative examination, just as an allegation of negligence in "treatment" of disease includes negligence in examination and diagnosis as well as application of remedies. The defendant seemed to rely on evidence tending to show that preoperative examination in cases of removal of tonsils is a part of the regular routine in hospitals, such examinations being made as a routine by the house physician or intern and that an intern informed him, prior to the operation that an examination of the patient had been made, showing the patient in proper condition for the operation. The defendant was not authorized said the Supreme Court, to assume that a proper examination had been made and that the patient had been found in proper condition before being brought to the operating room. The evidence of the plaintiff, if believed tended to show such notice to the defendant calling for inquiry on his part as to present a jury question of want of due care in assuming a proper examination had been made if he did so assume. If an intern did report to the defendant that the patient was in good condition for the operation the question arises said the court concerning the liability of surgeons for negligence of others holding licenses to practice their respective professions or specialties. Broadly speaking, the inquiry in each case involves the scope of the undertaking of a physician and surgeon when

a patient comes to him to treat his ailment, having contractual relations with no one else. Just rules for the protection alike of the profession and of the public, in line with general principles of law, should be the end sought in all cases. Whether another member of the profession is to be treated as the agent of the employed physician, under the doctrine of respondeat superior, or whether the physician should be held to reasonable care only in the selection of competent persons, to whom he may commit important portions of the work he has undertaken, must turn much on the particular case, and maybe on the course of practice among responsible physicians in the general neighborhood. It cannot be said as a matter of law that the defendant exercised reasonable care in acting, if he did, on a wholly fabricated report.

We see no reason to hold, continued the court, that after-treatment immediately following the operation, while the patient's reaction to the operation is still in doubt, is not within the original undertaking of the physician and surgeon. The evidence tends to show that the defendant did recognize such obligation and undertook such treatment. The evidence here again presented a jury question touching negligence in this regard. In Alabama, the doctrine of *res ipsa loquitur* does not apply in malpractice cases. Unfavorable results, standing alone, unless in cases of palpable misconduct within common knowledge, are not evidence of negligence which will shift the burden of proof to the defendant. The Supreme Court, after considering all the assignments of error, could find no error and the judgment of the trial court against the physician was affirmed—*Stephens v Williams (Ala)*, 147 So 608.

Administration of Anesthetic as Medical or Surgical Treatment—The Order of United Commercial Travelers agreed to pay the appellee a certain sum if her son, a member of the order, died from bodily injuries effected through external violent and accidental means. The order was not to be liable for any death resulting from medical, mechanical or surgical treatment except where the surgical treatment was made necessary by an accident. The son consulted physicians for the purpose of having his posterior urethra examined. Butyn was administered. Immediately the son had convulsions and died within a few minutes. In this suit against the order, the district court gave judgment for the mother, and the order appealed to the United States circuit court of appeals, eighth circuit. In giving judgment against the order, said the circuit court of appeals, the district court overlooked the distinction between an accidental result and the result of an accidental cause or means. The means employed in the case under consideration was the administration of the drug butyn. There was nothing in the act of administering the drug that was unintended or unexpected. There was no showing that the drug did not produce the intended result. But another result was produced, owing to the idiosyncrasy of the patient. The administering of the butyn was the means, the causative agency, employed by the physician, the idiosyncrasy was but the condition that existed and was inherent in the patient. There was no accidental means but simply an unexpected or accidental result. The administration of the butyn did not cause the idiosyncrasy and if the bodily injury that resulted in death was produced by the idiosyncrasy as a cause or means, then the administration of the drug was not the sole cause. Furthermore said the court, the idiosyncrasy would be neither a violent nor an external means.

The drug butyn was concededly administered to the son by a physician of good standing. It was administered for the lessening of pain to the patient during a preliminary examination of the posterior urethra. It was a drug commonly used by physicians for such a purpose. The usual and proper amount of the drug was used, and it was properly administered. We think, said the court of appeals the administering of the drug must be placed in the category of medical or surgical treatment. The meaning of the word "treatment" as used in the policy must be given a reasonable scope. It includes not merely the actual operation in a surgical case or the giving of a prescription in a nonsurgical case but also the preliminary examination including sometimes an exploratory operation or exploratory examination. Whatever is usually done to the

patient or administered to him by a skilled physician or surgeon is properly included under the term 'treatment,' even though it may not be an indispensable prerequisite. If the administering of the butyn in the present case did not constitute medical or surgical treatment, said the court, we should be at a loss how to classify such act. The judgment of the district court against the order was reversed.—*Order of United Commercial Travelers of America v. Shann*, 61 Fed. (2d) 55.

Insurance "Poisoning or Bacterial Infections" Construed—The defendant insurance company insured the life of the appellee's husband. It promised to pay double indemnity if death resulted from a bodily injury effected solely through external, violent and accidental means but only the face of the policy if death resulted from poisoning or bacterial infections. It was agreed that the insured met his death by insecticide poisoning which contained forty per cent nicotine sulphate and that his death was accidental. The insurance company admitted liability for the face amount of the policy but refused to pay double indemnity. In the U. S. district court district of Nebraska the wife obtained judgment for double the face amount of the policy and the company appealed to the U. S. circuit court of appeals eighth circuit. The crucial question said the appellate court is whether the word 'poisoning' in the phrase italicized creates an independent exception to liability or merely qualifies the word 'infections' as does the word 'bacterial'. The insurance company contended that the word 'poisoning' is either a noun or a participle. A court may take judicial notice of the meaning of words given in standard works such as dictionaries. In *A New English Dictionary* by James Murray (Oxford) vol. 7 p. 1058 and in *Wright's English Dialect Dictionary* vol. 4 p. 569 is found authority for the use of the word poisoning as a participial adjective. In both dictionaries, one of the definitions of 'poisoning' is given as 'poisonous'. In the realm of medicine, there are poisoning infections which are not bacterial. Sporotrichosis and actinomycosis are infections by fungi so recognized and described in *Dorland's American Illustrated Medical Dictionary* (ed. 14), 1927. Further, if poisoning were used as a noun, it is reasonable to assume that the word 'from' would have been repeated before the word 'bacterial'. The court concluded that the word 'poisoning' qualified the word 'infections' in the clause in controversy and that the cause of death of the insured was not excepted from the double indemnity provisions of the policy. The judgment of the district court in favor of the wife was affirmed.—*Northwestern Nat. Life Ins. Co. v. Banning*, 63 Fed. (2d) 736.

Workmen's Compensation Acts Compensability of Pneumonia—The employee, in the course of his employment with the plaintiff company, was subjected to sudden changes in temperatures. He contracted lobar pneumonia from which he died. A proceeding was instituted by his widow for compensation under the workmen's compensation act. From an award of compensation, the plaintiff company appealed to the Supreme Court of Illinois. The evidence in this case, said the Supreme Court, is undisputed that the cause of death was lobar pneumonia. To justify an award under the workmen's compensation act for the death of an employee it must be proved by evidence from which at least the inference can be fairly and reasonably drawn that the deceased received an accidental injury which arose out of and in the course of his employment, which caused his death. It was argued that the great difference in temperature caused a thermal injury to the employee's lungs, which was the cause of lobar pneumonia and that his death was directly caused by that injury. Liability under the compensation act, said the court, cannot rest on speculation and conjecture but must be based on facts established by a preponderance of the evidence. There was no evidence that an injury was sustained by the employee or that the conditions under which he worked gave rise to the presence of pneumococcus germs, or when, during such employment, a so-called thermal injury took place. The record was barren of proof that the employee received any injury prior to the time when he was seized by lobar pneumonia. While the medical witnesses testified that in their opinion there was a causal relation between the employee's death and the conditions under which

he worked none testified as to what that causal relation was when it was manifested, or when the employee became infected with the lobar pneumonia. On the other hand, they stated that they could not fix the time when he became so infected or injured. It is a matter of common knowledge that many people go from a hot room into a cold temperature outside, contracted the court without contracting lobar pneumonia, and that on the other hand many are afflicted with lobar pneumonia who do not experience such a change in temperature. The employee might have acquired pneumonia from one of numerous causes and under numerous conditions or circumstances. The inference on which an award may be based must be a reasonable one based on facts established by evidence fairly tending to prove them. There was no proof that the pneumococcus germs were present at the place and under the conditions of the employee's employment or that the conditions of his employment were conducive to the presence of such germs. The proof does not show that the deceased received an injury which arose out of and in the course of his employment which caused pneumonia resulting in his death. Therefore concluded the court, the trial court erred. The judgment of the trial court was reversed and the award set aside.—*Ill. Prouty Co. v. Industrial Commission (Ill.)*, 185 N. E. 267.

Malpractice Failure to Remove Surgical Needle After Appendectomy—The defendant physician operated on the plaintiff for appendicitis, Aug. 8, 1928. For many months thereafter the plaintiff was troubled with soreness and pain in his side. He consulted the defendant who gave him internal medicine and advised him to wear an abdominal belt and to have his tonsils removed. The condition of the plaintiff did not improve. Subsequently he consulted another physician, and a roentgenogram revealed the presence of a curved surgical needle imbedded in the region about the appendectomy scar. The needle was removed Sept. 4, 1929. In a suit for damages the trial court gave judgment for the plaintiff and the physician appealed to the Supreme Court of Michigan. He contended that the judgment of the trial court was based on conjectures and inferences that there was no evidence to show how the needle got into the plaintiff's body, that there was no evidence by physicians or surgeons that the defendant's acts were not in accordance with the recognized standards of practice by the profession and that in malpractice cases such evidence is necessary to establish negligence. In the majority of malpractice cases said the Supreme Court, the professional standard of practice is necessarily involved and requires testimony of competent experts. But in this case there was no question of skill or judgment, no question of practice beyond the knowledge of laymen. It was not necessary for the plaintiff to show that it was not good practice among surgeons in performing operations to sew up an incision without removing a needle. The finding of the trial court as to when and how the needle got into the plaintiff's body, continued the court, does not rest on conjecture. Counsel for the defendant made the following concession when the case was in the trial court: 'We can agree on the record that plaintiff's abdomen had not been operated on prior to the appendectomy by Dr. Asselin and it is not our claim that the needle entered plaintiff's body from any other source.' Apart from this concession said the court, the only possible inference from the proved facts is that the needle was left in the wound by the defendant. In the absence of some explanation by him sewing up the incision without removing the needle was negligence. The Supreme Court could find no error in the judgment of the trial court and that judgment was affirmed.—*Le Fave v. Asselin (Mich.)*, 247 N. W. 911.

Society Proceedings

COMING MEETINGS

Annual Congress on Medical Education and Licensure Chicago February 12-13 Dr. W. D. Cutter 535 North Dearborn Street Chicago Secretary
Tri States Medical Association of the Carolinas and Virginia Charlottesville Va. Feb. 12-14 Dr. James M. Northington 804 Professional Building Charlotte N. C. Secretary

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Surgery, New York

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- The Abduction Method Considered as the Exponent of a Treatment for All Forms of Fracture at the Hip in Accord with Surgical Principles R Whitman New York—p 335
- Surgery of Sympathetic Nervous System. Review of One Hundred Sympathetic Ganglionectomies P G Flothow and G W Swift Seattle—p 345
- Consideration of the Tendons in Hand Injuries C R Salisbury Oklahoma City—p 354
- Treatment of Minor Infections in the Dispensary and Office H C Saltzstein Detroit—p 358
- Duodenitis E L Kellogg and W A Kellogg New York—p 368
- *Pyloric Obstruction. Roentgenologic Study M Feldman Baltimore—p 376
- Postoperative Visualization of Biliary System with Radiopaque Oils A H Kretschmar Battle Creek Mich—p 383
- Surgical Exposure of the Pancreas P J Sarma Chicago—p 390
- Further Observations on Value of Radiology in the Diagnosis of Perforated Peptic Ulcer R T Vaughan and H A Singer Chicago—p 392
- Appendicitis in Children T Wright Buffalo—p 397
- Management of Head Injuries W E Delaney Jr Williamsport, Pa—p 403
- Varicose Ulcer of the Leg H Jones Circleville Ohio—p 406
- Use of Sodium Morrhuate in Injection Treatment of Varicose Veins W M Cooper New York—p 408
- Observations Following Sympathetic Ganglionectomy in Cases of Postencephalitic Parkinsonian Syndrome C E Rees San Diego Calif—p 411
- Paralysis. Paravertebral Block for Relief of Pain S Vernon Williams Conn—p 416
- Scrotal Gangrene Following Closed Operation for Hydrocele L W Riba Chicago—p 418
- Transurethral Prostatic Resection. Technique and Results in Two Hundred and Five Cases G J Thompson Rochester Minn—p 421
- Report of Postoperative Pulmonary Complications J N Coombs Philadelphia—p 428
- Encephalographic Studies in Epileptiform Seizures H E LeFever and H J Means Columbus Ohio—p 431
- Sex Incidence of Entodermal Tumors Madge Thurlow Macklin London Ont Canada—p 438
- Chronic Thyroid Disease One Continuous Disease Process. Diagrammatic and Simple Review of Its Evolution as Proposed by Hertzler A Wendel Chicago—p 446
- Physiologic Artificial In emutation C T Stepita New York—p 450

Review of Sympathetic Ganglionectomies—Flothow and Swift state that sympathetic ganglionectomy is successful in properly selected cases of Raynaud's and Buerger's disease, scleroderma and other conditions in which vasospasm is present. In properly selected cases of chronic atrophic arthritis it affords considerable relief but has not proved to be the panacea that early reports might indicate. The lumbar operation is highly successful in Hirschsprung's disease and in chronic disabling constipation. There have been no failures in this type of case. In cases of spastic paraplegia of the lower extremities due to birth injury the operation is well worth while in carefully selected cases. In spasticity of the upper extremity it is of little or no value. Traumatic sympathalgia is offered as a name for those painful conditions caused by trauma and mediated by sympathetic nerves. The results in this type of case are excellent. Operations in cases of painful amputation stumps are rarely successful. In the majority of these cases there is a central type of pain. The suitable cases may be determined by diagnostic injection. Some cases of atypical facial pain may be relieved by sympathetic ganglionectomy. The authors report a group of miscellaneous conditions in most of which the results were not successful. Diagnostic injection is indicated to select cases suitable for operation. With the benefit of this procedure they feel that unsuccessful cases of sympathetic ganglionectomy should be rare in the future. The mortality of the extraperitoneal lumbar approach has been nil. Only one dorsal gan-

glionectomy has resulted fatally, in a severe case of angina pectoris.

Pyloric Obstruction—Feldman observed pyloric obstruction in slightly more than 0.01 per cent of all gastro intestinal roentgen examinations and in approximately 10 per cent of all organic lesions involving the pyloroduodenal outlet. Roentgenologically, it is not always possible to distinguish between ulcer and carcinoma in cases of pyloric obstruction. Gastric dilatation and the degree of gastric retention cannot be considered an aid in the differential diagnosis between ulcer and carcinoma. There is no roentgenologic basis for the assumption that a dilated stomach is more likely to be due to a benign obstructive lesion or that an obstructive normal sized stomach may be due to a malignant disease. The presence of a tumor mass is an important sign of a malignant condition, but this too is not always demonstrable. The roentgen examination, though extremely important in the diagnosis of this complication, must be considered together with other factors in order to establish the final diagnosis.

Sodium Morrhuate in Treatment of Varicose Veins—Cooper reports his results with sodium morrhuate in the treatment of varicose veins in more than 600 patients with about 4,000 injections. The only untoward reaction noted in his early use of 5 per cent sodium morrhuate was an occasional mild to moderate dermatitis with annoying pruritus. The patients presenting this complication had been treated with large quantities (10 cc) of the solution. Since limiting the quantity injected at one visit to 5 cc the author has rarely seen this complication occur. Occasionally, an injection of sodium morrhuate in 5 per cent strength is followed by a rather widespread reaction in and around the vein, characterized by infiltration, thickening, tenderness and reddish discoloration. This reaction may extend for a distance as great as 18 or 20 inches along the course of the vein, suggesting a rather widespread phlebitis and periphlebitis but the patient has no chills or febrile reaction and in a few days the swelling and tenderness begin to subside. In the author's opinion this reaction merely presages an excellent and thorough obliteration of the vein. Not one case of ulcer or sloughing due to the injection has occurred in his series of cases. A comparison of the results obtained with sodium salicylate, quinine hydrochloride and ethyl carbamate and with 5 per cent sodium morrhuate leads him to conclude that sodium morrhuate is more effective, safer and attended with fewer dangers and complications than the other agents.

Annals of Surgery, Philadelphia

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- Gallbladder Surgery. Report of Two Hundred Consecutive Operated Cases of Gallbladder Disease W T Doran K M Lewis E V Denneen and E C Hansen New York—p 321
- *Improved Gallbladder Technique with Especial Reference to Omission of Drainage J L De Courcy Cincinnati—p 333
- Correlation of Symptoms Pathology and Results in Cholecystectomy. Study of Two Hundred and Thirty Three Cholecystectomies Done in Vanderbilt School of Medicine from 1925 to the Middle of May 1932 W A Bryan Nashville Tenn—p 342
- Conservation of Hepatic Function in Gallbladder Operations. Precautionary Measures to Prevent Liver Deaths S Eiss, New York—p 348
- Symptoms of Noncalculous Cholecystitis in the Absence of Colic Syndrome of Chronic Cholecystitis S L Immerman Philadelphia—p 354
- Perforation of Gallbladder in Acute Cholecystitis E S Judd and J R Phillips Rochester Minn—p 359
- Incidental Gallstones in Women E D Truesdell New York—p 362
- Successful Resection of Common Biliary Duct for Carcinoma of Ampulla of Vater E B Potter Ann Arbor Mich—p 369
- Cysticoduodenostomy. Experimental Study E J Poth San Francisco—p 374
- Spontaneous External Rupture of Empyema of the Gallbladder W T Doran New York—p 377
- Indications for and Results of Removal of Spleen A J Walton London England—p 379
- Pilonidal Cyst. Its Etiology and Treatment S D Weeder, Philadelphia—p 385
- Healing of Surface Wounds for Prevention of Deformities F Beckman and R J O Connell Jr New York—p 394
- *Use of Leeches in Treatment of Phlebitis and Prevention of Pulmonary Embolism H R Mahorner and A Ochsner New Orleans—p 408
- *Arterial Embolectomy M Danzis Newark N J—p 422
- Reduction of Fracture of Neck of Femur with Carl P Jones Traction Splint M J Kutsker and J H Mulholland New York—p 438

Improved Gallbladder Technic—When cholecystectomy has been decided on, De Courcy usually elevates the gallbladder rest under the patient about 4 inches. The cystic duct is

grasped between two curved hemostats and is cut through. The stump is then tied with single number 2 chromic gut and is allowed to drop. All the adjacent tissues should be stripped away from the cystic duct before it is tied. With the duct stripped clean before ligation, drainage does not occur. The cystic artery is tied. A satisfactory ligation may be made by passing a suture on a curved needle through both layers of the peritoneum sufficiently deep to insure tying off of the artery. The suturing is then continued upward as the gallbladder is removed with sharp dissectors, starting from the duct end and working toward the blind end. When the gallbladder is stripped, a little peritoneum is left on each side to allow these edges to be sutured over the raw surfaces of the liver after the gallbladder is removed. The author is convinced that drainage tubes are a source of irritation and frequently incite drainage from a healthy wound. It has been his experience that seepage has not occurred when drainage tubes have been omitted. During the past three years he has omitted drainage tubes in a large proportion of cholecystectomies in which the common duct was not opened. He has used drainage only in cases in which it has not been possible to preserve a perfect operating technic. Drainage must be used when enough peritoneum cannot be preserved to cover the stump of the cystic duct and the raw bed of the liver from which the gallbladder has been enucleated and in cases in which it becomes necessary to drain the common bile duct. To discover whether or not there are any foci in the wound oozing bile or blood before the abdomen is closed, a gauze sponge is moistened with saline solution and poked lightly over every portion of the operating field so as to secure an impression on it of any oozing surfaces. If examination of the gauze shows blood or bile stains, the exact location of the oozing may be ascertained by the application of a fresh sponge. If the seepage cannot be repaired sufficiently, drainage should be used. The author concludes that cholecystectomy without drainage permits a shorter and more comfortable convalescence, insures maintenance of the biliary flow into the gastric tract during convalescence with fewer digestive symptoms and is unattended by many of the inconveniences that hinder recovery when drainage is utilized.

Leeches in Treatment of Phlebitis—Mahorner and Ochsner used leeches in the treatment of four cases of phlebitis. One was a case of thrombo-phlebitis obliterans in which there was a recent thrombosis of the popliteal vein. The number of leeches applied was inadequate and without benefit. In three cases of phlebitis occurring in men, the application of leeches resulted in rapid abatement of the symptoms and an early cure. The good effects of the leech treatment of phlebitis are: (1) rapid disappearance of pain, (2) disappearance of tenderness, (3) subsidence of edema, (4) softening of the clot and disappearance of objective evidence of its presence when the thrombosis is not too long standing, (5) subsidence of fever, (6) shortened duration of phlebitis and (7) marked decrease in the danger of pulmonary embolism. The authors recommend the leech treatment as the best available method of treating phlebitis and of diminishing the dangers of pulmonary embolism.

Arterial Embolectomy—Danzis states that, in embolus, early recognition and prompt surgical intervention give the best results. The operation should be done under regional or spinal anesthesia. Much better results are obtained in operations on the vessels of the upper extremity than on those of the lower. Collateral circulation plays an important part in the restoration of circulation, particularly in the vessels of the upper extremity. Secondary emboli or coexisting emboli at the time of operation contribute largely to the high mortality. Careful search should be made for other obstructive emboli or thrombi, above or below the primary embolus, before the incision in the artery is closed. Advanced arteriosclerotic changes do not necessarily contraindicate the operation, but the prognosis is not favorable even when the operation is done early. It is doubtful whether the operation is indicated or justified in patients who are suffering from a severe exacerbation of a subacute endocarditis and have a septic temperature, with a history of previous or associated embolic deposits. Embolectomy is the only definite surgical therapeutic measure known to the author at present for the relief of sudden circulatory obstruction by embolus.

Archives of Otolaryngology, Chicago

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- Neurologic Problems in Ophthalmology and in Rhino Otolaryngology A. I. Bennett Omaha—p. 269
Cysts of the Larynx M. C. Myerson New York—p. 281
Form and Structure of an Area of Otitic Sclerosis in Temporal Bone of an Adult J. G. Wilson and H. J. Anson Chicago—p. 291
Surgical Importance of Mastoid Vein in Infected Lateral Sinus Thrombosis F. J. Siegelman San Francisco—p. 298
Laryngeal Scleroma in a Native Missourian Report of Case F. C. Helwig and N. Jaime Kansas City Mo.—p. 310
Plasma Cell Granuloma Secondary to Generalized Septicemia in Case of Nasal Carcinoma I. I. Lederer N. D. Fabricant and G. Miller Chicago—p. 316
Adenoids and Immunity Further Contribution H. B. Lemere Hollywood Calif.—p. 326
Unilateral Malformation of the Ear Associated with Cyclopia E. W. Hyams Chicago—p. 332

Plasma Cell Granuloma in Nasal Carcinoma—Lederer and his associates report a case in which a rapidly growing anaplastic type of carcinoma apparently arising in the nares gave rise to retropharyngeal and cervical metastases. Secondary infection of the metastases to the lymph node resulted in a virulent septicemia. They observed that plasmocellular responses of tissue may accompany infiltrative processes. They may be local or systemic. The granulomas resulting from long continued sepsis are extremely confusing both in their clinical course and in their microscopic picture. This entity may be separated under the term of plasma cell granuloma. This response of the lymph nodes and tissues is usually the result of a generalized septicemia which may or may not be associated with a malignant condition. The clinical course is dependent entirely on the etiologic factor. Histologically, the tissues show a dense plasma cell infiltration or proliferation a marked and frequent bizarre response of the reticular cells and not infrequently as is common in chronic lymphadenitis, a more or less eosinophilic response.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

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- Authority of Organized Physical Medicine G. Kolischer Chicago—p. 517
Facts and Fallacies of Electrosurgery C. M. Blech Chicago—p. 519
Relation of Physical Therapy to Other Forms of Therapy B. Fantus Chicago—p. 527
Specific Exercises for Prevention of Inguinal Hernia and for Postoperative Treatment J. C. Lisom Madison Wis.—p. 531
Electrocoagulation of Turbinates Duoterminal Flexible Electrode J. F. Juros Chicago—p. 533
Trend of Hydrotherapy in Germany E. Plate Hamburg Germany—p. 536
*Splanchnic Stasis Treatment by Physical Measures W. Martin Atlantic City N. J.—p. 538
Diathermy and Galvanism in Gynecology Review of Their Present Indications W. H. Cullum Asbury Park N. J.—p. 542
Corrective Gymnastics in Orthopedic Surgery W. Truslow Brooklyn—p. 547
Electrocoagulation in Cervicitis H. F. Kumble Chicago—p. 550
Physical Therapy in Heart Disease E. Podolsky Brooklyn—p. 554

Splanchnic Stasis—Martin points out that treatment of splanchnic stasis is successful only by means of physical measures as drugs have practically no value. Vibration plays an important part in that it stimulates or inhibits the activity of the vasomotors. This modality is used far less often than its value merits, because few physicians are conversant with its great usefulness. The cord center controlling the splanchnic area is that between the second and sixth dorsal vertebrae. Vibration of this area for five minutes, with firm but not hard pressure, is a recognized part of the therapy. This should be given from above downward and from side to side, care being used not to override the vertebrae. In cases of marked myocardial insufficiency, vibration of the interspace of the seventh cervical and first dorsal for two minutes will add tone to the muscle, as shown by a slowed and stronger beat. In hypotensive cases vibration of the second cervical interspace will raise pressure through the sympathetics. Diathermy of the abdomen will do much toward restoring better circulation in that area. This may be given by the use of large metal electrodes for thirty minutes or longer, forty five or even sixty minutes being required in some instances. Following this, good results are obtained by the use of the Morse wave or the slow surging galvanic current. A well fitting support is

usually a part of the treatment, not only for the ptosis but also to assist in restoring the lost intra-abdominal pressure. The latter is an essential for circulatory restoration. Rest, proper exercise and food are necessary adjuncts.

California and Western Medicine, San Francisco

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- Malignant Disease of the Colon H B Stone Baltimore—p 145
Future of Anesthesiology as a Medical Specialty Caroline B Palmer, San Francisco—p 145
Study of Five Hundred Consecutive Autopsies on Children C M Hyland Los Angeles—p 151
Purpura Cerebrum Section F M Izard Los Angeles—p 156
Postmenopausal Hemorrhage Margaret Schulze San Francisco—p 158
Circulation and Postural Change Adjustments in Health and Disease D G Ghrist Los Angeles—p 161
Compensable Industrial Dermatoses M Scholtz Los Angeles—p 165
Epilepsy in Children with Particular Reference to the Ketogenic Diet H R Cooder Los Angeles—p 169
Acute Perforated Peptic Ulcers Clinical Review of One Hundred and Fifty Five Consecutive Patients Treated Surgically G K Rhodes San Francisco and D C Collins, Rochester Minn—p 173
*Fractures of the Forearm Simple Method of Handling by Means of Wire Traction S S Mathews Los Angeles—p 177
Corneal Ulcer Its Treatment H F Whalman Los Angeles—p 181
Syphilitic Pneumonia H T Olan and S O Chambers Los Angeles—p 185

Fractures of the Forearm—Mathews presents a simple and efficient method of handling difficult fractures of the forearm, which is carried out under general anesthesia. A small steel wire, 26 gage piano wire (001594 inch in diameter), is introduced through both the ulna and the radius, without previously incising the skin, half an inch below the styloid process by means of a specially constructed hand brace. The wire is started on the ulnar side, thus insuring passage of the wire through both bones. In a similar manner, wire of the same gage is inserted through the olecranon. With the wires in place alcoholic dressings are applied and held in place by a bandage. A U shaped compressible steel clamp is applied to both wires, and the arm is brought out to right angle abduction and flexed at the elbow. After the lower clamp is tied to a fixed object, overhead traction is applied. The traction frame consists of two pieces of one-fourth inch pipe, which are clamped across the table under the patient and extend out on each side of the abducted arm beyond the elbow. Each piece is provided with an upright member. Cross rods, which are bent at right angles, are slipped into both the upper and lower ends of the uprights and are fixed into position by set screws. The forearm is suspended between the under and overhanging cross rods. Traction can be exerted by raising the upper or lowering the lower cross rods and resetting the set screws. The fragments can be easily manipulated into position by means of a portable x-ray unit or lateral and anteroposterior roentgenograms. The bandages are cut and a plaster cast is applied from the midforearm down to the midpalm without disturbing the position of the arm. The wire pins are incorporated in the plaster, thus preventing the fragments from slipping. When the plaster becomes hard the clamps are removed and the protruding pieces of wire are cut off about one-fourth inch from the plaster and the ends covered. Immobilization is continued until there is a sufficient amount of bony callus to prevent a possible displacement of the fragments and, when roentgenograms show that the fragments will remain in place, the cast is removed, one end of each wire is cut close to the skin the wounds are cleansed, the wires are withdrawn and a new cast is applied.

Indiana State Medical Assn Journal, Indianapolis

26 405 502 (Sept.) 1933

- Hoosier Incunabula Earliest Medical Publications of Indiana Authors E F Kiser Indianapolis—p 405
Psychologic Factors in Medicine M A Bahr Indianapolis—p 408
Simple Glaucoma Observation on Symptoms, Diagnosis and Treatment E L Bulson Fort Wayne—p 413
Some Consideration of Probable Exciting Factor in Perforated Peptic Ulcer J K Berman Indianapolis—p 416
Convulsive Disorders of Infancy and Childhood H D Pyle South Bend—p 420
Bromide Therapy and Intoxication R A Solomon Indianapolis—p 424
Diffuse Polyposis of the Stomach H C Ochsner and R H Moser Indianapolis—p 427

Journal of Industrial Hygiene, Baltimore

15 257 394 (Sept.) 1933

- Normal Absorption and Excretion of Lead I Lead Absorption and Excretion in Primitive Life R A Kehoe F Thammann and J Cholak Cincinnati—p 257
Id II Lead Absorption and Excretion in Modern American Life R A Kehoe F Thammann and J Cholak Cincinnati—p 273
Id III Sources of Normal Lead Absorption R A Kehoe F Thammann and J Cholak Cincinnati—p 290
Id IV Lead Absorption and Excretion in Infants and Children R A Kehoe F Thammann and J Cholak Cincinnati—p 301
Lead Absorption and Excretion in Certain Lead Trades R A Kehoe, F Thammann and J Cholak Cincinnati—p 306
Lead Absorption and Excretion in Relation to Diagnosis of Lead Poisoning R A Kehoe F Thammann and J Cholak Cincinnati—p 320
*Observations on a Group of Subjects Before During and After Exposure to Ionized Air C P Yaglou A D Brandt and L C Benjamin Boston—p 341
Influence of Atmospheric Ionization on Human Organism A D Brandt Boston—p 354
Health Aspects of Radium Dial Painting I Scope and Findings L Schwartz F I Knowles R H Britten and L R Thompson Washington D C—p 362
Id II Occupational Environment J J Bloomfield and F L Knowles Washington D C—p 368
Effect of Clothing on Rate of Cooling of the Body W S Weeks Berkeley Calif—p 383

Exposure to Ionized Air—Yaglou and his associates studied the influence of ionized air (small ions) on the total metabolism, respiration, pulse rate, blood pressure, body temperature and subjective sensations in human subjects lying on cots, (1) under basal conditions, (2) from two to four hours after breakfast and (3) from three to five hours after a light lunch. A group of sixty persons in a total of 141 experiments were exposed for a period of one hour or more to air containing from 5,000 to 1,500,000 ions per cubic centimeter after a preliminary resting period of from one to two hours in normal air. The results illustrate the special instances in which physiologic changes are possible and bring out the fact that under the conditions of the present experiments nothing definite was found to justify the use of artificial ionization in general ventilation.

Journal of Nutrition, Springfield, Ill

6 413 492 (Sept.) 1933

- Comparative Antirachitic Efficiency of Irradiated Ergosterol Irradiated Yeast and Cod Liver Oil for the Chicken R M Bethke P R Record and D C Kennard Wooster Ohio—p 413
Lithyris in the Rat Beatrice J Geiger H Steenbock and Helen T Parsons Madison Wis—p 427
The Vitamin Content of Ichthens N R Ellis, L J Palmer and G L Barnum Washington, D C—p 443
Effect of Cranberries on Urinary Acidity and Blood Alkali Reserve C R Fellers B C Redmon and E M Parrott Amherst Mass—p 455
*Stimulating Action of Copper on Erythropoiesis II B Stein and R C Lewis Denver—p 465

Action of Copper on Erythropoiesis—Stein and Lewis point out that the feeding of evaporated milk to normal rats produces a fall in hemoglobin without the corresponding drop in the erythrocyte count that occurs when raw milk is the sole article of diet. When copper without iron is fed as a supplement to raw milk, results similar to those with evaporated milk are obtained, indicating that the copper in the evaporated milk is responsible for the temporary maintenance of a high erythrocyte count. When given as a supplement to the milk diet of anemic rats, copper ranging in amounts of from 0.025 to 0.5 mg daily shows a definite erythropoietic action without any influence on hemoglobin formation.

Medicine, Baltimore

12 245 354 (Sept.) 1933

- Limited Consideration of Certain Aspects of Acute Infection of Respiratory Tract A R Dochez New York—p 245
Contributions of Chemistry to Knowledge of Immune Processes M Heidelberger New York—p 279
*Carotid Sinus Reflex in Health and Disease Its Role in Crustation of Fainting and Convulsions Soma Weiss and J P Baker Boston—p 297

Carotid Sinus Reflex in Health and Disease—Weiss and Baker observed that mechanical stimulation of the carotid sinus produced either no fall in the systemic blood pressure or a fall of less than 10 mm of mercury in fifty normal subjects, while in forty-two patients having arterial hypertension and in thirty-six having primary arteriosclerosis without hypertension the fall in arterial pressure occurred more frequently.

and was of greater degree. In five cases with heart block, stimulation of the sinus was ineffective. Thirteen of fifteen patients in whom the carotid sinus reflex was hyperactive complained of spontaneous dizziness and fainting attacks, and pressure on one or each of the sinuses induced dizziness and fainting together with convulsive seizures. On mild stimulation the convulsive seizures developed contralaterally. A certain degree of quantitative correlation existed between the degree and duration of the pressure and the intensity of the response of the body. In four cases a sudden turn of the head induced dizziness and fainting. In six of the fifteen cases there was unequal dilatation of one or both sinuses; in three a small tumor pressing on the sinus was found and in the other six no gross abnormality was detected. These morphologic changes bear directly on the hyperactive state of the reflex but they are not the sole underlying cause of such hyperactivity, as cases with similar changes but without hyperactivity of the sinus were observed. The hyperactivity of the sinus is usually permanent but in two cases it was recurrent. Partial and complete heart block, temporary asystoles of the ventricle with continued auricular contraction nodal rhythm ventricular extrasystoles, changes in the shape of the T waves and complete inversion of the electrical axis in the heart were induced through the reflex stimulation of the heart. The authors' observations indicate that the Adams Stokes syndrome can be induced reflexly by stimulation of the hyperactive carotid sinus reflex. In the precipitation of such attacks local abnormality of the heart also plays a part. During stimulation of the hyperactive carotid sinus reflex the volume and the velocity of the flow of the blood become decreased. There is also a slowing of the flow of the blood through the brain. Ipmephrium abolishes the cardiovascular responses and the symptoms of the hyperactive reflex. Paralysis of the parasympathetic nerve endings with atropine abolishes the cardiac but not the peripheral vascular changes. In one case section of the intercarotid nerve abolished the spontaneous fainting attacks. The clinical symptoms and signs as well as the clinical changes are due to stimulation of the sinus and not to direct motor vagal stimulation. Cases of vertigo, dizziness, fainting and convulsions caused by a hyperactive carotid sinus reflex afford an opportunity to study the relationship between the systemic and cerebral circulation and these manifestations. The rate rather than the absolute deviation from the normal circulatory state of the brain plays the primary part in the precipitation of fainting and convulsions. A temporary sudden ischemia of even short duration sets up a sequence of events in the brain which then proceed independently to convulsions even if a hyperemia promptly follows the ischemia. Section of the carotid sinus nerve is advocated only in cases in which specific hyperactivity of the carotid sinus reflex exists.

Military Surgeon, Washington, D C

73 117 172 (Sept.) 1933

- The Chronic Appendix H P Makel—p 117
 *Autogenous Vaccines in Treatment of Chronic Sinus Infections and Nasal Allergy W C Cox—p 121
 Cardiorespiratory Collapse Incident to Spinal Anesthesia R A Horde nat—p 129
 Subnormal Temperatures E D Rudderow—p 136

Autogenous Vaccines in Treatment of Sinusitis—Cox has had twenty-eight patients suffering from chronic sinusitis, nasal allergy or asthma of the bacterial type under autogenous vaccine treatment. The patient was skin tested by injecting 0.05 cc of the various skin test emulsions intradermally in the inner surface of the forearm. Reactions were read in one hour and in twenty-four hours. The formation of a characteristic wheal or the formation of a red tender area 1.5 cm or more in diameter was considered a positive reaction. With the use of 0.05 cc of a 500,000,000 suspension the patient received approximately 25,000,000 organisms as a skin test dose. Emulsions of the organisms that gave positive skin tests were used in preparation of the autogenous vaccine. The individual emulsions were standardized at 1,000,000,000, through the use of a 0.25 per cent solution of phenosaline as a diluent and a 1,000,000,000 MacFarland standard. Equal portions of each of the emulsions were mixed in a 50 cc sterile vaccine bottle and tested aerobically and anaerobically for sterility. The initial

dose of vaccine was 0.05 cc, injected intracutaneously. Reactions were carefully noted and a subsequent increase or decrease of the dose made. Injections were given every fourth day, each dose being increased by 0.05 cc until 0.3 cc was given. Following this each dose was increased 0.1 cc and the injections were given subcutaneously. The maximal dose used was 1 cc. This dose was continued until examination revealed marked improvement in the mucous membranes of the structures involved, in addition to subjective improvement or until failure of the vaccine was indicated. Of the twenty-eight patients 71.4 per cent were so improved as to be classed as cured.

Nebraska State Medical Journal, Lincoln

18 321 364 (Sept.) 1933

- Irritable or Unstable Colon H I Beckus and J H Willard Philadelphia—p 321
 Postpartum Cervix F C Sage Omaha—p 326
 Large Fibromyoma Complicating Puerperium with Spontaneous Expulsion of the Tumor Case Report M Margolin Omaha—p 330
 Postoperative Morbidity and Mortality A I Miller Omaha—p 337
 Practical Study of Vasectomy C A Owens Omaha—p 335
 Report of Delegate to the 1933 Annual Congress of Medical Education and Licensure J S Welch Lincoln—p 338
 Pyrexia C C Tomlinson Omaha—p 343
 Interplay of Science and Practice in History of Modern Medicine C M Wilhelm Omaha—p 346
 Osteomyelitis of the Mandible M Emmert Omaha—p 349

New England Journal of Medicine, Boston

209 565 114 (Sept 21) 1933

- Umbilical Hernia I H Miller and M K Bartlett Boston—p 569
 *Relation of Trauma to Hernia J J Moorhead New York—p 568
 Recurrent Hernia H C Marble Boston—p 574
 Hernia from the Compensation Insurance Standpoint J H Hollander Boston—p 579
 Medical Care of the County Poor J P Bowler Hanover N H—p 586
 The Secondary Nodules of Lymphatic Tissue Their Relation to Immunity R I Miller Hanover N H—p 591
 Clinical and Economic Features of Arthritis in Ex-Members of Military Service P B Matz Washington D C—p 597

Relation of Trauma to Hernia—Moorhead states that hernia is never caused by injury; the preformed sac is always an antecedent. Hernia can be aggravated by injury if the source and symptoms are adequate. Immediate disabling pain is the chief symptom and this is associated with nausea, tenderness, swelling and other manifestations. At operation the observations usually denote an incipient process as indicated by extravascular and intravascular adhesions. The pathologic examination of the sac demonstrates chronic peritonitis and fibrosis. Hernia is a chronic progressive disease, a ptosis, a diverticulum and not an acute surgical entity except in rare instances. A large proportion of the adult male population have hernias and do not know it and surgeons do not know it either when treating them for contiguous injury grave enough to cause aggravation if trauma is regarded as a common aggravating factor. Like osteomyelitis, once a hernia always a hernia, and it is subject to periods of accession and remission.

Public Health Reports, Washington, D C

48 1127 1154 (Sept 15) 1933

- *Bone Marrow in Tularemia R D Lillie and E. Francis—p 1127
 Neuropsychiatric Service in a Marine Hospital Review of One Year's Work of the Clinic at Ellis Island J D Reichard—p 1136

48 1155 1188 (Sept 22) 1933

- Incidence and Clinical Symptoms of Minor Respiratory Attacks with Especial Reference to Variation with Age Sex and Season S D Collins and Mary Gover—p 1155

48 1189 1218 (Sept 29) 1933

- Sickness Among Male Industrial Employees During the Second Quarter of 1933 D K Brundage—p 1191

Bone Marrow in Tularemia—Lillie and Francis state that focal lesions were almost constantly present in the bone marrow in acute tularemia of the five species of rodents in which the marrow was studied. They are frequent also in subacute tularemia in rabbits and guinea pigs. The focal lesions of the marrow often become granulomatous in character in subacute tularemia but also often remain as simple focal necroses while lesions in other organs are granulomatous. There is a greater tendency to granulomatous reaction in rabbits the subject of repeated inoculation with living cultures of *Pasteurella tularensis*.

but in some of these in which marked granulomatous reactions were present in the lungs a few days after the last inoculation, lesions are in all probability attributable to the inoculation made a month or more previously. Aside from focal lesions, there appears to be some destructive action affecting the more mature cell forms of the marrow. It appears probable that focal lesions may be encountered in the bone marrow of human cases when a more extensive search is made.

Puerto Rico J Pub Health & Trop Med, San Juan

9 196 (Sept) 1933

- Febrile Phenomena in Schistosomiasis Manson with Illustrative Cases J A Pons and W A Hoffman San Juan—p 1
The Puerto Rican Strain of Endamoeba Histolytica: Comparison of Diagnostic Value of Direct Smear Examination and Cultivation with Pathogenicity Test H A Poundexter, Washington D C—p 31
Food Poisoning in Puerto Rico O Costa Mandy San Juan—p 41
Nutrition Studies of Foodstuffs Used in Puerto Rican Diet VI Vitamin A Content of Pasteurized Milk and Native Chic se D H Cook and J H Arltmeyer San Juan—p 90

Surgery, Gynecology and Obstetrics, Chicago

57 291 438 (Sept) 1933

- Acute Interstitial Pancreatitis Clinical Study of Thirty Seven Cases Showing Edema Swelling and Induration of Pancreas But Without Necrosis Hemorrhage or Suppuration R Elman St Louis—p 291
*Strength of Wounds Sutured with Catgut and Silk E I Howes New York—p 309
Role of Hematoma in Fracture Healing W J Potts Oak Park Ill—p 318
*Milk of Calcium Bile T Schubbs and S B Goodstone Pittsburgh—p 325
Gastritis and Duodenitis in Relation to Ulcer Problem Study of One Hundred and Twenty Four Cases of Partial Gastrectomy P W Aschner and S Grossman New York—p 334
Placenta Accreta Review of Literature and Report of Two Personal Cases L E Phineuf Boston—p 343
Technic of Thoracoplasty B N Carter Cincinnati—p 353
*Aseptic Uretero-Intestinal Anastomosis C C Higgins Cleveland—p 359
Bacteriologic Study of Efficiency of Face Masks M I Blatt and M L Dale Chicago—p 363
Carotid Ligation for Intracranial Arteriovenous Aneurysm J J Keegan Omaha—p 368
*Low Back Pain New Explanation of Pathogenesis and Treatment E D W Hauser Chicago—p 380
Tuberculosis of Flat Bones of Vault of Skull D C Straus Chicago—p 384
Congenital Hypertrophic Pyloric Stenosis Treatment of Accidental Perforation of Mucosa During Rammstedt Operation O F Lamson Seattle—p 398
Fractures of Tubus Calcanei Involving Medial and Lateral Processes Distinct Type of Fracture with Suggested Method of Treatment G E Moore Antigo, Wis—p 400

Wounds Sutured with Catgut and Silk—The experiments of Howes on rats demonstrate that in all the wounds repaired with silk, fibroplasia began earlier and the wounds accumulated strength more rapidly than in those sutured with catgut. Microscopic sections of these wounds showed the exudative phase to be of less duration in the wounds sutured with silk than in those sutured with catgut. The experiments showed that there was no advantage in using sutures of large dimensions—the larger sizes of silk or catgut gave no additional strength to the wounds either immediately after suturing or during healing. The author discusses the efficacy of catgut and silk as suture materials and the indications and contraindications for their use and states that by using catgut according to the silk technic the healing of wounds can be improved and untoward reactions reduced.

"Milk of Calcium" Bile—Schubbs and Goodstone present an unusual case of hydrops of the gallbladder which contained pure amorphous and crystalline calcium carbonate without stones but which was associated with cystic duct obstruction due to a stone of the same composition and was accompanied by a hypercalcemia. The roentgenologic studies revealed a shadow in the region of the gallbladder which shifted its position and changed its shape (crescentic and oval). The authors believe that the roentgen demonstration of such shadows is strong evidence in favor of a highly concentrated calcium sediment. They agree with Phemister that cystic duct obstruction is a constant factor that accompanies increased calcium content of the gallbladder. This factor is present whether the wall of the gallbladder is the seat of calcification or when the viscus contains pure calcium stones calcium soaps or as in the authors

case, pure calcium precipitate. While in Phemister's cases the cystic duct obstruction, when due to a stone, was always due to one of the cholesterol or cholesterol pigment variety, that in their case was caused by a friable calculus composed of the same material as that present in the gallbladder. It should be pointed out that in one of the cases reviewed by Phemister the obstruction was not calculous but carcinomatous in nature. The factors recognized as being necessary for stone formation, as laid down by Aschoff, were present in their case, and the authors believe that this is a type of stone formation. Some of the factors that are operative in their case, as in all cases of gallstone formation, particularly calcium stone formation, remain as yet unsolved.

Aseptic Uretero-Intestinal Anastomosis—Higgins describes a new technic, principally a modification of Coffey's transfixion suture method, for simultaneous bilateral transplantation of the ureters into the rectosigmoid in which the normal course of the urine and the continuity of the ureter are not interrupted until after the formation of a new channel between the ureter and the intestine. The operation is attended by no interruption of function in the kidney or the upper urinary tract until after communication between the ureter and intestine has been established. Peritonitis and acute renal infection are reduced to a minimum. The results in experimental animals have shown a lower mortality than that associated with other types of transplantation of the ureter into the intestine. The immediate results are most satisfactory, but sufficient time has not elapsed to warrant any statement as to the distant end-results. Anastomosis by this method performed on cadavers would seem to indicate its practical applicability for clinical use. The simplicity of the procedure and the lack of post-operative reaction have been most striking in contrast to the other types of transplantation. Evidence of back pressure on the kidney as indicated by hydronephrosis and also infection, is absent months after operation, owing to the maintenance of the valve-like mechanism of the intestine.

Low Back Pain—Hauser states that many cases of low back pain cannot be explained on the basis of organic changes in the back or as referred pains from disease in the pelvic or abdominal organs. They are due to a disturbance in function (functional insufficiency). The insufficiency is primarily in the muscles and is a condition in which apparently normal musculature is not equal to the demand placed on it. Proof that muscular insufficiency causes low back pain was obtained by the therapeutic test used in the author's fifty cases. This system of therapy was directed against the insufficiency and was used over a period of seven years. The treatment consisted in relieving the complaint, in correcting the deformity and in reestablishing strength. The course of treatment varied from five weeks to six months. Every patient showed a definite improvement. All those patients in whom normal strength was regained remained well.

West Virginia Medical Journal, Charleston

29 401 448 (Oct) 1933

- Endoscopic Revision of the Prostate R D Gill Wheeling—p 401
An Overlooked Factor in Susceptibility to the Common Cold A E Ewens Atlantic City N J—p 411
Prenatal and Maternal Care J R Bloss G A Ratcliff and E J Humphrey Huntington—p 415
Idiopathic Pneumothorax F R Whittlesey Morgantown—p 421
Carbon Monoxide Poisoning M H Maxwell Keyser—p 428
Cancer of the Breast S McGuire Richmond Va—p 432
*Unusual Case of Pneumonoconiosis G F Grisinger T R Bohm, and B Bradford Beckley—p 436

Pneumonoconiosis—Grisinger and his associates present a case of pneumonoconiosis in which there was apparent sudden onset and dense pulmonary fibrosis. Unlike the average case of silicosis, which over a long period of time presents symptoms of impending pulmonary disorder before the condition becomes actually manifest, this patient gives a history of good health with no symptoms pointing to the chest until nine months prior to the time the patient was admitted. This beginning illness was attributed to an acute cold. The authors state that it seems almost incredible that a person with such extensive and dense fibrosis and a pulmonary silica content of more than 50 per cent could go for fifteen months after exposure without some indication of pulmonary disturbance.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

50 233 352 (Sept.) 1933

Clinical Significance of Anterior Choroidal Artery. A. A. Abbie —p. 233

*Cystic Oligodendrogliomas of Cerebral Hemispheres and Ventricular Oligodendrogliomas. J. C. Greenfield and I. G. Robertson —p. 247
Presence of Efferent Fibers in Posterior Spinal Roots. S. Kahir and D. Sheehan —p. 265

Metabolic Cost of Sustained Postures in Normal and Catatonic Subjects. J. B. Gaylor and G. M. Wishart —p. 262

The Fetus and Referred Pain. H. H. Woolfard and I. A. Carmichael —p. 293

*Syringomyelic Complications of Spina Bifida. I. A. Turnbull —p. 304
Ipsilateral Representation in the Motor and Premotor Cortex of Monkeys. P. C. Buey and J. I. Lulton —p. 318

Cystic Oligodendrogliomas of Cerebrum—Greenfield and Robertson describe five cases of oligodendroglioma of the brain. Three were cystic tumors of the cerebral hemispheres and two were midline ventricular tumors. No age distinction can be made between laterally and medially placed tumors of this type. The former occurred in patients of from 16 to 61, and the latter in patients of 16 and 50 years of age. While a small medially placed tumor, by blocking the exit of cerebrospinal fluid from the ventricles may produce as severe symptoms as a larger laterally placed tumor, the great variation in the ages of the authors' patients is evidence that the tumors may begin to grow at any age period. The tendency to calcification in oligodendrogliomas bears little relationship to the age of the host. Calcified knots were found in the tumors in two patients of 16. In this series of cases they occurred in the stroma of the tumor and were not related to the walls of blood vessels or other connective tissue. The short preoperative histories and the rapid onset of urgent symptoms in the cases of laterally placed tumors were related to the expansion of cysts associated with slowly growing tumors. The rate of growth and the malignant condition of these tumors vary from case to case. Cases with ventricular and subarachnoid metastases have been reported and the authors describe further instances of both methods of spread. An oligodendroglioma growing in the wall of a cyst or in a cavity may alter its histologic appearances, assuming a more myxomatous type. Under these conditions of growth it is particularly liable to give rise to a mucinoid exudate, which may form large accumulations. The reticular appearance seen especially in paraffin sections appears to arise largely from shrinkage of this mucinoid material.

Syringomyelic Complications of Spina Bifida—Turnbull reports a case of cervical spina bifida in which signs suggesting a syringomyelic lesion of the cord developed in early adult life. Operation disclosed the stalk of a meningocele but no gross deformity of the spinal cord. Postmortem examination of the spinal cord showed (1) multiple small syringomyelic cavities, (2) fibrous tissue thickening of the parrachnoid and of the walls of blood vessels in the cord, (3) a stalk of functionless neural tissue extending from the dorsum of the cord into the lining of the meningeal protrusion and (4) a primitive ependymal tumor, which was of doubtful clinical significance.

British Journal of Radiology, London

G 513 576 (Sept.) 1933

*Radiographic Appearances in Spondylolisthesis. G. A. G. Mitchell —p. 513

Experimental Realization of the Roentgen. G. W. C. Kaye and W. Binks —p. 530

X-Ray Shutter with Simple Timing Device. W. Binks —p. 557

Direct Measurement of X-Ray Tube Voltage in Therapy with an Indicating Instrument. F. D. Owen King —p. 560

Radiographic Appearances in Spondylolisthesis—Mitchell states that the crescentic shadow sometimes visible in anteroposterior roentgenograms of the lumbosacral junction is not pathognomonic of spondylolisthesis. In spondylolisthesis the bicristal is greater than the bitrochanteric length, a fact that is of diagnostic value, particularly when good lateral roentgenograms are not available. Ullmann's test is too delicate and occasionally may lead to a false diagnosis of early

spondylolisthesis. Defects of the interarticular neural arch cannot be demonstrated invariably at the present stage of roentgenographic technique. There is no characteristic position of the 1st lumbar spinous process in cases of spondylolisthesis. Diagnostic conclusions should not be based solely on comparisons of the anteroposterior lengths of the fourth and fifth lumbar vertebrae.

British Medical Journal, London

2 477 516 (Sept. 9) 1933

Renal Functional Disturbance in Acute and Subacute Nephritis. J. S. Dunn —p. 477

Autolyzed Yeast Products in Treatment of Anemia. L. S. P. Davidson —p. 481

Some New Observations on Diagnosis and Treatment of Syphilis. T. Anwyll Davies —p. 487

*Sensitive Test for Purity of Avertin Solution. H. K. Ashworth —p. 499

*Intensive Treatment of Acute Tetanus. W. D. Lovelock Jones —p. 491
Internal Laceration and Death Following Appendicectomy. M. J. Petty —p. 491

2 517 552 (Sept. 16) 1933

Diabetes with Special Reference to High Carbohydrate Diets. R. D. Lawrence —p. 517

Urea in Health and Disease. W. R. Ferson —p. 521

Treatment of Glaucoma. B. W. Rycroft —p. 523

Primary Thrombosis of the Axillary Vein. Report of Case. J. C. Ross —p. 525

Acute Hemolytic Anemia in Adolescence. A. Douglas —p. 526

Diagnosis and Treatment of Syphilis—While watching *Spirochæta pallida* for days on end by the dark field method in the hope that he might obtain some clues about its morphology, Anwyll Davies was led to a new conception concerning the treatment of syphilis. He found that when the spirochetes are bathed in arsphenaminized serum they gradually lose their normal appearance, become ghostlike, fragmented and paralyze and in about five days apparently die. Then, in the space of five or six hours they recover their normal appearance, are revived, regain their spirals and motility, and become as normal and as active as control spirochetes that have not been similarly "doped." This strongly suggests that arsphenamine should be injected at intervals of five days or less instead of the customary week, which gives the spirochetes three days in which to recover. They should be attacked with fresh drug when their vitality is lowest. In this way the largest number of spirochetes are killed in minimum time, the survivors and resistant forms are destroyed sooner and what is equally important, they are prevented from multiplying and are less likely to develop resistance to arsenic. On this basis the author started a strong biweekly course of injections three years ago. For the first five weeks 0.45 Gm. of neoarsphenamine and 0.2 Gm. of a bismuth compound were given intravenously once a week, and also in the middle of the week 0.3 Gm. of sulpharsphenamine and 0.2 Gm. of a bismuth compound subcutaneously. For the next three weeks a mixture of potassium iodide was given, and then a repetition of the treatment of the first five weeks. A blood test is made in seven days and again in twenty-eight. A mixture of potassium iodide is given in the interval (eight weeks) before the next course. The Wassermann reaction was 100 per cent negative a month after the first course in sixty-five primarily seronegative cases, 93 per cent negative in 114 primarily seropositive cases and 95.1 per cent negative in sixty-two secondarily seropositive cases.

Test for Tribrom-Ethanol Solution—Ashworth describes experiments which prove that "universal indicator" is a more sensitive and reliable agent than congo red as a test for the purity of solution of tribrom ethanol. The universal indicator is prepared by dissolving 0.04 Gm. of methyl orange, 0.02 Gm. of methyl red, 0.18 Gm. of naphtholphthalein and 0.08 Gm. of phenolphthalein in 100 cc. of a 70 per cent solution of alcohol (the Extra Pharmacopeia). In testing the purity of tribrom ethanol, he transfers 3 mg. of prepared solution of tribrom ethanol to a test tube and cools it. In a similar test tube he places an equal volume of the distilled water used in the preparation of the solution of tribrom ethanol and adds 2 drops of the universal indicator to the contents of each tube. The solution should be greenish yellow and it should not be possible to detect any difference in the color of the contents of the two tubes. The test tubes should be scrupulously clean and

previously rinsed with distilled water. The pH of ordinary distilled water may vary and the actual sample previously used for the preparation of the solution should serve as the control in the test. In the presence of alkaline solutions (pH 8) the universal indicator gives a green color, in neutral solutions (pH 7 or 7.5), greenish yellow, in acid solutions respectively pH 6.5, 6, 5.5 and 4, yellow, orange-yellow, orange and red.

Treatment of Acute Tetanus—Lovelock-Jones reports a case of acute tetanus in which recovery followed large doses of antitetanus serum administered subcutaneously intrathecally and intravenously. Further local excision of the wound was undertaken and eusol (highly oxygenating) dressings were kept applied. Magnesium sulphate was administered intrathecally and phenol subcutaneously. Antipneumococcus serum also appeared to help when a bronchopneumonia threatened. The case illustrates the fact that diminution or stoppage of the serum brings on fresh spasms or increases the rigidity which subsides promptly on the administration of more serum. In all, approximately 1,800,000 units of antitetanus serum was used in this case.

Glasgow Medical Journal

2 73 128 (Sept.) 1933

A Year's Work in Intracranial Surgery J. E. Paterson—p. 73

Localized Outbreak of Enteritis Due to *Bacillus Dysenteriae* (Sonne) Margaret E. R. Loudon—p. 100

Outbreak of Enteritis—Loudon reports an instance of a localized (one family) outbreak of enteritis in which in the eldest daughter and the parents there were no clinical symptoms. The source of infection remains obscure. The mother cooked for all members of the family, but she had no symptoms at any time, although her blood serum agglutinated *Bacillus dysenteriae* (Sonne) to a titer of 1:960. The first member of the family to be affected developed a rapidly fatal infection. In most of the others the attack was of a moderate or mild type, and in some there was only serologic evidence of the infection. Two members of the family, one with no clinical symptoms, the other with a mild attack, developed acute appendicitis two months after the discovery of the infection and within five days of each other. Both had a high concentration of specific agglutinins to *B. dysenteriae* (Sonne) in their blood at the time of operation. The appendices were not examined bacteriologically.

Medical Journal of Australia, Sydney

2 333 362 (Sept. 9) 1933

Some Points in Diagnosis and Treatment L. Hurley—p. 333

Hyoscine in Labor S. F. Sutherland—p. 338

Some Recent Advances in Physiology of Hearing and in the Study of Deafness Their Practical Application D. G. Carruthers—p. 342

2 363 394 (Sept. 16) 1933

*Conduct and Value of Schick Testing and Active Immunization Against Diphtheria During an Outbreak C. S. Barbour—p. 363

Points in Practical Application of Diphtheria Control Measures M. J. Holmes—p. 366

Diabetes in Childhood E. Downie—p. 367

Perennial Treatment of Hay Fever C. Sutherland—p. 373

Immunization Against Diphtheria—Barbour proves the value of an active immunization campaign during an epidemic by quoting cases in which the development of clinical diphtheria was prevented. Partial proof was obtained in other cases and the inference could safely be made for many others. The immunizations were performed from July to October, by which time the outbreak appeared to have subsided. A further thirty-nine cases had occurred, totaling eighty which spread over from April to October. A campaign conducted during an outbreak of diphtheria will receive a ready response from the public, in contrast to the apathy shown in interepidemic periods. It is possible to dispense with a control for the Schick test if time is a factor. And if the matter is urgent, as about 50 per cent of any group of children of mixed ages may be expected to be susceptible, it would seem that the Schick test could be dispensed with altogether, the added risk involved in injecting immune children being balanced by the quicker development of immunity in the susceptible children. The disadvantage of mass Schick testing is the time absorbed in performing and reading the tests. The full injections of anatoxin confer

absolute immunity (absolute on Schick test standard) in 90 per cent of cases and an increased immunity in 10 per cent (since the Schick test can be read quantitatively to a certain extent). Even small doses cause the development of some active immunity, but it is not until the first decimal place is reached (0.1, 0.2) that the immunity is appreciable with only two injections. Anatoxin is to be expected to give no general reaction and no local reaction of serious import if the dosage is regulated by the previous skin test. In young children, in whom immunization is most desirable, anatoxin sensitiveness is exceptional.

Journal de Medecine de Paris

53 722 738 (Nov. 30) 1933

Treatment of Recurrent Herpes M. A. Levy-Frankel—p. 729

*New Method of Roentgenotherapy in Treatment of Leukemias Total

Teleroentgen Therapy G. Marchal and L. Mallet—p. 730

Gastro Intestinal Malformations in a New Born Infant H. Roueche—p. 734

Roentgenotherapy in Treatment of Leukemias—Marchal and Mallet have employed total teleroentgen therapy with favorable results in three cases of monocytic leukemia, two cases of lymphatic leukemia, and one case of myeloid leukemia. The principle of this method consists in irradiating at one sitting, the entire organism, or at least large fields, with weak and penetrating doses of roentgen rays, two or three times a week. The chief advantage of this method is that with low doses, about one twentieth of the erythema dose (at the end of a series), it achieves results comparable to those produced by the classic method in regard to general condition, regression of the hypertrophy of the hematopoietic organs and modification of the blood picture. It is harmless for the skin and permits better control of the erythrocyte formula. The relative innocuousness of correctly dosed teleroentgen therapy permits the frequent repetition of follow-up treatments without fear of development of roentgen resistance. The authors have observed no roentgen resistance and none of the injurious effects sometimes following the classic treatment, such as leukopenia, acute attacks of leukemia, or severe anemia. In teleroentgen therapy the manifestation of the clinical and hematologic effects is delayed for from two to five weeks at the outset of treatment, but after this period it is proportional to the number of irradiations and continues after their discontinuation. In acute cases this period of latency may appear as an obstacle to the method. For the initial treatment of all forms of chronic leukemia the authors recommend total teleroentgen irradiation for from five weeks to three months, supplemented by local irradiation in case of inadequate improvement. For the treatment of recurrences they recommend total irradiations for from three weeks to three months. For follow-up treatment irradiation series of from two to four weeks at intervals of from one to three months are recommended. Teleroentgen therapy is also indicated for beginning or recurrent leukemias with a minimum of clinical and hematologic signs, and for forms that are resistant to local irradiation.

Policlinico, Rome

40 1755 1794 (Nov. 6) 1933 Practical Section

*Oxaluria and Infestation with Intestinal Parasites V. Giudiceandrea—p. 1755

Hemorrhagic Necrosis of Pancreas Pseudocystic Type of Korte G. Trogu—p. 1758

Poisoning Due to Fungi A. Filippini—p. 1762

Oxaluria and Infestation with Intestinal Parasites—Giudiceandrea states that examination of the feces of patients with oxaluria sometimes reveals the presence of parasites in the intestine. The author studied a group of patients suffering from intestinal infestation with *Amoeba histolytica*, *Endolimax nana*, *Tricocephalus*, *Lambia intestinalis*, *Amoeba coli*, *Chylomastix* and other parasites. Treatment resulted in a diminution or the complete disappearance of the oxaluria. In one case of infestation with *Tricocephalus*, the author found both eosinophilia and oxaluria. He thinks that these parasites bring about certain organic alterations of the intestinal flora leading to a relative toxic condition of the liver acting on the metabolism. He maintains that oxaluria may also occur as a primary alteration of metabolism as well as in the course of various diseases such as gastric hyperchlorhydria.

Archiv für Verdauungs-Krankheiten, Berlin

54 259 396 (Nov.) 1933

- Functional Diagnosis of Liver R. Müncke — p. 258
 Determination of Lactic Acid in Gastric Juice R. Singer — p. 301
 Fulminant Impyema of Gallbladder M. Linhorn — p. 312
 Anatomic Changes in Pancreas After Toxic Doses of Decamethyl-
 endiguanidine and Decamethylendiguandine and Their Modification by
 Pancreas Extracts / Dische and Helene Goldhammer — p. 319
 *Lambliasis of Liver and Bile Passages and Cholecystitis Caused by
 Lambliasis I. Gorn and T. Sprachez — p. 327
 *Motility and Secretion of Stomach in Acute Gastritis I. Kaden —
 p. 336
 Concurrence of Lipoma and Peptic Ulcer of Isophagus with Perfora-
 tion L. Skold — p. 345
 Diagnosis of Cholecystopathy I. N. Scheftel — p. 353
 *Late Reaction and Curative Results After Intracutaneous Injection of
 Gastric Juice I. Weidinger — p. 361

Lambliasis of Liver and Bile Passages.—Gorn and Sprachez point out that *Lambli* intestinalis causes not only simple intestinal disturbances with acute and chronic diarrhea but also conditions that resemble dysentery or cholera. Moreover, in recent times many investigators have expressed the opinion that this parasite may be the cause of disturbances in the biliary tract. The authors mention the factors that have been cited in support of this theory and showing that many others are opposed to this theory they deny the etiologic role of *Lambliasis* in disturbances of the liver and of the bile passages. They relate their own observations which they summarize as follows. *Lambli* intestinalis is found primarily in the duodenum. It may wander into the bile passages but it stays there for only a short time and the gallbladder certainly is not a reservoir for the parasites, as believed by some. Even in cases in which the parasite enters the bile passages it does not cause lesions in the liver and the biliary tract and observations on angiocholitis, cholecystitis and pericholecystitis are only symptomatic for they never could be corroborated anatomically. Formerly the diagnosis of cholecystitis or angiocholitis was nearly always based on the fact that the parasite was demonstrated in the bile according to the method of Meltzer-Lyon. However, the presence of the parasites in the B bile is an accident and is due to the irritating action of magnesium sulphate which loosens the *Lambli* from the intestinal mucous membrane. Because of this the *Lambli* is found in larger numbers in the feces following administration of magnesium sulphate. Thus magnesium sulphate can be given for diagnostic purposes, particularly in cases that are not suited for duodenal probing. The fact that infestation with *Lambli* intestinalis is so frequently accompanied by manifestations on the part of the liver or the bile passages makes it appear probable that the parasite causes them indirectly by promoting the infection of the biliary tract. Moreover it is possible that the toxins of the *Lambli* play a part by impairing the liver or by producing systemic disorders, such as anemia, intestinal disturbances, vertigo and headaches.

Motility and Secretion of Stomach in Acute Gastritis.—Kaden studied the motility and the secretory function of the stomach in twenty-four patients with acute gastritis. The symptoms lasted from three to twelve days. Two patients had an alcohol gastritis, in eight the disturbance was the result of a mistake in the diet, in three an oxalic acid poisoning existed, and in eleven the etiology of the gastritis could not be determined. The symptoms were more or less the same in all twenty-four cases. Vomiting and headaches were present in nearly all patients, and some complained of nausea, weakness and lack of appetite. Some had an aversion to all foods while others rejected only sweets. Several patients complained of eructation. Abdominal pains, thirst and a feeling of heat were frequent complaints, but actual fever was present in only three of the patients. In many of the patients a leukocytosis was detectable, even when there was no increase in temperature. Studies on the motility, which were made from twelve to twenty-four hours after the noxious influence had acted on the stomach, revealed that it was accelerated, for the discoloration of the test solution was accomplished in a shorter time. The secretory conditions indicated an increased irritability of the glandular apparatus. Not only the quantity of the gastric juice was increased but also its acidity. The glandular apparatus responded more readily to stimuli. Signs of inflammatory changes were also present in the sediments of the specimens withdrawn from the stomach, for they contained an increased

number of leukocytes and epithelial cells. Another sign of inflammation was the increased lactic acid content of the stomach.

Intracutaneous Injection of Gastric Juice.—In studies on syphilitic gastritis, Weidinger found that it is difficult to differentiate this type from other forms. He decided to make the late reaction following the intracutaneous injection of the gastric secretion the subject of his investigations, in the hope of finding a means to differentiate syphilitic gastritis from gastritis of different origins. The gastric juice was withdrawn from the fasting stomach and 0.1 cc. was injected into the skin of the upper arm. A reaction was manifest after from one to two minutes, but in watching the late reactions it was found advantageous to take as a basis the reaction that is visible after twenty-four hours. The estimation of the reaction was based on the diameter of the wheal, the sharpness of its outline, the intensity of pigmentation and the degree of infiltration. The test was made on 170 patients and undesirable complications were never observed. As control tests, injection of liver extracts from animals, lentin or solutions of lecithin, cholesterol, hydrochloric acid or pepsin were given. The latter reaction quite frequently corresponded to the reaction obtained with the gastric juice. The latter gave positive reactions most frequently in persons who had had syphilis or malaria, but the author considers it wrong to diagnose a syphilitic gastritis on the basis of the intracutaneous reaction. In patients with hyperacidity the vaccination with gastric juice frequently had a therapeutic effect for the patients often reported that their symptoms had decreased after the injection. The improvement thus obtained was permanent in about twenty-five patients.

Dermatologische Wochenschrift, Leipzig

57 1595 1622 (Nov. 11) 1933

- Combination Treatment of Lupus Vulgaris with Borderline Rays and Diet H. T. Schreus and W. Engelhardt — p. 1595
 *Problem of Gram-Negative Cococcus-Like Bacteria in Genital Tract M. Schubert and A. Beck — p. 1598
 Five Years of Maltriotherapy of Chronic Gonorrhea P. Berggren — p. 1603
 Therapeutic Use of Histamine Iontophoresis in Dermatology F. Landt — p. 1608

Treatment of Lupus Vulgaris with Borderline Rays and Diet.—Schreus and Engelhardt report their experience with borderline rays in the treatment of patients with lupus vulgaris, most of whom were receiving the salt-free diet recommended by Sauerbruch, Herrmannsdorfer and Gerson. The irradiations were given with 9 kilovolts and 0.02 cm. of aluminum which absorbs half the rays. The treatment was always local. The lupus was irradiated in such a manner that from 0.5 to 1 cm. of the surrounding normal skin was also exposed to the rays. The single dose never exceeded 1,500 roentgens. The dose should be large enough for a noticeable erythema and a slight swelling to become manifest in from three to eight days. If the reaction does not develop until after this time, the dose was too small and a larger one has to be given the next time. The erythema persists for from one to three weeks and a new irradiation is not given until the erythema has disappeared at the earliest after ten days. In many cases an improvement may be noticed after the first erythema has disappeared, but in many others, from 5,000 to 6,000 roentgens, that is, from three to four irradiations, are necessary. The authors gained the impression that patients who received the salt-free diet reacted to the irradiations better and quicker than did those who were not subjected to this diet but, even when employed alone, the borderline rays may produce a cure. The irradiations with borderline rays are more effective than those with the quartz lamp and yet the reactions are much milder. The treatment with borderline rays requires more time than, for instance, the treatment with the diathermy loop but it has the advantage that it can be made ambulatory, as the reactions produced by the irradiations are not sufficiently severe to necessitate the cessation of employment. The authors warn against too early cessation of irradiations. They think that many failures are due to the fact that the treatment is discontinued because the first irradiations do not seem sufficiently effective. The total dosage is as a rule from 6,000 to 8,000 roentgens. The authors were able to produce a complete cure even in a case of Boeck's sarcoid. Because of a comparatively small material, they are

unable to give definite percentages of cures effected with borderline rays in lupus vulgaris, but they think that a trial is always justified, for impairments were never observed

Gonococcus-Like Bacteria in Genital Tract—In order to determine what bacteria occurring in the genital tract are most readily mistaken for gonococci, Schubert and Beck made cultures of the genital secretions of seventy patients which on microscopic examination had revealed gram negative, gonococcus like forms of bacteria. In studying the cultures, the authors found that the staphylococci and streptococci which in the original smear appeared gram negative, are the most frequent source of error, but that coccibacillary forms of the colon bacillus and *Proteus bacillus* likewise may be mistaken for gonococci. In four of the seventy cases in which on the basis of microscopy of the smear, gonorrhea could only be suspected, the culture permitted the definite diagnosis of gonorrhea.

Jahrbuch fur Kinderheilkunde, Berlin

111 73 176 (Nov.) 1933

Hydrohemorrhagic Internal Pachymeningosis During Nursling Age
Leonore Liebenam—p. 73

*Formation of Amines in Intestine of Nurslings and Significance of Amines in Pathogenesis of Toxicosis of Nurslings
Dorothea Brandes—p. 128

Chronic Nephritis During Childhood Diffuse Glomerular Nephritis
J. Geldrich—p. 135

Role of Hemato-encephalic Barrier in Genesis of Toxic Nutritional Disturbances Pathologic Histologic Aspects of Nervous System in Decomposition
S. J. Schaferstein, N. A. Popowa and E. P. Owtsharenko—p. 160

Amines in Intestine of Nurslings—Brandes was able to corroborate the observations of Rominger and Meyer, who found that the stools of nurslings fed on the bottle contain larger amounts of amines than do those of breast-fed infants. She further points out that Rothler demonstrated the presence of amines in the urine of nurslings presenting toxicosis and that he concluded from this that toxicosis of nurslings is an amine poisoning. This, however she does not accept, for she shows that amines may form in the urine in the course of its passage through the urinary tract and that consequently the demonstration of amine in the urine is not necessarily a proof that the toxicosis is the result of an amine poisoning.

Klinische Wochenschrift, Berlin

12 1753 1792 (Nov. 11) 1933

Rheumatism as Systemic Disease
W. H. Veil—p. 1753

*Experiments with Short Wave Diathermy
J. Kowarschik—p. 1757

Angina Pectoris with Disturbance in Cardiac Conducting System
E. Edens—p. 1763

*Significance of Erythema Threshold in Treatment with Ultraviolet Rays
V. Wucherpfennig—p. 1764

Insulin Antagonistic and Blood Sugar Increasing Action of Tonephor or Pitressin Respectively and of Orasthin
H. Schroeder—p. 1766

Hypervitaminosis A Exophthalmos and Spontaneous Fractures
J. A. Collazo and J. Sanchez Rodriguez—p. 1768

Comparative Counts of Thrombocytes According to Different Methods
C. H. Behr—p. 1771

Regarding Method of Determination of Chlorides of Potassium and Calcium in Blood
F. Rappaport—p. 1774

Simple Procedure for Demonstration of Spirochetes in Single Sections
D. Nieto—p. 1775

Metabolic Actions of Thyrotropic Substance of Anterior Lobe of Hypophysis
H. Eitel, G. Fohr and A. Loeser—p. 1776

Elliptic Erythrocytes as Hereditary Anomaly
W. Rotter—p. 1777

Experiments with Short Wave Diathermy—Kowarschik has tested apparatus for short wave diathermy the use of which has been recommended because of the following advantages: 1 There is no danger of burns because the electrodes are covered with rubber or with some other substance. 2 The application is simple since the electrodes can be applied over the clothing. 3 The penetrative power of the heat is better and more uniform. The author relates physical experiments and experiments on the cadaver and sums up his observations as follows: 1 In short wave diathermy it is immaterial whether the various resistances in the circuit are connected in series or in parallel. The heating takes place according to Joule's law that is, it is dependent only on the electrophysical behavior of the resistance (conductivity and dielectric constant). 2 It is incorrect to assume that the short wave diathermy as heretofore practiced with the aid of condenser electrodes the dielectric of which consists of hard rubber soft rubber or felt gives a relatively better penetration. On the contrary the heating conditions in ordinary diathermy are much more favorable in the

therapeutic application. The conditions are extremely unfavorable if the electrodes, instead of on the skin, are applied over the clothing. 3 The type of dielectric of the electrode plays an essential part in the homogeneity of the heating. 4 If uncovered metal electrodes are employed for the short wave diathermy, the penetration is somewhat superior to that of ordinary diathermy. 5 However, the superiority of short wave diathermy becomes manifest in its entirety only if according to the method of Schliephake, the treatment is done in the air condenser field. 6 The caloric output of the apparatus for short wave diathermy, when compared to that of the ordinary diathermy apparatus is extremely small. If the apparatus of short wave diathermy is used with air condenser electrodes (the only application in which short wave diathermy shows itself superior to ordinary diathermy) the caloric output is still inadequate.

Erythema Threshold in Irradiations with Ultraviolet Rays—In discussing the difficulties encountered in the therapeutic application of ultraviolet rays, Wucherpfennig emphasizes (1) the fluctuations in ray sensitivity due to miring by previous irradiations and (2) the lack of a reliable instrument for the physical measurement of the quantities of rays. Most of the instruments so far devised are dependent on the wavelength of that particular type of lamp for which they were gaged that is, they are suitable for that individual lamp but not for lamps of different spectrums. The author mentions the various biologic reactions that may serve as indicators for the intensity of the ultraviolet rays but he thinks that only the erythema effect is sufficiently understood in its dependence on the wavelength as well as in regard to its other biologic factors to be a suitable test reaction. He discusses the erythema threshold which he defines as 'that quantity of ultraviolet rays which is just sufficient to permit the demarcation of an irradiated field on the upper part of the back, seven hours after exposure. This erythema must have been produced by a quantity of rays which is 20 per cent larger than the amount applied to the neighboring field that is just under the threshold of visibility.' The most difficult but also the most essential factor in the determination of the erythema threshold is the gradation of the ray stimuli, so that the next field always receives 20 per cent more than the preceding one. This difficulty was solved by the author, in collaboration with Mathiesen, by an instrument the so called sector stars which makes use of the sensometer disk. The ground plate of the apparatus has a rectangular cut-out of 9 by 55 mm, which by strips of 15 mm is subdivided into eight fields, each measuring 6 by 9 mm. A sector disk rotates above this cut-out and has notches arranged in such a manner that each succeeding field has a ray exposure which is 20 per cent in excess of the preceding one, the respective percentages being 100, 83, 69, 58, 48, 40, 33 and 28. The threshold time can be determined seven hours after the test by multiplying the field showing the erythema threshold with its corresponding factor (1.0, 0.83, 0.69 or any of the others). The author asserts that this test method makes it possible to administer to any person ray treatments that are biologically equivalent, irrespective of the sensitivity of the person at the time of the treatment or of the spectrum of the ultraviolet source.

Wiener klinische Wochenschrift, Vienna

46 1281 1312 (Oct. 27) 1933

Does Present Status of Research Permit Speaking of a Reticulo-endothelial Metabolic Apparatus?
Dora Boerner Patzelt—p. 1281

Tubercle Bacilli in Blood and in Cerebrospinal Fluid in Chorea
E. Loewenstein—p. 1286

High Pressure Insufficiency in Apparent Hyperthyroidism
F. Kisch—p. 1287

Number of Siblings of Stutterers
E. Froeschels—p. 1291

Auditory Disturbances of Toxic Origin
E. Urbantschitsch—p. 1292

*Role of Acetylcholine Chloride in Treatment of Arteriosclerosis
F. Markovits—p. 1294

Somatic Treatment of Endogenic Conditions of Depression (Neuroses and Psychoses) in Women
B. Aschner—p. 1295

Rheumatic Cardiac Disturbances
A. Herz—p. 1298

Significance of Convulsions in the New Born
R. Wagner—p. 1304

Tubercle Bacilli in Blood in Chorea—Loewenstein reports two cases of chorea in which tubercle bacilli were obtained in pure culture from the cerebrospinal fluid. In one patient a boy aged 11, in whom the chorea apparently had existed for about a year tubercle bacilli were found only in the cerebrospinal fluid, while the blood culture remained nega-

tive. In the other patient, a girl, aged 9, the chorea was of recent development, and in this case both the blood and the cerebrospinal fluid gave positive cultures of tubercle bacilli. A postscript mentions two other cases of chorea in which tubercle bacilli were detected in the cerebrospinal fluid and in one of which the blood culture likewise was positive.

Acetylcholine Chloride in Treatment of Arteriosclerosis.—Marl ovits studied the influence exerted by acetylcholine chloride on the blood pressure and on the symptoms of arteriosclerosis. He tried the subcutaneous, intramuscular and intravenous injection of the aqueous solution of acetylcholine chloride and found that for subcutaneous administration from 0.02 to 0.05 Gm was sufficient. In intravenous injection the same results could be obtained with from 0.01 to 0.02 Gm. The optimal intramuscular dose was between 0.05 and 0.15 Gm. Oral administration of 0.2 Gm had no effect whatever. The intramuscular injections were found to give the most satisfactory results. Undesirable secondary effects were never observed. Daily injection continued for from ten to fifteen days effected a slight decrease in the blood pressure and the spastic symptoms in the extremities improved. However two weeks after the termination of the treatment the blood pressure reached its former level again but the symptoms in the extremities returned only partially. A continuation of the injections effected no further improvement. Two patients with intermittent claudication were cured. The treatment was ineffective in a patient suffering from apoplexy. Four patients presenting torticollis, headaches, vertigo and tinnitus were temporarily improved but several weeks later most of the symptoms reappeared. Essential and menopausal hypertension and the headaches and prims in the extremities occurring in patients having nephrosclerosis were improved for shorter or longer periods (up to four months). The author thinks that the decrease in blood pressure is the result of a vasodilatation. He expresses the opinion that choline preparations may be given with success in the incipient stages of hypertension.

Zentralblatt für Gynäkologie, Leipzig

57 2529-2592 (Oct. 28) 1933

- *Hormonic Causes of Habitual Abortion. A. Mayer—p. 2530
- Ten Years' Experience with Abdominal Cesarean Section. R. Kessler and H. Uphoff—p. 2537
- Longitudinal Transverse and Curved Incision in Low Cesarean Section. H. Fuchs—p. 2549
- Cesarean Sections in Patients with Suspected Infection. K. Matzdorff—p. 2556
- Surgical Treatment of Acquired Vaginal Stenoses. C. Jellinghaus—p. 2557
- Simple Method for Artificial Formation of Vagina. C. Cambarow—p. 2559
- Formation of Vagina from Rectum (According to Schubert) in Congenital Vaginal Defect. H. Strack—p. 2562
- *Five Years' Experiences with Rectal Tribrom Ethanol Anesthesia. A. Schulte—p. 2565

Hormonic Causes of Habitual Abortion.—Mayer admits that in many instances habitual abortion may be the result of such disorders as genital hypoplasia, retroflexion of the uterus, nephritis, syphilis and deficiencies of the iron, calcium and phosphorus supplies or of the growth vitamins. However there are many cases in which the causes cannot be found and in such cases the possibility of hormonal causes should be considered. The hormonal factors that play a part in the normal development of pregnancy are impulses from the corpus luteum on the uterus, the reaction capacity of the uterus to these impulses and the normal vitality and aggressiveness of the ovum. Disturbances in these factors may lead to abortion by causing the intra-uterine death of the ovum or by stimulating labor pains prematurely. The author discusses the functions of the corpus luteum and the deficiencies in these functions, the vitality of the ovum, paternal influences, the role of blood groups, thyroid influences, and the relation between abortion and the sex of the fetus. In discussing the treatment of habitual abortion, he states that since the premature onset of uterine contractions may be caused by a lack of corpus luteum hormone administration of corpus luteum extract may be helpful. On the other hand, it may be assumed that the serum of normal pregnant women contains a substance that inhibits uterine contractions, and for this reason it has been suggested that women who are subject to habitual abortion might be treated with the serum from healthy pregnant women. This is the more justified in

view of the fact that this procedure has proved helpful also in certain toxicoses of pregnancy. Moreover, it is possible that the serum of healthy pregnant women contains a substance that has a growth promoting influence, that through hormone influences it makes certain substances of the maternal organism more readily available to the fetus or that it is capable of combining with certain fetocidal toxins of pregnancy and thus preventing the death of the fetus by toxic influences. The author realizes that much of this is still theory, but he thinks that these factors should be considered.

Experiences with Tribrom-Ethanol Anesthesia.—Schulte employed tribrom-ethanol anesthesia in 1216 gynecologic operations. A table lists the following interventions: is having been performed under tribrom-ethanol anesthesia: intefixation of the uterus alone or in connection with operations on the adnexa or with appendectomy, supravaginal amputations, abdominal and vaginal total extirpations, Wertheim's radical operations, exploratory laparotomies, minor gynecologic interventions, cesarean sections and other interventions. In over 50 per cent of the cases tribrom ethanol effected a complete or nearly complete anesthesia while in the others some ether had to be given. In slight complications that may arise, oxygen inhalation is generally sufficient but cardiac stimulants should be kept on hand and the blood pressure should be controlled. Tribrom ethanol anesthesia failed completely in eight cases: that is the patients reacted to the anesthetic slightly or not at all. Three patients died during or after the operation but the author shows that these fatalities were probably caused by the extremely weakened condition of the patients rather than by the anesthetic. His general conclusion is that tribrom-ethanol anesthesia compares favorably with other types. He points out that literature reports indicate that tribrom-ethanol anesthesia is now used in nearly all fields. He stresses as its main advantages the simplicity of its application, the elimination of the period of excitation, the complete retrograde amnesia and the absence of postoperative pulmonary complications.

Polska Gazeta Lekarska, Lwow

12 889-908 (Nov. 12) 1933

- Osteopsathyrosis in Syphilitic Nursing. W. Mikulowski—p. 889
- A Sparing Form of Serum Disease. J. Kozrzencki—p. 891
- Problem of Purine Metabolism. I. Tajewicz—p. 893
- Facilitation of Intubation in Anesthesia. A. Abdinski—p. 896
- The Organization of Our Libraries. S. Konopka—p. 897

Osteopsathyrosis and Syphilis.—Mikulowski presents a case of fragility of the long bones and syphilis in an infant of 9 months born of a syphilitic mother. Previous treatment for curvature was not beneficial. Besides syphilis the child suffered from general acute anemia with an enlarged spleen. In spite of antisyphilitic treatment there was no improvement and roentgenograms showed no beneficial change in the condition of the bones. A general plaster cast was applied in suspension, so that the child remained immovable for five weeks. During this time the patient was given 0.01 Gm of mercurous chloride, 0.03 Gm of acetarsone and potassium iodide and then six injections of 0.12 Gm of neosphenamine at intervals of six days. The anemia contraindicated the administration of bismuth compounds. General treatment consisted of opotherapy in the form of parathyroid and thyroid serum lozenges, or a 1 per cent solution of viosterol (sterogyl) and then viosterol in oil (vigantol). The child received thirty irradiations with the quartz lamp and was discharged from the hospital after three months in good condition.

Finska Lakaresallskapetets Handlingar, Helsingfors

75 931-1026 (Oct.) 1933

- Diet and Fare of Northern Countries in Historical Light. R. Ehrstrom—p. 931
- Frequency of Changes in Spinal Fluid After Different Kinds of Treatment of Syphilis. T. Salo—p. 958
- *Roentgen Treatment in Chronic Tonsillitis with Especial Regard to Anatomopathologic Changes in Irradiated Tonsils. E. Wolf—p. 965
- Changes in Irradiated Tonsils.—Wolf reports twenty two cases, mainly in young men, in which tonsillectomy was done after roentgen treatment of one tonsil with protection of the other. Anatomopathologic examination revealed no noteworthy difference between the irradiated and the nonirradiated tonsil.

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TYPES OF NEPHRITIS AND THEIR MANAGEMENT

HENRY A. CHRISTIAN, M.D.
BOSTON

There are numerous clinical classifications of nephritis or Bright's disease. Each author seems to have suggested a different classification with a resultant complexity of nomenclature that often proves confusing to both student and practitioner. However if the various classifications are studied in relation to the author's ideas about the disease it becomes apparent that the differences are more a matter of words than of concept. If one tabulates a number of classifications and rearranges them, as I have recently done for a chapter on nephritis in a new edition of Cecil's textbook of medicine, it is evident that a few fairly simple concepts underlie all of these classifications.

All classifications take into consideration a concept of time or duration and so there are acute, subacute and chronic types of nephritis. Of these subacute is the one less definitely demarcated, being at times a name for a type that is, in all respects, similar to acute nephritis except for an unduly long persistence of evidences of the disturbance, and at other times denoting a patient whose symptoms and physical signs are those of chronic nephritis and yet they have developed and progressed so rapidly as scarcely to be rightly termed chronic in the sense of time. If these differences are kept in mind, nephritic patients can be grouped into two major classes, acute and chronic without much if any, lessened utility from the classification as a result of omitting the term subacute.

From the point of view of pathologic change as well as from that of symptomatology, nephritis may be divided into two great groups, one in which the lesion predominately concerns the glomeruli and the other in which the vascular system of the kidney shows the essential changes. Clinically, acute forms are not recognized in the latter type.

The application of these two concepts, as shown in the accompanying appended tabulation of different classifications, gives one group of acute nephritis and two groups of chronic nephritis whatever terminology is used. Within these three major groups varying degrees of subdividing may be carried out according to the taste of the classifier in expressing in his classifications clinical subdivisions which he believes will be helpful in either a better understanding of the disease or a more satisfactory clinical management of the patients.

Clinically, urinary observations, edema, increase in blood pressure and nonprotein nitrogen retention with eventual uremia are the four significant departures from

normal whose absence or presence in varying degrees determines the type of nephritis and its place in any of the classifications. Of these, all except the determination of nonprotein nitrogen values in the blood have been followed in the study of nephritis since Bright in his classic publication of 1827 described them, except that only the results of increased blood pressure could be noted until comparatively recently, when clinical methods of measuring blood pressure were inaugurated by Riva Rocci. Bright even recognized the low plasma protein of certain cases of nephritis and, of course, was familiar with the clinical manifestations of uremia, which in a way is the result of nonprotein nitrogen retention. In other words, classifications still in very large measure are based on simple methods of study available almost from the beginning of any systematic recorded knowledge of nephritis. What is recent in knowledge of the pathology of the condition is knowledge of the finer histologic changes in the kidney, and this is not very recent. Bright's descriptions of the gross pathology scarcely have been improved on.

In the history of the study of nephritis two fundamental concepts of its pathology have prevailed, one supporting a unity of process, the other opposed to this unity. Pathologists at one period regarded all forms of nephritis as only stages in a single type of lesion, the appearance of the kidney at death depending on the severity and the duration of the pathologic process. This idea however, was given up as not satisfactorily explaining the variety of kidney lesions encountered on postmortem examination, and a conception of the lesions on a dual or even multiple basis was advanced, a dual basis seems today better to fit with the combined clinical and pathologic knowledge of nephritis than a belief in a greater multiplicity of types of lesion.

The present concept of a duality of lesion places very little primary importance on changes in the tubules except for those who regard so-called nephrosis primarily as a form of tubular degeneration, a view not held by a large number of investigators. However changes coming about secondarily in the epithelium of the tubules do influence renal function in some degree in all forms of nephritis.

As already stated the dominant lesion in one group of nephritis patients lies in the glomerulus, in the other in the vascular system. Obviously, the glomerulus is a vascular unit, though one modified in that in the glomerulus the capillary has in addition to the usual structures a further layer made up of greatly flattened epithelial cells derived from the tubule. In final analysis, it is the presence of this layer derived from the epithelium of the tubules and changes in it that have much to do in determining a subdivision of nephritis into two distinctive groups.

In the architecture of the kidney, the capillaries surrounding the tubules contain blood that has previously

passed through the capillary tuft of the glomerulus. Hence nutrition for the tubules and any function of the cells lining the tubules are influenced by vascular lesions either of the glomerulus or elsewhere in the renal vascular tree. Similarly, a vascular lesion on the cardiac side of the glomerulus or one within the glomerulus equally may influence function of the tubules as well as function of the glomerulus. Consequently a given disturbance in renal function may be referable to a lesion either predominantly of or before (that is, on the car-

fact that furnished support for the idea, once held, that all forms of nephritis were but varying stages in a single pathologic process.

Turning now to clinical evidence, there is support here, too, for the idea of duality of lesion. There seems definitely a form of nephritis that follows infections, such as infection of the respiratory tract, and another type in which infection plays no demonstrable role but in which vascular degenerative lesions, whatever their cause may be, are causative of disturbance of renal

1 Comparative Schema of Various Classifications of Nephritis

	CHRISTIAN	VOEGELKAMP AND LAHR (1914)	LIVY (1926)	BENNETT (1929)	WIDAL, JEMERRE AND VALLERY RADOT (1929)
ACUTE	Acute and subacute nephritis With renal edema (nephrotic syndrome) Hemorrhagic nephritis	Die Nephrosen 1 Infache Bestimmt charakteristische Nekrotisierende Die Nephritiden Diffuse akute Herdförmige akute septisch interlobuläre embolische	Nephrosis or tubular nephritis Of pregnancy Lipoid Amyloid Mercurial chloride Glomerulonephritis Focal Embolic Nonembolic Diffuse Acute Subacute	The nephroses Lipoid nephrosis Chemical nephropathies Amyloid nephrosis Glomerulonephritis Focal Embolic Acute diffuse	Nephritis aiguë avec syndrome urémique Isolée avec symptômes d'insuffisance rénale
CHRONIC	Chronic nephritis With renal edema Without renal edema	Diffuse chronische ending in sekundären Schrumpf- nephrose Herdförmige chronische	Diffuse Subchronic Chronic Nephrosis Lipoid (?) Amyloid	Chronic diffuse Nephrosis Lipoid (?) Amyloid	Nephritis subaiguë Forme à évolution rapide Forme à évolution lente Nephrose lipoidique
CHRONIC	Essential hypertension progressing into chronic nephritis Renal arteriosclerosis progressing into chronic nephritis	Die Sklerosen 1 Infache blande Nieren- sklerose Kombinationsform (maligne hypertension)	Arteriosclerosis of kidney of renal artery and its larger branches Without renal insufficiency (benign hypertension) With renal insufficiency (malignant hypertension)	Arteriosclerosis Pronephritic stage essential hypertension Later stage with cirrhosis of spleen and kidney Malignant renal sclerosis (Fahr)	Néphritis chroniques
ACUTE	VANSLAKE AND ASSOCIATES (1930) Hemorrhagic nephritis (glomerulonephritis) Acute Nonhemorrhagic nephritis degenerative (nephrosis) Lipoid or amyloid Acute	ADDIS (1931) Degenerative Bright's disease Acute Hemorrhagic Bright's disease Acute	LISIEFER (1931) Benign albuminuria including orthostatic Nephrosis Tubular Necrotizing Multiple glomerular embolism Nephritis Focal glomerular Acute interstitial	MOSenthal (1931) Tubular nephritis Albuminuria Anuric Edematous Hypertensive and convulsive Glomerular nephritis Focal Focal infectious Focal embolic Diffuse Acute	O'HARE (1931) Nephrosis Simple Of pregnancy Necrotizing Lipoid Nephritis Acute Hemorrhagic Essentially edematous
CHRONIC	Hemorrhagic nephritis (glomerulonephritis) Chronic Nonhemorrhagic nephritis degenerative (nephrosis) Lipoid or amyloid Chronic	Degenerative Bright's disease Chronic Hemorrhagic Bright's disease Chronic	Diffuse glomerular Nephrosis Chronic Amyloid	Diffuse Subacute Chronic	Chronic Hemorrhagic Essentially edematous Nephrosis Amyloid Lipoid (?)
CHRONIC	Arteriosclerotic nephritis (nephrosclerosis)	Arteriosclerotic Bright's disease	Essential hypertension including malignant phase Senile arteriosclerotic kidney	Essential hypertension Arterial nephritis Sclerosis of arteries and arterioles (benign nephrosclerosis) Arteriole necrosis (malignant sclerosis)	Arteriosclerotic kidney (a) Hypertensive 1 Prerenal stage (vascular hypertension) 2 Renal stage (chronic hypertensive nephritis) (b) Nonhypertensive decreased arterio- sclerotic kidney

diac side of) the glomerulus, and changes observed in the function of the glomeruli may result from lesions either primary within the glomerulus itself or secondary to some disturbance of the vascular tree bringing blood to the glomeruli.

In either of these two types of renal lesion, as time goes on, epithelial elements of the tubule atrophy and interstitial tissue proliferates. If in the beginning the general vascular tree is normal, as these atrophic changes appear the blood vessels undergo changes in their caliber and in their wall, so that eventually the chronic renal lesion of great duration is not very different, whatever type it was in the beginning. It is this

function. In the first type both acute and chronic stages are observed, while in the second type no clinical evidence develops until the vascular lesion has become chronic. Almost nothing is known about the earlier stages of the latter either clinically or pathologically. What is confusing in making this differentiation is the existence of cases which from a stage of acute nephritis, sometimes not recognized, apparently go on to recovery, though actually the lesion has remained latent and continues latent for a very long period, eventually to cause the disturbances in renal function usually associated with chronic vascular lesions, although the lesion dominantly from the beginning has been a slowly pro-

gressing glomerular lesion with secondary changes in the vascular tree, atrophy of renal excretory structures and proliferation of interstitial connective tissue, the secondarily contracted kidney of many authors.

Lack of information of the exact role of the infecting agent, most frequently some type of streptococcus in the mechanism of the production of lesions of the glomerulus and lack of information of both etiology and mechanism of so-called degenerative vascular lesions, have retarded so far an understanding of nephritis in its various manifestations and prevented a more generally accepted classification of nephritis and perhaps prevented the development of more efficient methods for the management of patients with nephritis.

From the point of view of management the prevention of nephritis is extremely unsatisfactory. As far as acute nephritis and the glomerular type of chronic nephritis are concerned, all that can be done is to prevent so far as possible, and to treat as thoroughly as possible, all acute infections especially those of streptococcal cause. Closely allied is the prophylaxis of the common cold and its sequelae. For all of this there are no specific measures, except to a certain extent for scarlet fever, and, when all is done and said, the medical profession is quite powerless to prevent the development of this type of nephritis. As for the vascular form, even less is known as to the cause and practically nothing as to prevention can be accomplished. Preventive medicine is much talked about at present but can actually accomplish practically nothing so far as chronic disease of all sorts is concerned. This certainly is true for chronic nephritis of any type.

Ideas as to the management of a developed nephritis of any type have been considerably modified in recent years. We recognize that the disease by no means is limited to the kidney. Now practitioners are more influenced in their plan of treatment by consideration of the patient as a whole than in the past, now they consider less dietary constituents that theoretically increase the work of the kidney and are more concerned with maintaining the nutrition of the patient at a high level. The use of a high caloric diet in prolonged fevers, such as typhoid, has taught the benefits and shown the absence of harm from such diets and has been an important influence in greatly liberalizing the dietary management of the nephritic patient of any type. Only in the early days of a very acute nephritis should diet be restricted in both amount and variety. For a week in such cases a diet of fruit juices and carbohydrates with restricted fluids is advisable. Then rapidly the diet should be expanded to one essentially adequate in amount and variety with only moderate restriction of protein, salt and fluid, a diet not very different actually from a normal diet, free from any excesses, of most Americans.

Since infection has an etiologic relationship to acute nephritis, infection should be treated as adequately as possible and due consideration should be given to the eradication of real foci of infection. The indiscriminate removal of teeth and tonsils in such patients is to be deprecated.

In acute nephritis there is practically no indication for drug medication. Edema rarely is marked in degree and only then should diuretics be used. If used, their employment should be restricted and the amount given be governed by whether or not a diuresis ensues. As a rule, diuretics are not to be used.

Sweating no longer is considered advisable, this really applies in all forms of nephritis. Exposure to

cold and wet should be guarded against. However, with proper clothing, change of climate is not a necessity in any part of the United States. A developing uremia may be managed as described later on in connection with chronic nephritis. Fortunately, it is rare to any marked degree in acute nephritis. The circulation in acute nephritis is not sufficiently disturbed to indicate any therapeutic procedures. A patient with acute nephritis should remain in bed at complete rest so long as there are indications of gradual clearing of the activity of renal process, blood in the urinary sediment is the best index of this. If, after prolonged rest, no change in activity of process occurs, physical activity should be permitted in increasing amount, provided it does not cause increase in blood cells in the urine.

Chronic nephritis of all sorts is first of all a chronic disease. This means a long period of management and necessitates a continued entirely adequate diet, adequate both as to food constituents and as to caloric requirement for the activity allowed to the patient. Only with a rising value of blood nitrogen is there any reason for marked dietary restriction. In patients with chronic nephritis, four factors influence the therapeutic and dietary management. These are edema, nitrogen retention with the possibility of uremia, anemia, and circulatory failure associated with hypertension.

Edema in nephritic patients is of two types, renal and cardiac or circulatory. Renal edema occurs in patients excreting large amounts of albumin who are not anemic, have no evidences of disturbed cardio-circulatory mechanism and have no nitrogen retention. When it is marked in degree, it causes symptoms and needs treatment. The chief factor in its mechanism appears to be low plasma protein levels. High protein intake in the diet is indicated and transfusion may be helpful. Removal of the edema by diuretics should be attempted. The mercurial diuretics, especially mersalyl (salyrgan), or urea in large doses, up to 90 Gm a day, are most effective. With the diuretics there should go a fluid restriction in the diet. A very low sodium chloride intake should be tried. Mechanical removal of the fluid by paracentesis and Southey tubes may be required. Results at best are not very satisfactory. Patients who survive tend to pass over into an edema-free stage of chronic nephritis with increasing anemia, eventually developing nitrogen retention and rising blood pressure, when their management becomes the same as in other forms of chronic nephritis showing these features. As nitrogen retention develops, lowering of food protein is indicated. Periods of low protein intake are beneficial with subsequent return to greater protein content in the food. Protein content of the food needs to be balanced against the level of nonprotein nitrogen in the blood, determined either as urea nitrogen or total nonprotein in the blood. Weekly or biweekly days of marked protein restriction often are helpful. In such dietary restriction of protein there is a necessary limit, because a stage may be reached at which destruction of body tissue contributes to nitrogen retention, and a starved patient is worse off than a fed one, even if nitrogen retention persists. Furthermore, appetite often cannot be maintained with great protein restriction, and freedom of food intake, as dictated by the patient's taste, is preferable to any theoretical restrictions of diet.

If uremia develops and the patient is not very anemic, bleeding is indicated, possibly followed by transfusion. Sweating and purging appear to be of no real help and are too debilitating to use.

Slighter degrees of anemia are to be combated with insistence on an adequate varied diet with proper vitamin content. Protein is important unless its use must be restricted by reason of nitrogen retention. Iron in the modern large dosage is indicated. Transfusions have a definite value, especially if anemia becomes more marked. The severe anemia of nephritis responds satisfactorily to no treatment. It is important to recognize that the anemia of nephritis is the result not of bleeding but of toxemia from the nephritis.

With advance in chronic nephritis, elevated blood pressure develops and eventually circulatory failure with edema results. This is the second form of edema encountered in nephritis, referred to as cardiac or circulatory edema.

The circulatory failure of chronic nephritis is to be recognized and treated as any other form of cardiac circulatory insufficiency. Digitalis is the sheet anchor of therapy. I believe in its use when the heart is enlarged, before evidences of circulatory insufficiency appear, using a daily ration of from 0.1 to 0.2 Gm. of powdered leaves continuously.

There is nothing to do about the hypertension of chronic nephritis beyond recognizing it as an added load on the heart and so restrict other cardiac loads in proportion to the hypertension and particularly after the heart becomes hypertrophied enough to be easily demonstrated as enlarged by simple physical examination. If renal function is poor a fall in blood pressure is one of the worst things that can happen. Luckily it is that the physician has almost no ability to lower the high blood pressure of patients with chronic nephritis.

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LIPOID NEPHROSIS AND ITS RELATION TO GLOMERULAR NEPHRITIS

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Between 1920 and 1932, approximately 160 patients more than 15 years of age who presented the "nephrotic syndrome" prominently have been carefully studied at the Mayo Clinic, that is the patients displayed marked edema, profuse albuminuria, elevation of the values for blood lipoid and a decrease in the value for serum proteins. Many patients have been admitted more than once, and the subsequent course of most of the patients has been traced.

In thirty cases, a clinical diagnosis of lipoid nephrosis was justified on the first admission according to the strict criteria for diagnosis of this disorder, but in seven of these cases subsequent examinations have shown the development of definite, chronic glomerular nephritis, four patients having died in uremia.

Nineteen cases corresponded to the so-called "mixed nephrosis" that has been referred to in the literature. As a matter of fact, some of the cases that have been reported as examples of lipoid nephrosis in reality belong in this group. Mixed nephrosis differs from typical lipoid nephrosis only because in the former there is slight evidence suggestive of associated nephritis. In eleven cases it was impossible to make a defi-

nite diagnosis of either lipoid nephrosis or mixed nephrosis because of complicating and slightly atypical factors necessitating hair-splitting distinction.

In the remainder of the cases, approximately 100 glomerular nephritis was more advanced, and the cases have been excluded from the present statistical study. It is of passing interest to note, however, that most of these patients have subsequently died in uremia.

My interest has centered chiefly in the first two clinical groups, that is, the group of lipoid nephrosis and that of lipoid nephrosis with a suggestion of associated nephritis. It seems advisable to analyze them separately.

LIPOID NEPHROSIS

The criteria for the diagnosis of lipoid nephrosis are well understood and they have been closely adhered to in these cases. In order to make such a diagnosis, some difficult decisions had to be made in determining what was normal and what was abnormal. Some of the standards were perhaps too exacting, but if a statistical study such as this is to be reliable, certain arbitrary standards of measurement must be set up so that the reader may have a clear idea of the case under discussion.

In all cases there was marked generalized edema, and in all the history was given that this edema had been present for two months at least. In most cases the edema was of insidious onset. All patients had heavy and persistent albuminuria, all but a few were subjected to complete studies of blood cholesterol, serum protein and basal metabolism, and in all cases the values for blood cholesterol were significantly increased and those for serum proteins were significantly decreased. The basal metabolic rate was decreased in most cases but in some was within normal limits. I have not felt that a basal metabolic rate within normal limits was sufficient in itself, to preclude the diagnosis of lipoid nephrosis especially if correction was made for the false increase in weight due to edema. No patient had increased blood pressure or evidences of previous hypertension such as cardiac enlargement or retinal changes. Systolic blood pressures of more than 140 mm. of mercury and diastolic pressures of more than 90 mm. were arbitrarily regarded as abnormal, the younger patients, and most of the others maintained blood pressures considerably below these levels.

No patients had hematuria, anything more than an occasional erythrocyte in the urine was regarded as abnormal, and all cases were excluded wherein urinalysis disclosed any more erythrocytes than could reasonably be expected to occur in the urine of a normal person if the urine was examined carefully each day.

No patients had significant renal insufficiency as measured by determinations of urea in whole blood and of excretion of phenolsulphonphthalein. All determinations of urea gave values of less than 40 mg. for each 100 cc. of whole blood, and excretion of phenolsulphonphthalein in all cases was at least 50 per cent in two hours and fifteen minutes.

Significant anemia was not present in any case, erythrocytes in any case did not number less than 4,000,000 in each cubic millimeter of blood. Appraisal of these criteria will establish these cases as clinical examples of lipoid nephrosis, and such a diagnosis was agreed on by several physicians who independently examined the patients or studied their records.

In this group of thirty patients there were twenty-one males and nine females, a difference which I am

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Because of lack of space, references to some of the literature are omitted here. This omitted material will appear in the reprints.
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unable to explain. Their ages on admission ranged from 15 to 72 years. All patients who are less than 15 years of age are treated, at the clinic, in the section on pediatrics, this accounts for the arbitrary lower limit of age. Twenty-two patients were between 15 and 40 years of age, five between 40 and 50 years, and three, more than 50 years. The onset of the edema was insidious in sixteen cases. It followed exposure in four cases, influenza in three, syphilis and treatment for syphilis in two, tonsillitis in two, diphtheria in one, chickenpox in one and an alcoholic debauch in one.

Practically the same etiologic ratio existed in the seven cases of the thirty just mentioned in which glomerular nephritis developed later. In four of these the onset was insidious, in two it followed exposure, and in one it followed tonsillitis.

Most of the thirty patients have been reexamined at the clinic and an attempt has been made to follow the subsequent course of the illness at home. The data obtained as a result of these studies are interesting and I think valuable. They are summarized as follows:

Apparently cured, seven patients, traced, six and a half, five, eleven and a half, one and a half, seven, two and five years, respectively.

Reported themselves "fine" but laboratory data not furnished, nine patients, traced, three and a half, three, five, eight and a half, five, seven and a half, four, three and three years, respectively.

Markedly improved, four patients, traced, two, seven and a half, two and a half and five years, respectively.

Symptomatically improved but with glomerular nephritis, two patients, traced, nine and seven years, respectively.

No improvement, one patient, traced one year.

Dead, seven patients. Two of these seven patients died at the clinic, one of septicemia, and the presence of mild glomerular nephritis was confirmed at necropsy, one in uremia, from chronic glomerular nephritis which was confirmed at necropsy. Five died at home, three in uremia from chronic glomerular nephritis and two of causes not determined.

A study of the foregoing summary of the thirty cases impresses one with the fact that as a group these patients have ultimately done surprisingly well, significantly better than a similar group of patients with chronic glomerular nephritis would have done. Previously a relevant prognostic study has been reported from the clinic.⁶ In children the prognosis is apparently not so good, probably owing in part at least to the difficulties in treatment and to the more frequent occurrence of intercurrent infections.

As has been emphasized often the course of the illness, even of those who ultimately recover, is usually characterized by recurrence of, or exacerbations of, the edema and variation in the degree of albuminuria.

The seven patients who have been considered apparently cured have all been entirely free from any symptoms of disease for a considerable period of time and have all been examined and found to be apparently normal. Repeated urinalyses in each case have given normal results. Of course it is always possible that this "cure" may not be permanent, but these seven patients at least demonstrate that striking recovery is possible.

Without the opportunity for careful examination of the nine other patients who have reported that they were feeling well and were not having any trouble it is impossible to determine what percentage of them might be apparently cured or what percentage might have

residual abnormalities. Summing up these cases, it is evident that twenty patients, exactly two thirds of the entire group, have made marked symptomatic improvement.

The insidious onset of this disease, with such a relatively high proportion of recovery of patients who had had such marked symptoms for months and even years, makes the clinical course different from that in ordinary chronic glomerular nephritis, and provides some basis for the theories of those who claim that this disorder is an entirely separate entity from glomerular nephritis. But this argument is immediately met with one based on the fact that in some of these cases definite glomerular nephritis develops and the patients die in uremia. The statements in the literature that patients with lipoid nephrosis never die in uremia from glomerular nephritis are wrong, if my observations are correct.

Surely, if glomerular nephritis can be proved to have developed in seven of thirty cases of lipoid nephrosis, there must be some intimate relationship between the two diseases. This incidence is too high to be explained on a purely accidental basis.

It is necessary to prove, therefore, in the first place that these seven cases were instances of lipoid nephrosis, and in the second place that glomerular nephritis actually developed. Thus I have tried to do in table 1 and the following notes on the cases.

CASE 1 (table 1).—The onset was insidious. In addition to the data recorded Aug 10, 1927, doubly refractive lipoid bodies were found in the urine. Significant data remained unchanged during fourteen days of observation, except that the patient lost 9 Kg of edema fluid without any medication. It is to be emphasized that the patient had had edema off and on for three and a half years before admission and that at times it had been marked. He was dismissed August 24 with an unqualified diagnosis of lipoid nephrosis.

When he was reexamined May 21, 1928, early signs of nephritis were noted, the blood pressure was slightly elevated, and there was some anemia. In the meantime his edema had disappeared without medication, and it never again recurred. On two subsequent examinations, July 15, 1929, and Aug 18, 1930, there was definite progression of glomerular nephritis, as indicated by hypertension, anemia, an elevated value for blood urea and a markedly decreased excretion of phenolsulphonphthalein. Weakness progressed slowly, and the man died at home Sept 29, 1932, in uremia.

CASE 2 (table 1).—The data recorded in June, 1928, and October, 1928 were sent in by the patient's physician in Chicago. In June, daily urinalysis for many days disclosed persistent albuminuria, and only once or twice an occasional erythrocyte. Repeated readings of blood pressure were around 130 systolic, on one occasion pressures of 150 systolic and 80 diastolic were recorded. The edema subsided but recurred, and the patient was hospitalized in October, 1928 (table 1). A diagnosis of lipoid nephrosis was made at that time. Subsequently edema recurred again and the patient was sent to the clinic Jan 22 1929 (table 1). He was in the hospital twenty-one days. Readings of blood pressure taken daily were all normal except one reading which was recorded as 145 systolic and 80 diastolic. On dismissal, erythrocytes numbered 3,980,000. All other data remained unchanged. A diagnosis of lipoid nephrosis was made.

On reexamination, Jan 24 1930, in addition to the elevated value for blood urea the reduction of excretion of phenolsulphonphthalein, the hematuria and the questionable slight hypertension the patient also had mild retinitis. These observations definitely indicated associated glomerular nephritis. The subsequent course of his illness at home was characteristic of slowly progressive renal insufficiency, and the patient died July 19 1932.

6 Bannick, E. G. and Keith, N. M. The Treatment of Nephritis and Nephrosis With Edema. J. A. M. A. 91: 1944-1951 (Dec. 22) 1928.

CASE 3 (table 1)—Following diphtheria, five and a half years previously, albuminuria developed and slight edema had been present at intervals ever since. There was a marked increase of edema a week before admission on Feb 21, 1924. Frequent examination at the clinic over long periods, on one occasion for forty-seven days (March 9 1925), always revealed typical data for lipid nephrosis until October 1927. During this time of observation the patient had required many injections of merbaphen and much ammonium chloride to keep edema under control. Oct 20 1927, the first indications of nephritis occurred when hematuria and an elevated value for blood urea were noted. The hematuria has persisted in varying degrees, and the renal insufficiency has been slowly progressive since that time but hypertension has not occurred. Between 1924 and 1933 the patient required injection of merbaphen at

the only residual sign pointing toward nephritis was the anemia. She continued to have trouble at home and was reexamined Aug. 23, 1930, at which time she was found to be in the end-stage of chronic glomerular nephritis. This progressed until she was in uremia, September 14, with a value for urea of 468 mg in each 100 cc of whole blood. She died at home a few days later.

CASE 5 (table 1)—The edema was of insidious onset. In addition to data noted Aug. 25 1926 doubly refractive lipoids were found in the urine. Significant data were unchanged for thirty days, except for loss of edema (105 Kg). The patient had taken 87 Gm of ammonium nitrate, 90 Gm of ammonium chloride and 65 cc of merbaphen (nine injections) during this period. She was dismissed September 22, with a diagnosis of lipid nephrosis. Edema recurred when she was at home, and

TABLE 1—Cases of Lipoid Nephrosis With Subsequent Glomerular Nephritis

Case	Time Since Onset, Months	Age, Years	Sex	Date	Edema Grade	Blood Urea		Hemoglobin per Cent (Dare)	Erythrocytes Millions	Blood		Urine		Ba. Al. Mole Rate
						Systolic	Diastolic			Iron Ml. per 100 Cc Whole Blood	Cholesterol Ml. per 100 Cc Plasma	Protein Gm per 100 Cc Serum	Albumin Grade	
1	42	33	M	8/10/27	1	100	50	7	4.5	23	2.4*	4.0	2	0
				9/1/28	1	100	50	6	1.1	6	193		2	0
				7/16/29	0	170	100	6.5	4.02	42			4	0
				8/14/30	0	170	90	6.5	3.01	84			4	0
2	4	18	M	6/—/25		Normal							4	0
				10/—/28	2	Normal				10	200		4	0
										31			4	0
				7	10	122/20	90	68	4.32	4		3.00	4	0
3	60	21	F	2/1/29	1	130	70	70	4.0	16	2.9	3.00	3	0
				1/24/30	1	142	90	70	4.00	54	5.0	4.00	4	1
				2/21/24	3	170	80	80	4.97	12			3	0
				10/1/24	2	110	60	77	4.84	14	3.0	4.6	3	0
4	6	21	F	7/23/26	1	150	100	4.1	2.90	40			3	0
				8/20/26	2	100	100	4.1	2.90	40			3	0
				8/31/26	2	100	100	4.1	2.90	40			3	0
				9/14/26	0	120	70	54	3.21	20	2.0	3.8	3	0
5	24	43	F	8/23/26	3	120	70	70	4.16	24	23.0*	4.23	3	0
				9/22/26	1	120	90	74	4.01	13	22.1	4.22	2	0
				10/11/27	3	120	80	74	4.01	13	22.1	4.22	2	0
				11/5/27	1	100	80	74	4.01	13	22.1	4.22	2	0
6	6	22	M	5/10/26	3	120	70	70	4.08	37	28.4*	4.00	2	0
				7/15/26	0	140	100	70	4.08	37	28.4*	4.00	2	0
				10/18/26	1	150	80	70	4.13	52	37.4		2	0
				3/4/27	1	190	100	45	2.20	221	11	5.8	1	1
7	2	15	F	4/11/29	3	115	80	72	4.6	12	501	3.3	4	0
				5/7/29	0	100	70	70	4.6	18	5.8	4.0	4	0
				5/9/29	0					20			4	0
				5/11/29	0								4	4

* Cholesterol calculated according to Bloor method on whole blood

† Gradually becoming lower

‡ Nonprotein nitrogen not urea determination made elsewhere

irregular intervals, and took much mercury in this way but had always responded well to these injections. The patient reported, May 4 1933, that she was having little trouble in controlling edema, probably owing to the slow development of a contracted kidney.

CASE 4 (table 1)—The edema was of insidious onset. On examination, July 28, 1926 the data were those of lipid nephrosis, and there was no significant change in the data for twenty-seven days, in spite of a prolonged infection of the respiratory tract. On the twentieth day an injection of 0.5 cc of merbaphen was given, and on the twenty-third day an injection of 2 cc of the same substance. This was followed by severe stomatitis. August 24 (twenty-eighth day), a series of convulsions suddenly developed. This episode was followed by an increase in the edema and by hypertension, anemia and renal insufficiency. The patient made a gradual recovery from this exacerbation, however, and on dismissal September 14,

treatment with ammonium nitrate and an occasional injection of merbaphen were necessary. She returned for examination Oct 13 1927, and again her condition was typical of lipid nephrosis, except that the excretion of phenolsulphonphthalein was somewhat diminished. Also occasional erythrocytes were noted in the urine possibly a little more frequently than could be considered normal. She was again treated with ammonium nitrate 124 Gm, and with merbaphen 75 cc (six injections), and was dismissed November 5. She never had much trouble with edema after that but Feb 19, 1929, a definite reduction in excretion of phenolsulphonphthalein was noted, and May 13, 1932 although she had been free from edema for months and had thought she was getting along well, she was found to have typical chronic glomerular nephritis with hypertension, hematuria and renal insufficiency.

CASE 6 (table 1)—Edema was of insidious onset. On admission to the clinic, the patient's condition seemed to be typical

of lipid nephrosis and the data recorded May 10, 1926, remained without any significant change for sixty-six days. During this period the patient had taken 415 Gm of ammonium chloride and 165 cc of merbaphen (nine injections), and had lost 20.5 Kg of edema fluid. The diagnosis of lipid nephrosis seemed unquestionable. On the sixty-seventh day, however, the value for blood urea was elevated, and when the patient was dismissed on the sixty-eighth day, the value for blood urea was 65 mg, and his blood pressures were 140 systolic and 100 diastolic, thereby suggesting a nephritic component. On subsequent examination he was found to have rapidly progressive glomerular nephritis. March 4, 1927, he had marked hypertension, anuria, renal insufficiency and hematuria, and he died in convulsions and coma March 7. At postmortem examination, made at the clinic, the kidneys were contracted and typical of the end-stage of glomerular nephritis.

CASE 7 (table 1).—The onset of edema followed two months after "sore throat." The patient had scarlet fever six months, and tonsillitis four months before admission. In spite of this,

Comment on the Seven Tabulated Cases of Lipoid Nephrosis.—In a critical appraisal of these cases it seems to me that in case 1 clinically pure lipid nephrosis unquestionably was present at one time but that the patient died as a result of renal insufficiency from glomerular nephritis.

The same seems true of case 2, unless the one abnormal blood pressure recorded by the physician at home, among many normal readings, and the one systolic reading of 145 made at the clinic preclude the diagnosis of lipid nephrosis. However, if such a hair-splitting distinction is sufficient to change the diagnosis from lipid nephrosis to glomerular nephritis, then these disorders must certainly be most closely related.

Cases 3, 4, 5 and 6 seem to be without question examples of definite lipid nephrosis changing into unmistakable glomerular nephritis. The only question

TABLE 2.—Cases of Lipoid Nephrosis of Mixed Type in Which Postmortem Examinations Were Made.

Case	Time Since Onset Months	Age, Years	Sex	Date	Edema Grade	Blood Pressure		Hemo- globin per Cent	Erythro- cytes Millions	Urea Mg per 100 Cc Whole Blood	Creat- inine Mg per 100 Cc Whole Blood		Choles- terol Mg per 100 Cc Plasma	Protein Gm per 100 Cc Serum	Urine			Basal Meta- bolic Rate
						Systolic	Diastolic				Mg per 100 Cc Whole Blood	Mg per 100 Cc Whole Blood			Albu- min Grade	Erythro- cytes Grade	Phenol sulphon- phthal- ein per Cent	
8	6	18	M	3/28/27	2	120	80	72	4.64	14			3.9	3.66	3	1	65	0
				4/13/27	1	90	70	70	4.54	34			302*		2	0		
				4/18/27	0	100	70	68	4.38	81			362*		2	0		
				4/21/27	0	80	60			44					2	0	50	
				8/ 6/27	0	120	90			10			362*	3.58	1	1	50	
				6/28/28	0	120	80	60	3.81				247*	5.8	2	0 cc	40	
				11/13/29	0	160	106	35	2.60	315			200	6.03	3	1	0	
9	5	60	M	3/12/25	4	160?	?	72	3.06	99	1.8			3	0 cc	35	— 4	
				4/11/25	1	140	90	46	2.83	33					2	0 cc		30
				8/ 7/25	2	140	75											
				12/ 3/25	3	140	90	50	3.42	117	0.7				4	1		
10	10	32	M	8/17/26	4	142	96	57	3.29	47	2.3		4.5	4	0			
11	19	T		11/ 1/26	Trace	140	110	72	4.12					1	1			
				11/ 3/26		170	90											
				11/ 1/27	4	140	110	68	3.92	62			22 *		4	0		
12	24	62	M	11/ 3/27	4	160	120			60				4	0			
				3/12/25	3	130	75	70	3.42	117					3	0 cc	10	
13	2	37	F	3/19/25	3	120	70		3.79	161	4.1			1	0			
				3/ 5/19	0	120	68								2	0		
14	9	23	M	4/19/26	2	106	76	70	4.41	55			362		2	0	10	+ 2 —11
				5/ 5/26	1	95	70			63	4.3				3	0		
				5/22/26	1	100	60			133					1	0 cc		
				9/30/26	3	150†	100†	68	3.67	12	1.2		401	4.0	3	0	55	
3/ 4/27				3	150	120	68	3.22	27			362		3	0	45		
3/16/27				3	150	100			36					4	0			
4/ 5/27							40	2.71	56					4	0			
4/22/27					115	70	38	2.15	61									
5/ 3/27									188	4.2				4	0			
5/ 6/27									188	4.3				4	0			

* Cholesterol calculated according to Bloor method on whole blood
† Gradually becoming lower

the data seemed typical of lipid nephrosis on admission of the patient to the clinic April 11, 1929. Significant data were unchanged for twenty-seven days except for the loss of 12 Kg of edema fluid. During this time the patient had taken 160 Gm of ammonium nitrate and 25 cc of merbaphen (two injections). Tonsillectomy was performed May 8. Septicemia developed May 10, on which date the value of blood urea was still normal, and hematuria was not noted. The following day, however, gross hematuria occurred. The patient died May 12, as a result of the septicemia. At postmortem examination the kidneys were large, together weighing 523 Gm. The changes in the glomeruli were uniform and consisted of proliferation and swelling of endothelial cells with partial obstruction of many of the capillary loops and complete obstruction of a few. The association of numerous polymorphonuclear cells with the proliferated endothelium suggested that an acute process was present. Changes in the glomerular membrane were not marked and consisted of occasional areas of slight thickening. Tubular changes were marked, whereas the interstitial changes were not altered.

that can be raised in these cases is concerning the fact that merbaphen was given in all of them. In cases 5 and 6, this does not seem to sustain a reasonable objection, because neither of the patients received much merbaphen and both responded well to it. Furthermore, there is no reason to think that mercury would produce glomerular nephritis, and for this reason cases 3 and 4 are also probably not to be questioned.

In case 7 two objections might be raised: first, that the onset following "sore throat," with a history of only two months' duration, precluded a diagnosis of lipid nephrosis, and second, that the glomerular changes noted at postmortem examination were the result of the terminal infection and were therefore manifestations of incidental acute nephritis. It is seen at a glance that these two objections are paradoxical, so that neither seems very plausible. At any rate, this case presented the clinical data of lipid nephrosis, and

at postmortem examination there was evidence of mild glomerular nephritis in addition to the tubular changes characteristic of lipid nephrosis.

LIPOID NEPHROSIS WITH SLIGHT EVIDENCE OF NEPHRITIS (MIXED NEPHROSIS) NINETEEN CASES

An insufficient number of these cases is reported in the literature, since careful and complete clinical and pathologic studies of such cases may aid in ultimately determining the exact relationship between lipid nephrosis and glomerular nephritis. Wilbur and I intend to publish such a detailed study soon and therefore I will make only a brief report of some such cases at this time.

The age incidence and the etiology coincided well with those of typical lipid nephrosis. There were eleven males and eight females; twelve were between 15 and 40 years of age, three, between 40 and 50 years of age, and four between 60 and 70 years of age. The onset of the disease was insidious in fifteen cases, occurred during pregnancy in three cases and followed exposure in one case. Attention is called to the proportion of occurrence among older persons. These nineteen cases are summarized as follows:

Cured, no known cases

Reported themselves fine, but laboratory data not furnished, three patients, traced, six, four and three years, respectively.

Symptomatically improved, but with nephritis, two patients, traced six and two years, respectively.

No report one patient

Dead, twelve patients. Seven of these twelve patients died at the clinic. One of the seven died in uremia and necropsy confirmed the presence of the end-stage of glomerular nephritis, in one case necropsy confirmed the presence of progressive glomerular nephritis and pericarditis. Five died primarily from complicating disease. One of the five had infected ascites and anasarca, and necropsy confirmed that considerable glomerular nephritis was present. In the other four of the five cases necropsy disclosed large pale kidneys and marked tubular changes and in three of the four there were slight but definite glomerular changes, whereas in one of the four the glomeruli seemed normal. One of these four patients had cellulitis sepsis and pericarditis, one, pneumonia and empyema, one pneumonia, and one, anasarca, convulsions and hyperpyrexia. Five of the twelve patients died at home; two of progressive glomerular nephritis and three of causes that were not determined.

When the data just summarized are compared with those presented in the summary of the thirty cases of lipid nephrosis given earlier in this paper, the difference in prognosis is at once striking. Not only is there a much higher mortality rate among the patients who had lipid nephrosis with slight evidence of nephritis (mixed nephrosis) but also absence of known cure. Another probably significant observation is the much higher incidence in cases of mixed nephrosis of death resulting from complicating infections, half of the deaths occurred in this way. This probably can be explained by the facts that patients who have mixed nephrosis do not as a group respond to treatment as well, more difficulty is experienced in keeping the edema under control, and this, together with such other factors as retention of urea, and anemia, prepares the soil for intercurrent infection.

Postmortem examinations were performed at the clinic in seven cases, and a brief clinical and pathologic

abstract of these cases is included in table 2 and the case histories. The pathologic studies were made by Wilbur and represent a portion of those that will be reported in detail later. Notes on the seven cases follow.

CASE 8 (table 2).—Albuminuria had been noted three years before the patient came to the clinic. Edema had come on insidiously six months before admission. At the time of the first examination, March 28, 1927, in addition to the data recorded, doubly retractive lipoids were found in the urine, and lipemia retinalis was noted. All data pointed to lipid nephrosis except the fact that erythrocytes occurred in the urine slightly more frequently than usual, and soon (April 13) urinalyses gave entirely negative results for blood, at which time the data were those of typical lipid nephrosis. However a little later, the value for blood urea became elevated during a course of treatment with ammonium nitrate, but this also promptly returned to normal. The factors mentioned however precluded a diagnosis of uncomplicated lipid nephrosis at the time when the patient was dismissed, April 21, after nearly a month of treatment. On subsequent examinations Aug. 6, June 28, 1928 and Nov. 13, 1929, the progression of glomerular nephritis was noted and the patient died in uremia. Postmortem examination disclosed the contracted kidneys typical of the end-stage of glomerular nephritis.

CASE 9 (table 2).—Anasarca which became extreme, was of insidious onset. Readings of blood pressure were unreliable because of great edema of the arms. Signs of renal insufficiency slowly progressed, but pericarditis developed and the patient died in coma, Dec. 16, 1925 before renal insufficiency alone would have caused his death. At postmortem examination the kidneys were large, together weighing 408 Gm. The predominant pathologic picture was the marked tubular changes, nevertheless, evidence of glomerular nephritis, not yet in an advanced stage, was unmistakable.

CASE 10 (table 2).—Massive anasarca was of insidious onset. Abdominal paracentesis had been performed five times before the patient's admission to the clinic, and milky fluid had been withdrawn each time. The patient died suddenly, while vomiting twenty-four hours after admission. At postmortem examination ascites (approximately 11,000 cc) with infected fluid and bilateral hydrothorax were discovered. The kidneys were small, together weighing only 209 Gm, and contained surprising changes in view of the marked clinical evidence of nephrosis and the slight clinical evidence of nephritis. The glomeruli presented all stages of change from an almost normal condition to that of markedly thickened basement membranes, endothelial proliferation, formation of hyaline fibers and complete obstruction of the capillary loops. Crescents were absent. Marked changes were noted in the tubules and interstitial tissue.

CASE 11 (table 2).—The patient came to the clinic, Nov. 1, 1926 because of a tremor, at which time slight hypertension and a faint trace of edema of the ankles were noted. Urinalyses disclosed slight albuminuria and slight hematuria, but these were not particularly significant because of marked pyuria owing to vaginal discharge. Exactly a year later she returned again this time with extreme anasarca which had begun insidiously two months before. Hematuria had occurred at home. The data noted Nov. 1, 1927, were atypical for uncomplicated lipid nephrosis because of slight hypertension, anemia and renal insufficiency, but all of these were relatively mild. November 3 there was a marked increase in the edema of the face and head and the patient suddenly began to have a series of convulsions following one of which her blood pressures were recorded as 160 mm. of mercury systolic and 120 diastolic. Coma and hyperpyrexia followed and the patient died November 7. The last temperature recorded was 106.2 F.

At postmortem examination nothing significantly abnormal was noted, except in relation to the kidneys. They were large weighing together 472 Gm. There were some changes in the glomeruli in most instances, the alterations were chiefly slight to moderate proliferation and swelling of endothelial cells.

These changes were patchy and variable in degree and stage of development. The loops in some tufts were obstructed, but practically no tufts were completely occluded. The basement membrane was thickened in some areas but this was not a striking feature in the majority of the glomeruli. The tubular and interstitial changes were markedly out of proportion to the glomerular changes.

CASE 12 (table 2)—The onset followed exposure. The edema began in the face and was of insidious development. Data assembled March 12, 1925, were not typical of lipoid nephrosis because of the presence of renal insufficiency, anemia and erythrocytes in the urine. March 14 cellulitis of the abdominal wall occurred and became extensive. The patient died March 22, of sepsis and terminal pericarditis. The terminal value for blood urea was 161 mg in each 100 cc. At postmortem examination the kidneys together weighed 422 Gm. On microscopic examination, the tufts appeared essentially normal. Albumin and granular material were present in the capsular spaces, and some of the tufts presented evidence of thickening about the hilus concomitant with the age of the patient. The glomerular membrane was essentially normal in every tuft. The prominent changes were in the tubules, and to some extent in the interstitial tissues.

CASE 13 (table 2)—This patient was first seen at the clinic March 5, 1919, at which time she was found to have chronic arthritis and infected tonsils. Albuminuria was noted at that time. She was readmitted April 19, 1926, because of the insidious onset of edema two months before. She had been having much trouble with arthritis also. Marked nephrotic features were noted on admission, but also evidences of renal insufficiency. The congo red test for amyloid disease gave a normal response. She responded poorly to treatment for the edema and finally contracted bilateral bronchopneumonia and died May 26.

At postmortem examination the kidneys together weighed 306 Gm. Marked changes were observed in the tubules and in the interstitial tissue. There was evidence of mild but definite glomerular nephritis.

CASE 14 (table 2)—Edema was of insidious onset. On his first admission Sept. 30, 1926, the patient's condition was typical of lipoid nephrosis, except for slight hypertension and slight anemia. The only significant changes noted on his second admission March 4, 1927, were slight progression of the hypertension and the anemia. April 5, bronchopneumonia developed, then bilateral empyema and parotitis. Progressive renal insufficiency followed, and the patient died May 8. At postmortem examination, the kidneys were found to be very large together weighing 666 Gm.

The glomeruli presented appearances varying from normal to marked changes and complete hyalinization. Endothelial increase and fatty degeneration, thickening and fraying of the basement membrane were present in variable degrees in nearly all tufts. Crescents and hyaline fibers were not observed. A large proportion of the glomeruli were so diseased as to be functionally useless. Tubular and interstitial changes were marked.

Comment on the Seven Tabulated Cases of Mixed Nephrosis—Appraisal of the contents of table 2 and of the notes on the cases brings out some interesting observations.

In all of these cases in which necropsy was performed (except one case 12) there was both clinical and pathologic evidence of associated glomerular nephritis. Case 12 gave clinical evidence of nephritis (marked renal insufficiency and anemia) but there were no significant glomerular changes. Several pathologists made careful studies, using the special method of staining recommended by Bell⁸ and McGregor.⁹

The finding of essentially normal glomeruli in case 12 could be interpreted in two ways: either that this was an example of pure lipoid nephrosis, and that the renal insufficiency and anemia noted clinically were the result of the tubular changes and extrarenal factors; or that some degree of glomerular nephritis, or at least of glomerular insufficiency, existed, even though it could not be definitely demonstrated by microscopic studies. Because of the relatively short history (two and a half months) and the large kidneys, I think the latter explanation is more plausible.

In spite of clinical evidence of associated glomerular nephritis the kidneys were large and pale in five of the seven cases and in four of the seven the glomerular changes were slight as compared to the tubular changes. Cases 11 and 12 were practically typical examples of the pathologic picture attributed to lipoid nephrosis. These observations would indicate that glomerular nephritis may exist without producing the usual pathologic changes that one has been taught to anticipate in chronic glomerular nephritis. This would seem to favor Bell's ideas as to the pathogenesis of lipoid nephrosis.

The relatively slight glomerular changes and the absence of any significant changes in one case would indicate on the other hand, that both clinically and pathologically some of these mixed cases differ from ordinary chronic glomerular nephritis. Whether it is a matter of degree of capillary occlusion and so forth as suggested by Bell, I am not prepared to say from this study and from my limited pathologic experience. But at any rate the fact that the glomerular changes are relatively slight even in some of these cases in which there was definite clinical evidence of nephritis, explains why patients with typical lipoid nephrosis not infrequently recover.

The pathologic evidence of mild glomerular nephritis cannot be attributed to the terminal infection in these cases, because they presented clinical evidence of some glomerular nephritis before a terminal infection developed.

In these cases of mixed nephrosis it is not possible accurately to predict just what pathologic changes necropsy will reveal. Christian¹⁰ aptly stated this when he wrote: "As clinicians, I think we should recognize that we may be unable during life to predict accurately whether the pathologist is going to find more or less nephrosis or less or more nephritis." Clinically the patient whose condition was nearest to typical lipoid nephrosis was the one in case 10, and his kidneys were small and contained rather marked glomerular changes, whereas in case 12, in which there were practically no glomerular changes I had expected to find considerable glomerular change.

SUMMARY

The present study of lipoid nephrosis and the so-called 'nephrotic syndrome' suggests that lipoid nephrosis, in adults at least, is a form of Bright's disease.

The frequent association of lipoid nephrosis with definite glomerular nephritis, the fact that cases of clinically pure lipoid nephrosis may terminate in uremia from the end-stages of glomerular nephritis, and the fact that not a single case typical of lipoid nephrosis in an adult has come to postmortem examina-

⁸ Bell, E. T. Lipoid Nephrosis. *Am J Path* 5: 587-622 (Nov.) 1909.

⁹ McGregor, Leone. The Cytological Changes Occurring in the Glomerulus of Clinical Glomerulonephritis. *Am J Path* 5: 559-586 (Nov.) 1929.

¹⁰ Christian, H. A. Nephrosis. A Critique. *Tr. A. Am. Physicians* 44: 68-76, 1929.

tion at the Mayo Clinic suggest that at least most cases of lipid nephrosis represent a stage in, or an unusual type of, glomerular nephritis. If other cases occur they are extremely rare.

The relatively high percentage of patients who have been cured of lipid nephrosis or who have shown marked and prolonged improvement and the relatively slight evidence of glomerular nephritis in most instances at postmortem examination even among patients who have given clinical evidence of glomerular nephritis, justify the grouping of these patients clinically in a separate group from that of ordinary glomerular nephritis. As long as the term lipid nephrosis has been so uniformly accepted there seems to be no good reason for changing it.

ABSTRACT OF DISCUSSION

DR M. H. BARKER, Chicago. The problem of the waterlogged patient with renal disease is very broad and difficult to interpret. It is obvious that in the presentation by Dr Bannick a large number of cases fall well within the classification of the nephrotic syndrome. However as he points out time and study of these cases bring many of them to an end that cannot be differentiated from that of the regular course of renal disease of the glomerular type. Clinical and experimental studies indicate clearly as Dr Bannick has concluded that that group of cases should be set apart for consideration, certainly from the standpoint of dietary and therapeutic management. I am sure that the dietary plan used and the fluid balance control served to bring many of these to a period of apparent recovery and again, to prolong the lives of others. I am sure that a large number that develop edema and convulsions, or renal edema with nitrogen retention, are not infrequent in this acute stage. The control of that phase is making it possible to carry many more on to a period of possible recovery. My experience comedes with the results of this study. Some of the purest types have gone on to renal failure and to contracted kidneys. I have studied a group from the standpoint of the onset. All of those which I had a chance to follow up from the beginning started with an acute nephritis. It may have been very mild, a week or ten days, but with the ensuing albuminuria the nephrotic syndrome followed. Flat roentgenograms show large kidneys. As the edema subsides or is controlled, the size of the kidney comes down. The cases that have come to autopsy presented these peculiar mixed glomerular lesions with other evidence of degenerative changes. One must keep the nephrotic groups in mind, as a different group from the standpoint of therapy. Since, however the majority of the syndromes may be a part of the glomerular renal disease with a phase in which the albuminuria and edema are the chief signs, one must not lose sight of the disease by focusing attention, for the moment, on the individual stage.

DR DAUGHT L. WILBUR, Rochester, Minn. I have had the opportunity of studying the kidneys, and particularly the glomeruli, in the cases reported by Dr Bannick. I can verify the presence of the pathologic changes which he mentioned. There are two points which I would like to emphasize with regard to this problem. In almost all cases presenting the nephrotic syndrome, glomerular lesions, often of a mild degree, were demonstrated, regardless of the presence or absence of clinical evidence of glomerular nephritis, and without respect to the stage of the disease at the time of death. Up to the present time the renal lesion is the only outstanding one that has been observed in these cases post mortem. These facts strongly emphasize the view expressed by Dr Bannick that those cases in which the nephrotic syndrome is present in adults are in reality examples of a stage or a type of glomerular nephritis. However, it cannot be denied that certain cases which clinically present the nephrotic syndrome may, at postmortem examination, show glomeruli that appear normal histologically. The number of such cases noted in the literature is so small, and existing knowledge of the pathogenesis of such renal lesions is so meager and controversial, that caution is needed before stating the relationship or the absence of relationship between

these cases and those of glomerular nephritis. There is not as yet sufficient knowledge to settle this problem satisfactorily. One of the greatest difficulties is the present inability to correlate the anatomic and physiologic changes occurring in renal disease as so aptly expressed by Christman. "I think we should recognize that we may be unable during life to predict accurately whether the pathologist is going to find more or less nephrosis or less or more nephritis."

DR I. G. BANNICK, Rochester, Minn. Dr Barker raised an interesting question concerning the etiology of these cases, namely, whether those in which typical glomerular nephritis subsequently developed presented a different etiology or onset from the others. This thought had also occurred to me, but after careful study I found that this was not true in this series of cases. Practically the same etiologic ratio existed in the seven patients who later developed glomerular nephritis as in the other patients. In four of the seven the onset was apparently insidious, in two it followed exposure, and in only one case did it follow an acute infection (tonsillitis). Dr Barker made another suggestion with which I concur, and that is that for the time being, at least these cases of lipid nephrosis should be retained as a clinical group separate from the cases of ordinary chronic glomerular nephritis, and in this way more light may be thrown on this problem as well as on the larger ones dealing with renal pathology and physiology in general. It should be appreciated, however, that the clinical and pathologic picture may change, and before a physician attempts to say much about the prognosis of a given case of lipid nephrosis he must have the opportunity of repeated observations and careful study. Under these conditions if the same absence of evidence of nephritis persists as time goes on it becomes progressively safer to venture a prognosis.

PROCEDURES FOR THE TREATMENT OF MYELOGENOUS LEUKEMIA

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Myelogenous leukemia is a disease characterized by progressive hyperplasia or proliferation of the myeloid cells of the body. It is clinically manifested by varying degrees of enlargement of the spleen and an abnormal number of immature myeloid cells in the circulating blood. The disease always proceeds, by exacerbations and remissions to a fatal termination.

The profession is still as ignorant of the etiology of myelogenous leukemia as were John Hughes Bennett and Rudolph Virchow when they independently described it in 1845. The fact that the cause of this disease has eluded medical savants has led to extensive investigations of its different aspects in the hope of discovering its mysterious origin or a cure. As a result of these studies, detailed knowledge has accrued concerning the morbid anatomic changes and also about the development and the life cycle of blood cells, all this information is described in the voluminous literature on the subject.

Since 1903, no suggestion for the treatment of myelogenous leukemia has been more successful than irradiation. A survey of the different technical roentgen procedures that have been employed during this period indicates that all of them have been logically based on an understanding of the pathologic changes.

THE TECHNIQS FOR IRRADIATION

The first report of "a case of splenomedullary leukemia successfully treated by the use of the roentgen

ay" came from Dr Nicholas Senn¹ in 1903. The patient was treated by Dr William Allen Pusey, who employed a technic according to the equipment available at that time. At that early period in the history of roentgen therapy the voltage and ampage in the secondary circuit was not measured and filtration of the rays had not yet been discovered, however, the potential on his "medium hard tube" probably was about 80 kilovolts. The tube was placed at from 5 to 8 cm from the skin. According to Senn "the spleen, the lower end of the sternum and the epiphyseal extremities of the long bones" were "exposed to the action of the rays daily for from ten to twenty minutes." The success of this procedure is indicated by the title of the paper and by the conclusion "The microbes of splenomedullary leukemia are very susceptible to the destructive action of the x-ray, and the response to this treatment is very prompt and often violent, followed by a speedy return to normal of the spleen, medullary tissue, and the histologic constituents of the blood."

Three years later "a new and more rational method of treatment of leukemia by x-rays" was suggested by Stengel and Pancoast.² These authors outlined a method of zoning the patient's body with the expectation of treating the entire hemocytopoietic system. They stated that "a four inch vacuum" tube was used and each region treated for fifteen minutes daily. Filters had not yet been introduced. The body was divided into eight regions as follows: (1) the ankles and lower half of the legs, (2) from the middle of the legs to the middle of the thighs, (3) the right half of the abdomen excluding the spleen, (4) the left side correspondingly, (5) the right half of the thorax, shoulder and part of the arm, (6) the left side correspondingly, (7) later treatment to the entire thorax and the shoulders in one field, the spleen being excluded and, finally, (8) the spleen posteriorly to include the pelvis and spine. The different regions were treated successively each day and each was irradiated three times. The results of this procedure were also satisfactory according to their conclusions. "The primary results are as good as those hitherto employed."

Applications to the bone marrow also reduce the size of the spleen and destroy the leukocytes circulating in the blood, but in addition they are more likely to reach and remove the cause of the disease. Since this technic was suggested, it has been rather generally employed with technical modifications, depending on the improvement of apparatus and methods.

A variation of the zoning procedure was made in 1923 by Duke,⁴ who suggested "the treatment of leukemia by irradiation of the chest," as he said, "with the idea in view of applying rays chiefly to the blood (and white cells) by irradiation of the chest in small exposures." The technic described was spark gap, 8 inches, filter, 3 mm of aluminum and sole leather, distance, 10 inches, 5 milliamperes of current for five minutes and the frequency of application governed by the white blood cell count. In Duke's

experience and that of others, this method proved satisfactory.

As early as 1907, Dessauer,⁵ when developing a method to produce homogeneous roentgen rays, suggested treating the entire body for undiagnosed or unlocatable disease by placing the patient in a large room in which two or three tubes at a distance of several meters irradiated the entire body, so that "100 hours of exposure gave 1 H unit." The method of treating the entire body was employed by several others from time to time to treat different diseases. In 1927 Teschendorf⁶ discussed "total irradiation" of the body in connection with leukemic diseases of the blood, and other radiologists have also reported on this method. Recently Hublein⁷ suggested a modification of total irradiation. His method consists of subjecting the patient continuously, day and night, to irradiation from a tube at a great distance (from 18 to 24 feet) operating at 185 kilovolts, 3 milliamperes with filtration of 2 mm of copper with the intensity of from 0.68 to 1.26 roentgen units per hour until from 5 to 30 per cent of an erythema skin dose was given (750 roentgens equals one skin dose). Although Hublein did not live to conclude his experiment, his preliminary report indicated that the results were satisfactory in myelogenous leukemia, and in the hands of other workers his technic is equally satisfactory.

The longest wavelengths of roentgen rays (grenz rays, Bucky⁸) and the shortest gamma rays of radium and all roentgen wavelengths intermediate between the two have an effect on certain white blood cells, causing their elimination from the circulating blood and also destruction of myeloid structures in tissues. It is impossible to state that any one standard technic, based on technical factors of dosage, is preferable to another, because satisfactory results, from the standpoint of changes of the abnormal number or ratio of white blood cells, are obtained by many methods of application of irradiation.

THE EFFECTS OF IRRADIATION

Scientific roentgen therapy was founded on experimental evidence indicating that certain structures are more susceptible to the destructive influences of the rays than others, which clinical experience has corroborated. Albers-Schonberg⁹ in 1902 produced aspermia in rats, Heineke¹⁰ in 1903 found that lymphoid structures are more susceptible to destruction than others, Bergonie and Tribondeau¹¹ in 1904 studied the influence of the rays on the testicles of white rats and formulated their law that "immature cells and cells in an active state of division are more sensitive to the x-rays than are cells which have already acquired their fixed adult morphologic and physiologic characters." Halberstadter¹² in 1905 demonstrated the selective action of the rays on the ovary. Many others have confirmed these observations and enlarged on them, so that there is now a fairly comprehensive idea of the varying degree of radiosensitivity of normal and neo-

¹ Senn Nicholas. A Case of Splenomedullary Leukemia Successfully Treated by the Use of the Roentgen Ray, *M Rec* 64: 8 (Aug 22) 1903.

² Pusey W A and Caldwell E W. The Practical Application of the Roentgen Rays in Therapeutics and Diagnosis. New York: W B Saunders & Co. 1903 p 310.

³ Stengel Alfred and Pancoast H K. A New and More Rational Method of Treatment of Leukemia by X Rays. *Tr Am Roentg Ray So* 1907 p 185.

⁴ Duke W W. The Treatment of Leukemia by Irradiation of the Chest. *Radiology* 1: 298 (Oct) 1923.

⁵ Dessauer F. Eine neue Anordnung zur Röntgenbestrahlung. *Arch f phys Med u med Techn* 2: 218 1907.

⁶ Teschendorf W. Ueber Bestrahlung des ganzen menschlichen Körpers bei Blutkrankheiten. *Strahlentherapie* 26: 270 1927.

⁷ Hublein A G. A Preliminary Report on Continuous Irradiation of the Entire Body. *Radiology* 15: 1051 (June) 1932.

⁸ Bucky G. Grenz Ray Therapy. New York: Macmillan Company 1929 p 131.

⁹ Albers-Schonberg. Ueber eine bisher ungekannte Wirkung der Röntgenstrahlen auf den Organismus der Tiere. *München med Wchnschr* 1: 43 1903.

¹⁰ Heineke, H. Ueber die Einwirkung der Röntgenstrahlen auf der Tiere. *München med Wchnschr* 1: 48 and 51 1903.

¹¹ Bergonie and Tribondeau. Action des rayons x sur le testicule du rat blanc. *Compt Rend Soc d biol* 9: 8 and 12 6 1904.

¹² Halberstadter L. Die Einwirkung der Röntgenstrahlen auf Ovarien. *Berl klin Wchnschr* 42: 364 1905.

plastic cells and tissues, which depends on the degree of differentiation. The most sensitive cells are those primitive cells in the hemocytopoietic tissues which are the precursors of lymphocytes, leukocytes and erythrocytes.

Minot, Buckman and Isaacs¹³ from their studies in myelogenous leukemia concluded that irradiation stimulates the immature phases of the white cells to pass through their life cycles to death and elimination by way of the gastro-intestinal and genito-urinary mucosa with extraordinary rapidity. This conception is well founded on their studies of the ratio of different types of cells both in the blood and in the saliva, preceding during and after irradiation. The theory is not entirely inconsistent with the evidences of direct destruction of other types of cells, which pass through the well known degenerative changes to fibrosis, nor is it contrary to the Bergonie-Lubrondeau law because the immature phases of granulocytes are affected and these do not necessarily undergo the same degenerative changes as tissue cells. But it really does not matter in the application of irradiation for myelogenous leukemia which theory is held because the important factor in treatment is not to rid the circulating blood of its immature cells but to eliminate the radiosensitive myeloid infiltration from the hemocytopoietic tissues so that these may function more or less normally.

Now the question arises as to what organs or tissues of the body should be irradiated and when treatment should be administered. Usually particular attention has been devoted to the spleen, the long bones and the circulating blood; hence, I shall discuss the relative importance of each in the leukemic process.

THE SPLEEN

The spleen has an important hemocytopoietic function only during fetal life and early infancy, but in adults it is of minor significance. It may be removed from a normal person or leukemic patient without materially influencing the production or destruction of white blood cells, its function being assumed by other tissues. In myelogenous leukemia, the spleen may enlarge by invasion of hyperplastic myeloid cells, but this is the result of the disease process and not the cause; nor is the spleen an important site of origin of the white blood cells. During the progress of myelogenous leukemia the spleen undergoes fibrosis, as do other organs, and this is a natural consequence of the disease. It is sometimes contended that the spleen should not be irradiated because fibrosis will result; but this change is no more marked in irradiated spleens removed at autopsy than it is in those which have not been treated. No doubt after a spleen has become fibrosed by the disease irradiation does not cause as much change in the blood manifestations because it contains comparatively fewer blood or myeloid cells to be affected. The spleen should be considered as one of the several structures that are involved in the leukemic process. There is no more indication or contraindication for irradiating it than other tissues and may be done when the enlargement is troublesome to the patient. But it will do little good to treat it when it has become fibrosed, no matter what its size.

THE CIRCULATING BLOOD

The abnormal number and ratio of the immature granulocytes that occur in the circulating blood are a

sign of and the result but not the cause of myelogenous leukemia. The blood is not a tissue and does not become infiltrated by myeloid cells in the manner that other structures are affected and can carry on its functions to a large degree in spite of the abnormality of its cellular constituents, unless the erythrocytogenic tissues are invaded to such a degree that red cell production is reduced. Neither the white nor the red cells are created in the blood, which simply conveys them. Therefore irradiation of the blood per se has no influence whatever on the production of abnormal cells but only removes some of them temporarily, and the hemocytopoietic tissues soon extrude a new crop into the circulation. The elimination of white cells from the blood may or may not always be important, because the presence of abnormal forms or numbers of cells is only an indication of the disease and in itself is not of serious import.

THE LONG BONES

It must also be recalled that it is only during fetal life and early infancy that red hemocytopoietic marrow occupies the shafts of the long bones. It is gradually replaced during adolescence by yellow, inert fatty marrow and only a relatively small amount of red marrow remains at the proximal ends. Neither are the long bones necessarily or always infiltrated by the myeloid leukemic tissue, though at some time during the process the yellow marrow may become more or less displaced. Not infrequently the long bones are quite free from disease when other structures for example the spleen or liver, may be extensively involved. The long bones are relatively of less significance from the standpoint of hemocytogenesis than the vertebrae, the ribs or the sternum, which contain comparatively more red marrow. For this reason it is not a logical procedure always to irradiate the long bones unless there is an indication that they are involved because it will not prevent the occurrence of the leukemic process in any tissue of the body or even free much of the red cell forming marrow.

WHERE AND WHEN TO IRRADIATE

The fact must be recognized that the myeloid leukemic infiltration involves the whole hemocytopoietic system and that during some stages of the disease certain organs or tissues may be extensively involved while others are relatively free, also that for unexplainable reasons, the rapidity of progression and the order in which organs or tissues are affected may vary in different individuals, therefore, acute leukemia and different courses of chronicity are observed. It would seem to be logical to try to determine in each individual case which tissues are particularly in need of irradiation in order to rid them of the disease and to adapt the therapeutic procedure to the individual needs of the patient as indications arise although no case of myelogenous leukemia can ever be cured.

There are some clinical and laboratory manifestations that are danger signals indicating which tissues are infiltrated and should be irradiated. Enlargement of the leukemic spleen is not a serious sign as far as vital functions are concerned, and though the disease does not originate or necessarily extend from this organ it should be irradiated if it is troublesome, even though the progress of the generalized myeloid infiltration cannot be prevented by such treatment. The liver frequently becomes leukemic earlier than is usually suspected, and this organ often is entirely neglected by

¹³ Minot, G. R., Buckman, T. E. and Isaacs, Raphael. Chronic Myelogenous Leukemia. Age, Incidence, Duration and Benefit Derived from Irradiation. J. A. M. A. 82: 1489 (May 10) 1924.

radiologists. When the liver is affected by the disease its cells gradually become atrophic by the pressure of the masses of myeloid cells and as a consequence the liver function is diminished. Therefore enlargement of this organ or evidence that its function is reduced should not be disregarded. Liver function may be studied by the galactose tolerance test and a rising icterus index suggests a serious condition and the necessity for irradiating the liver in order to rid it to some extent of the disease. Occasionally reduced kidney function may handicap a patient and may be determined by a test of the urea clearance or the phenolsulphonphthalein test.

The most important indication for irradiation is the evidence that the erythropoietic tissues are burdened and thus is entirely independent of the presence of abnormality of the white cells in the blood. The principal sign of invasion of the red marrow is anemia with a reduction of the red cell count and of hemoglobin. Associated with leukemia there often is a hemorrhagic diathesis which is probably due to a change in permeability of the capillary walls. This may cause bleeding from the gastro-intestinal or genitourinary mucosa and in the skin, as shown by purpura, or in the joints, causing swelling, pain and limitation of motion. Hemorrhage into the retina causes visual disturbances though these may be so insignificant as to be detectable only with the ophthalmoscope, impairment of hearing, vertigo and sudden deafness are not infrequently caused by bleeding into the labyrinth, and even sudden intracranial hemorrhage may occur. When severe anemia exists or there are evidences of hemorrhage, transfusions should be given to tide the patient over temporarily, but the red bone marrow should also be irradiated. The benefit that ensues from this course of treatment depends on the degree of aplasia or atrophy of the erythropoietic tissue that has been caused by the invasion of the red marrow. Aplasia of the red cell forming tissue is indicated by the absence of reticulocytes in the blood, which also may be studied by obtaining marrow from the sternum with a small punch. If red cells are absent in the marrow, the anemia is aplastic and then little if any benefit can be derived from treatment, because too much of the erythropoietic tissue has already been destroyed.

On the basis of the facts that have been mentioned, treatment should always be administered to the vertebrae, the ribs and the sternum so that these important red marrow bones may function in producing erythrocytes. Of course, the shafts of the long bones may sometimes be affected, as indicated by aching or pain, and in such instances they should also be treated.

CONCLUSION

1 The technical factors governing the dosage of roentgen irradiation for myelogenous leukemia are relatively unimportant so long as the intensity of the rays is therapeutically effective in the region to which they are applied.

2 Myelogenous leukemia is ultimately a generalized disease, progressively affecting certain regions of the body, and the order of the regions affected and the rate of progression vary in different individuals.

3 An abnormal white blood cell count is the result and not the cause of the disease and is significant only when physiologic processes of certain organs are not normal.

4 In administering radiation, it is illogical to irradiate always and as a routine the whole or a single part

of the body. Instead, an effort should be made to cover which vital functions are particularly affected in each patient so that treatment can be administered to the areas involved.

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ABSTRACT OF DISCUSSION

DR A U DELSARDINS, Rochester, Minn. I was glad that Dr Portmann mentioned especially the undesirable feature of standardized treatment in cases of leukemia, because every case should be a law unto itself. One case may be relatively acute and another case may be quite chronic. I have a patient who requires treatment only every six months. Another patient may have to be treated much more frequently in order to keep the leukocytes down to a reasonable level. I agree with Dr Portmann that treatment should be directed to the organs mainly affected. In some cases the spleen is so large that it is necessary to bring it down to relieve symptoms. Although direct irradiation of the spleen is advisable in order to reduce the number of leukocytes more quickly. Occasionally, after the spleen and long bones have been irradiated, the number of leukocytes diminishes very slowly. I recall two such cases during the last six months. One presented a leukocyte count of 135,000. In spite of thorough irradiation of the spleen and the main long bones, the number of leukocytes did not fall below 100,000 during the ensuing month. When the patient returned, a second course of treatment was given, the number of leukocytes then fell to about 76,000. Only after a third course of treatment did the number of leukocytes fall below 50,000. Out of a large number of cases I have seen only two that reacted so slowly. In many cases the leukocyte count may drop from 350,000 to 50,000 within a month. One should aim at reducing the leukocytes to 25,000 or below and to keep them as nearly as possible at this numerical level. In some cases this is difficult or impossible, but in the majority it can be done quite readily. At present there is a confusion among pathologists with reference to irradiating only bones that contain red marrow. Some object to irradiating the long bones at all. I have had cases in which the long bones were irradiated but the number of leukocytes could not be reduced sufficiently until the long bones were exposed to the rays. In this in spite of the fact that as brought out by Dr Portmann the main elements of disease are at least anatomically and histologically, situated in the bones containing red marrow.

DR U V PORTMANN, Cleveland. I see many cases in which there is very early leukemic involvement of the long bones but there is no more reduction of the white cells from irradiating the bones than if the treatment were given to another part of the body, as the neck or the blood vessels. It is easy to ascertain this in any patient by giving exactly the same dose of radiation per square centimeter to several fields. There will be no more reduction of the white cells when the bones are treated than when the same dose is given over the liver or the spleen. In fact, in the latter fields there is even greater reduction of the cells because of the greater circulation of blood and greater leukemic infiltration in these organs.

The Odor of the Breath—The breath has many important smells. I find that noses vary enormously in their ability to detect this. I have formed the habit of asking my ward clerks to smell the breaths of diabetic patients in the wards, and when the pleasant, faintly fruity odor is evident to me I commonly find that it is undetected by something like one third to one half of the firm. Apart from making the diagnosis of diabetes in the presence of glycosuria, it may also quickly settle the cause of a coma and so help to save a life. The uremic breath is another important one, but difficult to describe. It is only moderately unpleasant. It has somewhat fishy qualities, it is not exactly a urinous smell and yet it is reminiscent of urine just as halitosis is somehow reminiscent of bowel contents. I have not yet determined how constantly and at what level of the rising tide of nitrogen retention it becomes appreciable in the breath but it has helped me to the diagnosis and prognosis of advanced renal disease.—Ryle J. A. T. Training and Use of the Senses in Clinical Work, *Gen. & Hosp. Gaz.* 47 421 (Oct. 28) 1933.

TRAUMATIC INJURIES OF THE UPPER URINARY TRACT FOLLOWING INSTRUMENTATION

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Attention is being continuously directed to new claims regarding the advantages of intravenous urography. These apply not only to its diagnostic value but also to its usefulness in permitting a more accurate outlining of treatment. Neither excretory urography nor pyelography should be depended on entirely in all cases, but a combination of the two methods will afford a clearer conception of the condition present. This applies with particular truth to cases of ureteral injury.

Traumatic injuries of the ureter resulting from external violence are exceedingly rare and are usually accompanied by serious injury to some other organ or to the bony structure. Unilateral operative wounds of the ureter are relatively common, particularly following pelvic surgery. According to the literature instrumental rupture of the ureter following intra-ureteral manipulation is apparently rare but it is my impression that these injuries occur more frequently than the reported cases would indicate. The fact that my attention has recently been called to several such injuries has stimulated the following report of cases and experimental study.

The extreme resistance of the normal ureter to trauma makes it impervious to rupture with a ureteral catheter or bougie. This is not true if a wire stylet or a whalebone filiform is used. However a ureter diseased by a fibrous stricture, ulceration, acute infection or incarcerated stone lends itself more readily to perforation, and, since it is with diseased ureters that one usually deals, occasional rupture of the ureter is not inexplicable.

Ruptured pathologic ureters may be divided into two distinct groups: first, those in which the ureteral catheter or other instrument actually perforates the ureter—a rare type of rupture, and, second, those presenting a cracking or splitting of the ureter in a longitudinal plane, rendering it sieve-like to injected fluids. This type is not rare, and may result from the passage of even a small catheter or bougie into a ureter so affected by disease as to be rendered friable and deprived of its normal elasticity. This may also occur in the ureter, as in the urethra, from a too rapid dilation of a strictured area. Attempts to dislodge a stone embedded in the canal may force the stone through the ureter, or manipulation of a stone in an infected necrotic ureter may cause its sharp edges to open the ureter sufficiently to allow the escape of injected fluid. Undue pressure from injected pyelographic mediums may permit extravasation from an ulcerated ureter. Too frequent manipulations of diseased ureters also predispose to rupture, therefore, irritation and edema incident to ureteral instrumentation should be allowed to subside before a continuance of treatment is indicated.

These minor extravasations from the ureter usually pass unrecognized, unless an injected ureterogram is done directly after the ureteral manipulation. If the

leakage is minimal in amount, with prompt tissue reaction surrounding the ureter, and if the drainage from the point of rupture to the bladder is satisfactory, the incident will pass unnoticed. The intrarenal or intra-ureteral pressure is not increased, and the urine excreted from the kidney will all pass into the bladder. But if there is an obstruction distal to the rupture, so that the urine excreted from the kidney extravasates from the ureter into the retroperitoneal space, the condition demands surgical drainage.

LITERATURE

The literature contains but few reports of a ruptured ureter following cystoscopic treatment. Hunner¹ has covered the subject most completely in reporting twenty-one cases of ruptured ureters in more than 20,000 catheterizations, only ten of which required surgical drainage. This he states, is not alarming when one considers that diseased, fragile organs are being worked on. He outlines essentials for the prevention of these accidents and emphasizes the necessity for gentleness at all times. A ureter should not be subjected to catheterization oftener than once in ten days, that is, until the trauma and swelling of the last treatment have subsided.

Sargent² reported a case which he diagnosed as a ruptured ureter, unfortunately stating that the accident occurred following passage of a number 5 F catheter into a normal ureter. According to the history of long standing infection with treatment and the pyelogram shown it would seem that the ureter in this case was considerably damaged. A perforation of the ureter following an attempt to remove a ureteral stone, was reported by Noble.³ The ureteral catheter used as a guide was removed from the peritoneal cavity and the ureter sutured. Geisinger⁴ recently reported two cases of ruptured ureter, each of which contained calculi. In both instances the extravasated urine drained back into the ureter which apparently healed promptly.

Young⁵ reported a case of ruptured ureter following the introduction of a ureteral catheter containing a copper stylet. There was considerable local pain and a temperature as high as 103 F, but at the end of seven days the patient was discharged no worse for her experience. Dourmaskin⁶ states that he has never been able to demonstrate a rupture of the ureter but believes that this accident frequently occurs without producing extravasation of urine. Wesson⁷ collected four additional cases of ruptured ureter, in all of which either calculi or marked periureteral infection was present. He has proved conclusively, by experimental evidence, that it is impossible to rupture a normal ureter with the ordinary ureteral catheters and bougies. Catheters and bougies as large as number 11 F were forcibly inserted into normal ureters that had been kinked, knotted and twisted. It was impossible to rupture the ureter in a single case. Clamps were applied to the mouth of the ureter and sufficient pressure exerted with an 11 F

1. Keays, E. L. and Mohan, H. Damage Done by Pyelography. *Am. J. M. Sc.* 1:49 3040 1915
2. Hunner, G. L. Ureters in Lewis, Dean. *Practice in Surgery*. Hagerstown, Md. W. F. Prior Company, volume 8, chapter 11, pages 52-78.
3. Sargent, J. C. Unusual Injury Following Ureteral Catheterization. *J. Urol.* 24: 513-515 (Nov.) 1930.
4. Noble, C. P. Clinical Report upon Ureteral Surgery. *Am. Med.* 501 (Sept.) 1902.
5. Geisinger, J. F. Extravasation from the Ureter. *Ann. Surg.* 93: 554-550 (Feb.) 1931.
6. Young, H. H. and Davis, D. M. *Practice of Urology*. Based on a Study of 12,500 Cases. Philadelphia W. B. Saunders Company 2: 146 1926.
7. Dourmaskin, R. L. Personal communication to the author.
8. Wesson, M. B. Rupture of Ureter. *Medicolegal Problem*. California & West Med. 37: 296-302 (Nov.) 1932.

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bougie to tear the ureter from the clamps, but the bougie did not rupture the ureter. Suction pressure of sodium iodide solution likewise resulted in no ureteral ruptures.

PATHOLOGIC CONSIDERATIONS

The dangers of long continued drainage by large, indwelling ureteral catheters have been carefully studied, clinically and experimentally, by Shaw.⁹ The damage to a ureter thus treated, with the inevitable periureteritis, would probably result in the partial loss of the ureter's motor function and elasticity. Cumming and Jarre¹⁰ and Moore¹¹ have studied the motor activity of normal ureters as well as of those which have been the seat of various inflammatory lesions over a long period of time and have found the elasticity of the latter decreased. Ureters thus affected would therefore be amenable to less manipulation and more susceptible to rupture during ureteral procedures.

When a small crack occurs in a pathologic ureter the amount of extravasated fluid is small, the tissue reaction is prompt, and the ureter heals quickly. Drainage from the kidney will follow the line of least resistance and if the ureter is sufficiently open to permit the kidney to empty without back pressure, the ureteral injury will heal kindly. But if there is enough edema in the ureter to prevent easy egress of urine to the bladder, a secondary kidney retention may develop, causing renal colic. Under these circumstances, a small rent in the ureter will permit escape of the urine under pressure into the periureteral tissues. If the edema in the ureter subsides promptly the escaped urine may even drain back into the ureter and thence into the bladder, followed by healing of the ureteral opening.

Occasionally the ureteral instrument may either pierce the ureter or tear it so that extravasation is prompt and profuse. Usually there is also some obstruction to the ureter below the ruptured area. Marked periureteral inflammation from the irritating extravasated urine is evident. This condition requires prompt surgical drainage to conserve life.

REPORT OF CASES

Having had an experience with a case of ruptured ureter almost a year ago and believing the condition to be rare, I have made a search for additional similar cases among the records and pyelograms from several hospitals in and around New York. Nine cases in all have been collected which I believe to be ruptured or punctured pathologic ureters following various cystoscopic procedures.

CASE 1—S U, a man aged 58, complained of frequent urination both day and night for a year past, for which cystoscopy had been performed. Immediately after the cystoscopy he complained of severe pain in the left part of the abdomen radiating to the scrotum and penis, with nausea followed by vomiting and chills. The vomiting subsided in twenty-four hours and the pain gradually decreased, but the chills occurred intermittently until admission to the hospital four days later, Oct 6, 1932. Examination revealed a distended abdomen with some rigidity over the left side most marked halfway between the umbilicus and the anterior superior spine. The abdominal pain and tenderness continued to improve but the temperature was irregular. The urine, which had contained considerable pus was becoming more nearly normal. October 20 neo-iopax

was given intravenously, with the result shown in figures 1 and 2. Following this, pain and tenderness recurred and the temperature rose to 103 F. October 27, an incision was made in the left loin a cavity being opened which contained pus and urine. The patient's condition immediately improved, and on November 12 a number 8 F ureteral catheter was gently inserted to the left kidney pelvis, releasing a continuous flow of urine containing much pus. This catheter was allowed to remain in place five days. Following removal of the catheter the wound healed promptly and the patient was discharged improved.¹²

Apparently, this patient's left ureter was ruptured at cystoscopy, followed by urinary extravasation into the retroperitoneal space. This rupture, together with partial obstruction of the ureter at or near this point, was sufficient to permit excreted urine from the kidney to extravasate into the soft tissues. This was clearly demonstrable by means of the intravenous urogram. The extravasated neo-iopax being mixed with urine made the condition purely surgical. It is interesting to note how promptly the ureter healed after it had been splinted with a ureteral catheter.

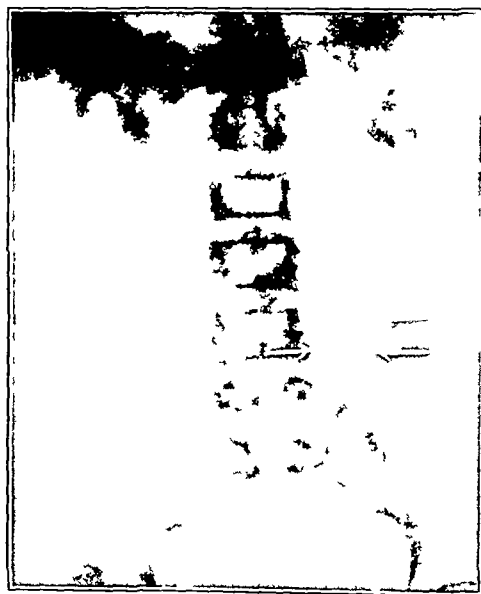


Fig 1 (case 1)—Intravenous urogram taken fifteen minutes after injection showing slight extravasation of the contrast medium

CASE 2—W B, a man, aged 38, on Aug 24, 1932, complained of frequent urination and a dull pain in the lower left side of the back. Cystoscopy was done because of these symptoms and of pyuria. There was a small stone in the lower third of the left ureter. Jan 10, 1933, a number 9 F bougie was passed to the left kidney pelvis with slight difficulty. The procedure was accompanied by a definite scratchy sensation. The patient complained of considerable pain the following three days. At this time a second cystoscopy was performed in an attempt at removal of this small calculus. The left ureter was again dilated with a number 9 F bougie with slight difficulty. This was withdrawn and a number 6 catheter passed almost to the left kidney pelvis. Injection of 3 cc of 10 per cent skiodan caused considerable pain. A roentgenogram was taken (fig 3). The patient passed some blood in the urine for twenty-four hours. The abdomen was distended, and the pain and tenderness, limited to the course of the left ureter, remained constant with only slight relief from narcotics. Intravenous neo-iopax was administered, January 15 (fig 4), following which the ureter was exposed surgically. Just above the brim

⁹ Shaw E C. Advantages and Dangers of Indwelling Ureteral Catheter in Kidney Infections. South M J 21 889 894 (Nov.) 1928.
¹⁰ Cumming R E and Jarre H A. Roentgen Symptomatology of Infected Urinary Passages in Combination with a Classification of Urinary Tract Infections. J Urol 28 435 (Oct.) 1932.
¹¹ Moore T D. The Value of the Serial Pyelograph in Diagnosis. J Urol 28 437 (Oct.) 1932.

¹² This case is reported with the permission of Drs Jacob Nemoulin and O S Iowles.

of the pelvis about half a cup of urine was released. The tissues surrounding this area were waterlogged and friable. A small opening in the ureter was found the edges of which appeared slightly blue tinged. A gallbladder probe was inserted through this opening to the bladder and the ureter carefully examined for the presence of a calculus, but none was found. One plan



Fig. 3 (case 2)—Extravasated shiodan after injection of 3 cc. at a point at which the ureter was ruptured Jan. 13, 1933.

catgut suture approximated the serosa around the ureteral injury. Two drains were placed down toward the ureter. Urine drained from the side for eighteen days at which time a 7 F. ureteral catheter was passed to the left kidney and allowed to remain in position for three days. When this was removed, the wound healed promptly. Figure 5 shows a normal kidney and ureter three months after operation.

It seems probable that this ureteral stone was dislodged and carried upward toward the kidney in front of the bougie, where its sharp edge perforated the ureter. Then, too, the ureter was twice dilated with a number 9 F. bougie, with only a three-day interval between the procedures. The trauma and swelling from the first dilation had not subsided, and the ureter was considerably more friable and apt to rupture with the second dilation. At least ten days should have been allowed to elapse before the second dilation.

CASE 3—E. R., a man, aged 32, on June 23, 1931, complained of pain in the right upper portion of the abdomen, of seven months' duration, gradually increasing in intensity. The urine showed a moderate number of clumped pus cells with a culture of *Bacillus proteus*. Pyelography, June 30, showed a marked stricture at the junction of the upper and middle third of the right ureter. The ureter was dilated to number 9 F., following which the patient's symptoms subsided. Aug. 2, 1932, the ureter was again dilated with a number 8 F. bougie and on August 9 with a number 9 F. bougie. Following this last dilation the patient complained of considerable pain in the right kidney region with abdominal distention and some rigidity. The temperature rose to 102.6 F. and the pain was only partially relieved by opiates. August 12, intravenous neo-iopax was given demonstrating the ruptured ureter (figs. 6, 7, 8 and 9). The ureter was exposed, releasing a small amount of urine. It was carefully searched but no opening was found. The sinus drained for twenty-two days, when a number 7 F. ureteral catheter was gently inserted to the right kidney pelvis and allowed to remain in position for three days. Withdrawal of the catheter disclosed that the wound had healed and remained healed.

The ureteral wall was undoubtedly the seat of marked enteritis, with some scar tissue formation from which the normal elasticity had been lost. Pressure from the ureteral bougie undoubtedly caused the wall to become sieve-like, permitting seepage of fluids through it, although the catheter itself probably did not penetrate the ureter. The fact that intravenous neo-iopax showed progressive extravasation of both neo-iopax and urine from this point demanded surgical drainage. Inserting a ureteral catheter again permitted prompt healing of this ureter.

CASE 4—M. A., a woman, aged 22, entering the hospital, Oct. 6, 1930, complained of constantly increasing pain in the right loin of three weeks' duration, accompanied by vomiting. There was some abdominal distention and tenderness over the right upper quadrant. The urine contained many white blood cells. October 14, ureteral catheters were easily passed to each kidney, releasing considerable pus from the right side. Ten cubic centimeters of 12.5 per cent sodium iodide was injected into the right kidney pelvis and a pyelogram made is shown in figure 10. Operation revealed a ruptured ureter from which about 2 ounces (60 cc.) of thin purulent material was released. The kidney was removed because it contained many small abscesses. The patient died from shock and infection.

This ureter was probably the seat of acute infection and extremely friable. It is possible that injection of sodium iodide under these circumstances caused leakage from the ureter. The infected kidney should probably have been removed at a second operation after the infected extravasation had drained.

CASE 5—M. B., a man, aged 43, complained of pain in the right loin of one year's duration, with two attacks of renal colic. Cystoscopy was done, Sept. 6, 1932. A number 6 F. catheter, passed to the right kidney pelvis with difficulty, released a large amount of pus which contained *Staphylococcus albus*. Ten cubic centimeters of 20 per cent sodium iodide was



Fig. 4 (case 2)—Intravenous neo-iopax Jan. 15, 1933. Twenty minutes after injection there was some extravasation in the same area as in figure 3.

injected into the right kidney pelvis. A roentgenogram showed a ruptured ureter near the kidney, with extravasation (fig. 11). The kidney contained several calculi. Operation, Sept. 7, revealed a small amount of fluid around the kidney pelvis; the kidney was removed at this time with considerable difficulty. Convalescence was uneventful.

Probably overdilatation of an acutely inflamed, friable upper ureter resulted in extravasation. The patient presumably survived the nephrectomy for pyonephrosis because it was done within twenty-four hours after a pyelogram was made.



Fig 5 (case 2)—Pyelogram April 18 three months later than figure 4 showing normal kidney and ureter

CASE 6—A woman, aged 55, had complained of pain in her left side for the past three years and had had a draining sinus in the left lumbar region for the past eighteen months. A left perinephric abscess had opened spontaneously one and a half years previously and had been draining ever since. The left kidney was large but not tender. There were mild symptoms of urinary infection, but the urine contained few pus cells. Cystoscopy, March 2, 1933, showed an inflamed bladder. The right ureter was easily catheterized, but a number 6 F catheter would pass only 2 cm up the left ureter. This was withdrawn and a number 6 F bougie passed almost to the left kidney. This was withdrawn and a number 5 X-ray catheter passed the same distance. No urine was obtained and 3 cc of skiodan was injected, causing considerable pain. A roentgenogram (fig 12 A) showed extravasation from the left ureter. The pain subsided in a few hours. March 3, intravenous neo-iopax (fig 12 B) showed a functionless left kidney with no extravasation of fluid from the ruptured ureter. The patient developed no ill effects from the cystoscopy.

Extravasated solution from the ruptured ureter was apparent only following retrograde injection through the ureteral catheter and not shown with the iopax; hence, surgery is not indicated for the ruptured ureter. The skiodan extravasated from the retrograde pyelography will absorb without ill effect.

CASE 9—H W, a man, aged 35 complained of pain in the left kidney region radiating to the inguinal canal, accompanied by nausea, vomiting and hematuria. Cystoscopy was done Aug 20, 1930, at which time bilateral ureteral strictures and nephroptosis were diagnosed. September 13, he returned because of elevation of temperature and pain and was treated by an indwelling ureteral catheter for four days. This procedure was repeated, Oct 15. Feb 12, 1931, he reentered the hospital because of severe pain in the right kidney region and a slight elevation of temperature. A number 8 F retention catheter was passed to the right kidney, releasing a light brown foul-smelling urine. Within three days his symptoms had disappeared. February 26 an unsuccessful attempt was made to catheterize the right ureter. Five days later a catheter was

inserted up the right ureter with difficulty and 15 cc of 20 per cent sodium iodide injected, causing very slight pain (fig 15 A). No apparent reaction followed this cystoscopy, and the patient returned to the outpatient department until March 23, when he entered the hospital for the removal of a left renal calculus. March 22, catheters were passed easily to each kidney pelvis and a pyelogram revealed no evidence of ureteral injury (fig 15 B).

This patient had probably suffered from undiagnosed uric acid calculi. Continued kidney infection, with the repeated use of indwelling ureteral catheters, had undoubtedly so weakened the ureter that it was easily ruptured with a number 6 F catheter. There was apparently sufficient splitting of the ureter to permit the injected fluid to extravasate but not enough to allow extravasation from the excreted kidney urine. This no doubt accounted in part for the lack of general and local reaction.

EXPERIMENTAL DATA

Four female dogs were subjected to cystoscopy under amytal anesthesia. A McCarthy panendoscope, a Brown-Buerger cystoscope, and a McCarthy cystourethroscope were used, the latter instrument being found preferable for this work. In each dog the right ureter was forcibly dilated with a number 9 F bougie. In dog 1 a right pyelo-ureterogram was then taken, showing no damage to the ureter. The left ureter was intentionally ruptured with a sharp silver wire inserted part way up the ureter. This was withdrawn and a number 6 F catheter inserted, followed by the injection of varying amounts of 20 per cent sodium iodide solution. Dog 1 and dog 4 were injected on the following day with neo-iopax. Dog 1 showed extravasation from the left ruptured ureter and a normal right ureter and



Fig 7—Extravasation of neo-iopax twenty minutes after injection same case as in figure 6

kidney. The left ureter of dog 4 had been ruptured with a small wire stylet, and neo-iopax revealed no extravasation.

These experiments are an aid in confirming Wesson's results, namely, that a normal ureter cannot be ruptured

by a catheter or bougie even though it is distended beyond its normal caliber. The left ureter of dog 1, which was intentionally ruptured with a sharp silver wire (about number 6 F) showed extravasation by means of retrograde pyelography. Excretory urography showed the same extravasation in the case in which the ureter was sufficiently torn. In dog 4, in which the



Fig. 9—Extravasation of neopax fifty minutes after injection same case as in figure 6

ureter had been perforated with a small stylet, the opening was so small that excretory urography failed to reveal extravasation.

SYMPTOMS

Cases of rupture of the ureter following cystoscopy may present considerable variation in both the general and the local symptoms. The intensity of the symptoms is neither an accurate guide to the pathologic condition present nor always to be depended on in making a prognosis.

Local Signs—1 Pain is usually the first sign and is sufficient to cause the patient acute suffering with the injection of even 2 or 3 cc. of a pyelographic medium. This pain may be of a knifelike, scalding, stinging, burning or colicky nature, and usually subsides shortly into a dull ache, it may even disappear entirely in a few days, depending partly on the locality of the puncture and the extent of the extravasation. The pain is usually more severe and lasting if the opening is above the pelvic brim and if the excreted urine continues to extravasate.

2 Prolonged anuria following difficulty in passing a ureteral catheter should lead one to think of the possibility of ureteral rupture.

3 Tenderness and rigidity over the affected side are usually marked and continuous, and large doses of narcotics are necessary to relieve this spasm.

4 Diminished urinary output may be present, but this depends on the extent of the blockage from the affected kidney.

5 Bleeding may also occur, but this is not a constant symptom nor is it diagnostic.

6 Abdominal distention is an early and constant sign, probably because of retroperitoneal irritation from the extravasated urine.

7 Lumefaction is usually a late finding and difficult to determine because of the muscle spasm and rigidity.

General Signs—1 Fever and chills are intermittent and may be absent until late, when infection or toxic absorption from the extravasated urine is manifested.

2 Nausea and vomiting are common early and usually disappear in from twenty-four to thirty-six hours.

3 The leg on the affected side is usually drawn toward the abdomen from irritation of the ship-cas muscle.

4 Pulse and respiration may be somewhat rapid but are generally only elevated on account of pain. In later stages, however, they too may react to the toxic absorption.

Any or all of these signs or symptoms may be absent. Their presence depends on the location and extent of the injury, and it should be remembered that too much dependence must not be placed on either their presence or their absence.

DIAGNOSIS

The diagnosis of ruptured ureter is usually not difficult and may frequently be made from the history and subsequent symptoms. In cases in which a pyeloureterogram was made at the time of cystoscopy the extravasation of the contrast medium is readily seen. Cystoscopy and ureteral catheterization should be



Fig. 10—Ruptured ureter following injection of 10 cc. of sodium iodide into acutely infected kidney and ureter

avoided in fresh ureteral injuries, because of the susceptibility of the injured urinary tract to infection.

The most important diagnostic evidence obtainable is from excretory urography. Not only does this make the diagnosis of ruptured ureter certain but it outlines the course of treatment. If the excreted urographic medium extravasates outside the ureter, one may be certain that urine is also passing out with it, and

urgical drainage of the ureter is indicated. Pain and local tenderness over the course of the ureter, lasting more than twenty-four hours after dilation of a stricture or any other intra-ureteral manipulation, should make one suspicious of a ruptured ureter.

TREATMENT

The most important factor in the prevention of a ruptured ureter lies in the careful, gentle art of



Fig 12—A extravasation of shodan from the ruptured left ureter following injection of 3 cc. B after the intravenous injection of neo-iopax showing no extravasation from the left ureteral rupture. Note the left renal calculus.

cystoscopic manipulation. The realization that one is dealing with pathologic, friable tissues should enhance one's respect for intra-ureteral manipulation. Sometimes the most conservative method of treating an impacted ureteral stone is by immediate surgical removal, thus avoiding prolonged trauma to a damaged ureter. Occasionally a ruptured ureter will result even with exercise of the utmost gentleness and care, but such an occurrence should be rare.

Fortunately, most injuries following treatment or investigation of the ureter result in the cracking or splitting of a pathologic ureter, requiring merely the usual palliative remedies: rest, hot baths, forced fluids, local heat to the painful region, alkalis and sedatives. The symptoms may last as long as two weeks, but the customary duration is less than a week. The treatment should be conservative and expectant, with constant watching of the pulse, pain, temperature and abdominal rigidity.

If the pain, tenderness and rigidity persist more than twenty-four hours, an intravenous urogram should be done. This is the most accurate method of determining the extent of the urinary extravasation. If the extravasation is progressive, as shown by the excretory urogram, surgical drainage should be instituted immediately. Sometimes urinary leakage may be small in amount but the tissue reaction less effective or the infecting organisms more virulent, and an abscess, phlegmon or even septicemia may ensue, thus transforming the case into a serious clinical problem.

There is no general surgical procedure applicable to all types of cases. However, when definite extravasation exists, primary surgical drainage is usually

indicated. In one of the reported cases suture of the fistulous opening in the ureter was attempted, but urine continued to drain from the wound until an indwelling ureteral catheter was inserted. No attempt at repair of the ureteral fistulas in the other cases was made. Indwelling ureteral catheters were found to be a distinct aid in healing the ureteral fistulas in three cases, not only by diverting the urinary stream but by splinting the ureter.

SUMMARY

1 The possibility of rupture of the ureter following manipulation must always be considered. It is more common than one would be led to believe.

2 Many such cases go undiagnosed and heal without surgical intervention. Severe postcystoscopic reactions may be the result of minute ureteral injuries with a small amount of urinary extravasation.

3 Surgical intervention is indicated when excretory urography shows extravasation.

4 Gentle and careful intra-ureteral manipulation, particularly in a pathologic ureter, should always be the aim of the urologist.

5 Nine cases of ruptured ureter, all following ureteral manipulation and injury, have been collected and are reported. Three required surgical drainage alone, two were subjected to nephrectomy because of badly infected kidneys, the remaining four recovered with palliative treatment.

6 Experimentally, it was found impossible to rupture the normal ureter of the dog by forcible dila-

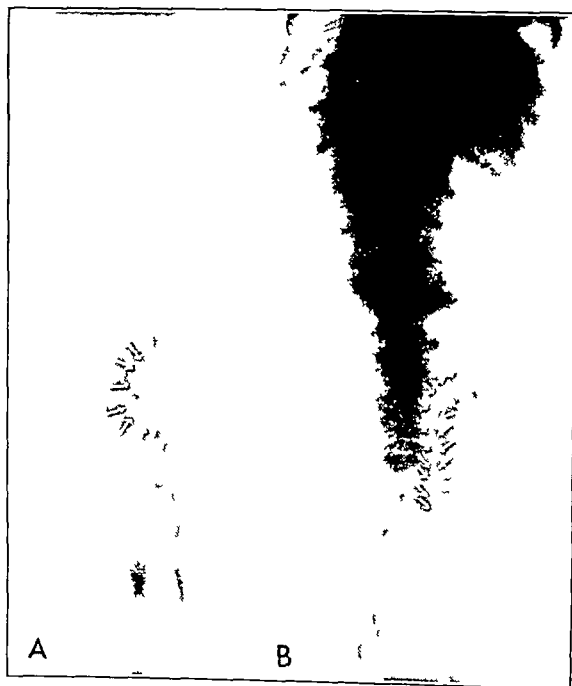


Fig 16 (dog 1)—A the right ureter was dilated with a number 9 F bougie. This was withdrawn and a number 6 F catheter was inserted. Ten cubic centimeters of sodium iodide solution was forcibly injected showing a normal kidney pelvis and ureter with no rupture. A small silver wire with a sharp point was used to rupture the left ureter. Injection of 15 cc of sodium iodide through a ureteral catheter showed the ruptured ureter with extravasation. B neo-iopax the following day showed left kidney and upper ureter and extravasated neo-iopax at the point of rupture. This perforation was found at autopsy.

tion with a large bougie during cystoscopy. Retrograde pyelography with forced syringe injections, as well as excretory urography, showed the ureter still to be normal.

7 In three dogs the left ureters were forcibly ruptured and torn with a silver wire. Retrograde pyelography was then done to trace the extent of the extravasation. This was followed by excretory urograms and a similar extravasation occurred. In these ruptures surgical treatment was indicated because the excreted urographic fluid mixed with urine extravasated outside the urinary tract.

8 The ureter of one dog punctured by a fine wire stylet failed to show any extravasation of fluid by an intravenous urogram.

9 From a critical analysis of experimental and clinical data, excretion urography would seem to indicate accurately the existence and extent of gross injury or damage to the ureter. Also careful study and correct interpretation of the urograms are an invaluable guide to the further intelligent surgical conduct of the conditions arising from such injury.

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UROGRAPHY AS GUIDE TO SURGICAL INDICATIONS OF DIVERTICULA OF URINARY BLADDER

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The history of diverticulum of the urinary bladder belongs to a very recent chapter of surgery in that the literature prior to the first years of this century contained little more than reports of the finding of these sacs in the dead house or their unexpected discovery at operation.

The diagnostic methods and the surgical correction of diverticula began their active development with the practical use of the cystoscope and the roentgenologic study of the urinary tract.

ETIOLOGY

In the early years the accepted etiologic factors were those of obstruction associated with weak areas in the bladder wall, and diverticula were classified as congenital or acquired, the differentiation being based on the presence of muscle fibers in the wall of the diverticulum. As diverticula are understood today, only a few, if any, are congenital, and some muscle fibers will be found in most of the walls of these pouches if examined carefully.

Although obstruction and congenital weak areas in the bladder have a decided influence on diverticulum formation, modern studies have uncovered other factors in this problem which have a bearing on their classification, clinical course and surgical indications.

Cystoscopic and roentgenologic studies have demonstrated that there is a marked difference in the orifices of these pouches, and the type of orifice has a definite bearing on the clinical course. The formation of the orifice is, to some degree, dependent on the changes that occur in the musculature of the wall of the bladder under various forms of prostatic obstruction. From a surgical standpoint they may be divided into wide neck nonretention and small neck retention diverticula.

In the average case of obstruction at the neck of the bladder due to hypertrophy of the prostate, distention of the bladder may develop in a comparatively short

period. Under these circumstances the bladder is dilated and the wall thinned out, and if a diverticulum forms it may be of the large neck nonretention variety.

In contrast to this, in the forms of obstruction such as fibrosis, median bar and less commonly hypertrophy, the distention may develop gradually. This permits the development of compensation on the part of the bladder wall, and when this process is completed the result is a small thick-walled contracted bladder in which the intracystic pressure is increased. Diverticula found under these conditions are usually the small neck retention type.

When infection is present in the bladder, the wall of which has thickened and contracted in its effort at compensation, more powerful contractions are stimulated, which in turn increases the intracystic pressure, resulting at times in the formation of small neck diverticula.

Much of the present-day knowledge of the important part played by the wall of the bladder and increased intracystic pressure in the production of diverticula is due to the work of D. K. Rose in his study of the physiology and mechanism of prostatic obstruction. In his paper on changes in the wall of the bladder secondary to prostatic obstruction he says:

Cases of prostatic obstruction may be divided into those in which the obstruction gains control early in the course of the disease and those in which the wall of the bladder (e.g., anatomic compensation) retains its ascendancy over the obstruction. In the second type the obstruction is imperfect and



Fig. 1—Cystogram of dog's bladder showing the development of a small thick-walled contracted bladder and small neck retention diverticulum produced by moderate obstruction at the bladder neck over a long period and later infection.

develops slowly and the wall of the bladder compensates readily on relief of the acute dilatation. It is in this type that diverticula frequently develop.

Some of the principles brought out by Rose were well verified in an animal experiment carried out by us some time ago (R. H. Herbst and Hugh J. Polkey). In this experiment we were attempting to produce diverticula in the dog's bladder for the purpose of determining the mode of development of large and small neck varieties. In this study we found that by plicating the neck of the bladder (in order to produce prostatic obstruction) a rapid dilatation of the bladder wall followed, and if diverticula developed they were usually

of the large neck nonretention type. We then changed our technique, producing a very moderate obstruction over a long period of time later infecting the bladder by injecting cultures of bacteria. This was followed by the formation of a small thick-walled contracted bladder, and when a diverticulum was formed it was the small neck retention type (fig 1).

This confirms the point made by Rose that the type of obstruction which produces a slow gradual disten-

compensation on the part of the bladder wall. Also, sufficient credit was not given to other stimuli, such as infection and foreign bodies. The irritation caused by these stimuli results in more powerful contractions of the bladder wall and adds to the already increased intracystic pressure.

SYMPTOMS

The clinical picture in small neck retention diverticula is usually quite different from that seen in the wide neck nonretention forms. In the former there may be a long history of mild urinary symptoms beginning in middle life or earlier. This is followed by marked frequency and increase in the force of the stream. An active form of incontinence is often present. The rectal examination reveals a normal, or only slightly enlarged, prostate, and the quantity of residual urine is small. The symptoms of renal damage are out of proportion to the amount of retention. These patients often exhibit the two stage type of urination.

In the less frequent large neck variety the symptoms appear later in life and are not as active. The rectal manifestations are those of hypertrophy, and the catheter usually recovers a large amount of residual urine.

DIAGNOSIS

The urographic study of bladder diverticula offers a means not only of visualizing these sacs but also of determining their number, size and shape, the presence of tumor or stone in the sac, their relation to the bladder wall and ureter, and the condition of the bladder wall itself, whether or not reflux has occurred, and if so, the degree of dilatation of the ureters and renal pelves (fig 2). Also, and of great import, the cystogram gives an accurate means of determining whether or not the diverticulum empties coincidentally with the bladder, in other words, whether one is dealing with a retention or a nonretention pouch, a point on which, in many cases, the question of surgical correction hinges.



Fig 2—Small contracted bladder with cellulose formation and large retention diverticulum pushing bladder to right side of pelvis. The obstruction at the bladder neck in this case was caused by fibrosis.

tion of the bladder gives the bladder wall an opportunity to compensate, resulting in a thick, hypertrophied wall.

The intracystic pressure in such bladders is increased, and when other stimuli such as infection or trauma are added to this picture the pressure may be sufficient to cause herniation of the bladder wall resulting in the formation of diverticula, and pouches formed under these conditions are often of the small neck retention type. This powerful contraction of the bladder wall and increased intracystic pressure often results in severe ureteral reflux and renal damage.

In contrast to this, in simple prostatic hypertrophy the obstruction and retention develop faster, resulting in a comparatively rapid dilatation and thinning out of the bladder wall. Under these circumstances there is not as much strain on the weak regions in the bladder, and diverticula when found, are usually of the large neck nonretention type. Here severe forms of ureteral reflux and renal damage are not as frequently seen, the renal changes being due to gradual back pressure rather than active reflux. If compensatory changes occur in these bladders, the orifice of the diverticulum narrows down and it becomes a retention diverticulum. This is probably a frequent occurrence.

As early as 1919, Hinman called attention to his statistics and those of others, which showed that diverticula were found more often associated with median bar obstruction than with simple hypertrophy of the prostate. He also expressed the belief that diverticula rarely if ever were congenital the type of obstruction and the conditions which cause increased intracystic pressure being the main exciting factors in the formation of these pouches.

Experimental failure of others to produce diverticula in the past, and also in our earlier work, was due to the fact that we did not recognize the effect of moderate obstruction over a long period of time which permits

Fig 3—Small triangular contracted bladder and two large retention diverticula. Urinary obstruction was caused by a fibrotic bladder neck.

The visualization of diverticula may be carried out by the direct injection of the bladder with a contrast fluid or by intravenous injection of one of the preparations used for this purpose. Each method has its advantages. The direct injection, if the pressure and amount injected are controlled, gives good visualization distinguishes between retention and nonretention types and demonstrates ureteral reflux, if present. Several views anteroposterior oblique and lateral should be made. The intravenous method offers a means of visu-

alization without the use of the catheter which is of definite value under certain circumstances. With this method it is not always possible to determine whether or not the diverticulum empties coincidentally with the bladder, and it may be necessary to use a catheter to obtain the correct information on this point.

The intravenous urogram is particularly valuable in making an early diagnosis in cases of moderate obstruc-



Fig 4—Same as figure 3 after catheterization. Diverticula did not empty coincidentally with bladder (retention type)

tion in which one wishes to avoid the use of the catheter. Here one may see the trabeculated bladder with beginning cellule formation. Trabeculation and cellules are the forerunners of diverticula, and the stimulus of infection and added intracystic pressure may complete the formation of such pouches. Therefore one should avoid, if possible, anything that might tend to increase the intracystic pressure until the obstruction at the bladder neck has been completely eliminated. In other words, when by means of a urogram a small contracted bladder with cellule formation is visualized, the prompt removal of the obstruction may prevent the formation of diverticula which may form from the added stimulus of infection.

Wide neck diverticula (small and even moderate size) which empty coincidentally with micturition do not require surgical intervention other than the elimination of the obstruction at the neck of the bladder. Practically all diverticula with narrow orifices fail to empty with the contraction of the wall of the bladder and must be removed before, at the time of or soon after the correction of the obstruction if one hopes to obtain a good functional result. Herein lies the value of the urographic study, which not only is helpful in making the diagnosis but also throws a definite light on the surgical indications.

In retention diverticula there is, without question, a predevelopmental period, a time during which there is a three-way battle between the obstruction at the bladder neck, the expulsive power of the bladder wall, and the action of the trigonal muscle. This is the time during which the bladder wall thickens and becomes trabeculated, and all that is needed to blow out the diverticulum and cause a severe ureteral reflux is some extra stimulus that will increase the intracystic pressure. I saw this in experiments on dogs and every physician has seen it happen clinically.

Transurethral removal of bladder neck obstruction offers a simple and accurate means of correcting the type of obstruction that is most frequently complicated by diverticula. If the diagnosis is made in the pre-

developmental period the patient may be saved a diverticulectomy.

I believe that small diverticula are best handled by inverting the sac into the bladder by suction, as described by Young, or drawing them in with forceps and excising them. For the large sacs I prefer to excise them by isolating the bladder and diverticulum completely without opening the bladder, then drawing off the contents of the bladder and diverticulum with suction, excising the diverticulum with its neck, closing the aperture and draining the bladder with a small tube through a small opening in the anterior wall. In this way the diverticulum can be removed without soiling the surrounding tissues, and the separation of the wall of the diverticulum, when distended, is simpler than when collapsed.

In cases in which the obstruction is due to fibrotic changes, it may be corrected by transurethral resection at the time of or shortly after the diverticulectomy. This approach offers an easy and accurate means of revising the bladder neck.

REPORT OF CASES

By way of illustration a few cases are cited which substantiate the foregoing discussion.

CASE 1—A man, aged about 56, had had mild urinary symptoms for about a year. Rather suddenly, about ten days before admission, these symptoms became acute. At times he was unable to urinate. On rectal examination the prostate gland was not enlarged. A large irregular mass could be palpated above the pubis. A study of the renal function showed a moderate degree of renal damage.

Cystoscopic examination disclosed a small contracted trabeculated bladder with two diverticular openings on the posterior wall, near the right ureteral orifice. Many small cellules were seen. A cystogram showed a very small bladder with an irregular border and two large retention diverticula extending to the right of the bladder (figs 3 and 4). Each of these pouches was three times the size of the bladder. The intravenous pyelogram revealed a bilateral hydronephrosis.



Fig 5—Small contracted bladder and retention diverticulum which developed after the closure of the suprapubic fistula. The obstructing prostate had been removed a few weeks previously.

This case illustrates the mechanism of the development of the small thick walled contracted bladder and retention diverticula resulting from a moderate obstruction due to fibrosis of the bladder neck.

CASE 2—A man aged 63, on admission to the hospital gave a history of prostatism over a period of two years. Hypertrophy of the prostate, grade 3 was found on examination,

with marked retention of urine and a moderate degree of renal damage. No diverticulum was found in the bladder. A two-stage prostatictomy was carried out. The day after the suprapubic wound closed a severe frequency and urgency developed with some elevation of temperature. The urine was frequently and forcefully expelled in small quantities, and the patient complained of severe pain during each micturition. The urine contained some blood and was crowded with pus. Bladder irrigations and an indwelling catheter failed to relieve his distress.



Fig 6—Small contracted bladder and retention diverticulum caused by a mild form of obstruction and a foreign body in the bladder

At the end of three weeks a cystogram showed a small contracted bladder and a retention diverticulum about the size of a small apple (fig 5)

What took place here was that immediately following the closure of the suprapubic wound the compensated bladder became infected and the powerful contractions caused a decided increase in the intracystic pressure, sufficient to blow out a diverticulum in a short time in spite of the fact that the obstruction at the neck of the bladder had been entirely removed. This case, as did also one of our dog experiments, demonstrates the importance of infection in the production of diverticula in the compensated bladder.

CASE 3—A man, about 30 years of age had had some frequency and difficulty of urination since childhood. He had a perineal section performed for the relief of this a few months prior to admission to the hospital. He stated that two weeks after this operation the urinary symptoms became exceedingly aggravated with severe frequency, urgency and strangury. He obtained no relief from bladder irrigations and sedatives. A cystoscopic examination on admission to the hospital revealed a small contracted bladder containing a large red rubber drainage tube (fig 6). An opening of a small neck diverticulum could be seen just above the left ureteral orifice.

The story in this case is quite clear. The patient evidently had had a moderate obstruction for which a perineal section had been performed. The drainage tube worked itself into the bladder and was overlooked by the surgeon. Its presence caused irritation and contraction in a compensated bladder, resulting in the formation of a diverticulum and the severe symptoms that followed the operation.

Stones or any foreign body in a contracted bladder may produce the same results.

CASE 4—A woman, aged 74, had had a mild form of frequency for years. During this time she had a number of short attacks of acute urinary symptoms. She noted that micturi-

tion had become increasingly more difficult and of late she had suffered from an active form of incontinence.

On vaginal examination, when the vulva was opened a moderate sized cystocele was noted. On cystoscopic examination the bladder was found contracted and showed a marked degree of trabeculation. There was a definite dipping down of the bladder in the region of the trigon, a condition frequently seen when a cystocele is present. An opening of a diverticulum was seen to the right of the right ureteral orifice.

In this case the change in contour of the neck of the bladder produced by the cystocele was sufficient to cause a mild obstruction. In an effort at compensation, the bladder wall thickened and the bladder contracted down and repeated infections caused sufficient increase in intracystic pressure to produce a retention diverticulum. The method by which the diverticulum was developed in this case is quite similar to that seen in male patients with prostatic obstruction, illustrating that even the mild obstruction produced by a cystocele is enough to cause the formation of a thick walled contracted bladder. Aided by infection, a diverticulum was formed (fig 6).

SUMMARY

1 From the standpoint of the surgical indications, diverticula of the urinary bladder should be classified into (a) small neck retention diverticula, and (b) large neck nonretention diverticula.

2 The retention types are found more commonly associated with fibrosis and bar formation at the bladder neck. The less common nonretention types are usually found associated with prostatic hypertrophy.

3 The mechanism in the development of each variety is quite different.

4 The powerful contractions of the small thick walled bladder stimulated by infection causes severe increased intracystic pressure, which may result in the formation of small orifice retention diverticula and serious renal damage from ureteral reflux. This mechanism is demonstrated both in animal experiments and in clinical cases.

5 The roentgenologic study is of great value both in diagnosis and as a guide to surgical indications.

6 Small and even moderate size nonretention diverticula do not require surgical attack other than the correction of the obstruction at the bladder neck.

7 Practically all retention diverticula must be removed if one may hope to obtain a good functional result.

8 Early correction of the milder forms of bladder neck obstruction such as fibrosis and median bar, may prevent formation of diverticula of the bladder and serious renal damage.

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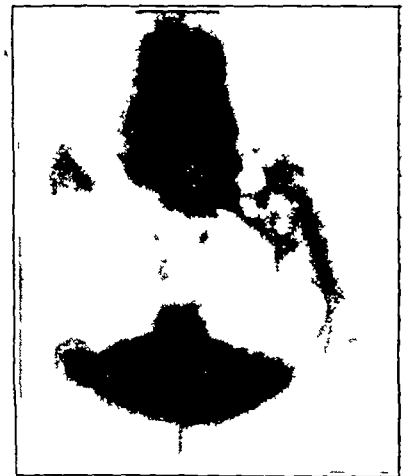


Fig 7—Small contracted female bladder with retention diverticulum on the right side. Mild obstruction was caused by a cystocele.

ABSTRACT OF DISCUSSION

ON TAINTS OF DRS. HENLINE AND HERBST

DR MILFA B. WESSON, San Francisco. Dr Herbst's report of a diverticulum that formed as a result of infection while the patient was convalescing from a prostatectomy is sufficient to cause one to make routine intravenous urography with lateral cystograms in all cases in which there are prolonged hospital stays. Dr Henline has made several points that I want to emphasize. 1. Normal ureters cannot be ruptured unless a wire stylet or whalebone tip is used and such an accident causes practically no symptoms and cannot be diagnosed without an immediate retrograde injection of the pyelographic medium. 2. Pathologic ureters can be performed by a stiff catheter or by an excessive pressure syringe pyelogram and the frequency of such accidents can be determined only by the routine use of intravenous urograms. 3. In no case of perforation of the ureter will there be an extravasation of urine unless there is an obstruction to the downward flow of urine. 4. A ureteral stone may macerate the wall until it becomes sieve-like and following an excessive syringe pressure attempt to make a pyelogram the sodium iodide may spray through the wall and cause local burning or the stone may be forced through the wall of the ureter with resultant perinephric abscess and occasionally eventual spontaneous drainage into the colon or groin. 5. Intervals between ureteral manipulations should be sufficiently great to permit the ureteral mucosa to return to normal. I recently saw in autopsy in a case in which catheterization had been done by a colleague twenty-four hours before at which all cystoscopic observations were negative. Two new No. 6 flute tip catheters were used and yet there were two angry looking red streaks extending the full length of each ureter. 6. Intravenous urograms should be made in all cases of cystoscopic manipulation for the removal of ureteral stone by indwelling catheters. If the catheters are plugged with toothpicks the urograms will usually be superior to those made by the retrograde method, in that the cortex and pelvis will both be outlined and the ureters stretched to capacity, so that a leak can be identified. Mere pyelitis does not indicate a weakened diseased ureter. I tried to perforate autopsy specimens from patients who had pus in the urine. I tied knots in the ureters and when I tried to tear through the wall, the catheters and bougies merely buckled in the bladder. Then I cut the bladder open and held the sides of the ureteral orifice with artery clamps and still the bougies buckled. With a No. 11 bougie I finally tore the ureter by grasping the instrument so close to the ureteral orifice that it could not buckle.

DR THOMAS D. MOORE, Memphis. Stricture of the urethra by causing a slowly developing obstruction may in turn cause diverticula of the small neck retention type. This emphasizes the necessity of a cystoscopic examination or a cystogram as a routine measure on completion of a series of urethral dilations, otherwise such diverticula may go unrecognized. For the same reason, preliminary cystography also should be employed as a routine in cases of prostatic obstruction. In order to assure clear definition of the sac the radiopaque medium should not be too concentrated. A 3 per cent solution of sodium iodide has proved to be of sufficient density is nonirritating and is inexpensive. In many cases the impaired renal function, so common with diverticula, contraindicates the use of excretory urography for cystograms. Lerche's method of introducing into the sac a small balloon on the end of a catheter has been found satisfactory. The diverticulum is thus converted into an enucleable tumor. If one is careful of the toilet of the bladder followed by adequate drainage of the extravascular area there should be no great fear of opening the bladder. Dr Henline has presented a timely discussion of the experimental, clinical and urographic aspects of rupture of the ureter. His observation that excretory urography can be used in such a dependable way in indicating the proper treatment is of inestimable value. Several years ago I had my first experience with a ruptured ureter which became evident about twenty-four hours after dilating the ureter with a wax bulb fixed near the tip of a Blasucci catheter. Excretory urography was unknown at that time. The clinical suspicion of a ruptured ureter was confirmed however by surgical exploration. There was urinary extravasation below the kidney. Although free

drainage was established the infection was very virulent several days later the kidney was removed because of multiple cortical abscesses. Following the nephrectomy the patient made a satisfactory convalescence. When a stone is tightly impacted in the lower part of the ureter, the relaxation obtained by a low spinal anesthesia is of great assistance in passing the obstruction, perforation or trauma of the ureter is less likely to occur. Any metal type of ureteral stone dislodger should be used with great care and only after the ureter has been dilated sufficiently to make possible its easy insertion.

DR WILLIAM E. STAVINS, San Francisco. As Dr Henline has stated accidental injuries of the ureters are more common than would be supposed from the infrequent reports in the literature. They occur occasionally during cystoscopic manipulations and are fairly common during operations on the female pelvic organs. These injuries are often overlooked because of the absence of symptoms in some cases. Three of the four cases of perforation of the ureter that have come under my observation healed spontaneously without marked symptoms. Dr Henline's interesting experimental work confirms the experience of Wesson proving that normal ureters cannot be perforated by ordinary ureteral catheters. It is possible, however to perforate the pelvis of the kidney. I have seen three cases in which it was perforated by catheters as far as the fibrous capsule. The necessity for care and gentleness during ureteral instrumentation as well as during pelvic surgery cannot be overemphasized.

DR O. S. LOWMEYER, New York. I congratulate the authors on their application of animal surgery to urologic problems. In spite of the fact that there is great danger in making pyelograms in addition to cystograms for diagnosis of vesical disturbances I do not know of any way of doing without them. The important point is to determine whether or not the diverticulum is a retentive one. If it is retentive, the cause must be eliminated as soon as possible but the retention must be overcome first. Lateral pictures are very important in determining the size of diverticula. To repair a diverticulum the bladder should be opened and the dissection carried down to the neck of the diverticulum. This opens things up so thoroughly that quicker and better operations can be done. Dr Herbst has pointed out the great value of resection of the vesical neck. I agree with that and wish to point out that diverticula are not rare in children and are usually due to some congenital obstruction that can be easily removed by resection of the vesical neck. Valves are diagnosed by the splendid endoscope Dr Campbell devised and in the older patients an instrument of mine is applicable. Dr Henline has worked up in an interesting way a subject I have tried to avoid. Early operation is desirable when one has made a diagnosis and it is realized that extravasation is going on and not being repaired by nature. These patients, unfortunately do not get very sick at first but later develop serious symptoms as the result of extravasated urine. If one does not make up one's mind quickly the patient gets so sick that operation is inadvisable since it is attended with shock, which may lead to a fatal issue.

DR ROBERT GUTIERREZ, New York. I was greatly interested in Dr Herbst's paper. We in New York are familiar with his research on dogs in regard to diverticula. I think that two points should be emphasized. First diagnosis must be accurate and the surgeon must know whether the diverticulum is of the retentive type. If it is, there is no question that sooner or later it will become a surgical entity. Second, in many of these cases of obstruction an endoscopic resection does not relieve the condition. These points have been well emphasized in Dr Herbst's paper. I have recently had two cases in which I have resected the bladder neck and one patient still has retention. In the study some years ago sixty-five cases were presented and the value of adding a third stage has been demonstrated first removing the obstruction at the bladder neck then doing a cystoscopy and then removing the diverticulum. When this is done the method is safe and the results obtained are always good.

DR J. S. EISENSTAEDT, Chicago. The work of Dr Herbst during the past six years has been accepted as a very important contribution to the subject of etiology of bladder diverticula. I have had experience with more than twenty diverticula which I have surgically removed. I believe that in most

of them inversion would have been impossible by any method of aspiration or suction. The majority have been so adherent to the surrounding tissues that it was only with difficulty that they could be freed in their entirety. In many instances I have found it necessary to open the bladder cavity itself and operate with one index finger within the diverticulum and the other hand outside the bladder. In others, in order to free the cupola of a long diverticulum it was found necessary to cut the wall of the diverticulum to within 1 or 1½ inches from the cupola. Fibrosis of the bladder neck should be emphasized as an important contributing cause of diverticula. The largest diverticulum in the series contained approximately 2 liters of urine and was at least ten times the size of the fibrotic contracted bladder. It was associated with marked fibrosis of the bladder neck. Drainage was established at the time of the diverticulectomy and later resection of the vesical neck was done. The patient regards himself now as entirely well. There is one type of bladder diverticulum which in my experience is very uncommon but of great importance as a cause of possible ascending renal infection. This type has a minute orifice which is likely to be missed at cystoscopic examination and which I am inclined to believe would not fill by cystographic methods. Such a diverticulum occurred in one of my cases and was situated at the bladder vertex. It was not visualized by cystoscopic examination and was not seen at the time the suprapubic cystostomy was done. The patient was permitted to retain his cystostomy tube for a long period, but his condition did not improve as I hoped it would and he died about fifteen weeks after the cystostomy. At necropsy a diverticulum as described was found, the orifice of which only admitted the smallest silver probe. The contents were purulent in character and undoubtedly served as the source of an ascending pyelonephritis.

DR P E McCOWAN, Indianapolis. I recently studied a case in which on first examination I saw marked prostatic hypertrophy. I made an intravenous pyelogram the following day and got astonishing information. The patient had renal stones, a small contracted bladder and a diverticulum that was much larger than the bladder.

DR ROBERT H HERBST, Chicago. I should like to utilize the time allowed for the closing discussion to show some lantern slides of my dog experiments and clinical cases which serve to illustrate the mechanism of the development of retention diverticula.

DR R B HENLINE, New York. Urologists who use either the Kelly cystoscope or the McCarthy panendoscope for dilating ureters must be particularly careful in using a steel stylet in a catheter or a firm bougie. Theoretically the stylet should be introduced just within the mouth of the ureter and kept at this position while the catheter is passed upward to the kidney. But frequently this detail is overlooked and the stylet is inserted with the catheter completely to the kidney pelvis. The wire stylet causes the catheter to be less flexible and hence one is more apt to rupture a pathologic ureter. Secondly, I believe that many postcystoscopic reactions are the result of the use of either too large catheters or bougies in diagnostic procedures or because of the lack of gentle manipulation. This has caused many physicians as well as patients to consider cystoscopy a horrible and painful procedure. It is my impression that most of these cystoscopic and postcystoscopic reactions can be avoided by the use of smaller ureteral catheters and more gentle manipulation during cystoscopy.

Symptoms of Coronary Infarct—Pain being the salient feature of coronary infarction we are apt to forget that it may be insignificant or entirely absent. In the absence of pain the outstanding clinical manifestations which indicate a coronary infarct are two—dyspnea and shock. The picture varies but the sudden and spontaneous onset of dyspnea either continuous or in paroxysms is suggestive—more particularly if it is not clearly benefited by rest. Again a sudden and inexplicable collapse with a drop in the blood pressure may be the first indication of the cardiac accident. "Waves of faintness" overwhelm the patient, his face is pale, ashen and moist with cold sweat—Hav. John. Certain Aspects of Coronary Thrombosis, *Lancet* 2 787 (Oct 7) 1933.

ATYPICAL FORMS OF DRY PLEURISY

A RADIOLOGIC AND CLINICAL STUDY

SAMUEL BROWN, M.D.

CINCINNATI

While it is true that the radiologic method has greatly improved diagnostic accuracy in pleuritic disorders, its chief function in most cases is that of confirmation of the clinical and physical observations. However, there are certain atypical forms of pleurisy namely the interlobar, the mediastinal, the paravertebral and the diaphragmatic which are seldom diagnosed by the physical and clinical signs alone but may be recognized by the radiologic method, provided the proper x-ray technic is used in the examination of the chest.

X-RAY TECHNIC IN THE STUDY OF THE PLEURA

The x-ray technic consists in the study of the chest in both the anteroposterior and the lateral position. These two positions will enable one to localize any abnormal

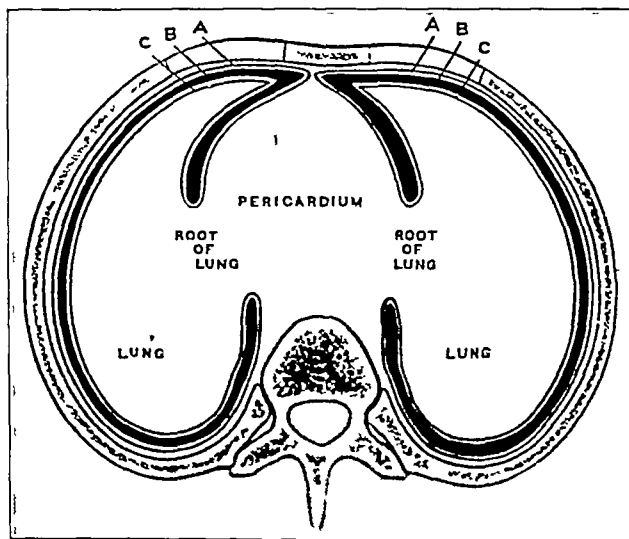


Fig 1—Diagrammatic representation of a cross section through the thorax (Cunningham Manual of Practical Anatomy). A parietal pleura B pleural cavity C visceral pleura

shadow in the lung field and thus to determine its exact relationship to the interlobar fissures, the mediastinal structures, the spine or the diaphragm. It will be evident, therefore, that a knowledge of the topography of the thoracic structures, as shown in the anteroposterior and lateral views of the chest, is absolutely essential for the correct interpretation of abnormal shadows due to pleuritic disorders.

ROENTGEN ANATOMY OF THE PLEURA

The roentgen anatomy of the thoracic structures including the pleura has been dealt with in detail in several previous publications.¹ For the purpose of completeness the most important facts will be briefly described in this paper.

In a cross section of the thorax (fig 1) it will be seen that the pleura consists of two closed sacs, one on each

Read before the Section on Radiology at the Eighty Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.
1 Brown Samuel and Weiss H B. The Value of Lateral Views of the Thorax. *J A M A* 90 187 (Jan 21) 1928. Brown Samuel. Radiology of the Thorax. *Radiology* 13 515 (Dec) 1929. The Roentgenologic Study of the Diaphragm. *J A M A* 97 678 (Sept 5) 1931. Interlobar Pleurisy. *J Med* 13 181 (June) 1932.

side of the thorax, which envelop the lungs. The anterior margins of both sacs bend inward and backward, enclosing the heart, and are known as the mediastinal pleurae. The posterior margins of both sacs bend inward and forward enclosing the spine, and are known as the paravertebral pleurae. Above the apices of the lungs are covered by the apical pleura, which is a continuation between the mediastinal and



Fig 2 (case 1)—A Anteroposterior view showing a dense irregular shadow in the region of the right hilus. B Lateral view showing the dense shadow located between the upper and middle lobes anteriorly due to a dry pleurisy.

parietal pleurae. Below, the bases of the lungs are separated from the diaphragm by the diaphragmatic pleura. The most important point about the diaphragmatic pleura is that it is on a lower level posteriorly than anteriorly. Thus a lesion involving the posterior half of the diaphragmatic pleura may fail to be recognized if viewed only in the anteroposterior direction.

The interlobar pleura, which is formed from two visceral layers, occupies the lung fissures. Each lung is divided by an oblique fissure which corresponds to a line drawn from the second dorsal vertebra to the sixth rib in the mammary line. This fissure crosses the spine above, the roots of the lungs in the middle, and the heart below. The upper lobe of the right lung is subdivided by a horizontal fissure which corresponds to a line drawn from the center of the oblique fissure to the sternum on a level of the fourth costal cartilage. A very important point about the interlobar fissures is the fact that the horizontal fissure is the only one that is at right angles to the anterior wall of the chest, while the oblique fissures are at right angles to the lateral wall of the chest. It is for this reason that thickening of the interlobar pleura in the horizontal fissure is more readily recognized in the anteroposterior position of the chest, while thickening of the interlobar pleura of the oblique fissures is more readily recognized in the lateral position of the chest.

PATHOLOGIC CHANGES OF THE PLEURA

The pathologic processes that may involve the interlobar, mediastinal, paravertebral and diaphragmatic pleurae are the same as elsewhere in the pleura. The one chosen in this discussion is the dry fibrinous type. As a rule, the physician encounters no difficulty in the diagnosis of acute fibrinous pleurisy. The sudden appearance of a sharp pain in the side of the chest, which is aggravated by respiration and, when on physical examination a friction rub is felt or heard, the diagnosis of dry pleurisy is practically conclusive.

This is not the case with acute or subacute dry pleurisy involving the interlobar pleura, the mediastinal pleura, the paravertebral pleura or the diaphragmatic pleura. With the exception of diaphragmatic pleurisy, pain is seldom present. The most troublesome symptom is a dry cough, which is quite annoying at times. Although the patient is more or less indisposed, he seldom requires confinement to bed. The temperature is often found elevated from one to two or three degrees above normal. The pulse and respiration are seldom affected. The white blood cells may show a moderate increase in their number. Physical examination of the chest rarely reveals anything abnormal and, if it does, the conditions found are not distinctive of any pleuropulmonary disease with which the physician is familiar. A roentgen examination of the chest will invariably disclose an abnormal shadow in the lung field. When the exact location of the abnormal shadow is determined by means of the anteroposterior and lateral views of the chest, it will be found that the area involved corresponds to the region of the interlobar, mediastinal, paravertebral or diaphragmatic pleura and thus enables one to arrive at a correct diagnosis of dry pleurisy.

ROENTGEN CHARACTERISTICS OF DRY PLEURISY

The roentgen characteristics of dry fibrinous pleurisy depend on the region involved and the extent of the lesion. In the early cases one may find only a dense line corresponding in its position to the interlobar fissure, this is due to thickening of the visceral pleura. In more advanced cases one may find an elongated dense shadow that is more or less oval along the course of an interlobar fissure, this is due to a separation of the visceral pleurae as a result of an accumulation of a fibrinous exudate. Very frequently one may also find some involvement of the adjacent lung tissue. Abnormal shadows due to mediastinal or paravertebral pleurisy may show in the anterior view a dense shadow, which



Fig 3 (case 2)—A Anteroposterior view showing a dense shadow in the region of the middle lobe. B Lateral view showing a dense shadow located between the middle and lower lobes due to an interlobar pleurisy.

is usually narrow along the borders of the heart or spine. In the lateral position of the chest the abnormal shadow will be found to overlap the heart or spine, or both, depending on the extent of the area involved. In diaphragmatic pleurisy the diaphragm is found elevated and its outline is more or less irregular as a result of a fibrinous deposit.

REPORT OF CASES

Several cases have been chosen for a detailed description, illustrating the several atypical forms of dry fibrinous pleurisy.

CASE 1—A woman, aged 20, was referred for a roentgen examination of the chest because of a dry cough, slight elevation of temperature and more or less indisposition. At no time had she experienced any pain in the chest. Physical examination disclosed nothing abnormal. Stereoscopic examination of the chest in the anterior position (fig 2 *A*) revealed a dense shadow in the region of the right hilus. The exact nature of the abnormal shadow was not determined until the examination was also made in the lateral position (fig 2 *B*), which showed the abnormal shadow to be located anteriorly in the region of the horizontal fissure between the upper and middle lobes. From the size of the shadow and its outline one would judge that the adjacent lung tissue was also involved. About a week later a reexamination of the chest showed extension of the abnormal shadow along the horizontal fissure. Within several weeks the abnormal shadow gradually disappeared and with it the subjective symptoms.

CASE 2—A boy, aged 5 years, suffered an attack of whooping cough. Although the time for cessation of the symptoms was reached, the child continued to cough but without the whoop. There was a moderate elevation of temperature. The general condition of the child was good. Physical examination of the



Fig 4 (case 3)—*A* anteroposterior view showing a dense shadow on the left side of the spine superimposed on the heart. *B* lateral view showing the abnormal shadow overlapping the spine and heart due to a mediastinal pleurisy.

chest revealed nothing abnormal. A roentgen examination of the chest in the anteroposterior position (fig 3 *A*) showed an abnormal dense shadow in the region of the middle lobe. In the lateral position of the chest (fig 3 *B*) this shadow was found to be oval and located between the middle and lower lobes. The patient was reexamined several times and after five weeks the shadow was no longer seen.

CASE 3—A girl, aged 6 years, was admitted to the hospital because of a dry cough and a moderate elevation of temperature. Both the respiration and the pulse rate remained normal. Physical examination revealed abnormal changes at the base of the left lung posteriorly. The changes, however, were not distinctive of any definite pleuropulmonary lesion. The diagnosis of a pneumonia was suggested, but the absence of typical subjective symptoms with which pneumonia is generally associated made this diagnosis rather doubtful. A roentgen examination of the chest showed an abnormal dense shadow on the left side of the spine which was superimposed by the heart shadow (fig 4 *A*). In the lateral position the abnormal shadow was found to overlap the lower dorsal vertebrae and heart (fig 4 *B*). A diagnosis of mediastinal dry pleurisy was made. Within two weeks the abnormal shadow disappeared and with it the mild subjective symptoms.

CASE 4—A man, aged 29, presented symptoms consisting chiefly of a dry cough, slight elevation of temperature and a moderate indisposition. The respiration and the pulse rate remained practically normal. The white blood cells were slightly increased in number. Pain was absent. Physical

examination of the chest revealed a few abnormal changes that were not characteristic of any definite pleuropulmonary lesion. A roentgen examination revealed a dense shadow along the right border of the heart in the anterior position (fig 5 *A*). In the lateral position the lower dorsal vertebrae and heart were found more or less obscured by the abnormal shadow (fig 5 *B*). A diagnosis of mediastinal dry pleurisy was made. A reexamination of the chest was made two weeks later, and the abnormal shadow was no longer found.



Fig 5 (case 4)—*A* anteroposterior view showing a dense shadow along the right border of the heart. *B* lateral view showing the abnormal shadow overlapping the heart and lower part of the spine due to mediastinal dry pleurisy.

CASE 5—A woman, aged 50, was admitted to the hospital because of pain in the right side of the chest which was aggravated on deep respiration. There was a dry cough and a moderate elevation of temperature. Physical examination failed to confirm the clinical diagnosis of pneumonia and pleurisy. A roentgen examination of the chest showed an elevation of the right diaphragm, the outline of which was poorly defined (fig 6 *A*). In the lateral position the anterior half of the right diaphragm was found irregular in its contour, apparently because of a pleuritic exudate (fig 6 *B*). A diagnosis of diaphragmatic pleurisy was made. Within a week the symptoms subsided and reexamination of the chest revealed a well defined diaphragmatic contour.

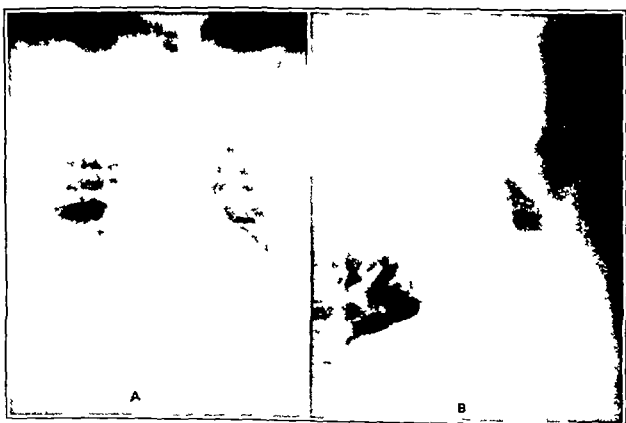


Fig 6 (case 5)—*A* anteroposterior view showing elevation of the right diaphragm, the contour of which is irregular. *B* lateral view showing an irregular contour confined to the anterior half of the diaphragm due to diaphragmatic pleurisy.

COMMENT AND SUMMARY

The atypical forms of dry pleurisy are of frequent occurrence, but their diagnosis by means of the clinical and physical observations has been rather difficult. This is due to the fact that the symptoms and signs of the atypical dry pleurisies are not entirely the same as those

found in the ordinary dry pleurisies with which the average physician is fully familiar from the extensive medical literature. On the other hand the atypical forms of dry pleurisy have received but scant notice in medical literature. It is therefore not surprising that the diagnosis is seldom made in this condition. With the introduction of the x-rays and the examination of the chest in the anteroposterior and lateral positions, the diagnosis of atypical pleurisy has been made possible in a large number of cases. The study and correlation of the clinical physical and radiologic examinations have resulted in the recognition of certain symptoms and signs that are frequently associated with dry atypical pleurisies. These symptoms and signs are the following: moderate indisposition, dry cough, slight elevation of temperature, very little change in the respiratory and the pulse rate, moderate leukocytosis, no abnormal physical conditions (but, if present, they are not characteristic of any pleuropulmonary disease), with the exception of diaphragmatic pleurisy, there is no pain in the chest. Such observations should lead the physician to suspect the presence of an atypical dry pleurisy. The roentgen examination of the chest will very often confirm the clinical diagnosis of dry atypical pleurisy and thus relieve the physician and patient of the thought of the existence of something more serious than a simple dry pleurisy, the prognosis of which is generally very good.

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ABSTRACT OF DISCUSSION

DR. MOSES SALZER, Cincinnati. The development of the lateral view of the chest has definitely cleared up the diagnosis in many cases of obscure chest conditions. I cannot agree with Dr. Brown that all cases of this type are as mild in their symptomatology as in those reported by him in this paper. It is probable, however, that in many cases the acute symptoms had passed before he had an opportunity of seeing them. Many of these cases start out with a chill, high fever and a harassing cough, and one has the feeling that a pneumonia is developing. Contrary to Dr. Brown's statement, some of these patients do have pain in the chest. I feel quite certain that many of the cases which I formerly diagnosed as central pneumonias were cases of interlobar pleurisy. With the simple anteroposterior view, what appeared to be an area of consolidation was seen in many of these cases, and it was only after Dr. Brown developed the lateral view that I realized that probably many if not all of these were cases of interlobar pleurisy. An accurate diagnosis of these cases is absolutely impossible without the technic as outlined by Dr. Brown as in most of the cases I have seen there has been an entire absence of physical signs. Dr. Brown has called attention to the difference in symptomatology between diaphragmatic pleurisy and the interlobar type. In the former the pain is usually more pronounced. It is frequently abdominal. This difference in pain may be due to the fact that there is relatively little movement between the lobes of the lung. This may be an explanation also of the rarity with which fluid is encountered in interlobar pleurisy. The layers are joined by an adhesive pleuritis before fluid can form. The nontuberculous origin may also be a reason for the absence of fluid formation. It is remarkable how completely and how quickly all roentgenographic evidence will disappear after the patient's clinical recovery. This recovery is additional evidence that these cases are nontuberculous.

DR. LEON T. LEWIS, New York. A number of years ago in examining lung abscess cases I made use of the lateral view. Since that time I have made it a routine to have a lateral view in the examination of children at Willard Parker Hospital where there are many cases of pleuritic lesions associated with infectious disease. In that way a number of cases of interlobar pleurisy have been found at a very early stage that were not suspected on clinical examination and could not be made out on the posterior or anterior views. I agree thoroughly that a

lateral view should not be omitted. Roentgenologic chest examinations should not be considered complete without the lateral view.

DR. JOHN W. PIERSON, Baltimore. The anatomic structure of the lungs is such that it is extremely difficult to differentiate between pneumonic consolidations and interlobar pleurisies when the patient is examined in the ordinary position. The secret of the detection of interlobar pleurisies is to direct the x-rays perpendicular to the lung fissures. In order to accomplish that purpose, I have examined the patient in the lateral and semi-lateral positions which serve to demonstrate interlobar pleurisies between the upper and middle lobes on the right side and the middle and lower lobes on the left. The investigation of the fissures between the middle and lower lobes on the right side is best accomplished by placing the patient in the "kneel hold Stellung." The shoulders are placed against the film so that the body forms an angle of 20 degrees with the plane of the film, the rays being projected in the usual manner. The angulation of the patient's body with the film allows the rays to be projected upward through the thorax.

DR. LEO G. RIGER, Minneapolis. I have demonstrated in many instances in which an extremely small effusion was present, so small that it could hardly be detected as a shadow on the film that changing the position of the patient would produce a shadow suggestive of interlobar pleurisy which was not present in the other position. The same holds true of mediastinal pleurisy. I have recently seen a number of cases in which a very striking picture was presented of a large shadow projecting to the right of the midline resembling some what an enormously dilated right atrium. When examined in a different position it was revealed that the shadow was entirely due to free fluid which, in the new position, extended into the peripheral pleura. It was simply a matter of distribution of the fluid in the pleural space. One other point to which I would call attention is concerned with an error in interpretation of the lateral view in certain cases. Even in the cases in which the right diaphragm is not especially high, if lateral views are taken with the patient lying on one side the diaphragm may rise into this position so that a very dense shadow is produced. This can simulate the shadow of an interlobar effusion. The same phenomenon may occur also in those cases in which the right diaphragm is raised by a pleuritic effusion.

DR. SAMUEL BROWN, Cincinnati. The method of visualizing interlobar pleurisies as described by Dr. Pierson is familiar to me, but I do not think that it is as simple as the one I described. In determining the line of fracture in a bone one would take roentgenograms in the anteroposterior and lateral positions. Why not apply the same principle in the case of interlobar pleuritic disorders? Examination of the chest in the anteroposterior and lateral positions will seldom fail in demonstrating abnormal changes in the region of the interlobar fissures.

Acidosis—The discovery that monoiodoacetic acid has the power to prevent the formation of lactic acid in the living body makes possible a crucial experiment as to the real nature of the state now called acidosis. This state is now generally regarded as an acid intoxication. It is believed to be essentially similar to that induced experimentally by the ingestion or intravenous injection of hydrochloric acid. Acids are supposed to be liberated in the body under oxygen deficiency from any cause: intense muscular exertion, exposure to great altitudes, carbon monoxide fever especially in children, alcoholic intoxication, ether anesthesia, physical injuries and crushing of tissues, deficiency of insulin, as well as by an unbalanced diet. The symptoms in all such cases are now commonly assigned in large part to acidosis in the sense of acid intoxication. The acid most readily produced in the body is lactic acid. If then lactic acid is not a cause of acid intoxication it is doubtful whether any acid produced in the body can intoxicate. All such acids would then have to be regarded as mere accessories of the conditions they are now supposed to induce. The conditions called acidosis would not be acid intoxication. The outstanding phenomena of acidosis are the decrease of the bicarbonates of the blood and the increase of breathing.—Henderson, Yandell and Greenberg. *L. A. Acidosis. Acid Intoxication, or Acarbia.* *Am. J. Physiol.* 107:37 (Jan) 1934.

TRAUMATIC EPITHELIAL CYSTS OF
THE SKINMAX S WIEN, MD
AND
MARCUS R CARO, MD
CHICAGO

In 1855, Wernher¹ reported the excision of a nut-sized cystic tumor from the palm of a thresher. Mouron² later described cystic tumors occurring on the fingers of working people. These have since been reported under various names and have been described as subcutaneous hard, round, cystic tumors of varying size, occurring most often on the palmar surface of the hands and fingers and occasionally on the feet, and usually resulting from injury. The name "traumatic epithelial cysts of the skin" aptly expresses the traumatic etiology, the cutaneous site and the cystic nature of the tumors. The condition has also been known as "kystes epidermiques des doigts" (Reverdin³), "kystes dermoïdes" (Rizet⁴), "traumatic epithelial cysts" (Garre⁵), "epidermoïde" (Franke⁶), "atheroma" (Schweninger⁷), "traumatic epidermic cysts" (Unna⁸ and Darier⁹), "implantation cysts" (Sutton¹⁰), "traumatic epidermoid" (Blond¹¹), "implantation dermoid" (Burrows¹²) and "epithelial cysts of traumatic origin" (McCarthy¹³).

In spite of the antiquity of the disease and its apparently frequent occurrence, as evidenced by several recent reports in the foreign literature, traumatic epithelial cysts of the skin have been given but little notice in the American literature. We are reporting three cases, with histologic examinations of two.

REPORT OF CASES

CASE 1—M B, a white man, aged 47, a motorman was first seen on Jan 10, 1931. Twelve years previously he had sustained a deep cut on the volar surface of the first phalanx of the left middle finger. Owing to repeated pressure and friction against the motor handle used in his work the wound remained open for a long time. After healing occurred, the area became slightly elevated and firm. Subjective sensations were absent. About one month prior to his examination the same area was accidentally struck with a hammer. A soft swelling resulted that was tender to pressure. Two weeks later the scar of the original wound opened and a thick sticky substance was discharged. On examination the site of the wound presented a dime sized firm callus, covering a subcutaneous elevation.

From the Department of Dermatology, University of Illinois College of Medicine, Service of Dr F E Senechal.
Read before the Section on Dermatology and Syphilology at the Eighty Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

- 1 Wernher A. Das Atherom ein eingekapseltes Epitheliom. Virchows Arch f path Anat 8:221 1855.
- 2 Mouron M. quoted by Hartley T. Ann Surg 23:573 1896.
- 3 Reverdin J. Des kystes epidermiques des doigts. Rev med de la Suisse Rom 7:121 1887.
- 4 Rizet F. Kystes dermoïdes. Arch gen de med Paris 2:615 1866.
- 5 Garre C. Ueber traumatische Epithelcysten der Finger. Beitr z klin Chir 11:524 1894.
- 6 Franke F. Ueber Epidermoïde (sogenannte Epithelcysten). Deutsche Zt f Chir 40:197 1894.
- 7 Schweninger E. Beitrag zur experimentellen Erzeugung von Hautgeschwulsten (Atheromen). Charite Ann 11:642 1884.
- 8 Unna P G. The Histopathology of the Diseases of the Skin translated by Norman Walker. New York: The Macmillan Company 1896. p 890.
- 9 Darier J. Precis de dermatologie ed 4. Paris: Masson & Cie 1928. p 966.
- 10 Sutton J B. Implantation Cysts. Brit M J 1:461 1895.
- 11 Blond K. Zur Kenntnis der traumatischen Epithelcyste. Arch f klin Chir 120:695 1922.
- 12 Burrows H. Implantation Dermoid of the Terminal Phalanx of the Thumb. Brit J Surg 13:761 1926.
- 13 McCarthy L. Histopathology of Skin Diseases. St Louis: C V Mosby Company 1931. p 420.

Removal of this lid exposed a rounded tumor of rubbery consistency, covered by a smooth dark red surface. After incision there was expressed a small amount of thick, brownish mucoid substance. The tumor was easily removed by blunt dissection, and healing was rapid with no recurrence.

Histologic Examination—Hemalum-Eosin Stain. The tumor was cystic. The wall was composed of two layers, an outer cellular epidermis and a much thicker inner horny layer. There was no connective tissue capsule, and the outer boundary of the wall consisted of a single layer of columnar basal cells. Extending inward from this was a layer of varying thickness composed of polygonal prickly cells joined by distinct prickles. The granular layer was nearly continuous and varied from one to five cells in thickness. In one area the stratum lucidum was distinct, while elsewhere the granular cells bordered directly on the horny layer. In this the nuclei were absent throughout, the cell outlines were still visible only in the outermost layers, and there was a lamellated structure up to the very lumen. The lumen was small and contained a slight amount of debris (fig 1).

Sudan III Stain. A slight amount of fat was present in the horny layer.

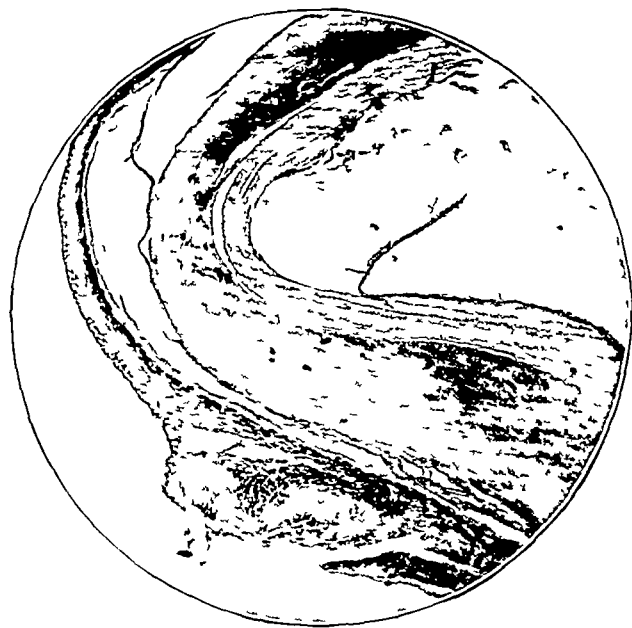


Fig 1 (case 1)—Wall of the cyst composed of an outer stratified epithelium and a thick inner horny layer.

CASE 2—A physician, aged 34, was first seen on May 22, 1930. Calluses had been present on his feet for the past five years. In the past year he had noted an elevation on the dorsum of his left foot on the tarsal portion just behind his fifth toe. Pain on pressure was noted over the site during the past year. He did not remember any actual injury to this site, although pressure from his shoe had been constant. Examination revealed a fine verrucous surface overlying a small marble-sized rounded tumor of rubbery consistency that had a pearly appearance when the overlying skin was stretched. The lesion appeared to be cystic. It was removed under local anesthesia with the actual cautery. The lesion ruptured during its removal and discharged a grayish cheesy substance that physically resembled sebaceous material. Healing was rapid with no recurrence. Histologic studies were not made because of the destruction of the lesion during the course of its removal.

CASE 3—A housewife, aged 45, was first seen on Feb 26, 1930. For the past year she had had a small round tumor on the palmar aspect of the middle phalanx of the left middle finger. She did not remember any injury to the site but admitted occasional injury to the fingers in the course of her housework. There was no subjective sensation until three

days before examination, when slight pain over the involved area was noted. Examination revealed a cherry-sized round tumor at the site described. This was removed under local anesthesia with the actual cautery. Healing was rapid with no recurrence. The contents of the tumor physically resembled sebaceous material, similar to that described in case 2.

The diagnosis in this case was made by Dr. Richard H. Jaffe, who did the histologic studies in the work of Blond.¹¹

Histologic Examination—Hemalum-Eosin Stain. There was a cystic cavity filled with cellular debris. Surrounding this was a thick layer composed largely of densely packed foreign body type giant cells and large, pale, polygonal cells. In most parts this layer was demarcated from the lumen, but occasionally the giant cells extended irregularly into the debris. Scattered throughout the cellular layer were a few polymorphonuclear cells and many lymphocytes, the latter being especially dense at the periphery. Here there was a gradual transition to the dense fibrous capsule that surrounded the entire cyst. The blood vessels in the capsule were surrounded by thin mantles of lymphocytic infiltration. A smaller similar cyst was noticed



Fig. 2 (case 3)—Cyst filled with debris lined by a cellular layer rich in foreign body giant cells and covered by a dense fibrous capsule.

adjacent to the other cyst and separated by a dense fibrous wall (fig. 2).

Sudan III Stain. A considerable amount of fat was present in the cellular lining layer and in the contents of the lumen.

ETIOLOGY AND PATHOLOGY

While the traumatic origin of these cysts seems to be accepted by all observers, a history of injury is not always obtainable. Worz,¹⁴ in a review of the literature, found a definite history of injury in only twenty-four of fifty-five cases. Pietzner¹⁵ collected the reports of seventy-three cases from the literature and found injury noted as the cause in forty-three. The incidence of trauma, however, is undoubtedly higher than is apparent from these statistics. The injury may be slight enough to escape notice, and may have occurred months or years prior to the development of the cyst. Unna,⁸ and Ewing,¹⁶ mentioned the predilection of the cysts for sites that are frequently injured, such as the

fingers and palms and the high incidence among working people, while McCarthy¹³ occasionally found evidence of trauma in the form of a scar near the cyst. In many of the cases the injury is produced by a blunt or tearing instrument.

Briggs¹⁷ reported two cases of cysts of the fingers, one an encysted hematoma and the other an epidermoid cyst. Hartley's¹⁸ case was an intracranial cystic tumor which developed following a compound fracture of the skull. During the injury a bit of epithelium was implanted beneath the skull and developed into a cyst, which displaced the brain adjacent to it and also extended outward beneath the skin. Buerger¹⁹ gave a historical review and reported three cases of epithelial cysts. Two occurred on the fingers following puncture wounds by a needle and the third was present on the breast. Blond¹¹ reported six cases of cysts of the palms and fingers, in which injury was remembered in three. Burrows¹² reported a case in which a cyst developed on a finger at the site of a perforating injury by a piece of wire. Hammann²⁰ reported a case in which a cyst developed following an injury to the finger-nail. Behrens²¹ reported three cases, two of them definitely resulting from trauma, and gave an extensive review of the literature.

Several explanations have been offered for the method by which an injury may produce an epithelial cyst and for the source of the lining epithelium. These conceptions have been developed on the basis of experimental work and have been the source of much controversy.

Franke⁷ believed that the origin lay in embryonic epithelial cell rests. These were stimulated by trauma to produce epithelial pearls, which later became cystic.

Reverdin³ was of the opinion that in the course of an injury bits of epidermis were torn off and deposited deeply in the corium, and that cysts developed from these implanted grafts. Garre⁴ in elaborating this, stated that implantation of epidermis alone produced smooth-walled cysts, while in those resulting from the implantation of the entire skin, papillae were also present.

This conception was supported by the experimental work of Kauffman²² and Schweninger.⁵ The former produced cysts beneath the skin of the cocks comb. He made a complete oval incision deeply through the skin, allowing the central separated part to retain its continuity with the base. He then pressed the central piece down below the surface and sutured the edges of the wound together above it. The buried epidermis gradually took on a rounded form and invariably developed into a cyst. The origin of these cysts from the epidermis was evident, for the cocks-comb contains no hair follicles or glandular epithelium to provide another possible source. Schweninger repeated this experiment in dogs and was also able to produce subcutaneous cysts by burying pieces of skin below the surface. The cysts at times contained hairs and sebaceous glands in the wall, and fat, cholesterol and epidermal scales within the lumen.

14. Wörz, A. Ueber traumatische Epithelcysten. Beitr. z. klin. Chir. 15, 753, 1897.

15. Pietzner, quoted by Buerger, L. Ann. Surg. 46, 190, 1907.

16. Ewing, J. Neoplastic Diseases, ed. 3, Philadelphia, W. B. Saunders Company, 1928, p. 1020.

17. Briggs, F. M. Two Cases of Cyst of the Finger. Boston M. & S. J. 133, 7, 1895.

18. Hartley, F. An Intracranial Implantation Dermoid Tumor. Ann. Surg. 23, 573, 1896.

19. Buerger, L. Traumatic Epithelial Cysts. Ann. Surg. 46, 190, 1907.

20. Hammann, Traumatiscche Epithelcysten an den Fingerknochen. Deutsche Ztschr. f. Chir. 223, 308, 1930.

21. Behrens, A. Ueber traumatische Epithelcysten. Virchows Arch. f. path. Anat. 250, 144, 1931.

22. Kauffman, E. Ueber Enkapsarrhaphie von Epithel. Virchows Arch. f. path. Anat. 97, 236, 1884.

Another possible origin was suggested by Pels-Leusden²³ and was supported by experiments performed on rabbit ears. He made incisions through the skin, using a sharp knife to prevent the accidental implantation of epidermis during the operation. He then placed absorbible magnesium disks deeply within the corium. About these foreign bodies, cysts were produced the lining membrane of which contained all the layers of normal epidermis. Pels-Leusden believed that the cysts were formed by proliferation from the epithelium of glands that were unavoidably injured. He thought it unlikely that in ordinary injuries the tough skin of the palms could be torn off and implanted.

Hesse²⁴ in a comprehensive series of experiments, buried magnesium disks cutgut and blood clots beneath the skin and later examined histologic serial sections of the sites of implantation. He demonstrated that epithelialization to produce cysts may take place from the hair follicles and glandular epithelium without any apparent burr of epidermis. He was unable to find papillae in the wall of any of these cysts, however, and he stated that for the development of papillae there was necessary an implantation of complete epidermis.

More recently Zimches²⁵ performed a series of experiments on dogs in which pieces of skin and adjacent corium were transplanted into various regions of deeper tissues in the same animal. Cysts composed of keratinized epithelium and hairs were produced. He stated that the tendency of transplanted surface epithelium to form cystic cavities follows a law which governs the growth of epithelium in general, namely, that the more active growth is always directed toward the nearest margin of epithelium. Garre in an earlier article, explained this process diagrammatically by showing that the displaced epithelium continues to grow in area and in thickness. Since considerable resistance is encountered on all sides it is forced to curl up and finally to become converted into a complete sphere. The cyst continues to grow because the lining epithelium constantly produces a cornified layer which is poured into the lumen.

The occurrence of foreign body giant cells in the lining of epidermal cysts has been explained by Stewart²⁶. According to him, the contents of a cyst, whether they are hair, fat, cholesterol or epidermal scales, have the irritant properties of a foreign body. In those parts of the cyst where the epithelial lining is lacking this irritation produces a type of granulation tissue that is rich in giant cells. White²⁷ was able to produce cystic foreign body granulomas in various animals by subcutaneous injections of saline emulsions of oleic and palmitic acids and oleic acid itself. An abscess cavity was formed which was lined by a densely packed layer of polygonal cells and foreign body giant cells. Burgess²⁸ observed the formation of similar granulomas about subcutaneously placed masses of calcium phosphate, calcium carbonate and cholesterol, as well as stearic and palmitic acids.

From the foregoing review it is apparent that the implantation of a foreign body in the skin may give

rise to a cystic lesion which is lined by granulation tissue rich in giant cells instead of epithelium. The foreign body may be preserved in the lumen, or it may be absorbed and not be present at the time of the histologic examination.

DIFFERENTIAL DIAGNOSIS

Traumatic epithelial cysts of the skin are not rare, and when seen may be easily mistaken for lesions of similar appearance occurring principally on the hands.

Synovial lesions of the skin occur over the joints of the fingers, usually on the dorsal surface, communicate with the underlying synovial bursa and contain yellowish viscous fluid. Fibromas are solid tumors of varying consistency that show abrupt elevation above the surface and are composed of fibrous tissue. Xanthomas are yellowish solid tumors which are embedded in the skin and which have a characteristic histologic structure. Ganglions occur most often on the dorsum of the hands, are larger, and are usually in connection with a tendon or joint. Their contents are usually a thick, glairy fluid. Sebaceous cysts may be confusing because of the gross resemblance. These, however, do not occur on the palms and fingers, since sebaceous glands are normally absent from these areas. Dermoids are congenital cystic tumors which occur most often on other parts and which contain hairs and occasionally teeth within the lumen. Juxta-articular nodes must also be differentiated.

SUMMARY

1 Attention is directed to traumatic epithelial cysts of the skin which have been previously reported under various titles.

2 These cysts occur on sites exposed to trauma and usually result from injury with blunt or tearing instruments.

3 Three cases are reported with histologic examination in two. These cases presented the clinical picture of traumatic epithelial cysts. Case 3 proved, on histologic study, to be a cystic foreign body granuloma.

4 The theories of their genesis are reviewed and include (a) formation from embryonic rests (Fianke⁶), (b) implantation of epidermis (Reverdin,⁴ Garre⁵), (c) origin from hair follicles and glandular epithelium (Pels-Leusden²³), and (d) cyst formation resulting from foreign body granulomas (White,²⁷ Burgess²⁸).

5 Several recent reports in the foreign literature indicate that these cysts are of rather frequent occurrence.

CONCLUSIONS

Traumatic epithelial cysts develop as a result of injury to the skin, usually produced by a blunt or tearing instrument. Such cysts occur most often on exposed sites, such as the fingers and palms and are especially prevalent in those occupations which predispose to injury.

The origin of the cyst is most probably from a bit of epidermis which has been torn from the surface and implanted in the corium. It may also originate from deeper epithelial structures in the absence of surface injury. Here the cyst may form about a foreign body by proliferation of epithelium from the hair follicles or the glandular structures of the skin. Occasionally a foreign body granuloma with cyst formation may simulate an epithelial cyst of traumatic origin.

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²³ Pels-Leusden F. Ueber abnorme Epithelisierung und traumatische Epithelcysten. Deutsche med. Wochenschr. 31: 1340 1905.

²⁴ Hesse F. A. Die Entstehung der traumatischen Epithelcysten. Beitr. z. klin. Chir. 80: 494 1912.

²⁵ Zimches J. L. The Fate of Surface Epithelium Transplanted into Deeper Tissues and Its Relation to Epithelial Cysts. Frankfurt Ztschr. f. Path. 42: 203 1931.

²⁶ Stewart M. J. On the Occurrence of Irritation Giant Cells in Dermoid and Epidermoid Cysts. J. Path. & Bact. 17: 502 1912.

²⁷ White C. P. Experiments on Cell Proliferation and Metaplasia. J. Path. & Bact. 14: 450 1910.

²⁸ Burgess A. M. The Origin of the Giant Cell in Tuberculous Lesions. J. M. Research 27: 125 1912.

ABSTRACT OF DISCUSSION

DR. WALTER J. HICHMAN, New York: This subject is timely and concerns a condition that would probably be found more frequently if it were watched for. It is in the study of skin tumors that there is a great practical field for the microscope. It is difficult to make the diagnosis with the naked eye. It is interesting that an integument that is subject to trauma of either the tearing or the contusing type can lead to the formation of lesions of this sort. I do not think, however, as was brought out by the authors that these lesions are necessarily epidermal in nature. Some are but others are traumatic lesions which originally took the form of semisolid infiltrations, which ultimately liquefied, becoming cystic. They are secondarily cystic. This differentiation does not need to be indicated in the nomenclature—it is sufficient if one suspects that the skin has been altered pathologically to find out what the change is by whatever means are at one's disposal in this instance the microscope. I do not know how to classify the implantation cyst that proves on further examination to be a cyst of some other origin.

DR. M. J. STRAUSS, New Haven, Conn.: In connection with the three cases presented I wish to place on record a similar case, which differs in two respects: first in the length of time between the injury to the appearance of the cyst and second in the contents of the cyst. The patient was a young girl who was stabbed by some sharp instrument over the insertion of the deltoid muscle and three months later developed a cyst at the site of the injury. The cyst was removed and on section showed in the midst of some degenerated caseous material small masses of squamous epithelial cells similar in appearance to surface epithelium, with nowhere any suggestion of the presence of a basal cell layer.

DR. WILLIAM A. ROSENBERG, Chicago: I was interested particularly in a slide in the second case for it presented numerous giant cells, and I understood the authors to say that there was an infiltration associated with that lesion. Aschoff in 1904 described nodules occurring in the heart in rheumatic patients, particularly in arthritis, which display typical manifestations and are known as Aschoff bodies. These lesions are not infrequent on the palmar surfaces of the fingers and have been demonstrated on various parts of the skin. I have recently seen a similar case at Northwestern University Medical School and wish to know whether in case 2 there were any symptoms of arthritis or evidences of a heart lesion.

DR. MARCUS R. CARO, Chicago: In a given case of a traumatic epithelial cyst of the skin it is difficult to determine the manner in which the cyst was formed. It has been proved in experimental work that any one of several ways may operate to produce such cysts. In some cases there is a direct implantation of a bit of skin during an injury. If epidermis alone is implanted a smooth cyst results, while for the production of papillae or accessory structures the whole thickness of skin must be buried. In other cases there is injury by a foreign body which traumatizes sweat glands, sebaceous glands or hair follicles. Epithelium proliferates at the point of injury and grows to cover the implanted substance. Finally, a not infrequent occurrence is an injury which elicits the production of a foreign body granuloma, which in turn becomes transformed into an epithelial cyst. White demonstrated this form of cyst formation by subcutaneous injections of irritants in experimental animals. About the injected irritant an abscess was invariably formed. At first this consisted of polymorphonuclear leukocytes. These became disintegrated to form a cavity containing necrotic debris. About this cavity a wall of histiocytes developed and eventually granulation tissue containing histiocytes and giant cells. If the abscess did not come in contact with epithelium, it remained unchanged. If, however, a hair follicle, gland or epidermis became exposed in the abscess cavity, the epithelium grew rapidly over the surface in all directions from the points of contact to form a lining of squamous epithelium. Any number of follicles or glands could take part in providing the lining for a single cavity. The case reported by Dr. Strauss was probably produced in this manner. The epithelialization of these cysts is explained by the natural tendency of epithelium to grow over any free surface. The process is very rapid and in some of the experiments the cysts

were produced and completely lined by squamous epithelium in less than two weeks. For the formation of such cysts the foreign body must remain intact long enough to produce a granulomatous reaction. It may be absorbed later, however, and may be absent at the time of examination. In reply to Dr. Rosenberg, I may state that our patient did not suffer from rheumatism or endocarditis and neither clinically nor histologically was there any resemblance to Aschoff bodies.

OVARIAN THERAPY

RELATIONSHIP OF THE FEMALE SEX HORMONE TO HEMOPHILIA

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AND

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Since Birch's¹ announcement of the treatment of hemophilia with ovarian extract, several papers by herself and others² reporting beneficial results from the administration of this hormone have appeared in the literature. However, the conclusions arrived at have not been very convincing. The improvement was chiefly clinical and in most instances not substantiated by definite laboratory data. It is difficult to determine whether the hormone had a specific effect in bringing about the clinical improvement.

Moreover, Birch^{2a} attempted to correlate hemophilia with the female sex hormone. Assuming that the normal male is not pure male but part female, Birch demonstrated that the female sex hormone or estrogenic substance was present in the urine of normal males and absent from the urine of five hemophilic patients. Based on those results it is assumed that the symptoms of hemophilia are held in abeyance by the female sex hormone.

Because of the great significance of Birch's report, it was felt that her work should be repeated. An opportunity to study a hemophilic patient for a period of about six months presented itself. During this time, certain definite information was obtained which is worthy of publication.

The problem was approached from three different angles:

1. Parenteral injections of whole ovarian extract and ovarian follicular hormone were given to the hemophilic patient and the effect on his general condition was noted. Coincidentally, the coagulation time of the blood was determined at regular intervals to check the clinical course.

2. The urines of two hemophilic patients and normal male controls were assayed for the presence of the female sex hormone or estrogenic substance to determine the relationship of the female sex hormone to hemophilia.

3. After the parenteral injection of the ovarian follicular hormone an attempt was made to recover it from the urine of one hemophilic patient.

From the Abraham Jacobi Division for Children, Service of Dr. Jerome S. Leopold and the Achelis Laboratory of the Lenox Hill Hospital.

¹ Birch, Carroll L. Hemophilia. Proc. Soc. Exper. Biol. & Med. 28: 752 (April) 1931.

² (a) Birch, Carroll L. Hemophilia and the Female Sex Hormone. Preliminary Report. J. A. M. A. 97: 244 (July 25) 1931. (b) Hemophilia. ibid. 99: 1566 (Nov. 5) 1932.

³ White, C. E. Treatment of Hemophilia with Theelin. J. Oklahoma M. A. 25: 304 (July) 1932. Kimm, H. T. and Van Allen, C. M. Hemophilia: Prevention and Treatment of Bleeding with Ovarian Extract. J. A. M. A. 99: 991 (Sept. 17) 1932. Foord, A. G. and Dysart, B. R. Treatment of Hemophilia by an Ovarian Extract by Birch's Method. J. A. M. A. 98: 1444 (April 23) 1932.

Before presenting our data, it would be well to give some pertinent facts concerning the case studied.

B. B., a white boy, aged 9½ years, entered the Lenox Hill Hospital, Dec. 18, 1932, for the sixth time. Since his first admission at 6 months of age, the patient had been known to bleed easily. He had been subject to numerous subcutaneous hemorrhages and hemarthrosis, involving various joints. There was a definite familial history of hemophilia. His brother, aged 10½ years, was also hemophilic.

On admission the patient had a recent effusion in the left knee joint, bilateral contractures of both knee joints, and a contracture of the right elbow. The bleeding time was two minutes and thirty seconds. The platelets numbered 330,000. The coagulation time of the blood was eighty-five minutes.⁴

Soon after admission 5 grains (0.3 Gm.) of whole ovarian extract (Hynson, Westcott & Dunning) was given intramuscularly daily. The effect of this prepa-

An attempt was then made to prove the relationship of the female sex hormone to hemophilia by assaying the urines of (1) normal adult males, (2) our patient and his hemophilic brother, and (3) normal controls of the same age group as our patient. For these experiments twelve female rats, each about 2 months of age, were secured. Daily vaginal smears were taken for a period of three weeks and examined by the Allen-Doisy⁶ method to determine whether the rats normally went into estrus. One of these rats did not show estrual changes during this period, presumably because of a vaginitis, and so was discarded.

A bilateral salpingo-oophorectomy was then done on the remainder of the rats through a dorsal incision as described by Durrant.⁷ About a week's time was allowed for the rats to recover. They were observed further for a period of three weeks to ascertain that the estrual cycle had ceased. One of the rats did show estrual changes at the end of the third week of observation. It was concluded that not all the ovarian tissue had been removed from this animal and it was discarded.

For the biologic assay of the presence of the estrogenic substance in the urine the method of Kurzrok and Ratner⁸ was employed. To make the test more sensitive, our maximum dose of the oily concentrate at each injection was 1 cc. instead of 0.5 cc.⁹ The urines of the patient studied, his 10½ year old hemophilic brother, two normal boys of the same age group as the patient, and two normal men, aged 24 and 29, were assayed. The estrogenic substance could not be found in the urines of the hemophilic brothers, but neither was it present in the urine of any of the normal male controls.

The presence of the estrogenic substance has been reported in the urine of males by Dohrn¹⁰ and others.¹¹ However, Frank,¹² in a series of twelve urines obtained from normal males was not able to find a single positive result when the concentrates were injected into mice. Freeman,¹³ was not able to find the estrogenic substance in male urine before puberty and only in one case after puberty—a youth, aged 18, with Frohlich's syndrome.

To theorize as to why certain male urines have estrogenic properties would not be of great value. Cook, Dodds and Hewett¹⁴ have found that the extracts, peat, lignite, coal tar, petroleum and sterol compounds have estrogenic properties. This observation may in some way account for the occasional presence of the estrogenic substance in male urine.

An attempt was then made to inject larger doses of the ovarian follicular hormone into our hemophilic patient to determine its effect on the coagulation time and to recover it, if possible, from the urine. Before this procedure was carried out, the method of extrac-

TABLE 1—The Effect of Parenteral Ovarian Therapy on the Coagulation Time of the Blood in Hemophilia

	Date	Coagulation Time
Whole ovarian extract started	12/23/32	
	12/24/32	75 minutes
	12/25/32	85 minutes
	12/26/32	100 minutes
	12/27/32	75 minutes
	12/28/32	85 minutes
	12/29/32	80 minutes
	12/30/32	55 minutes
	12/31/32	50 minutes
	1/2/33	52 minutes
Ovarian follicular hormone 50 rat units intramuscularly daily substituted for whole ovarian extract	1/5/33	46 minutes
	1/11/33	45 minutes
	1/14/33	55 minutes
Attack of epistaxis associated with hemorrhage into right biceps muscle	1/10/33	72 minutes
Hormones discontinued	1/29/33	
	1/30/33	

TABLE 2—Normal Fluctuations of the Coagulation Time in Hemophilia

Date	Coagulation Time
3/21/33	68 minutes
3/30/33	55 minutes
5/13/33	43 minutes
5/14/33	72 minutes

tion on the coagulation time of the blood may be seen in table 1. Although the figures in table 1 point toward a reduction of the coagulation time of the blood it was clearly evident that the patient was not benefited by the administration of the hormones. Oozing from the nasal septum was present together with hemorrhage into the right biceps muscle.

Moreover, it was found (table 2) that the coagulation time of the blood fluctuated considerably in hemophilia. After the hormones had been discontinued for about three and one-half months the coagulation time was forty-three minutes, a figure lower than the lowest obtained with administration of the hormones. These results are in agreement with those of Blalock.⁵ He found that after the daily subcutaneous injection of an ovarian preparation in a hemophilic patient for a week the clotting time was two hours and five minutes. Before the injections were begun, the clotting time had been one hour and forty-five minutes.

⁴ The coagulation time was determined on venous blood. Two test tubes were used for each determination. If the blood in one tube coagulated first the average of the two determinations was taken.
⁵ Blalock, Alfred. Amputation of Arm of Patient with Hemophilia. J. A. M. A. 99: 1777 (Nov. 19) 1932.

⁶ Allen, Edgar. The Estrus Cycle in the Mouse. Am. J. Anat. 30: 297-348 (May) 1922.
⁷ Allen, Edgar, Francis B. T., Robertson, L. L., Colgate, C. E., Johnston, C. G., Doisy, E. A., Kountz, W. B. and Gibson, H. V. The Hormone of the Ovarian Follicle: Its Localization and Action in Test Animals and Additional Points Bearing on the Internal Secretion of the Ovary. Ibid. 34: 133 (Sept.) 1924.
⁸ Kurzrok, Raphael and Ratner, Sarah. The Relation of Amenorrhea Accompanied by Genital Hypoplasia to the Follicular Hormone in the Urine. Am. J. Obst. & Gynec. 23: 689 (May) 1932.
⁹ Kurzrok, Raphael. Personal communication to the authors.
¹⁰ Dohrn, M. Ist der Allen-Doisy Test spezifisch für das weibliche Sexualhormon? Klin. Wchnschr. 6: 359 (Feb. 19) 1927.
¹¹ Laqueur, Ernst, Dingemans, E., Hart, P. C. and de Jongh, S. E. Ueber das Vorkommen weiblichen Sexualhormons (Menformon) in Harn von Männern. Klin. Wchnschr. 6: 1859 (Sept. 24) 1927.
¹² Frank, R. T. and Goldberger, M. A. Significance of Female Sex Hormone Reaction in Male Blood. Proc. Soc. Exper. Biol. & Med. 25: 476 (March) 1928.
¹³ Freeman, R. G. Jr. Personal communication to the authors.
¹⁴ Cook, J. W., Dodds, E. C. and Hewett, C. L. Synthetic Estrus Exciting Compounds. Nature 131: 56 (Jan. 14) 1933.

tion, the ability of the castrated rats to go into estrus and the potency of the follicular hormone were tested in the following manner. Urine from a pregnant woman was extracted and the concentrate injected into a group of four rats, according to Kurzrok's⁸ technique. In forty-eight hours, estrual changes were demonstrable by means of a vaginal smear in the whole group. Three doses of 5 rat units of the follicular hormone were then injected into each of another group of four rats, and all these also showed estrual changes. The effect of larger doses of the ovarian follicular hormone on the clotting time of the blood is shown in table 3.

During the thirteen day period that the hormone was injected, specimens of twenty-four hour urine were collected daily and assayed for the presence of the estrogenic substance. The same groups of animals were used repeatedly for the tests because, according to Allen and Doisy⁹ and Kurzrok¹⁰ the hormone when injected parenterally induces only one estrual cycle.

At no time during this period was there any evidence of estrus in any of the animals; in other words we were not able to recover the injected hormone. This observation is in accordance with Frank¹² who found that the injection of 5,000 mouse units subcutaneously had no demonstrable effect on the amount recoverable

TABLE 3—The Effect of Larger Doses of Follicular Hormone and Direct Blood Transfusion on the Coagulation Time of the Blood

	Date	Coagulation Time
Ovarian follicular hormone 50 rat units intramuscularly daily	3/14/33	72 minutes
Ovarian follicular hormone 100 rat units intramuscularly daily	3/16/33 3/19/33 3/21/33	7 minutes 7 minutes 42 minutes
Hemarthrosis left knee joint	3/22/33 3/23/33 3/24/33	7 minutes 7 minutes 72 minutes
Ovarian hormone discontinued	3/26/33 3/27/33	40 minutes
Direct blood transfusion 200 cc of whole blood	3/1/33 3/2/33	21 minutes

from the urine of a normal woman.¹¹ The Council on Pharmacy and Chemistry of the American Medical Association¹³ suggests that the possibility of inactivation or destruction of the hormone by or in the tissues should be considered.

We should like to call attention to the effect of whole blood transfusion on the coagulation time. One day after the transfusion the clotting time dropped to twenty-one minutes, almost to a normal level. This effect, of course, was only temporary. During the administration of the hormone, no untoward reactions were observed in our hemophiliac patient. However, in the literature there are warnings against the indiscriminate use of the estrogenic substance. Kunde, D'Amour, Gustafson and Carlson¹⁴ have shown that in young rats bodily growth rate is reduced and the testes or ovaries are markedly smaller than normal after prolonged administration of this substance. Also Cook and Dodds¹⁵ have demonstrated that pure synthetic compounds of known molecular structure can possess both estrogenic and carcinogenic properties. Moreover, the use of these hormones may give rise to a false sense of security, and some conceivably older proved measures to combat the disease are apt to be neglected.

CONCLUSIONS

1 Our work does not support the theory of the close relationship of the female sex hormone to hemophilia. (a) We have not been able to demonstrate the presence of the estrogenic substance in the urine of normal males. If the female sex hormone holds hemophilia in abeyance it should be present in the urine of all normal males rather than in isolated cases. (b) The commercial estrogenic substance employed by us of known potency, failed to reduce the coagulation time of the blood or stop the several hemorrhages in our hemophiliac patient.

2 It would seem that symptomatic treatment and blood transfusions are still the methods of choice in hemophilia.

26 East Sixth-Hird Street

Clinical Notes, Suggestions and New Instruments

ARGYRIA

REPORT OF TWO CASES IN CHILDREN

HUGH K. BERKLEY, M.D., LOS ANGELES

It is a matter of common knowledge that the continued oral use of silver salts may lead to the production of argyria. Formerly silver preparations were widely used in the treatment of certain diseases of the gastrointestinal tract and of the nervous system. Because of the occasional production of argyria the oral administration of silver has been largely discontinued.

Newer preparations of silver have opened other avenues for its use in the treatment of various conditions. At present various forms of colloidal silver enjoy a widespread usage in infections of the eye and of the upper respiratory tract.

Attention has recently been called to the fact that the silver content of some of these newer preparations is not always evident from their proprietary names.¹ It was further pointed out that the younger generation of physicians may not be familiar with argyria. Both of these facts are undoubtedly true. It should be added that self-medication for colds is a very common practice. A preparation prescribed by a physician may be used by the patient for every subsequent similar illness without the knowledge or consent of the physician and long after his connection with the case has ceased. In this way certain silver preparations have come to occupy a prominent place among household remedies. They are used not only in the treatment of common colds but also as an interim prophylactic measure against colds.

Royster² reported a case of argyria in a 5½ year old child produced by nasal irrigations of large amounts of neosilvol.

Woodward³ recently reported three cases in children all from the intranasal use of neosilvol. He particularly stressed the continued use of the preparation first introduced by a physician's prescription.

The following two cases of argyria are the result of the indiscriminate use of this drug.

CASE 1—B. P., a girl aged 10 years, admitted to the Children's Hospital Dec. 24, 1932, in the service of Dr. Victor E. Storl, was the only child of healthy parents. She had had chickenpox, measles and pertussis. Otherwise the history was irrelevant. She complained of pain in the head and nausea. Two years before, the child began to have frequent colds and a sinus infection associated with an excessive nasal discharge. For several months she had been treated by a nose and throat specialist. At this time there developed a pain in the head associated with a high fever. A diagnosis of mastoiditis and

¹⁵ Estrogenic Substances. Theelin. Reports of the Council on Pharmacy and Chemistry. J. A. M. A. 100:1331 (April 29) 1933.

¹⁶ Quoted in Reports of Council on Pharmacy and Chemistry.¹⁵

¹⁷ Cook, J. W., and Dodds, E. C. Sex Hormones and Cancer Producing Compound. Nature 131:205 (Feb. 11) 1933.

From the medical service of the Children's Hospital.
¹ Danger in Internal Administration of Silver Preparations. Current Comment J. A. M. A. 100:1604 (May 20) 1933.
² Royster, I. T. Argyria. J. Pediatr. 1:736 (Dec.) 1932.
³ Woodward, W. R. Argyria from the Use of Colloidal Silver Iodide Intranasally. Am. J. Dis. Child. 45:1046 (May) 1933.

frontal sinusitis was made and she was operated on in July 1931. One week later very severe headaches developed and an exploratory decompression was done. Nothing was found. Since this operation the child had had three convulsive seizures, preceded by a severe right-sided headache and lasting from fifteen to twenty minutes. She was frequently nauseated and occasionally vomited.

During this two year illness the patient had nasal drops of neosilvol two or three times daily. There was no history of the administration of other medication.

The patient was well developed and not acutely ill. The skin was of a dusky slate color and was very striking in appearance. The grayish discoloration was most marked over the hard palate and the exposed surfaces of the body. The color was accentuated under the eyes and about the lips and nose. The scleræ showed a very definite slate color. The buccal mucous membranes and those of the eyes were of normal color. The finger nails and toe nails were normally pink. The covered portions of the extremities and trunk showed little discoloration.

There was a scar over the right parietal region from a decompression operation. Scars were present over the right mastoid region and above the right eye.

The heart was of normal size and the heart sounds were clear. The lungs were clear and the remainder of the physical examination was entirely negative. The urine was normal except for an occasional epithelial cell and pus cells.

A blood count showed hemoglobin, 91 per cent (Sahli), red blood cells, 5,490,000; white blood cells, 7,650, with 68 per cent neutrophils, 28 per cent lymphocytes, 2 per cent eosinophils and 2 per cent basophils. The blood pressure was 118 systolic, 85 diastolic.

The intradermal tuberculin test with 0.1 mg. of old tuberculin was negative after forty-eight hours. The Wassermann and Kahn tests were negative.

The diagnosis was epilepsy and argyria.

Several subsequent hospital admissions have definitely established the diagnosis of epilepsy. The discoloration of the skin has increased materially.

CASE 2—V. F., a girl aged 7 years was brought to the office for general examination because of poor color, dark circles under the eyes, anorexia and nervousness.

The father, mother and 4 year old brother were living and well.

The patient had had frequent attacks of tonsillitis up to 3 years of age when the tonsils and adenoids were removed. There was considerable improvement for one year and then she again had frequent sore throats and colds. She had had acute otitis at 1 year and pyuria at 3 years. She had mumps but no other childhood disease.

When the patient was 8 months of age a 15 per cent solution of neosilvol was prescribed for intranasal use. This preparation was used daily until the tonsils were removed at 3 years. After she was 4 years of age it was again used on an average of from three to five days in each month up to the present time (March 30, 1933).

The patient was rather thin and did not appear acutely ill. There was a well marked bluish discoloration of the skin under the eyes and at the side of the nose. The entire face had a slight bluish tinge. The color of the extremities and trunk appeared normal. The tonsillar fossae were clean. The heart and lungs were normal. The remainder of the examination was entirely negative.

The diagnosis was undernutrition and argyria.

Both of these cases have been seen by a number of physicians and the diagnosis of argyria is undisputed in each case.

Neosilvol is stated by the manufacturer to be "20 per cent of silver iodide in a state of colloidal subdivision combined with a soluble protein base." While these cases and the cases reported by Royster and Woodward occurred on this one preparation it seems certain that other salts of a similar nature could produce the same result if similarly used. The fact that neosilvol does not stain so markedly as other preparations may account for its more frequent use.

The collection of six cases of argyria occurring in widely separated localities and in a period of less than one year leads one to suspect that the condition is not infrequent. Doubtless many of the milder cases are entirely overlooked.

CONCLUSIONS

Colloidal silver preparations used intranasally can produce argyria.

The unsightliness and the irremediable character of the condition make it imperative that physicians exercise more care in the use of these preparations and that they warn their patients against frequent or continuous usage.

1136 West Sixth Street

ANORECTAL MELANOMA

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Instructor in Surgery, Long Island College of Medicine

Primary melanoma of the anus or rectum is extremely rare. The name is derived from its color, which is due to a deposit of the pigment melanin, which is essentially of metabolic origin. Frequently a secondary pigmentation occurs from the absorption of extravasated blood. Ewing¹ defines this condition as follows: "Melanoma is a pigmentiferous tumor arising from a specific mesoblastic cell, the chromatophore, and possibly also from epithelial cells which have been modified by pigment production." He further states that "Virchow recognized both a sarcomatous and a carcinomatous melanoma, the former exhibiting a diffuse structure of spindle cells, the latter an alveolar structure and he employed the term 'melanoma' for the entire group." Its growth is much more rapid than carcinoma and it produces early metastases through the blood current. Secondary rectal invasion is not infrequent, owing to metastases from the original growth in other pelvic organs.

Chalier and Bonnet,² in addition to one personal case collected and reviewed from the literature sixty-four tumors of the melanotic variety and estimated that they represented 66 per cent of all rectal sarcomas and that they formed from 2 to 3 per cent of all melanotic growths in the body.

Weeks³ reports one case of large spindle cell sarcoma and states that a review of the literature revealed 100 cases of sarcoma of the rectum. He further says: "In 200 cases of malignant disease of the rectum, carcinoma is found approximately 199 times and sarcoma once. Of the rectal sarcomas the melanotic type is twice as frequent as are the other varieties." This statement is well borne out by Kallet and Saltzstein⁴ who reported seven cases of malignant disease of the rectum three of which were melanomas and the remainder consisted of two cases of spindle-cell sarcoma, and one case each of myosarcoma and lymphosarcoma.

Allen⁵ recently reported a case of melanotic carcinoma of the anorectal region. At first sight his patient's condition somewhat resembled a thrombotic hemorrhoid.

Brick⁶ reported that he saw only one case in a person, aged 62, the nature of the growth was unsuspected before operation.

Jones⁷ wrote that melanotic carcinoma had not been reported once in 300 cases by his pathologist and that sarcoma was not found once in 300 cases from which specimens were examined.

The following case is reported because of the rarity of the condition and also because of the possibility of confusing these tumors with thrombosed hemorrhoids.

REPORT OF CASE

History—Mrs. E. H., aged 62, born in the United States, white, a housewife, admitted to the Brooklyn Hospital July 15, 1931, complained of hemorrhoids, pain accompanying defecation, anorectal protrusion and rectal discharge and bleeding.

About ten months before admission she began to have pain on defecation. The pain gradually and progressively increased.

From the Surgical Service, Division of Proctology, the Brooklyn Hospital, Dr. Ernest K. Tanner, chief attending surgeon.

1. Ewing, James. *Neoplastic Diseases*, ed. 2, Philadelphia: W. B. Saunders Company, 1932, chapter XLIV, p. 871.

2. Chalier, Andre and Bonnet, Paul. *Les tumeurs melaniques primitives du rectum*. *Rev. de chir. Paris*, 47, 64-103, 1915.

3. Weeks, S. H. *Sarcoma of the Rectum*. *Surg. Gynec. & Obst.* 44, 478-482 (April) 1927.

4. Kallet, H. I. and Saltzstein, H. C. *Sarcoma Melanoma Icyko sarcoma of the Rectum*. *Tr. Am. Proct. Soc.* 33, 75-84, 1932.

5. Allen, A. K. *Melanotic Carcinoma of the Anus*. *Tr. Am. Proct. Soc.* 32, 31, 1931.

6. Brick, J. C. *Malignant Tumors of the Rectum*. In Cooke, A. B. *A Treatise on Diseases of the Rectum*. Philadelphia: F. A. Davis Company, 1914, chapter XXX, p. 58.

7. Jones, D. F. *Malignant Disease of the Rectum*. In *Johns and Jones' Lectures on Surgery*, vol. 5, chapter IX, p. 224.

so that at the time of admission it was quite distressing. Four months after the onset of the present trouble she noticed a rectal protrusion, which became more marked at the time of defecation. There was a mucous discharge present from the onset and bleeding at defecation for one week before admission.

She stated that her general health always had been good. There were no urinary nor digestive disturbances and there was no loss of weight but she had noticed a tendency to constipation, which yielded to magnesium magma.

Examination—The patient was well developed and well nourished. She was not acutely ill but rather apprehensive in anticipation of the examination. The general physical examination was essentially negative excepting for a blood pressure of 180 systolic with 100 diastolic. The urine was normal.

Anorectal examination revealed an ovoid mass about 2 by 3 cm. located in the anterior anorectal region, the greater part of the mass arising from the anal region. It had the appearance and color of an unusually large gangrenous thrombosed hemorrhoid with a very thin covering. A foul smelling mucopurulent discharge was present. The sphincter was found spastic, but there was no anal constriction on digital examination. No masses nor induration were felt in the rectum. On proctoscopic examination there were no ulcerations nor neoplasms found in either the rectum or the sigmoid but on anoscopy the mass described could be seen arising from the anterior anorectal region, more on the anal side.

Operation—Under spinal anesthesia 50 mg. of procaine hydrochloride being used wide crater resection of the mass with cauterization of the base was performed July 16 the day following admission.

A pathologic report was made by James Denton.

Gross—A globular mass about 2 cm. in diameter was smooth, reddish black, and apparently covered with mucous membrane or anal skin on more than half of the surface. On section it was solid and blackish red.

Histologic—Section showed a cellular melanoma of the epithelial type making up most of the bulk of the mass. There was a rather scanty stroma and in this there were numerous melanin granules.

A diagnosis of melanoma of the anus was made.

Postoperative Course—The patient's temperature ranged between 98 and 98.2 F., the pulse rate between 65 and 75, and the respirations remained at 20.

The patient was catheterized eighteen hours after operation and voided voluntarily after that. The bowels moved on the third postoperative day and regularly thereafter.

The wound was dressed and cleansed daily, and on July 22, the fifth postoperative day, the anorectal region appeared satisfactory, and she was discharged. The wound was again dressed, July 25 and 29, and on August 3 at the last visit, the wound was entirely healed. At a follow-up examination, September 4, no evidence of the tumor was found locally and no recognizable metastases could be found after careful examination. Radiotherapy was not tried because melanomas are notoriously radioresistant. The intravenous administration of lead was not employed for the reason that the danger of lead poisoning would be introduced, and its use has been followed by little if any benefit in these cases.

On November 1 she noticed a small lump in the right groin, and by Jan. 23, 1932, although there was no local recurrence, it was found that the mass in the groin, now purplish black, had grown to the size of a lemon.

Further active treatment would have been an added burden to the patient and relatives. She died, June 24.

COMMENT

1 In a case of primary melanoma of the anus with rectal involvement, although metastases were not recognizable before operation, they were present or stimulated as proved by their rapid appearance following the resection.

2 All tissues excised from the anorectal region should be examined histologically.

3 Melanomas metastasize early and rapidly. Excision and examination of apparently insignificant small masses are suggested as prophylactic measures.

80 Hanson Place

Special Article

CLINICAL CONTROL OF CHRONIC HEMORRHAGIC STATES IN CHILDHOOD

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NEW YORK

Rational procedures for arresting hemorrhage are of ancient heritage. Homer relates with pride many of our current methods then applied to bleeding gods and fallen heroes of Greek mythology. While these methods were more effective for the inanimate gods than for the human heroes, the same therapeutic attempts still remain routine. Hippocrates (400 B. C.) applied styptics, ice, compression and elevation with better reasoning than result in the treatment of bleeding wounds. Celsus (20 A. D.) introduced cauterization, excision and ligature as surgical means of treating hemorrhage.

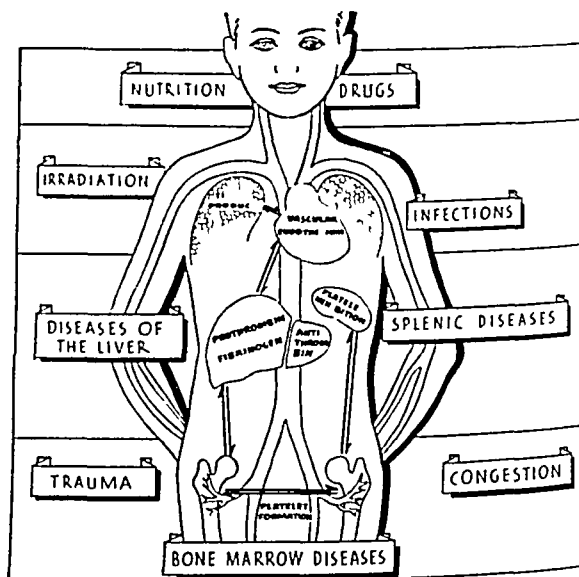


Fig. 1—Constitution, heredity—endocrine, allergic. The hemorrhagic status of a patient. Equilibrium between reticulo endothelial system, vascular endothelium and tissues affected by endogenous and exogenous factors.

But these procedures were used only in emergencies because bleeding was considered an earthly means of bodily purification. Local measures of treating hemorrhage persisted until the nineteenth century, when Blundell (1824) first transfused man from a human donor. Thus did a whole century pass before the therapeutic value of transfusion was turned from the metaphysical speculation of rejuvenation to rational physiology. It was not until 1860, when Alexander Schmitt studied the mechanism of blood coagulation that new approaches developed in the diagnosis and treatment of hemorrhagic disturbances.

Hemorrhagic states are unitary and unique. Their manifestations are as individual as the particular patient, as varied as the determining disease, and as widespread as are the offended organs and tissues. And yet they show few symptoms and fewer signs to be ever adequate for diagnostic differentiation without

further scientific study. The more accustomed one is to seeking similarities in the diagnosis of disease, the more is one eluded in attempts at patterning pictures of hemorrhagic diversities. The hemorrhagic state is a many dimensional portrait rather than a two dimensional textbook picture. Confronted with a hemorrhagic problem one must confuse neither the site nor the severity of bleeding with a specific hemorrhagic

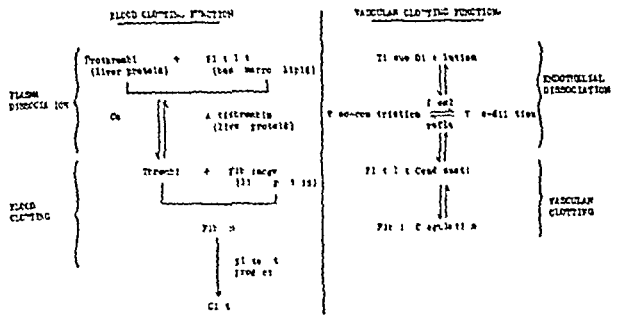


Fig. 2—The clotting mechanism

state. In no field of medicine is clinical judgment more exacting than in the interpretation of hematologic observations. Effective control of hemorrhagic states—potential or active—depends on simple therapeutic measures, once diagnostic specificity has been determined.

Hematologic studies of children presenting hemorrhagic symptoms have greatly minimized the number of true hemorrhagic diseases. In a sequential series of 5,000 sick children observed in three hospitals in the city, 7 per cent showed hemorrhagic symptomatology. But out of the 325 cases involving bleeding symptoms, only 95 proved to be veritable hemorrhagic diseases with abnormal deviations in the blood-clotting constituents. While these children showed more marked and more persistent bleeding than those with nonhemorrhagic diseases, the sites of bleeding were no different. Localized hemorrhages were more frequently the result of systemic disease than of local injury, and marked multiple hemorrhages usually revealed active hemorrhagic disease. Spontaneous bleeding was more prevalent than the traumatic and more difficult to control. In new-born infants it was the consequence of non-hemorrhagic disease, while in children spontaneous bleeding was precipitated by active hemorrhagic disease. Bleeding symptoms predominated among boys with true hemorrhagic diseases and among girls with nonhemorrhagic diseases, and a family history of a bleeding tendency was obtained in both groups. The majority of hemorrhagic problems were observed in older children, but control of hemorrhages was more effectively obtained in younger children in whom mild bleeding manifestations resulted in early hematologic diagnosis. And yet recovery from very severe injury to the reticulo-endothelial system has been witnessed at all ages. The more hemorrhagic problems are studied, the more atypical and transitional they behave in comparison with classic descriptions. Hemorrhagic states ever require individual study for diagnostic certainty.

ESSENTIAL DIAGNOSTIC PROCEDURES FOR
HEMORRHAGIC DISTURBANCES

Hemorrhagic symptomatology rarely reveals the clinical diagnosis. Methods have been devised for the study of the actual changes in the blood and the vessels to determine the mechanism of these disturbances.

Changes in the behavior of blood and in the concentration of its constituents are the result of essential hemorrhagic diseases, while changes in the functional behavior and structural integrity of the blood vessels are the result of nonhemorrhagic diseases. In the former the defect determining the hemorrhagic disease is actually within the blood, reflecting, of course, abnormalities in the reticulo-endothelial system. In the latter the defect is in the vascular wall without any disturbance in the blood.

Whatever the clinical impression of the type of hemorrhagic disturbance, every child requires a complete blood study including the hemoglobin content and the red cell, the white cell and the differential count. This rules out at once the presence of leukemic processes, bone marrow and splenic diseases. Then the determination of the clotting time, the clot retraction time, the bleeding time, the platelet count and the degree of platelet stability all indicate the type of change involved in the blood. If the results of these procedures are normal, it is further necessary to determine the content of the blood-clotting constituents, fibrinogen, prothrombin and antithrombin. Finally the tourniquet test is applied, the capillary nail beds are examined microscopically and the fluid output is measured to determine the presence of vascular dysfunction. No single procedure is ever diagnostic of hemorrhagic disease, for it takes the correlation of all these determinations with the family history, its hemorrhagic tendencies, the child's previous hemorrhagic history, and the present clinical condition to establish the diagnosis.

A NEW CLASSIFICATION OF HEMORRHAGIC STATES

Modern diagnostic procedures correlated with the clinical manifestations of hemorrhagic disturbances necessarily lead to a well defined classification. The

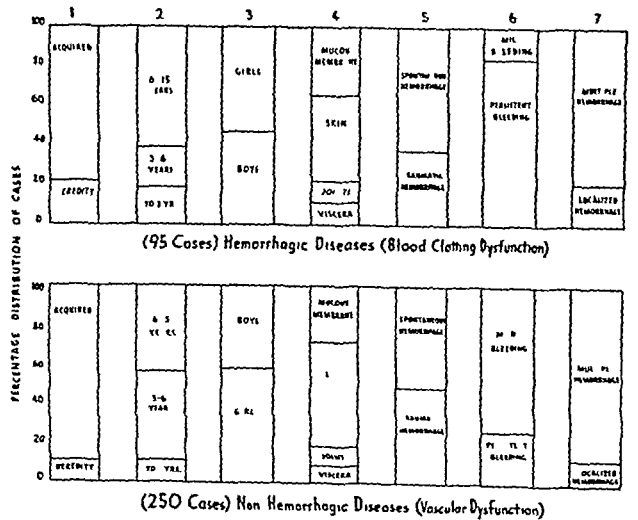


Fig. 3—Analysis of hemorrhagic symptomatology in 5,000 sick children

disease entities that produce changes in blood-clotting substances constitute one group of hemorrhagic diseases, while those that produce changes in the vascular endothelium constitute another group of so-called non-hemorrhagic diseases. Although vascular injury is present in all hemorrhages, it is not the determining factor in the disease process when the blood constituents are actually altered. Every hemorrhagic state involves a controlling factor in the blood or in the vas-

cular endothelium as causative of the disease. In both blood clotting and vascular dysfunctions there are acquired and hereditary diseases. If the prothrombin is deficient in the new-born, hemorrhagic disease results, if the platelets are diminished, thrombocytopenic purpura, if fibrinogen is deficient hemorrhagic diseases of the liver result. If any of these blood clotting constituents are either defective or deficient from infancy, the respective familial diseases appear.

On the other hand if the vascular endothelium suffers from malnutrition, scurvy or marasmus with normal blood pictures in the clotting constituents results. Likewise, if the capillaries are injured by allergens, allergic purpura is the outcome. Again vascular injury may be produced by chronic infections and chemical poisons with resultant hemorrhagic symptoms. And besides these types of vascular injury one may inherit actual defectiveness in the capillary structures and thus suffer from a familial disease. Each of these diseases originating in the blood or in the capillaries is amenable to control to the extent that the deficient or injured

prolonged or even normal, but determination of the clotting constituents reveals a decreased content of prothrombin or fibrinogen content of the blood. The anti-thrombin concentration is usually increased, but the platelets are normal in both quality and quantity. I have observed no evidence that the vascular endothelium is

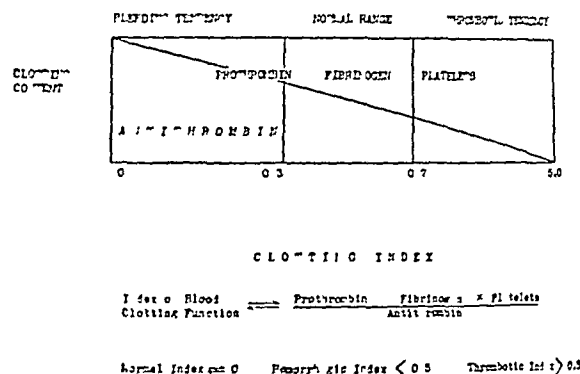


Fig. 5—Index of blood-clotting function

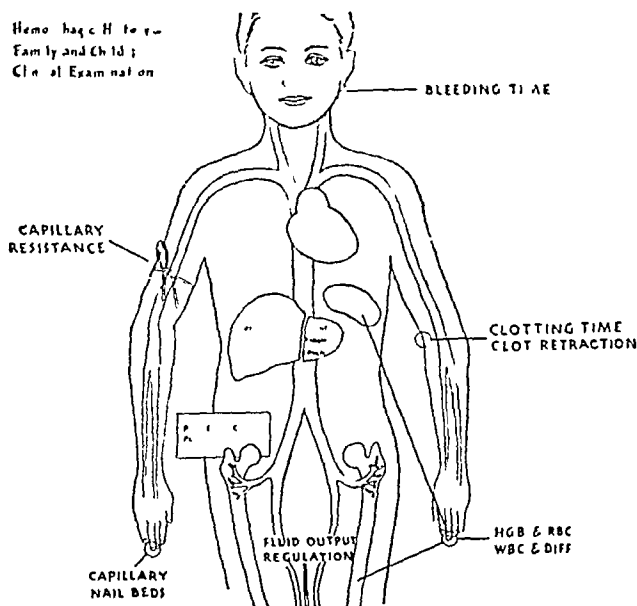


Fig. 4—Essential diagnostic procedures for hemorrhagic disturbances

factor is replaced or regenerated therapeutically. The control of the essential hemorrhagic disease or the non-hemorrhagic diseases depends on the proper classification of the disturbance. Once the mechanism of the bleeding symptoms is understood, the therapy indicated either supplies deficient blood-clotting constituents or decreases vascular permeability. The chronicity of hemorrhagic disturbances necessitates continuous clinical supervision in the prevention of recurrent hemorrhagic episodes.

DIETARY CONTROL OF CHRONIC HYPOTHROMBINEMIA

A bleeding tendency is not infrequently observed as a persistent manifestation of apparently well children. They are undernourished for their body build and are not derived from hemophilic families. Usually the bleeding symptoms are trivial and are presented only as a complaint incidental to an irrelevant acute illness. Epistaxis and easy bruising are outstanding symptoms although other bleeding disturbances may occur. Physical examination is usually negative and clotting time

at all affected as judged from the tourniquet test and the microscopic examination of the capillary nail beds.

Such benign bleeding manifestations are evidences of nutritional deficiency. The outstanding factor common to all is a syndrome which I shall designate hypothyrombinemia. Both prothrombin and fibrinogen are derived from the liver. Their decrease in these cases is not a result of impaired liver function, but rather the consequence of protein deficiency. Prothrombin is a protein substance which has been observed to increase in the blood following high protein diets. A further consequence is a subsequent diminution of the bleeding symptoms. The associated anemia in these undernourished children is unrelated to the bleeding symptomatology. The anemia observed is a result of nutritional deficiency.

The prevalent notion that hemorrhage follows anemia is unfounded. Bleeding in acute or chronic anemia is not observed even when the hemoglobin is as low as 10 per cent and the red cells drop to one million. Never does hemorrhage occur in severe chlorosis or in any of the anemias unless there is bone marrow injury. Such is not the case in these children with mild recurrent bleeding following trauma. Furthermore, there is no evidence of hemorrhage in the severest hydremias. The blood proteins are reduced to one-third their normal

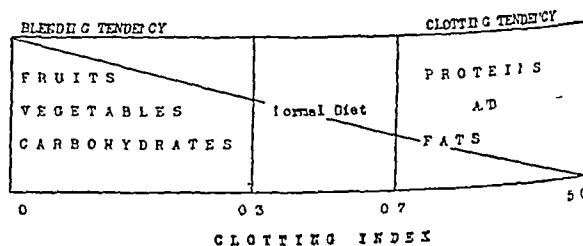


Fig. 6—Effect of diet on blood clotting function. Clotting diet: proteins, gelatin and fat increase blood clotting constituents. Bleeding diet: fruits, vegetables and carbohydrates decrease blood clotting constituents.

level, which produces no disturbance in the nutrition of the vascular endothelium. The basis for the hemorrhagic tendency in the group of children here presented is a diminished prothrombin or fibrinogen content of the blood corrected within two weeks by the administration of a high protein diet. I have observed a hypo

thrombocytopenia in a group of boys who were referred to me as possible hemophilic patients. Thus has the "clotting diet" become effective in the control of a chronic hemorrhagic condition confused with hereditary hemophilia.

TREATMENT OF CASES OF THROMBOCYTOPENIC PURPURA

Purpura is the most universal of hemorrhagic symptoms. The pictures may characterize a well defined disease entity of the reticulo-endothelial system or be a symptomatic manifestation of bone marrow diseases, splenic diseases, leukemic processes, infectious inva-

of the physical observations that the type of essential purpura may be determined as a basis for effective treatment. The following cases are illustrative of my approach in the control of purpuric disturbances.

(a) *Correcting Nutritional Deficiency*—Dr. Marton's boy developed petechiae over the gums and palate and bled from a loosened tooth at 7 years of age. Recurrent nosebleeds and purpuric spots throughout the body continued over a year. Periodic examination of his blood picture by several physicians confirmed the diagnosis of thrombocytopenic purpura. He came under my observation at the age of 8 when I found his nutritional history most significant. A markedly allergic boy with chronic eczema, he was quantitatively deprived of protein and

TABLE 1—Diet to Increase Clotting Function of the Blood

Food	Measurements	Protein 8 Gm per Kg		Fat two thirds of calories		Water low		Acid high		Water
		20 per cent protein, 70 Gm	12 per cent carbohydrate 43 Gm	Carbohydrate 53 Gm	65 per cent fat 75 Gm	Calories	Acid	Base	Vitamins	
Breakfast										
Stewed fruit (fresh)	5 tbsp	0.2	3.8	0.2	18			2.0	ABC	18
Evaporated milk	2 tbsp	3.4	4.5	0.7	66			0.7	ABCDG	27
Egg	1	6.7		5.0	76				ABDFG	37
Bacon	2 strips	2.1		13.0	121				AB	4
Whole wheat bread	1 slice	0.9	5.2	0.1	27		0.3		AB	4
Gelatin	1 tsp	9.0			37					
Dinner										
Potato	4 tbsp	1.0	8.4		38			2.3	ABC	30
Butter	2 pats	0.2		17.0	1.3				ADG	1
Milk	1 cup	19.0		5.3	121					73
Milk	1/2 glass	3	5.0	4.0	71			1.8	ABCDG	87
Gelatin	1 tsp	9.0			37					
Supper										
Brain		8.8		9.7	118					81
Spinach	Small serving	0.8	2.3	0.2	14			16.2	ABC	54
Egg yolk	1	3.1		5.7	77				ABD	1
Bone marrow		0.2		9.2	83					
Stewed fruit (fresh)	4 tbsp	0.2	3.8	0.2	18			2.0	ABC	13
Gelatin	1 tsp	9.0			37					

TABLE 2—Diet to Decrease Clotting Function of the Blood

	Calories 1000 7 per cent protein	Protein 0.2 Gm 17 Cm	Gm per Kg 70 per cent carbohydrate	Fat only in natural foods 173 Gm	Basic reaction 23 per cent fat 21 Cm	Water high Water 770 cc			
Food	Measurements	Protein	Carbo- hydrate	Fat	Calories	Acid	Base	Vitamins	Water
Breakfast									
Stewed fruit (fresh)	5 tbsp	0.8	12.7	0.5	60		3.7	ABC	87
Cereal (cooked)	2 tbsp	1.1	5.0	0.5	30	1		ABCE	7
Honey	1 tbsp	0.1	24.4		100			AB	5
Milk	1 cup	7.9	17.0	9.6	170		4	ABCDEG	203
Dinner									
Green vegetables									
Spinach	2 tbsp	0.4	1.2	0.1	7		8.0	ABC	23
Cauliflower	2 tbsp	0.4	1.2	0.1	7		1.6	AB	23
Tomatoes	1 small	0.4	1.2	0.1	7		1.4	ABC	24
Butter	2/3 pat	0.1		6.4	58			ABDG	1
Potatoes	1 small	2.7	21.0	0.1	96		7.0	ABC	76
Stewed fruit (fresh)	5 tbsp	0.8	12.7	0.4	60		7	ABC	87
Honey	1 tbsp	0.1	24.4		100			AB	5
Supper									
Green vegetable									
Asparagus	2 tbsp	0.4	1.2	0.1	7		0.2	B	23
Carrots	2 tbsp	0.4	1.2	0.1	14		3.2	ABC	2
Cabbage	2 tbsp	0.4	1.2	0.1	7		1.8	ABC	27
Butter	2/3 pat	0.1		6.4	58			ABDG	1
Rice	2/3 cup	1.7	14.6	0.1	67	5		B	44
Fruit	5 tbsp	0.8	12.7	0.4	60		3.7	ABC	87
Honey	1 tbsp	0.1	24.4		100			AB	5

sions, chemical injuries or allergic offenses. The essential purpuras resulting from reticulo-endothelial disease are particularly amenable to treatment once the diagnosis has been determined and their mechanism mastered. Essential thrombocytopenic purpura is precipitated abruptly with bleeding from the mucous membranes and into the skin as purpuric eruptions.

The blood shows a marked diminution of the platelets, a leukocytosis, a posthemorrhagic anemia with evidence of erythropoiesis, a normal or slightly delayed clotting time, a prolonged bleeding time, a nonretractile clot and a marked capillary resistance test. While this blood picture is characteristic, the clinical manifestations are variant so far as they have a specific bearing on the purpuric mechanisms. It is in the interpretation

fat. His blood picture showed a hemoglobin of 65 per cent, red blood cells, 3,800,000, white blood cells, 12,000, platelets, 40,000, bleeding time sixteen minutes, clotting time, three minutes. Medical consensus was for splenectomy as a last resort. A high fat and protein diet alone brought the platelets from a further drop of 20,000 to 400,000, with complete disappearance of purpura since 1927.

Typical thrombocytopenic purpura was cleared in this boy by nutritional therapy. The basis for this approach was a careful study of the nutritional history as part of a clinical picture. Dietary fat deficiency correlated with the lipid nature of platelets led to this treatment. I have found high protein and high fat diets in the so-called clotting dietary effective under similar conditions of dietary fat deficiency. One boy

of 4 developed a mild thrombocytopenic purpura, which persisted for six months, when a clotting dietary cleared the condition without further treatment. He was deprived of fat for over two years because of a chronic celiac condition. Another child similarly treated, developed purpura in the course of cyclic vomiting. The replacement of fat in the dietary brought prompt recovery from purpura.

Prolonged nutritional deprivation of the gross constituents in the dietary such as protein and fat does not always produce deficiency disease. Much of the symptomatology resulting from one-sided diets, therapeutic or habitual must be promptly corrected once hemorrhagic manifestations appear. Not infrequently such simple dietary procedures alleviate apparently alarming conditions.

(b) *Eliminating Infectious Foci*—D. T., a girl aged 6 years suddenly developed nosebleeds, hematuria and petechiae over the extremities following a severe infection of the upper respiratory tract. The child was undernourished for her body build, the tonsils were diseased, the spleen was 2 cm below the costal border. Roentgen examination of the sinuses was negative. Examination of the blood revealed hemoglobin 50

Then there were profuse nosebleeds, bloody vomitus, confluent facial hematomas, watery stools and vaginal bleeding. The diagnosis of acute thrombocytopenic purpura was confirmed by several attending physicians. Repeated transfusions aided the child over this severe attack. Purpuric manifestations recurred following short remissions for over a year. Then the child came under my observation. Examination revealed hemoglobin 75 per cent, red blood cells, 4,000,000, white blood cell 12,200, polymorphonuclears were 70 per cent, platelets, 60,000, bleeding time, eighteen minutes, clotting time, three minutes, tourniquet test, positive, clot retraction, deficient. The child showed clinical and roentgenographic evidences of chronic sinusitis. She was promptly immunized against the hemolytic streptococcus obtained from the sinus washings. The child has been free from purpura for over one year.

Infectious etiology in purpura is widespread. It becomes of determining significance in the treatment of purpura. If the infection is self limited, all forms of therapy directed at the symptomatic purpura will be of transient avail until the infectious process has passed. Then residual foci must be eliminated if chronic purpura is to be prevented. But if the infectious invasion is nonapparent in the face of dramatic purpuric bleeding, concentrated effort must be directed for its isolation. Then and only then can specific therapy against that infection halt hemorrhagic occurrences.

I have studied a child who was admitted with precipitate purpura following several months of bleeding from the gums. The blood picture was characteristic of thrombocytopenic purpura with platelets to 40,000. But the purpura did not clear until specific systemic therapy was administered against the causative Vincent's infection. I have seen thrombocytopenic purpura complicating pneumonia in a six months old infant. There were severe hemorrhagic symptoms, marked anemia, a platelet count varying between 60,000 and 90,000 and bleeding time from ten minutes to one hour. The purpuric picture persisted for one month simultaneously with otitis media as a focus despite recovery from the pneumonic process. Repeated transfusions with careful supervision of the offending otitis media eliminated the purpura. I have also observed a course of thrombocytopenic purpura complicating malignant diphtheria, congenital syphilis, miliary tuberculosis and sepsis, respectively. Treatment was necessarily directed at the infectious agents, for the purpura persisted throughout the duration of these infections.

(c) *Regulating Ovarian Function*—T. S., a girl, aged 13 years, suddenly developed purpuric spots over the extremities. The onset of the bleeding symptoms was simultaneous with that of the first menstruation at 12½ years. Then there was not only an excessive loss of blood but bleeding gums and easy bruising as well which recurred with each menstruation. Examination revealed hemoglobin, 65 per cent, red blood cells, 4,000,000, white blood cells 9,200, polymorphonuclears 68 per cent, lymphocytes 20 per cent, platelets 96,000, bleeding time, ten minutes, clotting time, twelve minutes. Treatment with active ovarian extract gradually diminished the recurrence of severe menstrual purpura, so that all hemorrhagic symptoms were finally eliminated by the fifth month.

Ovarian dysfunction not infrequently accounts for the genesis of thrombopenia. Such a relationship is very striking in the clinical cases thus far observed in that purpura recurs with each menstrual cycle. The mechanism of the hormone effect on suppression of bone marrow is unknown. But the diminution of platelets during menstruation, the increased capillary permeability with ovarian deficiency, the preponderance of thrombopenia in females are facts in favor of the administration of ovarian therapy in such cases.

TABLE 3—Treatment of Thrombocytopenic Purpura

- 1 Stimulating platelet formation
 - (a) Nonspecific protein therapy 5 cc intramuscular injection of milk
 - (b) Sterile human serum 2-50 cc intramuscular
 - (c) Whole blood 25-50 cc intramuscular
 - (d) Ovarian hormone 1 cc active preparation intramuscular daily
- 2 Increasing platelet content
 - (a) Blood transfusion effective four days duration of platelets
 - (b) High protein and fat dietary constituents for platelet synthesis
- 3 Decreasing capillary permeability
 - (a) 10% gelatin solution 30 cc orally t i d or 20 cc intramuscularly
 - (b) 10% calcium gluconate 10 cc intravenously (injected slowly) and 10 cc intramuscularly
 - (c) 10% sodium chloride 10-30 cc intravenously (injected slowly)
 - (d) Solution of pituitary effective via vasoconstrictor reaction
- 4 Removing platelet inhibition
 - (a) Elimination infectious foci or specific immunization
 - (b) Splenectomy

Indications: Essential thrombocytopenia, platelet diminution, persistent leukopenia, mild anemia from blood loss, evidences of active hematopoiesis.

Contraindications: Symptomatic thrombocytopenia, platelet diminution associated with deficient production of blood cells, marked reduction of white blood cells and granulocytes, absence and regeneration of hemoglobin and red blood cells.

per cent, red blood cells, 3,400,000, platelets, 55,000. Clot retraction, delayed, tourniquet test, positive, bleeding time, eighteen minutes, clotting time, three minutes. Repeated transfusions and subsequent tonsillectomy cleared the purpura. Although the blood picture became normal and the platelets rose to 200,000, the tourniquet test persisted positive and the child developed black and blue spots following trauma.

Infection not infrequently suppresses bone marrow activity or more usually injures capillary endothelium. This case is illustrative of the destructive effect of the streptococcus toxin on the megakaryocytes as well as of vascular injury. The only obvious related primary focus was the diseased tonsils. Their removal cleared the condition. But the residuum of easy bruising indicates that only part of the infectious focus was eliminated. Once systematic manifestations of an obvious infection appear, there result simultaneous multiple foci, difficult if not impossible to eliminate. One is thus confronted with foci rather than foci of infection to be eliminated in the treatment of purpura. But the early establishment of causative relationship of such foci should lead to their prompt eradication if control of the purpura is the consequence.

Dr. Wonnus Child. A girl aged 10 years, first developed purpuric spots over the left knee only to be followed by profuse crops throughout the entire body on the following day.

(d) *Indications for Splenectomy*—J W, a boy, aged 15 years, suddenly collapsed, bleeding for the first time from the nose, gums and pharynx. Then appeared petechiae over the mucous membranes and crops of purpuric spots over the chest, pelvis and extremities. The physical examination showed nutritional dystrophy, moderate lymphadenitis and an enlarged spleen. The blood picture showed a hemoglobin of 40 per cent, red blood cells 2,500,000, white blood cells 3,200, polymorphonuclears, 24 per cent, lymphocytes, 70 per cent, reticulocytes, 0.2 per cent, platelets, 25,000, clotting time, eight minutes, bleeding time, eighteen minutes, clot retraction, zero, the tourniquet test was positive. Hemorrhage became uncontrollable and transfusions were of little avail. Although the medical diagnosis was aplastic anemia the surgical consensus was for splenectomy. The blood picture revealed a symptomatic cytopenia associated with marked reduction in the white cells and granulocytes as well as with an absence of all signs of regeneration of hemoglobin and the red cells. Besides, there was no evidence of increased destruction of red cells in stained smears, no fragmentation of red cells and the icteric index was low.

Splenectomy is not a specific in the control of hemorrhage. Its effectiveness is limited to essential thrombocytopenic purpura and several other diseases with similar mechanism wherein primary splenic disease affects bone marrow function. This necessarily excludes primary leukemic processes and bone marrow diseases. Even in the limited number of these cases in which splenectomy is indicated, it is as yet not altogether possible to determine preoperatively in which this operation is the procedure of choice. The case cited is illustrative of a condition in which splenectomy should not be performed. Surgical specificity is life saving in emergencies, but misapplied operative intervention interferes with the prognosis and with progress. Splenectomy is contraindicated if the blood picture suggests a deficient production of blood elements other than the platelets. Therapeutic splenectomy is out of the question if the hemoglobin and red cells show more marked reductions than simple hemorrhage would produce, if there is a marked leukopenia, particularly in the granulocytes, and, finally, if in the presence of these reductions in the blood elements there is no evidence of active hematopoiesis. Mere reduction in platelets is never an indication for splenectomy. Every medical effort must be made for a complete correlation of all the blood observations with the clinical picture before yielding to splenectomy.

M T, a girl aged 4 years, showed recurrent purpuric spots over the face and chest for two years. With each crop there was simultaneous bleeding from the gums, nose and throat. A loosened tooth bled continuously for two days, requiring hospitalization. The physical examination was negative and even the spleen was not palpable. Examination revealed hemoglobin 60 per cent, red blood cells 3,000,000, white blood cells, 12,000, platelets, 30,000, bleeding time, fifteen minutes, clotting time, three minutes, clot retraction zero, tourniquet test, positive. Splenectomy was performed following repeated transfusions. All hemorrhages stopped and within twenty-four hours the platelets rose to 200,000. One week after the operation the platelets were 350,000, the second week 500,000, the third week, 700,000, and the blood picture became normal.

Such is the intermittent course common to chronic thrombocytopenic purpura. Remissions may last a few weeks or continue for months or even years with the platelets at low levels. When they fluctuate about the danger zone bleeding is imminent. With the purpuric process continuous the blood picture is abnormal even though the clinical manifestations are not always apparent. When bleeding does occur, the blood picture frequently shows a relative lymphocytosis which may be confused with lymphatic leukemia. A preponderance

of polymorphonuclears in purpura is indeed the more favorable index of bone marrow activity.

Treatment is directed at methods of raising the platelet content of the blood. Transfusions arrest bleeding not only because they contribute tremendous numbers of platelets but particularly because they stimulate bone marrow activity. Mere addition of platelets is transient because of their four day duration. Caution must be exercised in the transfusion of purpuric children because of their great susceptibility to shock of an already injured reticulo-endothelial mechanism. Therefore, accurate typing and matching must not be foregone, even in emergency transfusion. Under such circumstances it is preferable to tide the patient over with intramuscular blood in the interim of selecting a suitable donor. Even nonspecific protein therapy is effective in the early stages of the disease in that it induces marked rises in platelets and decreases capillary permeability.

But platelet reduction in purpura is not altogether responsible for bleeding. I have seen extreme thrombopenia without hemorrhage as well as the converse condition, indicating effect on the capillary walls as well as on the platelet mechanism. Therefore it is

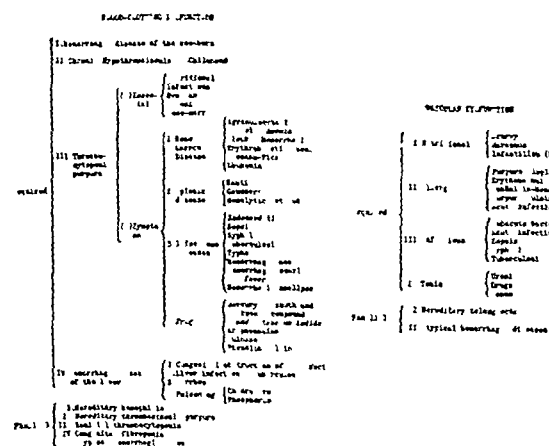


Fig 7—Hemorrhagic diseases in infancy and childhood

necessary in the treatment of purpuric bleeding not only to increase the platelet level of the blood but to decrease the capillary permeability as well. This may be accomplished by the intravenous administration of from 10 to 25 cc of 10 per cent calcium gluconate. This procedure may be reinforced by the oral administration of calcium salts. Local bleeding from mucous membranes may be arrested by applying dressings of a proprietary synthetic vasoconstrictor, a stable intermediate of epinephrine. Thromboplastic agents are quite ineffective locally and systemically.

But the chronicity of essential purpura may be cured by splenectomy. It is safe when properly timed and effective when indications are clear cut. Chronic cases may show a persistent mild leukopenia, indicating some exhaustion of the bone marrow as well as anemia resulting from the loss of blood. Both of these conditions are indications for splenectomy, provided there is evidence of active hematopoiesis. If bleeding is controlled by medical measures and there is a persistent leukocytosis the bone marrow is reacting and so it is preferable to continue to control the problem without splenectomy. In acute purpura, splenectomy may be a life-saving measure provided preliminary large transfusions are given daily to bring the hemoglobin and the

red blood cells to a favorable level. In such acute emergencies the platelet level is of no factor in surgical prognosis. Splenectomy is the procedure of choice when transfusions fail to arrest bleeding in a child that is afebrile, whose blood shows active regeneration and whose general condition after transfusion indicates fair surgical risk. Purpuric bleeding is promptly arrested after ligation of the splenic vein and no bleeding continues during or after splenectomy. But every child who leaves the operating room in good condition requires continuous medical supervision. Not infrequently, shock suddenly follows splenectomy. It may be immediate or delayed, hence a donor should be on hand for an emergency transfusion to combat post-operative collapse.

Clinical cure is not always complete following splenectomy. The more careful the blood picture conforms to the characteristics of the essential type of thrombocytopenic purpura the better the end result. The spleen in this type of purpura inhibits the production of platelets by the bone marrow. More specifically deranged splenic function is the result of defective separation of the platelets from normal megakaryocytes. Therefore, removal of the spleen produces a rapid and persistent rise of platelets to levels beyond the normal range for years following operation. But in the type of thrombocytopenic purpura in which there is a deficient production of megakaryocytes by the bone marrow the removal of the spleen is less beneficial if not unnecessary. It is this type of purpura that is difficult if not impossible to differentiate preoperatively unless the blood picture reveals semblances of aplastic anemia. Postoperatively there is a transient rise in platelets with an apparent clinical cure, but subsequently they fall again to low levels when hemorrhages recur. The return of purpuric symptoms has also been attributed to residual accessory spleens, fairly common in children. Their presence following splenectomy thus furnishes a source of inhibition of platelet production. Therefore there is dual responsibility medically to differentiate the type of essential purpura that will respond to splenectomy and surgically to the removal of all splenic tissue.

EVALUATING SYMPTOMATIC THROMBOCYTOPENIC PURPURA

Purpuric symptoms associated with diminished blood platelets occur in the course of many diseases. Exceptionally do they characterize the essential form of purpura. They are consequences of acute infectious diseases, of sepsis, of chemical injury, of primary blood diseases and of conditions in which the bone marrow is replaced by other tissues, as in Gaucher's disease, Niemann-Pick disease, osteosclerosis, marble bones and a variety of milder toxic disturbances characterized by a reduction in the circulatory myeloid elements of the blood such as agranulocytosis, aplastic anemia and aleukia haemorrhagica. The thrombocytopenic purpura therefore represents but one of several destructive processes in the parenchyma of the bone marrow. The injury of the megakaryocytes diminishes platelet formation just as injury to other parts of the bone marrow produces comparable changes in the blood cells. Obviously, this specific treatment in the selective injury to the megakaryocytes does not apply to more extensive injury to the bone marrow. The treatment of symptomatic thrombocytopenic purpura depends wholly on the nature of the primary disease.

(To be continued)

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
H. A. CARTER, Secretary

OHIO INFANT RESUSCITATOR ACCEPTABLE

The Ohio Chemical and Manufacturing Company manufactures and offers for sale to the profession an Infant Resuscitating Outfit which comprises a cylinder with foot ring yoke valve wrench, rubber bag, rubber tubing, hose clamp and baby face inhaler. It is recommended for use with a mixture of 5 per cent carbon dioxide and 95 per cent oxygen.

The Council investigated this device and the report follows. The above mentioned machine for the resuscitation of the newly born infant was employed in eleven cases of newly born infants afflicted with asphyxia of various degrees at the time of birth.

The development of these babies varied. Two were somewhat premature weighing 2,760 and 2,950 Gm., respectively and the calculated menstrual age was 38 weeks. Six were at term and three showed some evidence of postmaturity as evidenced by their weight and calculated menstrual age.

Evidence of fetal distress prior to delivery was not present in all cases. In one case there was evidence of a Brandt's contraction ring. In five cases there was no evidence of cord compression or fetal distress prior to birth. In two of the remaining five cases, meconium appeared in the amniotic fluid. In one of these, meconium was present for three and one half hours prior to delivery. In neither one of these cases did the fetal heart go below 100 per minute. In three cases the heart tones varied enough to cause some apprehension and in one case disappeared altogether for a minute or two, prior to a low forceps delivery.

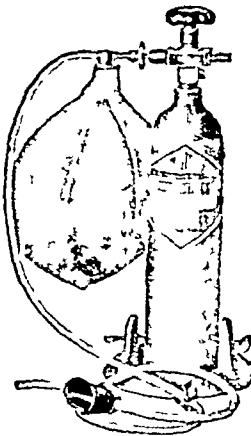
Medication During Labor—In four of the five cases just mentioned, morphine was administered, with or without scopolamine. Only two patients in the entire series did not have morphine alone, or combined with some other sedative. Both of these cases were breech presentations and offered difficulties during delivery. There was some aspiration of mucus and fluid in both cases. No patient received more than one dose of morphine during labor. The time of administration of the morphine varied from one hour to fourteen hours prior to delivery. Scopolamine was used in conjunction with morphine three times, and magnesium sulphate was administered once.

Anesthetics Used—Rather deep ether narcosis was used during the first stage of labor in one case. Ethylene and oxygen anesthesia was used in all cases and twice in combination with ether.

Length of Labor—The length of labor in most of these cases was relatively short, the average being twelve hours and twenty minutes. There was one case in which labor was prolonged to thirty hours.

The Presentation and Delivery—There is a high percentage incidence of breech presentations, there being three breech extractions, three spontaneous deliveries, three low forceps operations, one midforceps and one Porro cesarean section. There was some disproportion due to contracted pelvis in three cases.

Degree of Asphyxia—Eight of eleven babies were asphyxiated the degree varying considerably. Two showed signs of asphyxia pallida. In six there was a syndrome of asphyxia livida. One baby was apneic. No apnea or asphyxia of notable degree was present in two cases. In two cases the degree of asphyxia was so profound as to cause apprehension.



Ohio Infant Resuscitator

Etiology of Asphyxia—The following factors were thought to be responsible for the causation of the asphyxial birth trauma, sedatives and analgesics, ether and anesthesia, cord compression and respiration. Frequently more than one of these factors were present in individual cases. The morphine was undoubtedly responsible for the apnea in several cases, and one case of pronounced asphyxial lividity was ascribed to this agent.

Aspiration in small amounts occurred twice, and of larger amounts in two cases. This presented some mechanical difficulty to the establishment of normal respiration. Three babies seemed to have been definitely affected by injury, and there were two cases with definite cord compression, one in a difficult breech delivery in which the legs were astride the cord, and another in which the cord was caught over a shoulder and drawn sufficiently tight to cause blanching of the vessels. The case with the Brandt's contraction ring previously mentioned, resulted in the birth of the baby that responded poorly to the initial gas therapy.

The Heart and Circulation—The fetal circulation was impaired in all but two cases at the time of birth. The heart rate was reported to be slow in three cases. It was recorded at 60 per minute in two instances, 70 in two, 90 in one and 100 in one. The quality of the heart tone was usually strong.

Character of Respirations Before Treatment—Eight babies were not breathing as the treatment was instituted. In two cases the baby was gasping irregularly, and in one the respirations were already established. Some degree of artificial respiration was usually necessary to introduce the gas into the lungs. The tracheal catheter was used in nine cases for the aspiration of fluid and mucus. In two of these cases it was used for insufflation.

Pharyngeal Reflex—The pharyngeal reflex, which has been found to be a reliable index for the degree of asphyxia and a good prognostic sign, was normal in three infants, all of which responded readily to gas therapy. In five cases the reflex was feeble and the reaction of the infant was delayed. Two of the three babies without pharyngeal reflex were difficult to resuscitate, one requiring over twenty minutes before the establishment of normal respiration.

Percentage of Gas Used—In six of the milder cases, the mixture of gases was 95 per cent oxygen and 5 per cent carbon dioxide. The effect of this mixture is identical with that of oxygen. It is usually all that a mildly or moderately asphyxiated infant requires. In two babies 90 per cent oxygen and 10 per cent carbon dioxide was used, and in three cases the percentage was 70 and 30, respectively.

Time Intervals—The average interval between birth and the institution of treatment for the asphyxia was 47 minutes, the shortest interval being one minute and the longest twelve minutes. The gas was administered to one apneic baby with cyanosis for twenty minutes after birth, with ultimate excellent results. Three babies were breathing but were not in satisfactory condition prior to administration of the gas. Of the remaining eight, the average interval between the application of gas and the onset of respiration was 275 minutes, the shortest being one minute and the longest ten minutes.

All of the babies, except one, were in good condition when they left the birth room. Subsequently, no later treatment was required in the nursery in any case. There were no fatalities in this series, so no autopsy data are available regarding the condition of the lungs or air passages. Two babies had contracted pupils due probably to morphine and one infant had a slight stridor and whining cry, suggestive of birth trauma. All babies left the hospital in the usual time in good condition.

The case with complete asphyxia lasting twenty-two minutes, is worthy of special mention. This baby was a breech presentation in a primipara, aged 41. The mother had received ether anesthesia once prior to the administration of ethylene and ether. At the time of the Porro cesarean section two doses of morphine had also been administered. The fetal heart was very slow—about 40 per minute. In this case the gas mixture of 70 per cent oxygen and 30 per cent carbon dioxide was used. Heat and artificial respiration were needed for some time before the mixture could be introduced into the lungs.

The merits of this machine seem to be its efficiency and practicability, which can be secured at a relatively small initial

expenditure. The apparatus is compact and is not cumbersome. It is durable and light and seems to meet all requirements except for the disadvantage arising from the necessity of changing tanks in order to vary the percentages of the gases given. The tanks, however, if available, can be changed within a very short time. The safety cock, designed to prevent the forcing of too much gas under too great pressure into the fetal air passages, seemed to operate consistently and effectively. In all of these machines designed for resuscitation of newly born infants, care must be taken to clean the mouthpiece and tube prior to insertion in the mouth and nasopharynx.

The Council declares the Ohio Infant Resuscitator eligible for inclusion in the list of acceptable devices.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
PAUL NICHOLAS LEECH, Secretary

PRO-TEK NOT ACCEPTABLE FOR N N R

Pro-Tek is the proprietary name under which the DeVilbiss Company markets "a protective skin film" for workers' hands, also recommended for use on the face. The product is stated to be composed of soap (Ivory Soap Flakes), "free caustic," moisture sodium silicate, and glycerin. While no quantitative statement of composition appeared on the labels or in the advertising submitted to the Council, the firm expressed the intention of including such a statement if the product should be found otherwise acceptable by the Council. In accordance with the recently adopted Council ruling, a quantitative statement of composition should appear on the label and in the advertising. The DeVilbiss Company furnished a report from Dr. Arthur P. R. James, a reputable dermatologist of Toledo, Ohio, stating that Pro-Tek is nonirritating and harmless. The firm also furnished sworn statements (all signed by Dr. James) from several workers in naphtha, benzene, coal tar products, alcohol derivatives and ordinary lacquer thinners, all of whom testified to having used Pro-Tek and of having had no ill effects from the substances with which they work, as the result, in their opinion, of the use of Pro-Tek. The DeVilbiss Company submitted an advertising circular to be distributed to the public entitled "Pro-Tek The Invisible Glove", also a whole catalogue sheet captioned "Pro-Tek The Protective Skin Film."

If this were entirely a nonmedical article for instance, if it were to be used solely as a cleansing agent or to protect the hands against soiling, the name "Pro-Tek" would appear to be permissible under the Council's rules. However, the preparation is also to be used as a protection to the skin against irritation, and through this it becomes a medicinal agent that, to be made acceptable, must comply with the Council's rules for medicinal articles. Its action is not strictly mechanical but rather physical, like that of other demulcents and emollients, including protective ointments, pastes, glycerin and skin mucilages.

The Council held that, while the product might be entitled to a coined name, this name must not (as does the name "Pro-Tek") suggest therapeutic properties and, further, that such a name should indicate the potent constituents of the mixture. The Council held that the soap, the silicate and the glycerin all play a part in the action of the product but that the presence of the silicate is probably the most important. The Council suggested to the manufacturer that a name such as "Siliso Cream" would be acceptable.

When the firm was informed of the Council's decision with reference to this product it replied that conditions were such as to make it impossible to give up the name "Pro-Tek" or to accept the change in name suggested by the Council. The Council was therefore obliged to declare the product submitted as "Pro-Tek" unacceptable for New and Nonofficial Remedies because it is marketed under a therapeutically suggestive proprietary name and also without a declaration of the constituents on the label or in the advertising.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULE AND REGULATIONS THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMOTION TO THE PUBLIC THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION



RAYMOND HELFICG Secretary

BEECH-NUT STRAINED BEETS

(SLIGHTLY SEASONED WITH SALT)

Manufacturer—Beech-Nut Packing Company, Canajoharie, N. Y.

Description—Sieved beets retaining in high degree the nutritive and mineral values, slightly seasoned with salt.

Manufacture—Dark red beets are thoroughly washed, cooked in their own steam for one hour with a small amount of added water and blanched, and salt (0.5 per cent) is added. The beets are strained, processed and packed as described for Beech-Nut Strained Carrots (THE JOURNAL, Nov. 11, 1933, p. 1562).

Analysis (submitted by manufacturer) —

Moisture	91.3
Total solids	8.7
Ash	1.5
Sodium chloride	0.5
Fat (ether extract)	0.0
Protein (N × 6.25)	1.2
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	5.4

Calories—0.3 per gram, 9 per ounce.

Standards and Claims of Manufacturer—See these sections for Beech-Nut Strained Carrots (THE JOURNAL, Nov. 11, 1933, page 1562).

SUNRISE PANCAKE WHEAT FLOUR

Manufacturer—The Concordia Milling Company, Concordia, Kan.

Description—Pancake flour mix prepared from patent hard wheat flour, whole wheat flour, dextrose, calcium acid phosphate, baking soda and salt.

Manufacture—The ingredients are mixed in definite proportions and packed in bags.

Analysis (submitted by manufacturer) —

Moisture	12.9
Ash	1.4
Fat (ether extraction method)	1.4
Protein (N × 5.7)	9.9
Reducing sugars as invert	1.0
Sucrose (copper reduction method)	1.1
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	70.7

Calories—3.4 per gram, 97 per ounce.

WARDS MILK MAID BREAD

Manufacturer—The Ward Baking Company, New York.

Description—A milk bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817) prepared from flour, water, skim milk powder, sugar, butter, salt, yeast, malt syrup and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Analysis (submitted by manufacturer) —

Moisture	38.0
Ash	1.7
Fat (Ward Laboratory method)	2.1
Protein (N × 6.2)	8.4
Crude fiber	0.1
Carbohydrates other than crude fiber (by difference)	49.7

Calories—2.5 per gram, 71 per ounce.

Claims of Manufacturer—Conforms to the United States Department of Agriculture definition and standard for mill bread.

KARO POWDERED

Manufacturer—Corn Products Refining Company, New York.

Description—Spray dried corn syrup containing essentially dextrins, maltose and dextrose.

Manufacture—Corn syrup prepared by the hydrolysis of corn starch with dilute hydrochloric acid (see 'Karo [Crystal White]' in THE JOURNAL, Jan. 9, 1932, p. 143) is concentrated to a density of 1.36 (20°C./20°C.) spray dried and automatically and hygienically packed in enameled tins under air controlled conditions.

Analysis (submitted by manufacturer) —

Mixture	per cent
Ash	2-5
Fat (ether extract)	0.3
Protein	0.1
Dextrins (nonfermentable carbohydrates)	0.0
Maltose (fermentable sugar minus dextrose)	53-55
Dextrose (Steinhardt's method of Spiritusindustrie 56)	26-27
64-65 (No. 12) 1933)	16-17
Free from starch	

No protein reaction is obtained with (1) acetic acid and potassium ferrocyanide, (2) saturated sodium chloride and acetic acid, (3) trimetaphenol (picric acid) or (4) nitric acid and magnesium sulphate.

Calories—19 per gram, 110 per ounce.

Claims of Manufacturer—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a palatable carbohydrate for the nutrition of invalids and convalescents. Protein free and hence nonallergic.

SANITA BRAND STERILIZED UNSWEETENED EVAPORATED MILK

Distributor—The Ranner-Davis Mercantile Company, Arkansas City, Wichita, Anthony, Kan., Enid, Ponca City, Woodward, Okla.

Packer—The Page Milk Company, Merrill, Wis.

Description—Canned, unsweetened evaporated milk, the same as the accepted Page Evaporated Milk, Sterilized Unsweetened (THE JOURNAL, May 30, 1931, p. 1872).

MCCAHAN'S SUNNY CANE SUGAR

(a) LATPA FINE GRANULATED

(b) POWDERED

(c) CONFECTIONERS XXXX

(d) CONFECTIONERS XXXX WITH 3 PER CENT

CORNSTARCH TO PREVENT CAKING

(e) HOSTLESS TABLETS

(f) PARTY CUBES

Manufacturer—The W. J. McCahan Sugar Refining and Molasses Co., Philadelphia.

Description—(a) Finely granular refined cane sugar, (b, c, d) Powdered refined cane sugar, (d) contains 3 per cent corn starch to prevent caking, (e, f) Refined cane sugar in loaf or cube form.

Manufacture—(a) Imported unrefined cane sugar is passed through a crusher to break up any lumps that exist and is then mixed with a thin syrup to loosen the molasses surrounding the crystals, centrifugated and washed with cold water while rotating. (The syrup removed is used in the manufacture of Old Time Brown and Golden Yellow sugars.) The washed sugar is dissolved in water, the dark brown solution is treated with purifying agents—phosphoric acid and lime—to coagulate insoluble impurities which are filtered out. The clear brown filtrate is passed through a tank of bone black to remove soluble impurities, producing a water clear sugar syrup which is concentrated in vacuum at low temperature until a magma (a concentrated mass of crystals suspended in syrup) is formed. The magma is cooled and centrifugated, the white crystals are washed free of all trace of syrup, dried with warm air, screened for grading the crystals and packed automatically as 'granulated sugar'. (b, c, d) Refined cane sugar prepared as described under (a) is reduced to a fine powder and packed in cartons. In the

case of *d*, the powdered sugar is admixed with corn starch to the extent of approximately 3 per cent of the mix, and automatically packed

(*c, f*) Refined cane sugar, prepared as described under *a*, is moistened with a concentrated sugar syrup. The moist crystals are molded into desired forms which are dried with hot air, cooled, and packed in cartons

Analysis (submitted by manufacturer) —

	<i>a</i>	<i>b</i>	<i>c</i>	<i>e, f</i>	<i>d</i>
	per cent				per cent
Moisture					0.1
Ash					0.005
Fat					absent
Protein ($N \times 6.25$)					absent
Sucrose (polarimetric method)					99.7-99.9
Corn starch					2-3

Calories—4 per gram 114 per ounce

Claims of Manufacturer—Highly refined cane sugars for manufacturing, cooking and table use

MOFFAT COOKING CHOCOLATE UNSWEETENED

Manufacturer—Moffat, Inc., Boston

Description—Ground cacao nibs or "chocolate liquor" in cake form

Manufacture—Different varieties of cacao beans are separately cleaned, roasted cracked while hot, fanned to remove the cacao shell, stored in separate open hoppers and blended in formula proportions. The blend is finely ground, the resulting chocolate liquor is molded into one ounce cakes, which are cooled automatically wrapped in wax paper, and packed in cellophane-wrapped cartons

Analysis (submitted by manufacturer) —

	per cent	Moisture and fat free basis
Moisture	1.0	
Ash	2.9	6.6%
Fat (ether extract)	54.9	
Protein (non-caffeine and non theobromine $N \times 6.25$)	11.1	
Total nitrogen	2.2	
Crude fiber	2.7	6.1
Carbohydrates other than crude fiber (by difference)	25.7	
Theobromine (Dekker Kunze method)	1.1	
Caffeine (Dekker method)	0.2	
Alkalinity of the soluble ash (cc N -acid to neutralize ash of 100 Gm sample)	10.0	
Alkalinity of the insoluble ash	24.0	

Calories—64 per gram 182 per ounce

Claims of Manufacturer—Conforms to the United States Department of Agriculture definition and standard

GILSTER'S FEATHERLITE CAKE FLOUR (BLEACHED)

Manufacturer—Gilster Milling Company, Chester, Ill

Description—Soft winter wheat short patent flour, bleached. The same as Gilster's Best Flour (Bleached) (THE JOURNAL Nov 4, 1933, p 1483) excepting that it is more finely bolted

BOWMAN'S WHOLE MILK HOME LEADER BRFD (REDI-SLICED AND PLAIN)

Manufacturer—A Bowman & Son, Roanoke, Va

Description—A milk bread made by the sponge dough method (method described in THE JOURNAL March 5, 1932, p 817) sliced and unsliced. Prepared from patent flour, water, powdered whole milk shortening sucrose, salt yeast, and a yeast food containing calcium sulphate, ammonium chloride sodium chloride and potassium bromate

Analysis (submitted by manufacturer) —

	per cent
Moisture	36.5
Ash	1.0
Fat	4.0
Protein ($N \times 6.25$)	10.1
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	48.2

Calories—27 per gram 77 per ounce

Claims of Manufacturer—Conforms to the United States Department of Agriculture definition and standard for milk bread

HUBINGER GOLDEN TABLE SYRUP

(CORN SYRUP AND REFINERS SYRUP)

Manufacturer—The Hubinger Company Keokuk, Iowa

Description—Table syrup, corn syrup flavored with refiners syrup

Manufacture—Corn syrup prepared by the usual method of acid hydrolysis of corn starch (see Pemick Golden Syrup, THE JOURNAL April 2 1932 p 1159) is blended with high grade refiners syrup. The mixture is heated to 79 C and automatically packed in cans at 76 C

Analysis (submitted by manufacturer) —

	per cent
Moisture	26.4
Ash	0.4
Fat (ether extract)	0.0
Protein ($N \times 6.25$)	0.1
Reducing sugars as dextrose	32.8
Sucrose (copper reduction method)	2.8
Dextrins (by difference)	37.5

No methods are available for accurately determining the composition of syrups of this nature, therefore the foregoing analysis is roughly approximate

Calories—29 per gram 82 per ounce

Claims of Manufacturer—For cooking, baking and table use or as a carbohydrate supplement for milk modification for infant feeding

IRRADIATED VITAMIN D PASTEURIZED MILK

Distributor—Luick Dairy Company Milwaukee

Description—Bottled pasteurized vitamin D milk irradiated by Steenbock process (patent No 1680,818)

Preparation—The milk complies with legal requirements and is pasteurized by the standard holding method. For description of irradiation, see THE JOURNAL Oct 7, 1933, page 1155

Vitamin—Clinical investigation shows this milk to be a reliable antirachitic agent. Contains 50 Steenbock vitamin D units per quart

Claims of Manufacturer—Irradiated antirachitic pasteurized milk having otherwise the natural flavor and food values of usual pasteurized milk

CELLU MAYONNAISE SALAD DRESSING

Manufacturer—The Chicago Dietetic Supply House, Inc., Chicago

Description—Mayonnaise prepared from soy bean oil, fresh eggs, cider vinegar and sodium chloride

Manufacture—Fresh whole eggs and the soy bean oil are beaten to a thick emulsion. Vinegar and salt are worked in and the resulting mayonnaise is packed in glass jars. Small quantities are made at a time, so that fresh products only will be distributed

Analysis (submitted by manufacturer) —

	per cent
Moisture	13.4
Ash	0.4
Fat (ether extract)	83.4
Protein ($N \times 6.25$)	2.2
Carbohydrates (by difference)	0.6

Calories—7.6 per gram 216 per ounce

HEINZ CONSOMME SOUP

Manufacturer—H J Heinz Company, Pittsburgh

Description—Clear consommé prepared from lean beef, calves' feet, celery, carrots, onions added concentrated beef extract, and salt, pepper and spices

Manufacture—Ground lean beef and calves' feet are cooked in open kettles with celery, carrots, onions, seasoning, and added concentrated beef extract for flavor. The liquid is filtered, automatically sealed in cans, and processed

Analysis (submitted by manufacturer) —

	per cent
Moisture	93.0
Total solids	5.0
Ash	1.6
Sodium chloride	1.4
Fat (ether extract)	0.02
Protein ($N \times 6.25$)	3.3
Carbohydrates (by difference)	0.1

Calories—0.1 per gram 3 per ounce

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 20 1934

THE ORIGIN OF CANCER

Of the many attempts to explain the origin of malignant growths, the theory of a specific parasitic cause has been definitely dismissed by practically all students of the subject. The so-called Cohnheim hypothesis, which would ascribe tumor growth in general to anomalies of embryonic development, does not coordinate with the rather extensive available knowledge of the artificially induced irritational tumors, and Virchow's irritation theory is open to the objection that causative irritation is demonstrable only in a limited portion of cancer cases. Fischer-Wasels¹, who is active in the modern investigation of cancer, has elaborated a theory that seems to reconcile the Cohnheim and Virchow theories, moreover, he has presented significant experimental evidence in support of his views.

A cancer cell represents a biologic variant with entirely new properties, which are transmitted to its offspring. Such cellular mutants, according to the view of Fischer-Wasels, can originate normally only during the developing and differentiating stages of tissue growth. To the extent that cancer occurs in the absence of chronic regeneration, it does so in foci established during the early stages of development, essentially in agreement with Cohnheim's hypothesis. But abnormally there may occur in later life developmental changes that also permit such cellular mutation, for example, when from irritational causes rapid and continued tissue growth is present. Obviously, regenerating tissues resemble in many respects the rapidly growing tissues of the embryo. In these, Fischer-Wasels sees the possibility of origin of what may be called acquired foci of cancerous growth. This view has support in the character of morphologic changes occasionally seen in regenerating tissues, particularly in regenerating epithelium. Here there is not infrequently seen, in circumstances of stimulated growth, a metaplasia from glandular to squamous type—one that is definitely recognized as a frequent precursor of cancer.

¹ Fischer-Wasels, Bernhard. Experimentelle Grundlagen und Folgen der Regenerationstheorie der Geschwulstbildung. Klin. Wchnschr. 11, 1937 (Nov. 19); 1977 (Nov. 26); 1932. Erblichkeit und Geschwulstbildung. Deutsche med. Wchnschr. 59, 1489 (Sept. 29) 1933.

This multiple origin of foci of potential cancer is, however, only half of the complete picture drawn by Fischer-Wasels. It has long been recognized that it is possible artificially to enhance susceptibility to cancer, most typically by the continued administration of arsenic and perhaps less definitely, of indole. Cancer thus developed shows no regional relationship to the site of administration, for instance, in arsenic cancers developing after the treatment of psoriasis by long continued administration of solution of potassium arsenite by mouth the lesions ordinarily are primarily palmar or plantar, at times, multiple primary skin cancers may occur. Similar relations have been suspected with coal tar, but here the general action is ordinarily masked by its striking local effects. However, Fischer-Wasels, as well as a number of other experimenters, has observed the development of skin cancers in tarred animals in sites which protected as completely as possible from the direct action of the tar. have been injured in other ways, as by burning. Further, the greatly increased frequency of lung tumors in tarred animals may well be explained by increase of constitutional susceptibility.

The relation of malignant disease to heredity becomes particularly interesting in the terms of this hypothesis. One evident manner in which heredity could predispose to cancer would be through an inheritable tendency to embryonic maldevelopment of the type causing pre-malignant foci. Constitutional predisposition might, in all probability constitute another inheritable factor, so that malignant tumors might originate on a purely hereditary basis, both essential factors being of that character, or through the inheritance of a potentially cancerous focus with constitutional susceptibility acquired in later life, or through an acquired focus in an individual with either hereditary or acquired susceptibility.

As to the nature of this susceptibility, Fischer-Wasels points out that there is no morphologic alteration that can be recognized in this connection, so that it is apparently of metabolic character. Studies of tissue metabolism in normal animals and in such as are spontaneously cancerous as well as in animals rendered susceptible to cancer by chronic intoxication with tar or arsenic, made in his laboratory, show in the latter two classes a rather general alteration of metabolism from the normal oxidative type to that of the fermentative glycolysis which Warburg has shown to be linked with malignant growth. At present, efforts are being made with some prospect of success to identify associated blood changes more readily recognized.

To his theory as outlined here, Fischer-Wasels has added a number of corollary postulates. Most of these would appear to be of unquestionable validity: the necessity for periods of latent susceptibility and latent cancer development; the necessity, in the so-called irritational cancers, of a variable but usually prolonged period of stimulated and destroyed new growth of tissue, the formation of a potentially cancerous focus

in the course of these regenerative changes. In connection with the last postulate Fischer-Wasels regards as quite impossible one factor which is still open to question—that of the possible transfer of the properties of malignancy to adjacent and primarily uninvolved tissues. Such transfer would appear to occur with the Rous fowl tumors and has apparently been observed in a number of mammalian tumors as well as possibly in carcinoma sarcomatodes. But even should this transfer be established as actual it does not constitute an insuperable barrier to the validity of the hypothesis.

To be thoroughly acceptable a theory should not only serve as an explanation of facts already known but also to map routes into new fields of knowledge. To the extent that the theory here under discussion has been so used by Fischer-Wasels and his co-workers, it has met this demand. Scharlach R, for instance, has long been known to cause local, but delimited, epithelial hypertrophy in sites of injection. Using this to produce local regenerative changes, and the previous and continued administration of arsenic to produce constitutional susceptibility, they obtained hypertrophy which was no longer delimited but clearly cancerous. More recently, the continued administration of indole to mice has been found to cause in them marked lesions of the hematopoietic tissues ranging in character from typical leukemia to lymphosarcoma—an association of results that would seem to support those who have regarded the former disease as a special type of malignancy.²

Whether or not it gives an accurate presentation of the phenomena underlying tumor genesis the theory offers a working explanation of most of the facts of cancer development as they are known at present. That it promises to be productive of an increase of such knowledge is already indicated by its use in suggesting new methods of attack on what is probably the most obscure problem confronting modern medicine.

THE SOCIAL ORDER AND HUMAN HEALTH

The profound industrial and economic depression through which the nation has been passing in recent years has served to awaken many inquiries regarding the future of civilization. There can be no doubt that the so-called century of progress has brought many satisfactions and comforts into human life. The ingenious developments of machinery, the far-reaching promotion of methods of transportation, the successful organization of the functions of production and distribution, the improvement of the agencies and devices that are involved in the supply of food, clothing and shelter, the integration of political and social interests—such procedures provided by the past few generations are responsible for much that has brought relief from “the grind of monotonous all-absorbing toil from which most of our progenitors could not escape. One

could also present an intriguing story of a changed world in which man has in large measure been emancipated from certain degrading conditions that go hand in hand with ignorance and superstition. The eminent American physicist R. A. Millikan has stated

Do you realize that within the lifetime of men now living within a hundred years, or 130 years at the most, all the external conditions under which man lives his life on this earth have been more completely revolutionized than during all the ages of recorded history which preceded? My great-grandfather lived essentially the same kind of life, so far as external conditions were concerned, as did his Assyrian prototype 6000 years ago. He went as far as his own legs or the legs of his horse could carry him. He dug his ditch, he mowed his hay, he did all the operations of his industrial life with the power of his own two arms or the power of his wife's two arms with an occasional lift from his horse or his ox. He carried a dried potato in his pocket to keep off rheumatism, and he worshipped his God in almost the same superstitious way. It was only in the beginning of the nineteenth century that the great discovery of the ages began to be borne in upon the consciousness of mankind through the work of a few patient, indefatigable men.

Meanwhile another side of the story has been developing rapidly in recent months. The men who invented labor-saving machinery, the scientists who developed improved varieties and cultural methods, would have been bitterly disappointed had they seen how our social order was to make a mockery of their handiwork. In an address at Boston before the American Association for the Advancement of Science Hon. Henry A. Wallace,¹ the Secretary of Agriculture, vigorously criticized the assumed perfection of modern progress. He pointed out that during recent times science has been creating another world and another civilization that simply must be motivated by some conscious social purpose if civilization is to endure. Science and engineering, Wallace asserts, will destroy themselves and the civilization of which they are a part unless there is built up a consciousness that is as real and definite in meeting social problems as the engineer displays when he builds his bridge.

Every one is likely to be familiar by this time with the vigorous attacks that are today being developed against the current order. They imply that technological achievement such as has been created is at length likely to be a menace to human happiness unless there is a new order of planning. Secretary Wallace is somewhat specific in his appeal.

We wish a wider and better controlled use of engineering and science to the end that man may have a much higher percentage of his energy left over to enjoy the things which are nonmaterial and noneconomic, and I would include in this not only music, painting, literature and sport for sport's sake, but I would particularly include the idle curiosity of the scientist himself. Even the most enthusiastic engineers and scientists should be heartily desirous of bending their talents to serve these higher human ends.

Are there not additional personal advantages that would accrue to man through the development of new objectives in our social and economic life? Medicine

² Bungele, Walter. Die experimentelle Erzeugung von Leukämie, Myelosen, Lymphadenosen und Lymphosarkom. *Klin. Wchnschr.* 11: 1982 (Nov. 26) 1932.

¹ Wallace, H. A. The Social Advantages and Disadvantages of the Engineering Scientific Approach to Civilization. *Science* 79: 1 (Jan. 2) 1934.

points with pride to its achievements in the century of progress.² True, modern medicine makes no promise of immortality or even rejuvenation, but does it really "offer the living of most lives to the maximum period of expectancy, and such living with health and usefulness"? It is becoming commonplace to speak of the "diseases of modern life"—the morbidity that finds its explanation in large measure in the complex, insistent demands made on the living organism by the exigencies of present-day "civilization." Of what ultimate benefit are the betterment of child life, the conquest of infectious diseases, the superb development of surgery, the refinements of diagnosis, the advances in therapy, the perfection of nursing—how do these great contributions of medical effort profit our nation if its benefactors are in all too early season to become the victims of insidious maladies attributable to the stress of the strenuous life of today? Just as economists complain of the menacing dangers of an unmanaged progress, the hygienist may point to the man-made burdens of human misery due to "advancing civilization." The heart and circulatory disturbances that follow in the wake of our "hustle and bustle", the mental disturbances and maladjustments prompted by modern living and working conditions, the faltering eye and ear, call for a revision of our daily schedules. The "tired business man" and the "tired business woman" of today have upset the equilibrium that nature has intended to prevail among the various powers and activities of the body, and between man and the outside world. Perhaps the new objectives of a saner social order may save man from devastation by his ruthless program of progress.

PLEO-ANTIGENIC BACTERIA

Conclusive evidence that pathogenic bacteria often "dissociate" into two or more variants on routine culture mediums, and that similar "transformations" may occur on the injection of routine laboratory cultures into laboratory animals or during the course of natural clinical infections, has introduced elements of uncertainty into conventional views of the etiology of specific infectious diseases. The alleged diphasic nature of *Bacillus tuberculosis*,¹ for example, and the well confirmed tertiary variant of *Spirochaeta pallida*,² are prophetic examples of complex problems with which future clinicians may be forced to deal. From a practical point of view, the most important changes in pathogenic micro-organisms are not changes in morphology or increases or decreases in specific virulence but conceivable changes in their physiologic functions or specific chemical composition. If, for example, the test tube variant and the primary, secondary and tertiary

infectious phases of the tubercle bacillus are not only quantitatively but also qualitatively different in such characters, it is conceivable that allergies, immunities or specific antibodies may develop during the course of clinical tuberculosis that are beyond the range of detection by current immunologic technics.

Few detailed studies of the possible antigenic or chemical phases of bacterial cells have yet been attempted. Mackenzie and Fitzgerald³ have produced test tube variants of well known paratyphoid and paratyphoid strains by growing the parent cultures in the presence of dilute immune serum or dilute chemical antiseptics. From two to four distinct variants were produced with each of the parent strains, certain ones of which have shown no signs of reversion to their original characteristics after three years of subculture on routine culture mediums. Three familiar colony types were noted among the variants: typical "smooth" colonies of textbook bacteriology, "rough" colonies of current pleomorphic nomenclature, and extremely rough colonies of the "medusa" type. Intermediary stages also were noted. No invariable "linkage" or parallelism was noted between colony type and other microbial characters. "Rough" colonies might be produced by bacteria with otherwise unaltered characters, or marked departures from "typical" morphology or physiologic properties might be demonstrated in bacteria isolated from typical "smooth" colonies.

Antigenic assays were made by testing the power of each variant to stimulate the production of specific agglutinins in rabbits, and by studying reciprocal absorption and cross-agglutination with the resulting antisera. Certain of the artificial variants were found typical in their specific antigenicity, when studied by these technics. Other extreme variants would stimulate the production of no demonstrable specific agglutinins in rabbits, were wholly magglutinable with original type antisera, and were wholly nonabsorptive of original type specific agglutinins. Here also all conceivable intermediary stages were demonstrable.

About ten years ago, Furth⁴ of the hygienic institute at the University of Prague reported data suggesting that such antigenic variations in *Bacillus paratyphosus* are not necessarily merely quantitative in nature. He believed that certain of his laboratory variants had actually gained antigenic components not present in the original parent culture. Mackenzie and Fitzgerald were able to demonstrate the presence of such an acquired antigenic factor in certain of their variants. Furth also described the phenomenon of "convergence" between certain of his bacterial strains, two apparently distinct types or species giving rise to antigenically identical "dissociates." This also the New York investigators were able to confirm.

² Fishbein, Morris. *Frontiers of Medicine*. Baltimore: Williams and Wilkins Company, 1933.

¹ Diphasic *Tuberculosis* editorial. *J. A. M. A.* 101: 1079 (Sept. 30) 1933.

² Artificial Neurotrophic Syphilis. *Current Comment*. *J. A. M. A.* 96: 119 (Jan. 10) 1931.

³ Mackenzie, G. M. and Fitzgerald, H. *J. Immunol.* 25: 397 (Nov.) 1933.

⁴ Furth, J. *Ztschr. f. Immunitätsforsch.* 35: 133 1923.

There is rapidly increasing evidence that similar antigenic "mutations" can and often do occur during the course of certain natural infections or may be produced artificially by the inoculation of freshly isolated human strains into lower animal species. Paul and Trask⁵ of Yale University School of Medicine, for example, allege that freshly isolated poliomyelitis virus is thus altered by repeated inoculations into monkeys. In their hands the differences between the recently isolated or antihuman phase of this virus and the same virus after repeated passage through monkeys are not solely quantitative in character. New antigenic fractions have apparently been induced in the virus as a result of repeated animal passage, an evolutionary phenomenon reminiscent of the well confirmed antigenic "transformations" of type pneumococci⁶.

Current Comment

THE TREATMENT OF CARBON MONOXIDE ASPHYXIA

Carbon monoxide asphyxia has received so much publicity that an increasing number of investigators are offering new methods of treatment.¹ The proposed remedies are mainly respiratory stimulants.² The evidence offered for them is that animals asphyxiated to the point of failure of respiration survive if the drug is at that instant administered. Clinically the physician must apply the remedy at almost the exact instant at which respiration fails. If he arrives ten or even five minutes later, the victim will be beyond recovery. Owing to the fact that the respiratory stimulant drugs (such as lobeline or methylthionine chloride) have deleterious effects on the heart and circulation, the patient may be better next day if the drug is not administered. Many physicians fail to understand that asphyxia and failure of respiration are by no means the same, even if the one may lead to the other. A patient comatose from asphyxia, and likely to die some hours later, is often found breathing with even more than normal vigor. What he needs, and all that he needs, is removal of the carbon monoxide, restoration of the oxygen-transporting power of the blood and replacement of the carbon dioxide that has been lost during the development of asphyxia. None of these steps toward recovery, according to Henderson and Haggard, can be promoted to any considerable degree by any hypodermic medication,³ but they are all directly achieved by the inhalation of oxygen and from 7 to 10 per cent of carbon dioxide. This treatment is now so well established theoretically, and has saved so many hundreds of lives that it must still be considered the

method of choice. Since the introduction of the inhalational treatment of carbon monoxide asphyxia, the deaths from illuminating gas poisoning in New York City for the six years ended with 1932 have been as follows: 611, 570, 525, 435, 305 and 278. This is a striking demonstration of the effectiveness of this treatment.

METHYLENE BLUE IN TREATMENT OF EXPERIMENTAL CYANIDE POISONING

In the fumigation of ships with hydrogen cyanide gas, accidental cases of cyanide poisoning sometimes occur. Experienced fumigators have learned that persons overcome with this gas either die quickly or, when removed to the open air, recover completely in a relatively short time. When a sublethal dose has been absorbed, the progress of poisoning stops at once and recovery begins. There are borderline cases in which sufficient gas has been absorbed to stop respiration but not sufficient to inhibit completely other bodily functions. If artificial respiration is used in such cases, enough gas may be removed through the lungs so that breathing will be resumed. Since the intravenous injection of methylene blue has been advocated in the treatment of cyanide poisoning, Trautman¹ of the U. S. Public Health Service has carried out experiments to determine the value of these injections in animals poisoned by the inhalation of lethal or near-lethal doses of hydrogen cyanide gas. In a preliminary study he found that rabbits exposed to the gas to the point at which they stopped breathing subsequently recovered, but if the exposure was prolonged more than ten seconds after breathing stopped they always died. Guinea-pigs and white rats reacted differently. If they were kept in the gas to the point of cessation of breathing, they invariably died. Trautman then placed the animals separately in glass jars, which he covered with oiled paper fastened with cord around the top of the jar. A pipet was inserted into a small hole in the oiled paper and enough hydrogen cyanide allowed to run down the edge of the jar to give a concentration of the gas of 1 ounce per thousand cubic feet. The animal was observed until it breathed in a nearly lethal dose and then was quickly removed from the jar and treated by injections of a 1 per cent solution of methylene blue in physiologic solution of sodium chloride. An equal number of control experiments were conducted. Fifty-four guinea-pigs were thus exposed to hydrogen cyanide gas and twenty-nine of them were given intraperitoneal injections of methylene blue. Seventeen of the animals recovered in the average time of twelve minutes and twenty-seven seconds. Among twenty-five guinea-pigs that did not receive methylene blue injections, fifteen recovered in an average time of thirteen minutes and ten seconds. Among thirty-two white rats exposed to a concentration of the gas equal to one-half ounce per thousand cubic feet and then given intraperitoneal injections of methylene blue in a dose of 1 cc per hundred grams of body weight, twenty recovered in an average time of thirteen minutes and

⁵ Paul J. R. and Trask J. D. J. Exper. Med. 58: 513 (Nov. 1933).

⁶ Alloway J. L. J. Exper. Med. 55: 91 (Jan. 1932).

¹ Druze J. H. Sodium Tetrathionate and Methylene Blue in Cyanide and Carbon Monoxide Poisoning. Science 78: 145 (Aug. 18) 1933. abstr. J. A. M. A. 101: 1759 (Nov. 25) 1933.

² Henderson and Landell. False Remedies for Carbon Monoxide Asphyxia. Science 78: 408 (Nov. 3) 1933. Fundamentals of Asphyxia. J. A. M. A. 101: 261 (July 22) 1933.

³ Haggard H. W. and Greenberg L. A. Methylene Blue A Synergist, Not an Antidote for Carbon Monoxide. J. A. M. A. 100: 2001 (June 24) 1933.

¹ Trautman J. A. Methylene Blue in the Treatment of HCN Gas Poisoning. Pub. Health Rep. 48: 1443 (Dec. 1) 1933.

forty-six seconds. Of thirty-two rats used as controls thus gassed but not injected with methylene blue, twenty-two recovered and ten died. Of eighteen rabbits exposed to a concentration of the gas equal to one-half ounce per thousand cubic feet and then injected with 1 cc per kilogram of body weight of methylene blue, fifteen recovered. Of the seventeen control rabbits exposed to gas but receiving no methylene blue fifteen recovered. Lautman concluded that injections of methylene blue solution were of no value in the treatment of animals that had absorbed by breathing lethal or near-lethal doses of hydrocyanic gas in a short period of time.

Association News

SELECTION OF HOSPITALS IN COMPENSATION CASES ARISING OUT OF INJURIES TO EMPLOYEES OF THE CIVIL WORKS ADMINISTRATION

The following instructions have been issued by the United States Compensation Commission relative to the hospitalization of employees of the Federal Civil Works Administration.

Please instruct each local administrator in your state as follows:

1 Employees of the Civil Works Administration who suffer injuries while in the performance of duty are entitled to necessary hospital care for the treatment of conditions due to such injuries. An injured employee shall be admitted to and returned in a hospital as long as hospitalization is necessary for the purposes of treatment or examination. The instructions herein prescribe the procedure to be followed in selecting hospitals for the treatment of these cases and the schedule attached shows the rates to be allowed for hospital care. In no event however should these instructions be construed so as to interfere with the prompt and adequate care of an injured employee.

2 Injured employees must be referred to federal hospitals when such hospitals are both available and adequate. It is not intended to utilize these governmental facilities for civil works employees to the disadvantage of other classes of beneficiaries that may be entitled to care in federal hospitals but that beneficiaries for whom the respective federal hospitals were primarily established shall have preference in the use of such hospitals. However maximum use should be made of any existing federal medical facilities that may be available.

3 (a) When federal hospital facilities are not available or adequate cases requiring immediate hospital care shall be sent to the nearest suitable hospital which desires to participate in the service at the rates specified in the approved schedule of rates. Public hospitals other than federal are not to be given preference.

(b) The following factors should be considered in determining suitability: the proximity of the hospital; type of service; e. g., whether the hospital is well qualified to handle the special type of case; and the general quality of service.

(c) You should secure advice as to the suitability of local hospitals from one or more of the following local sources: medical advisory councils which may already be set up under Rules and Regulations No. 7 of the Federal Emergency Relief Administration; hospital associations; hospital health or similar councils; county medical societies; boards of public welfare or health.

4 (a) All hospital care must be authorized in writing by the proper officials on the staff of the local Civil Works Administrator. Care of emergency cases should not be delayed for a written authorization but this must be furnished within forty-eight hours after admittance to a hospital.

(b) An authorized physician in charge of the treatment of an injured employee as a compensation patient when hospital care

is required may send the patient to a hospital of the physician's selection provided the hospital thus selected agrees to the approved schedule of rates. However, hospitalization in such cases must be approved in writing as provided in paragraph 4 (a).

5 The Commission reserves the right to have its medical representatives examine patients at the hospital and examine the records of these patients and to cause the patient's removal when the Commission considers it necessary in the interest of the patient or to prevent overcharge, or for other sufficient reason. Hospital records of these patients shall be open to inspection by representatives of the Commission.

6 The Commission in conference with representatives of the national hospital associations, has agreed on a basic rate for the care of injured Civil Works Administration employees in general hospitals exclusive of federal hospitals. This rate includes many items for which extra charges are usually made. A schedule of rates for other services which are not included in the basic rate has also been agreed to. The national hospital associations have agreed to notify their members of these approved rates and urge their full cooperation with the Commission. The approved schedule of rates is attached hereto. Charges for services previously rendered will be adjusted under this schedule. (See paragraphs 34 and 35 of Civil Works Administration Rules and Regulations No. 5 for instructions concerning submission of vouchers.)

7 Each local administrator must make adequate provisions for the transportation of seriously injured employees to obtain medical treatment by arrangements made in advance for each work project. This may be done by arrangements for the use of automobiles available at the project, by agreement concerning the use of local ambulance services or such other arrangements as may be feasible. Ambulance service provided by hospitals is covered in the approved schedule of rates.

U. S. EMPLOYEES' COMPENSATION COMMISSION

SCHEDULE OF HOSPITAL FEES AGREED UPON BETWEEN THE JOINT COMMITTEE OF THE AMERICAN, CATHOLIC AND PROTESTANT HOSPITAL ASSOCIATIONS, THE CIVIL WORKS ADMINISTRATION AND THE U. S. EMPLOYEES' COMPENSATION COMMISSION

A \$3.50 per diem rate for all hospital cases of injured employees of the Civil Works Administration will be general throughout the United States regardless of local hospital costs or charges. This rate will apply in general hospitals, exclusive of federal.

The following items will be included in the rate:

The use of a single room when necessary	
General medical and surgical care by the house staff	
Ordinary nursing	Material for plaster casts
Special diets	Colonic irrigations
Usual medicines	Hypodermoclysis
Usual dressings and surgical supplies	
Usual laboratory tests such as:	
Blood counts	Coagulation time
Sneakers	Hemoglobin estimation
Usual urine tests	Occult blood
Wassermann tests	Skin tuberculin tests
Precipitation tests for syphilis	Spinal fluid smears and cell counts
Widal tests	Sputum examinations for tubercle bacillus
Agglutination tests	Other usual bacteriologic tests
Blood typing	

Such physical therapy treatments as may be necessary for patients in the hospital.

Autopsies and reports of same when a patient dies in the hospital.

There will be no charge for medical or hospital reports unless an actual transcript of the hospital record is requested in which case charge for same will be made in accordance with the local public stenographers' rates.

Charges will be allowed for the day of admission, but not for the day of discharge or death.

In addition to the foregoing rate it will be permissible to make the following extra charges:

1 An operating room fee of \$5 for a minor operation and \$10 for a major operation. A general anesthesia fee of \$5 for a minor operation and \$10 for a major operation to include anesthetic service by a salaried employee of the hospital and the cost of the anesthetic.

2 Laboratory examinations of an unusual character such as complete blood chemistry, gastric analyses etc. may be charged for at a rate of from \$3 to \$5 according to the nature of the examination (which must be specified in the voucher submitted) \$3 being the usual charge allowed for such examinations and reports.

3 Fee for special nursing when necessary will be allowed in accordance with the local prevailing rate or when furnished by a salaried employee of the hospital, at actual cost.

4 X-ray examination will be paid for in accordance with the following rate the number of films and procedure for each fee being indicated by the description below.

	No of Films	Price
Ankle joint anteroposterior and lateral views	2	\$ 2 50
Arm humerus anteroposterior and lateral views	2	2 50
Bladder with injection anteroposterior views	1	5 00
Chest for pulmonary or cardiac diagnosis, plain	1	3 75
Chest, for pulmonary or cardiac diagnosis, stereoscopic	2	5 00
Clavicle posteroanterior view	1	2 50
Fibula anteroposterior and lateral views	2	2 50
Fluoroscopy, when required without film	1	1 00
Foot anteroposterior and lateral views	2	2 50
Forearm radius and ulna anteroposterior and lateral	2	2 50
Foreign body in eye location of (the fragment charted in three planes and its dimensions ascertained by the method of Sweet or equivalent as needed)		12 50
Gallbladder Graham technic including cost of dye	1	10 00
Gastro-intestinal tract complete x-ray study including fluoroscopy as needed		12 50
Hand anteroposterior and lateral views	2	2 50
Hip joint plain anteroposterior view	1	1 75
Hip joint stereoscopic anteroposterior view	2	5 00
Intestine barium enema, 14 by 17 films for position and outline as needed		7 50
Jaw upper or lower	1	2 50
Kidneys right and left for comparison 11 by 14 films as needed		5 00
Knee joint anteroposterior and lateral views	2	2 50
Leg tibia and fibula anteroposterior and lateral views	2	2 50
Iodized poppy seed oil injection for bronchiectasis etc including roentgenograms and interpretation as needed		12 50
Pelvis 14 by 17 single film, anteroposterior view	1	5 00
Pyelography, using iopax or similar preparation (including cost of drug)	4	10 00
Ribs plain view over suspected area 10 by 12 film	1	3 75
Scapula	1	2 50
Shoulder joint plain anteroposterior views	1	2 50
Shoulder joint stereoscopic anteroposterior views	2	5 00
Sinuses, frontal and ethmoid, anteroposterior and lateral views	2	5 00
Sinuses, mastoid right and left sides for comparison	2	5 00
Sinuses, maxillary anteroposterior and lateral views	2	5 00
Skull ventriculogram air injection as needed	2	7 50
Skull anteroposterior and lateral views	2	5 00
Skull stereoscopic	2	7 50
Spine cervical anteroposterior and lateral views	2	5 00
Spine dorsal anteroposterior and lateral views	2	5 00
Spine lumbosacral with coccyx anteroposterior and lateral views	2	5 00
Stomach barium or bismuth meal 14 by 17 film after ingestion four 8 by 10 films for detection of duodenal cap total of four 8 by 10 films including fluoroscopy	4	12 50
Teeth single film	1	1 00
Teeth each additional film up to and including five films	1-5	1 00
Teeth series (five films up to and including full mouth)	(over 5)	5 00
Thigh femur anteroposterior and lateral views	2	3 75
Ureters right and left for comparison	(1 or 2)	7 50
Wrist, anteroposterior and lateral views	2	2 50

5 Unusual expensive medication and appliances will be supplied at cost. This includes such items as oxygen administration (marked preference being given to the use of commercial oxygen), biologicals, prosthetic and orthopedic appliances when furnished by the hospital. Blood transfusions not to exceed \$5 per hundred cubic centimeters to donor and a hospital charge of \$5 for the transfusion as a minor operation will be allowed.

6 Ambulance charges when furnished by the hospital may not exceed a minimum rate of \$3 when the call is within a three mile radius of the hospital. An additional rate of 50 cents per mile beyond the three mile radius one way will be allowed.

7 Professional and other fees of persons not employed by the hospital are not included in this agreement.

8 Fees for hospitalization and prophylactic treatment of contagious diseases not ordinarily treated in general hospitals are not included in this agreement and should be subject to local regulation.

MEDICAL BROADCAST FOR THE WEEK

Radio Talks from Station WBBM

The American Medical Association broadcasts on Tuesday and Thursday mornings from 8 55 to 9 o'clock central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

January 23 A Pioneer Health Educator
January 25 Cockroaches

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 8 55 to 9 10 o'clock over Station WBBM.

The subject for the week is as follows:

January 27 Man's Place in Nature

Talks over Network of the National Broadcasting Company

The American Medical Association broadcasts each Monday afternoon from 5 to 5 15 Eastern standard time (4 o'clock, central standard time). The subject for Monday, January 22, is "Are You Afraid, Too?" The speaker will be Dr W W Bauer, director, Bureau of Health and Public Instruction of the American Medical Association. The program is now being broadcast by the following stations:

WJZ	New York	WJR	Detroit
WBAI	Baltimore	WKYC	Cincinnati
WMAL	Washington	KDKA	Pittsburgh
WBZ	Boston	KWCR	Cedar Rapids Iowa
WBZA	Springfield Ma s	KOIL	Omaha
WSA	Syracuse, N Y	WREN	Kansas City Mo
WHAM	Rochester N Y	WENR	Chicago
WGAR	Cleveland		

Previous announcements of time and of stations taking the program have been superseded. Subjects and speakers for subsequent broadcasts will be announced weekly in THE JOURNAL.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Midwinter Clinical Courses—The third annual midwinter clinical course in ophthalmology and otolaryngology given by the Research Study Club of Los Angeles opened, January 15, to continue through January 26. Coincidental with this course is one on dissection and cadaver surgery, conducted by Dr John F Barnhill, for many years professor of surgery of the head, Indiana University School of Medicine, Indianapolis. In addition to Dr Barnhill, other members of the teaching staff for the course in ophthalmology and otolaryngology include:

Prof Anton Elschnig of the German University Eye Clinic of Prague Czechoslovakia
Dr Edward C Sewall clinical professor of surgery Stanford University Medical School San Francisco

Dr Hans Barkan clinical professor of surgery department of ophthalmology Stanford University Medical School
Dr Harry L Baum Denver

CONNECTICUT

State Society Confers Honorary Medical Degree—For the first time in 121 years, the Connecticut State Medical Society exercised its charter right to confer the honorary degree of doctor of medicine, January 5, when it bestowed this honor on Russell H Chittenden, LL D, professor emeritus of physiologic chemistry and director emeritus of the Sheffield Scientific School of Yale University, New Haven, the New York Times reports. The ceremony was a feature of the celebration of the sesquicentennial of the New Haven County Medical Association, which the Times describes as the parent of the state society chartered eight years later. In conferring the degree Dr Ralph A McDonnell, New Haven, president of the state society, said:

This honor now held by no living man is about to be conferred upon you in recognition of your valuable contributions to our knowledge of the human body and because of the inspiration derived from your instruction by many who later achieved marked success in the practice of medicine.

Dr Chittenden received his degrees of bachelor and doctor of philosophy at the Sheffield Scientific School in 1875 and 1880, respectively. He has been associated with Yale in a teaching capacity since 1875 and director of the Sheffield Scientific School since 1898, becoming emeritus professor and director in 1922. He is a member of many scientific societies, an honorary fellow of the New York Academy of Medicine and the author of several books on physiologic chemistry.

GEORGIA

Society News—Dr Ralph H Chanev, Augusta, addressed the Tenth District Dental Society at Augusta November 21, on "Infections of the Mouth and Their Relation to Diseases of Other Parts of the Body."—Dr Michael J Egan Jr Savannah, presented a paper on "Cure of Recurrent, Ventral

and Large Hernia by O. Fascia Repair Reports of Cases" —Speakers before the Sixth District Medical Society at Milledgeville, December 6, included Dr. William M. Crison Sandersville, on "Hodgkin's Disease." —At a meeting of the Fulton County Medical Society, December 7, Drs. Hal M. Davison and Mason I. Lowmce, Atlanta, discussed the treatment of arthritis with hyperpyrexia.

ILLINOIS

Society News—Dr. Frank Smithies, Chicago, spoke before the Will-Grundy County Medical Society, January 10, on "Pernicious Anemia and Newer Aspects of Treatment." —At a meeting of the Iroquois County Medical Society, January 11, Dr. Bernard Fantus, Chicago, presented a paper on "Therapy of Rheumatic Fever." —Dr. Elven J. Berkheiser, Chicago, spoke before the Peoria City Medical Society, December 19, on "Fractures of the Ankle Joint."

Chicago

Symposium on Cancer—Clarence C. Little, Sc.D., director, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, and managing director, American Society for the Control of Cancer, will participate in a symposium on cancer before the Chicago Medical Society, January 31, discussing the "Recent Biological Advance in Cancer Research." Dr. Greenwood will speak on the "Early Diagnosis and Treatment." Dr. Little will address a public meeting in the afternoon at the Murphy Memorial Hall on "What You Can Do for Cancer Control." This session is sponsored by the women's auxiliary of the Chicago Medical Society.

Hospital News—A contract has been let for the construction of the new Henrotin Polyclinic Hospital, to be known as the Chicago Polyclinic. To be erected at a cost of about \$500,000, the new building will be six stories high and will have 100 beds. —The Women and Children's Hospital observed its seventieth anniversary, January 5, in conjunction with the fifth anniversary of the opening of its \$1,000,000 building. The staff is composed entirely of women physicians. The institution was founded by Dr. Mary Thompson to care for women and children of veterans of the Civil War during an epidemic of cholera. One of the two hospitals in the city at that time did not admit women patients and the other did not allow women physicians to practice, it was reported. Maud Slye of the University of Chicago was among the speakers in the anniversary program.

MASSACHUSETTS

Health at Lowell—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended January 6, indicate that the highest mortality rate (22.4) appears for Lowell, and the rate for the group of cities as a whole, 13. The mortality rate for Lowell for the corresponding week last year was 18.7, and for the group of cities, 13.6. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Psychiatric Awards—Two awards of \$100 and \$50 will be made by the New England Society of Psychiatry at its next spring meeting to the writer or writers of the best papers completed or published during the calendar year 1933, embodying research in psychiatry by young workers. Physicians, psychologists, social workers or others are eligible, and membership in the society is not a requisite. Writers who have once received an award are not again eligible. Seasoned writers, senior physicians, or heads of departments in which there are junior workers, while not inevitably excluded will not generally be regarded as eligible for the awards. Copies of articles or marked copies of journals in which the articles appeared should be sent to the secretary of the society, Dr. Harlan L. Paine, North Grafton, Mass., before February 1.

Course on Medical Bibliography—The Boston Medical Library is conducting a short course in medical bibliography during January and February which is designed primarily, to introduce medical students to the methods employed in prosecuting an investigation of medical literature, acquainting them with the sources of information and the technique of following through a research. In addition to a presentation of technical bibliographic study, consideration will be given to the history of the art of printing. The library is also planning a bimonthly exhibition of current medical literature, in abstract, supplemented in the case of more important articles by the originals. There is now on display in the library an exhibit of historical source material representing the development of the medical

book in manuscript and print and notable examples of the thirteenth, fourteenth and fifteenth centuries.

Bills Introduced—H. 31, to amend the law relating to the sale of poisonous drugs, proposes to require vendors of arsenic, atropin chloral hydrate, chloroform, corrosive sublimate, cyanide of potassium, Donovan's solution, ergot, Fowler's solution, oil of pennyroyal, oil of savin, oil of tansy, Paris green, Parson's vermin exterminator, phosphorus, prussic acid, "rough on rats," strychnia, tartar emetic, tincture of aconite, tincture of belladonna, tincture of digitalis, tincture of nuxvomica, tincture of veratrum viride, compounds of fluorine or carbolic acid to affix to the container a red label on which is printed in black letters the name and place of business of the vendor, the words "poison" and the name of an antidote. H. 118 to amend the medical practice act, proposes that in addition to the educational qualifications now required of applicants for licenses to practice medicine, applicants shall have completed satisfactorily two years of college work prior to admission to their respective medical schools. This additional qualification, however, is to apply only to applicants matriculating in a medical school subsequent to the date this act takes effect. H. 125, to amend the optometry practice act, proposes to define optometry as the employment of any methods or means other than the use of drugs for the investigation and diagnosis of any malfunctioning, defect, deficiency or deformity of the visual system and its appendages, for the purpose of adapting or prescribing lenses and/or prisms and/or ocular training for the correction, relief and aid of the visual functions. H. 128 proposes to forbid the admittance of unvaccinated children to private schools. H. 147 proposes to repeal the laws relating to narcotic drugs and to enact the uniform narcotic drug act. H. 160 proposes to authorize the sexual sterilization of idiotic, imbecile, feeble-minded or insane inmates of state institutions. H. 293 to amend the pharmacy practice act proposes that the provisions of the pharmacy practice act shall not apply to the manufacture or sale of patent or proprietary medicines which do not contain salicylic acid, barbituric acid, acetanilid, phenol, bromine, or their salts or derivatives. H. 294 to supplement the pharmacy practice act, proposes to make it unlawful for any person, firm or corporation, owning, managing or conducting any place of business, not a licensed drug store to use any combination of words or signs indicating that such place of business is a place where medicines are compounded.

MICHIGAN

Course in Psychiatry and Neurology—A graduate course in psychiatry and neurology will be conducted at the University Hospital, Ann Arbor, January 22-27. Participating lecturers will be Drs. Carl D. Camp, Albert M. Barrett, Leonard E. Himler, John M. Dorsey, Raymond W. Wagoner, Robert R. Dieterle, Konstantin Lowenberg, Udo J. Wile and Max M. Peet, all of Ann Arbor, Robert H. Haskell, Northville, Franz Alexander, Chicago, and Lawson G. Lowrey, New York.

Detroit's Health Record—The lowest death rate in Detroit's history was reached in 1933 with a rate of 8.3 per thousand of population, as compared with 8.7 per thousand in 1932, which at that time was the lowest recorded. There were 12,345 deaths in Detroit in 1933 as compared with 12,988 in 1932. A new low death rate of 3.4 per hundred thousand of population was recorded for diphtheria, as compared with 4.3 for 1932, and an average rate of 20 for the preceding five years. There has not been a case of smallpox in Detroit for more than two years, the last one having occurred in August, 1931. There were only 983 deaths from tuberculosis as compared with 1,052, giving the lowest rate (66.3) in the city's history.

MISSISSIPPI

Pediatric Society Organized—The Mississippi State Pediatric Society was organized in Jackson, November 8. Charter members of the association are Drs. Noel C. Womack, president, Franklin C. Riley, Meridian, vice president, Guy C. Jarratt, secretary, Guy C. Verner, John K. Bullock, Harvey F. Garrison, Jr., Harvey F. Garrison, Sr., of Jackson, Robert E. Wilson, Greenville, George L. Arrington, Meridian, Joseph E. Green, Laurel and William P. Robert, Vicksburg. Physicians in good standing of the Mississippi State Medical Association who limit their practice to pediatrics will be considered active members of the new organization, while physicians only interested in the specialty will be designated as associate members.

Bill Introduced—S. 43 proposes to amend the law forbidding the sale, barter or giving away of commodities intended for smoking containing cannabis indica, so as to forbid also the keeping or possessing of such commodities.

MISSOURI

Cancer Survey—A survey of cancer will be carried out in Missouri by the American Society for the Control of Cancer, according to the state medical journal, as a preliminary movement in a campaign against cancer quacks and fake cancer cures. In addition to collecting statistics on cancer fakers and their victims, all phases of the cancer problem in the state will be studied with a view to enabling the state board of health and cooperating agencies to establish a far reaching campaign of public instruction.

Reporting Contagious Disease—Individual physicians will now report all contagious disease directly to the state health department instead of to the county health officer as heretofore, in accordance with a newly adopted plan. Several counties have discontinued the services of their health officers, since the law governing their employment was revised at the last session of the legislature to make it optional and not mandatory. The state department believes that the new system will insure the accurate reporting of morbidity statistics. Cards procured from the U S Public Health Service will be furnished to physicians to be filled out and returned to the department each week. Weekly health summaries will be issued in those counties that maintain health officers.

Society News—At a meeting of the Gasconade-Maries-Osage County Medical Society at Mount Sterling November 23, the speakers were Drs Norman Tobias and Julius A. Rossen, St. Louis, on "Extragenital Infections" and "Diarrhea in Infants and Children" respectively. The Five County Medical Society was addressed in Malden December 6, by Drs Lee D. Cady, St. Louis, on "Emotions and Their Physical Symptoms," and Carliss M. Stroud, St. Louis, "Allergy and the Practitioner with Consideration of Emotional Aspects." Speakers before the Jackson County Medical Society, January 16, were Drs Charles C. Dennie and Morris Polsky on "An Efficient Method of Heat Treatment," and James R. McVay, "Paraneoplastic Abscess, with Special Reference to X-Ray Findings." At a meeting of the St. Louis unit of the National League for the Rehabilitation of Speech at the Central Institute for the Deaf, January 8, Lee Edward Travis, Ph.D., Iowa City, spoke on "Left-Handedness as a Factor in Speech Disorders."

NEW JERSEY

Graduate Lectures—The Medical Society of New Jersey in cooperation with Rutgers University and with the Bergen County Tuberculosis and Health Association is presenting a graduate course in Hackensack for members of the Bergen County Medical Society. All the speakers are from New York. Dr Charles Ward G. Crampton, spoke, January 5, on periodic health examinations. Dr Bela Schick, January 12 on communicable diseases, and Dr Marshall C. Pease, Jr. January 19, on tuberculosis in children. Coming lectures will be

January 26 Dr John Wyckoff, Jr. Heart Disease in General Practice
February 2 Dr Robert T. Frank. Endocrine Diseases
February 9 Dr Ascher Winkelstein, Recent Advances in Gastro Enterology

Regulations for Sale of Hypnotic Drugs—The state board of pharmacy has issued regulations for enforcement of a law passed by the 1933 legislature concerning the sale of hypnotic drugs. No barbitol, barbituric acid, malonyl urea or other compounds, derivatives or preparations thereof may be dispensed or sold at retail to any person except on prescription from a duly licensed physician, dentist or veterinarian. The law applies as well to preparations containing trional sulphonal, tetronal carbomal, paraldehyde or chlorbutanol. If such prescriptions are not to be renewed, instructions to that effect must be written or printed on the prescription. Constant or frequent renewal without the knowledge of the physician is considered a violation of the spirit of the law but the regulation does not prevent renewal if the drugs are known to be intended for persons suffering from disorders requiring frequent use. The regulations do not apply to preparations intended for external use if they contain other drugs which give them other properties than those possessed by the hypnotic drugs. In other words, if they are sold in good faith for the purpose for which they are intended and not for purposes of evading the law.

NEW YORK

Bill Introduced—S. 66 proposes to accord to hospitals, physicians and nurses treating persons injured through the negligence of another, liens on any rights of actions judgments or settlements accruing to such injured persons by reason of their injuries.

New York City

Symposium on Encephalitis—The annual meeting of the New York Academy of Medicine was held, January 4, with a symposium on encephalitis as the principal feature. Speakers were

Dr Ralph S. Muckenfuss, St. Louis, Clinical and Research Aspects of the St. Louis Epidemic
Dr James P. Ierke, Washington, Epidemiology
Dr Leslie T. Webster, Recent Research in the Disease
Dr Josephine B. Neal, Clinical Observations
Dr Frederick Tilney, Importance of Differential Diagnosis
Dr Thomas M. Rivers, Summary and Discussion

A portrait of the late Dr Thomas W. Salmon was presented to the academy and the report of the Thomas W. Salmon Memorial Committee was presented.

Koba Appears Again—Tsuneo Koba, a Japanese whose activities as an impostor were detailed in THE JOURNAL, Aug. 1, 1931, page 339, has recently been discovered acting as a junior fellow in surgery at Presbyterian Hospital, Columbia University Medical Center, using the name Akira Matuzaki. Koba was recognized by a physician from California who visited the hospital. Investigation in the records of the New York Police Department and the California Board of Medical Examiners proved his identity and he was dismissed after having served several months. Soon after the publication of the article in THE JOURNAL in 1931, Koba, who also used the name of Tsuneo Kuba, was arrested in New York after he had presented a fraudulent certificate in an effort to obtain a position as an intern. He pleaded guilty to forgery, Dec. 28, 1931, and was sentenced, Feb. 16, 1932, to an indeterminate term in the New York County Penitentiary (THE JOURNAL, March 26, 1932, p. 1094).

Professors Appointed—Following a recent meeting of the council of New York University, the following appointments were announced:

Dr Mills Sturtevant, professor of clinical medicine
Dr Robert P. Wadham, professor of clinical surgery
Dr Norman H. Jolliffe, assistant professor of clinical medicine
Dr Currier McEwen, assistant professor of medicine
Drs Paul E. Bechet and Samuel M. Peck, assistant clinical professors of dermatology and syphilology
Dr John Winston Fowlkes, Jr., assistant professor of otorhinolaryngology
Dr John W. Hammond, assistant clinical professor of pediatrics
Dr Sophia J. Kleegman and Thomas E. Lavell, assistant clinical professors of gynecology
Dr Oswald N. LaRonda, assistant clinical professor of medicine

Dr Warren Coleman, who had served in the department of medicine for fifteen years, was made professor emeritus of clinical medicine. Following the death of Dr Richard T. Atkins, Dr Wesley C. Bowers was appointed acting head of the department of otorhinolaryngology.

Dr Sherman to Receive Medal—Henry C. Sherman, Ph.D., Mitchell professor of chemistry, Columbia University, has been chosen by the New York section of the American Chemical Society to receive the William H. Nichols Medal for 1934 in recognition of his research on vitamins. The award will be made at a meeting of the Chemists' Club, March 9, at which Lafayette B. Mendel, Ph.D., Sterling professor of physiologic chemistry, Yale University, New Haven, Conn., and Charles A. Browne, Ph.D., of the U. S. Bureau of Chemistry and Soils, Washington, D. C., will speak. Dr Sherman has been engaged in research and teaching at Columbia for about thirty-five years. He is senior author of the American Chemical Society's monograph "The Vitamins" and author of "Chemistry of Food and Nutrition," "Food Products" and "Methods of Organic Analysis." In 1926, he was president of the American Society of Biological Chemists and in 1907-1908 served as vice president of the American Chemical Society. In the announcement of the award, the jury of selection observed that Dr Sherman in collaboration with other chemists has developed quantitative methods for vitamin research, which have been used all over the world in the study of the distribution of vitamins in nature, vitamin values of foods and processes of food preparation to conserve vitamin values.

NORTH DAKOTA

New Members of State Examining Board—Drs Archibald D. McCannel, Minot, Albert W. Skelsey, Fargo, and Lee B. Greene, Edgeley, have been appointed to the North Dakota State Board of Medical Examiners to succeed Drs Jesse W. Bowen, Dickinson, Clyde E. Stackhouse, Bismarck, and Frederick L. Wicks, Valley City. Other members of the board are Drs Harry F. Emert, Sarles, president, George M. Williamson, Grand Forks, secretary, William H. Long, Fargo, William F. Sihler, Devils Lake, Philip G. Arzt, Jamestown, and John E. Countryman, Grafton.

OHIO

Academy Approves Plan for Hospital Insurance—The council and board of directors of the Academy of Medicine announce approval of the hospital insurance plan proposed by the Cleveland Hospital Council, whereby hospital services will be provided to groups of employees on an insurance basis a maximum of three weeks' hospital service in one year to be provided at insurance rates of \$9 or \$7.20 a year, depending on the type of accommodation desired. The academy has adopted a resolution which is in part as follows:

WHEREAS The hospitals of Cleveland comprising the Cleveland Hospital Council have developed a plan of group payment for hospital care which includes as essentials of the plan the free choice of hospital by the patient and doctor, the free choice of physician by the patient, the distinct separation of attending physicians' fees from hospital charges, the maintenance of quality of professional services to hospital patients all of which are not and are not to be changed from present existing customs, and

WHEREAS This plan of group hospitalization is not to be established or operated by any insurance company or other organization or individual for profit but is to be promoted and operated by a nonprofit corporation over which the participating hospitals virtually have control and

WHEREAS In the formulation of such a plan the Hospital Council has consulted the Academy of Medicine in respect to all the provisions of such a plan relating to the professional services rendered to subscribers under the plan and has earnestly tried to fully protect the interests of the medical profession in the operation of the plan now therefore be it

Resolved That the Academy of Medicine of Cleveland and Cuyahoga County Medical Society appreciates the efforts which the Hospital Council of Cleveland has made to meet the objections to the general plan of group hospitalization held by organized medicine on ethical and economic grounds and believes that these efforts have been successful and be it

Resolved That so long as the principles and practices set forth in the prospectus and draft submitted this day are maintained the Academy of Medicine approves and endorses the plan and will cooperate toward its successful operation

In a published statement, Dr. A. A. Jenkins, president of the academy, explains the plan in part as follows: Opposition has been raised and will continue to be raised to any plan which attempt to interject a third party between the physician and his patient or which submit the medical profession to conditions which make it impossible for the profession to serve the public adequately and to maintain its scientific and economic independence or which interfere with the free choice of physicians by patients. The plan of the Hospital Council as proposed to us safeguards the patient and the profession against any of the interferences which are inherent in so many other insurance plans. It will not change the practice of medicine as it relates to the hospitals and will not substitute hospital practice of medicine for private practice of medicine, since the plan covers only hospital bed care as considered separate and apart from the service rendered by the physician. The major hospitals of Cleveland join together to present to the public an insurance plan of payment for hospital services which always necessarily bulk large in comparison with the limited income of certain groups. By joining together, the hospitals unitedly serve the community and obviate the adoption in Cleveland of small parallel competing insurance plans which bring about price cutting and service cutting chaos. The hospitals in adopting the plan have taken into consideration the possible effects of such a plan on the medical profession and have amended and outlined the plan to preserve the present adequate and essential elements of private practice as they relate to hospital practice. The Academy of Medicine as a branch of organized medicine last year approved the Minority Report of the Committee on the Costs of Medical Care, which called for the maintenance of private practice of medicine and reemphasized the principles which are promulgated in our resolution. The Minority Report further reemphasized that the medical profession in consultation with existing groups in the local communities should develop plans for providing health services to all classes of people in accordance with their ability to pay. The action of the board and the council of the academy consistently follows the suggestions of the Minority Report of the Committee on the Costs of Medical Care."

PENNSYLVANIA

Society News—Dr. Harry G. Noah, Pittsburgh, addressed the Fayette County Medical Society, Uniontown, December 7, on diagnosis and treatment of pulmonary tuberculosis. Dr. William F. Rienhoff, Jr., Baltimore, addressed the Harrisburg Academy of Medicine, December 19, on hyperthyroidism.

Philadelphia

Osler Memorial Meeting—The section on medical history of the College of Physicians of Philadelphia and the Philadelphia Psychiatric Society held a special meeting in memory of Sir William Osler, January 9. Dr. Maude E. S. Abbott, assistant professor of medical research, McGill University Faculty of Medicine, Montreal, delivered an address on "Osler's Contributions to Medicine, Especially Heart Diseases

with Reference to His Canadian Period and Some Personal Reminiscences" and Dr. Truman G. Schnabel, discussed "William Osler's Association with the Philadelphia General Hospital."

Society News—A symposium on fractures was presented before the Philadelphia Academy of Surgery, January 8, by Drs. Hubley R. Owen, William Bates, Adolph A. Walking and Calvin M. Smyth, Jr.—Dr. John A. Kolmer and Miss A. M. Rule presented a paper before the Pathological Society of Philadelphia, January 11, on "Vaccination of Monkeys Against Acute Anterior Poliomyelitis, with Special Reference to Oral Immunization" and Dr. Louis Tait, on "Effects of Reticulo-Endothelial Blockade upon Antibody Formation."

RHODE ISLAND

Society News—Dr. Howard M. Clute, Boston, addressed the Newport Medical Society, December 4, on surgery of the upper part of the abdomen. Dr. John Ridlon was elected president—Dr. Paul I. Yakovlev, research fellow in neuropathology, Harvard Medical School, Boston, gave an address at the State Hospital for Mental Diseases, Howard, December 18, on "Neural Mechanisms of Epileptic Seizures."

GENERAL

Society News—Dr. Frank K. Boland, Atlanta, was elected president of the Southern Surgical Association at its annual meeting in Hot Springs, Va., December 12-15. Drs. John H. Neff, University, Va., and Edgar P. Hogan, Birmingham, Ala., were elected vice presidents and Robert L. Payne, Norfolk, Va., secretary, reelected. The 1934 meeting will be held in Sea Island, Ga.—The eleventh annual meeting of the American Orthopsychiatric Association will be held in Chicago at the Palmer House, February 22-24—Dr. Cyrus C. Sturgis, Ann Arbor, Mich., was chosen chairman of Section N (Medical Sciences) of the American Association for the Advancement of Science at its winter meeting in Cambridge, Mass., and Dr. Earl B. McKinley, Washington, D. C., secretary.—The forty-sixth annual meeting of the American Physiological Society will be held in New York under the auspices of Columbia University College of Physicians and Surgeons, Columbia, March 28-31. Dr. Arno B. Luckhardt, Chicago, is president.

Medical Bills in Congress—Bills Introduced S 2000 introduced by Senator Copeland, New York, proposes to prevent the manufacture, shipment and sale of adulterated or misbranded food, drink, drugs and cosmetics, and to prevent the false advertisement of food, drink, drugs and cosmetics. This bill it is understood has been introduced as a substitute for the so-called Tugwell bill, S 1944. S 1990, introduced by Senator McNary, Oregon, proposes to extend to contract veterans, including contract surgeons, of the Spanish American War, the Philippine insurrection and the Chinese Boxer rebellion the benefits to which veterans of the World War are entitled. S 2040, introduced by Senator Robinson, Indiana, and H. R. 6176 introduced by Representative Taylor, Tennessee, propose to reenact all public laws extending benefits to veterans that were repealed by an Act to maintain the credit of the United States Government, approved March 20, 1933. H. R. 6138, introduced by Representative Ransley, Pennsylvania, proposes to provide additional benefits for veterans. Among other benefits, it provides that any World War veteran employed in service between April 6, 1917, and Nov. 11, 1918, not dishonorably discharged, suffering from disability, disease or defect, who is in need of hospitalization or domiciliary care, and who is unable to defray the necessary expenses therefor, may be furnished necessary hospitalization or domiciliary care in any veterans administration facility, irrespective of whether the disease, disability or defect was due to service. A statement by the veteran that he is unable to defray the necessary expenses incident to hospitalization or domiciliary care must be accepted by the Administrator of Veterans Affairs as sufficient evidence of that fact. The following bills are identical in phraseology with the bill just discussed: H. R. 6152, introduced by Representative Connolly, Pennsylvania; H. R. 6156, introduced by Representative Rankin (by request), Mississippi; H. R. 6170, introduced by Representative Hope, Kansas; H. R. 6205, introduced by Representative Scrugham, Nevada; H. R. 6209, introduced by Representative Johnson, Oklahoma; H. R. 6212, introduced by Representative McLeod, Michigan; H. R. 6215, introduced by Representative Swick, Pennsylvania; H. R. 6222, introduced by Representative Hastings, Oklahoma; H. R. 6364, introduced by Representative Rogers, Oklahoma; H. R. 6365, introduced by Representative Jenkins, Ohio; H. R. 6468, introduced by Representative Berlin (by request), Pennsylvania; and H. R. 6374, introduced by Representative

Representative Swank, Oklahoma H R 6194 introduced by Representative Dunn Pennsylvania, proposes an increase in compensations and pensions for veterans, ex service men and widows of ex service men H R 6200, introduced by Representative McLeod, Michigan, proposes to eliminate injustices and discriminations inflicted upon disabled veterans and their dependents. It provides, among other things, that all veterans, honorably discharged, who require hospital treatment and who are not able to reasonably pay for their own treatment shall receive hospitalization under the auspices of the federal government H R 6206, introduced by Representative Underwood, Ohio proposes to establish a Department of Veterans' Affairs with a Secretary of Veterans Affairs at the head thereof, and to adjust and equalize pensions of veterans and widows and dependents of veterans Among other things it proposes to provide, within the limits of departmental facilities, domiciliary and hospital care, including medical treatment to honorably discharged veterans who served in active military or naval service for a period of ninety days or more, and to persons honorably discharged from the army navy marine corps or coast guard who served in the active military or naval service for a period of six months or more when such veteran or honorably discharged person is suffering from permanent disabilities or tuberculous or neuropsychiatric ailments, which incapacitates him from earning a living, and who has no adequate means of support It directs the Secretary of Veterans' Affairs to continue the hospital care of veterans properly admitted under the laws in effect prior to March 20, 1933, until such time as they may be discharged without jeopardizing their health or life The bill also proposes to establish a joint congressional committee to be known as 'Joint Committee on Veterans Affairs' whose duty it shall be to investigate the operation and effects of the federal system of pensions and other benefits to veterans and to render a report from time to time to the committee of the House and Senate having legislative jurisdiction over pensions and other benefits for veterans H R 6207 also introduced by Representative Underwood Ohio, is similar to the bill just discussed, H R 6206, with the exception that it does not propose to establish a Department of Veterans' Affairs H R 6376, introduced by Representative Black New York, proposes to prevent the manufacture sale or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, cosmetics and liquors

Government Services

Veterans' Administrator Protests Fee Reduction

The 15 per cent reduction in fees paid to physicians serving the Veterans' Administration on a fee basis has hampered the administration to such an extent that medical service may be adversely affected, according to a letter sent to the Comptroller General by Brig Gen Frank L Hines, Veterans' Administrator The administrator pointed out that these fees had been revised in December, 1932, before the reduction ordered in the economy law of March 1933 In response the comptroller said that he "appreciated the difficulties" confronting the veterans' administration, but that the law is plain and no exceptions may be made The condition has been aggravated, it was added by the situation abroad, where the state department has told the administration that it will no longer use its facilities to obtain medical service for veterans To this point the comptroller replied that it may not be necessary to apply the cut if a specific authorization is made for each case

Interns for U S Public Health Service

The United States Public Health Service is receiving during January applications for a second year internship beginning about July 1, from physicians not over 30 years old who have graduated from a class A medical college and who will complete one year's internship at an approved hospital prior to July, 1934 Applications are desired only from candidates who are interested in the service as a career and who wish to appear before a board of commissioned officers of the service for examination as to physical condition and general fitness and a written professional examination Appointments will be made to the extent of the number of vacancies available with the understanding that an opportunity will be afforded within about a year to take the regular corps examination Inquiries should be addressed to the Surgeon General, U S Public Health Service, Washington, D C

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec 23, 1933

Radiotherapy in England

Serious criticisms of the present position of radiotherapy in this country are made in a report of a committee of the Section of Radiology of the Royal Society of Medicine Greater importance is attached to radiotherapy abroad Our relative backwardness is attributed largely to the prevalent attitude of surgeons who regard radium and x-rays as a mere adjuvant to surgery, often considering resort to them only in advanced disease or for recurrences after operation The facilities for research in England, especially in radiation treatment, have been meager, owing mainly to lack of funds The committee is strongly in favor of treatment by a "radium bomb" of 4 Gm or more, basing this view partly on replies to a questionnaire to the heads of six important radium centers at home and abroad, only two of whom were opposed to this form of treatment, and these had no personal experience with it The committee recommends that a special radiotherapeutic hospital should be established in or near London, with a director assisted by an adequate resident and visiting staff The hospital should have not fewer than 100 beds, with ample supplies of radium and equipment for every form of roentgen treatment and examination It should possess ample facilities for research in all its aspects and have adequate arrangements for teaching and demonstration It should be an independent foundation recognized by and affiliated with London University Special technical recommendations are made for radium "bombs" of 4 Gm or more used over a minimum period of five years, and for x-rays of voltage ranging from 250,000 to 1,000,000 or more

The Education of Nurses

A memorandum to the General Council of Nursing on the preliminary education of nurses has been drawn up by Lord Moynihan and the medical teachers of the Leeds area against the proposal to relegate the teaching of anatomy, physiology and elementary hygiene for the state examination to the school period The signatories state that they represent a training school that may claim to have done much to advance and perfect the training of nurses in both its academic and its practical aspects They consider the proposal retrograde for the following reasons 1 The teaching would have to be given in a large number of schools instead of being concentrated in a small number of hospitals, as at present 2 The teachers in such schools would rarely, if ever, have a standard of practical experience comparable to those at present responsible 3 Such teaching would be entirely theoretical and divorced from contact with living persons, by which alone the use of such knowledge is explained by professional men and women and made fully understandable to pupils by their seeing the application of the facts in their daily work 4 Under the proposed system, headmistresses of schools who had no knowledge of the requirements of the nursing profession would select girls for training, and parents would spend money on what they would think gave a right of entry to the nursing profession But it is only practical matrons who themselves have shown that they have the requisite qualities for the profession that are competent to select They would have thrust on them imperfectly taught and often temperamentally unsuited girls

Sir William Whitla

Sir William Whitla emeritus professor of materia medica and therapeutics, Queen's University, Belfast, has died at the

age of 82 years. Though his name is not connected with any discovery or particular doctrine, he was known all over the English-speaking world by his textbooks. On leaving school he was apprenticed to a firm of pharmacists in Belfast, a training that gave him a competence for his work as a teacher which few physicians have enjoyed. On the termination of his apprenticeship he entered Queen's College Belfast, as a medical student. His career was brilliant. He began private practice in Belfast and before the age of 30 was appointed physician to the hospital. His first famous book 'The Elements of Pharmacy and Therapeutics' was an immediate success. It has passed through twelve editions and become a classic. In 1891 appeared his 'Dictionary of Treatment,' which was separately published in America and was translated into Chinese. The valuable feature of this work was that it did not consist of lists of remedies or citations of authorities but gave on every point the experience and considered opinion of a great physician. He had a genius for the teaching of detail.

PARIS

(From Our Regular Correspondent)

Dec 6, 1933

Increase in Students at the University of Paris

The growing accretions of students at the University of Paris, which, for a time, were viewed with favor as furnishing evidence of the growth of French culture, are beginning to awaken some anxiety. The lecture halls are becoming inadequate and it is becoming necessary to erect new buildings and to increase the number of professors. The total number of students, men and women, matriculated on the basis of scholarship, is 35,365, as compared with 33,821 the previous year which signifies an increase of 1,544. The number of foreign students, which in 1932 was 7,504, declined in 1933 to 7,490. The number of women students has increased from 9,252 in 1932 to 9,809 in 1933. The studies that attract the most women are those pertaining to law and belles-lettres in which faculties in 1933 respectively 305 and 352 more women students were enrolled than the previous year. Scientific studies attracted 100 fewer women students in 1933 than in 1932 in the field of medicine, and 61 fewer in the pure sciences. With regard to the total number of medical students enrolled in the French faculties, the minister of public instruction has furnished statistics that show an increase since the war. The roster of students enrolled in the faculties of medicine in January, 1914 was 8,533, of whom 1,368 were foreigners. These figures include men and women students studying for the degree of doctor of medicine, for the title of public health officer, and for the diploma of dental surgeon. The number of students enrolled in the faculties of medicine, the end of December, 1932, was 19,220, of whom 4,285 were foreigners. These figures include men and women students studying for the degree of doctor of medicine, for the diploma of dental surgeon and for the diploma of midwife. The number of foreign students at the Faculté de médecine de Paris, which in 1932 was 3,232, rose in 1933 to 3,516, an increase of 184. It is this fact that disturbs the French students most, and even the French physicians for these foreigners, for the most part, instead of returning to their native country, succeed in circumventing the laws and in practicing medicine in France, where there is a plethora of physicians, many of whom find it difficult to earn a respectable living.

Scandalous Wasting of Public Funds in Organizing a Sanatorium Village

Considerable stir has been aroused in medical and political circles by the creation, under the auspices of the Association des blessés du poumon de la guerre, of a sanatorium village for the lodging of its members and their families. Mr. Delsuc

who had been a minor employee in the mayor's office of a town in the Dordogne, founded the association, of which he serves as president, and then he established a special journal to promote its cause. He bombarded the various ministries to secure increases of pension for his comrades and propagandized members of parliament many of whom have an ear to the ground if there is any threat of reprisal directed by the leagues of ex-service men. Thus encouraged, the Association des blessés de la guerre decided to create a sanatorium city in the native haunts of its president, Mr. Delsuc, who kindly consented to choose a suitable site, ordered the construction work and the equipment, and secured from the chamber of deputies an appropriation of 52,000,000 francs (\$3,120,000). The village is still uncompleted and Mr. Delsuc now requests a further appropriation of 22,000,000 francs (\$1,320,000). The minister ordered an inquiry, which is not being pushed rapidly. The medical syndicates, however, became aroused and instituted an inquiry, which took on an exclusively professional character so as to preclude any intrusion by politicians. A committee appointed by the Union des syndicats médicaux proceeded under the direction of Dr. Cibric, the general secretary, to the sanatorium village, which has been christened with the pleasing name of 'Chirvivore.' The committee was cordially received, inspected carefully all the installations and published, in the *Sécle médical*, its report, which revealed a startling state of affairs. Mr. Delsuc had chosen, without consulting the sanitary commission, which is the regular practice in such cases, a humid and swampy site in a valley that lacks the hygienic qualifications for sanatorium purposes. The village consists of 186 separate pavilions, each containing two apartments, and a large hotel, with 150 rooms, furnished and equipped with the conveniences of a palace. No serious precautions had been taken for the isolation of the tuberculous. Instead of using electric current already available and which in abundance of waterfalls in the region makes reasonable in price, Delsuc had had an immense thermo electric plant constructed, at an enormous cost. The pavilions and hotel, as completed, will accommodate 522 tuberculous patients. Delsuc's project was supposed to accommodate 1,500 patients and also numerous physicians, nurses, administrative officers and laboratory workers. In the face of such a waste of public money, the medical profession vigorously protested. Delsuc replied with feeble attempts to justify himself, all of which served only to demonstrate his incompetence. The minister is placed in an embarrassing position and hesitates to grant the 22,000,000 francs (\$1,320,000) requested by Delsuc for the completion of the project. The project remains, however, incomplete, and the whole cost will be greatly enhanced by reason of the vast installations calculated to serve a population three times as large.

BERLIN

(From Our Regular Correspondent)

Dec 4, 1933

Statistics on Obstetric Operations

Statistics are often deceptive as they are often based on meager data. Statistics compiled by the public health service on obstetric operations performed in the city of Hamburg will have some value in view of the amount of material available. In Hamburg which has a population of 1,100,000 a total of 5,391 births were completed with the aid of an operation during the three years 1929-1931. Since during that period, there were 46,401 births (inclusive of stillbirths), there were 1161 obstetric operations per thousand births. The figure 5,391 represents 3,654 obstetric operations such as the use of forceps, version, extraction, embryotomy, perforation, induced premature birth and cesarean section corresponding to 787

per cent of the births, and also 1,737 cases with operative aid in such complications as hemorrhages, placenta praevia, eclampsia, and postnatal complications.

Compared with the prewar period, the number of births completed by operation shows a marked increase, for instance, during the period 1910-1911, a total of 3,488 operations were performed in Hamburg, which included the complications of the birth process but did not include aid given in hemorrhages, and represented 8.05 per cent of the total number of births. Aside from the birth complications, obstetric operations were performed in 2,854 cases, or in 6.50 per cent of the births.

The distribution of the obstetric operations has undergone a change as compared with the prewar period. Podalic version has declined to about half of its prewar frequency. Artificial induction of premature birth was not reported in 1929-1931 in a single instance. Embryotomy has increased from 2.1 per cent to 3.3 per cent. Cesarean section has increased to an even greater extent. During the period 1876-1880, cesarean section occurred only once in a thousand obstetric operations performed in Hamburg. In 1910-1911 the proportion increased to 13 per thousand, in 1929-1931 the proportion rose to 176 per thousand. For the most part, cesarean section was substituted for version. A period of fifty years has brought a 350 fold increase in the use of cesarean section. In the early history of the revived operation (for example, in 1881-1885), 75 per cent of the mothers succumbed to the operation, in 1910-1911, only 18.2 per cent, and the mortality has since decreased steadily.

The mortality of other obstetric operations has likewise declined, although not to the same extent. The percentage of stillbirths resulting from the use of forceps has changed the least (1910-1911, 6.0 per cent, 1929-1931, 5.1 per cent). With respect to version, the decline in mortality over this period has been something more than one third (from 38.5 per cent to 24.5 per cent), as regards extraction, a little more than one fourth (from 20.9 per cent to 15.1 per cent). Taking obstetric operations as a whole, the danger of a stillbirth has declined from 18.0 per cent to 13.4 per cent, or about one fourth, which has been brought about chiefly through the improvement in the technic of cesarean section.

The complications of labor have become more frequent. 1910-1911, 14.5 per cent, 1929-1931 (without hemorrhages), 19.7 per cent. Various complications make up the increase, but particularly eclampsia which increased from 0.09 per cent to 0.34 per cent.

With respect to stillbirths, in 1910-1911, 61.5 per cent of the babies were born dead in association with placenta praevia, in 1929-1930, only 19.4 per cent. In eclampsia, the infant mortality has declined from 25 per cent to 12 per cent.

The marked increase in the number of obstetric operations is due to the easily obtainable operative assistance, as is shown by a detailed statistical comparison with Norway with its sparse population.

Reorganization of the Red Cross

The pending reorganization of the German Red Cross is now an accomplished fact. With the approval of the federal government, the president of the Red Cross drew up a new constitution, which, in keeping with the spirit of the national-socialist state, is designed to effect a firmer union of all societies and forces that merged in 1921 to form the German Red Cross. The new constitution defines more definitely the duties of the Red Cross: collaboration with the official sanitary service of the army in time of war, and the rendering of aid in public disasters and internal disorders. Among its primary tasks are the recruiting, training and equipping of the members of the sanitary units and the women's auxiliaries and voluntary service in promoting the public welfare (in epidemics and the

like) in connection with public welfare work. The German Red Cross is composed of the constituent societies of the various *lander*, which correspond to the recently established *stadtholderships* of the reich. The German Red Cross is under the control of the president of the reich. The administrative authority is vested in the president, the presidial council and the superior council. The president is appointed for four years by the president of the reich, the vice president is chosen by the federal minister of the interior. The president of the Red Cross appoints the counseling bodies of the head administration. Federal administrators are appointed for the most important branches of the Red Cross service. Only the head officials receive a salary. Following this reorganization, the president in charge, von Winterfeld, resigned and the former reigning duke, Karl-Eduard of Saxony-Coburg-Gotha, who for many years has been an adherent of national socialism, has been appointed his successor.

Eightieth Birthday of Professor Sudhoff

Prof. Karl Sudhoff, historian of medicine, celebrated his eightieth birthday November 26. Early in his career, while a country practitioner, he published studies on Paracelsus. He devoted his energies not only to scientific research but also to the history of medicine and he had created a special section of the history of medicine at the sessions of the *Gesellschaft Deutscher Naturforscher und Aerzte*, which was followed in 1901 by the founding of the German Society for the History of Medicine, Natural Sciences and Technic. He was called to the chair of the history of medicine at the University of Leipzig, where he created an instruction and research center that became recognized as a model. He devoted his chief energies to research on Paracelsus, whose medical writings he is publishing in an imposing edition, which is now almost complete. As a special honor, he recently received the Goethe Medal by authority of the president of the reich. His pupil and successor, Prof. H. E. Sigerist, is at present a member of the faculty of Johns Hopkins University, Baltimore.

Societies Merge

The German Orthopedic Society and the *Deutsche Vereinigung für Kruppelfürsorge* (Professor Gocht of Berlin is chairman of both organizations) have been united to form a federal merger, as a member of the *Reichszentrale für Gesundheitsführung*, operating under the federal ministry of the interior. The director is Dr. Bartels of the federal ministry of the interior, the secretarial duties have devolved on Dr. Eckhardt, the acting director of the *Vereinigung für Kruppelfürsorge*.

Prof. August Martin's Death

August Martin, gynecologist, of Berlin, has died at the age of 86. A pupil of his father, Eduard Martin, he occupied for many years the chair of gynecology at the University of Greifswald until he received a call to Berlin. In obstetrics, his fame was based chiefly on his operation in extra-uterine pregnancy continuing to term, and on his method for the extraction of the aftercoming head, known as the Martin maneuver. In gynecology he is best known for his improvements in the technic of vaginal operative methods. His textbooks have been translated into several languages. He was the founder and until his death one of the editors of the *Monatsschrift für Geburtshilfe und Gynäkologie*.

Eugenics at the University of Berlin

A new chair of race hygiene, or eugenics, has been created in the medical faculty of the University of Berlin, and Prof. Fritz Lenz, who comes from the University of Munich, will be the first incumbent. Lenz (who is 56 years old) has been studying eugenic problems for more than twenty years.

ITALY

(From Our Regular Correspondent)

Oct 31, 1933

Survey of Hospitals in Italy

The Central Bureau of Statistics made a survey of all the hospitals and sanatoriums at the close of 1932. The statistics do not include the military hospitals, the ambulatoriums and the infirmaries of prisons and colleges. The preliminary report of this investigation reveals that, on Dec. 31, 1932, there were 2086 hospital institutions in Italy including both public and private, or about five for each 100,000 inhabitants. The total bed capacity of these institutions was 238,511 or an average of 114 beds per institution. The number of beds showed an increase of about 76 per cent as compared with the total reported for Dec. 31, 1907. Lombardy leads with 308 hospitals and sanatoriums, or 148 per cent of the total for Italy. In 1932 the number of admissions was 1,119,003, the total number of days of hospitalization being 65,515,022.

The Apulian Academy of Science

The Accademia Pugliese di scienza met recently at Bari under the chairmanship of Prof. Priolo Gufami. Miselli spoke on late syphilitic arthropathies, pointing out that osteoarthritic deformations in children is a frequent manifestation of congenital syphilis. Syphilitic osteoarthritides of the hip, congenital or acquired, may present variable pictures, which often are confounded with other osteoarthritic types and which may present polyarthritic and symmetrical forms.

Russo discussed polysinusitis with orbital complications and contended that in the pathogenesis of this infection one should first examine the ethmoidal sinus, which is generally the basal sinus of polysinusitis.

Milella reported the results of observations in the ambulatorium on amebiasis instituted in the Clinica medica of Bari. In seventy-five cases there were positive results with regard to various types of parasites, among which were *Lamblia intestinalis*, *Endamoeba coli* and *Cercomonas*. *Endamoeba histolytica* was found in twenty-four cases, in which were observed pulmonary abscesses, hepatitis and types of a dysenteric nature. Some persons were found to be carriers of *Endamoeba histolytica* although they presented no intestinal manifestations.

Attimonelli spoke on the para-immunity existing between tuberculosis and anthrax. Of guinea-pigs previously infected with tuberculosis and later inoculated with anthrax, 55 per cent survived, whereas all the controls died. The author thinks that this great resistance is not due to bacterial antagonism but to multiple humoral and cellular changes.

Adenoids and the Sex Glands

Professor Citelli called the attention of the Societa medicochirurgica di Catania to the effect of adenoids on the development of the sex glands. Some time ago, he demonstrated that adenoids may provoke cellular changes in the anterior lobe of the hypophysis. At puberty, these changes may provoke dysfunction of the sexual hormones, both male and female, and sometimes may provoke the adiposogenital syndrome of Frohlich. He described, from records of cases occurring from 1917 to 1929, examples of hypophyseal feminism, arrest of development of the sexual organs, and frigidity, in which improvement or a cure was effected by either the removal of the adenoids or in association with hypophyseal therapy. He has observed similar cases recently.

Malta Fever

At a session of the Consiglio superiore di sanita Professor Vernoni of the University of Rome discussed Malta fever. During the first six months of the current year there developed in certain provinces of Italy various foci of Malta fever in

man, and also in birds and cattle. The commission appointed by the Consiglio superiore di sanita made a study of the various factors inherent in the problem.

BUENOS AIRES

(From Our Regular Correspondent)

Nov. 3, 1933

The Congress of Surgery

The Fifth Argentine Congress of Surgery was inaugurated, October 8. Dr. F. Finocchio was the president. In the mornings, operative clinics were given in the hospitals, in the afternoons, sessions were held and, in the evenings, films were shown. There was an exposition of surgical instruments and apparatus, most of them manufactured in Argentina. There were many foreign physicians present. The first topic discussed was "Treatment of Acute Intestinal Occlusion." Drs. D. Prat of Montevideo and D. del Valle of Buenos Aires, the official speakers, emphasized the advisability of an early roentgen examination of the patient for an early diagnosis and treatment. The second topic discussed was "Treatment of Fractures of the Elbow." Drs. Rezende Puchta of São Paulo and N. Ingbarache of Buenos Aires were the official speakers. The third topic was "Surgery in Diabetes." Dr. Rodriguez Villegas, the official speaker, emphasized the importance of a careful medical treatment, the administration of insulin, oral hygiene, the hydration of the patient and care in the postoperative period. Drs. J. Arce and M. Viñas were elected president and vice president respectively of the next congress in 1934. The official topics to be discussed in the coming congresses, 1934 and 1935 will be "Treatment of Nontuberculous Suppuration of the Lung" and "Treatment of Empyema" and "Treatment of Acute and Chronic Osteomyelitis," respectively.

Proper Diet for the Average Person

Dr. P. Escudero, director of the Instituto Municipal de Enfermedades de la Nutricion of Buenos Aires, has recently published in a daily paper, *La Prensa* of Buenos Aires various articles on the proper diet for the average person. A large part of the data appearing in his articles were taken from the work of McCollum and Simpson. He believes that the diet in Argentina is insufficient in calcium. He considers it advisable to establish a school of dietitians in Argentina to be in charge of the preparation of food in the municipal hospitals. He also suggests the establishment of municipal dining rooms for workmen in which they may obtain proper food at moderate expense. The custom of workmen eating in their own homes, the meals prepared by their own wives is expensive, unwholesome and wasteful. It would be much better if large public kitchens with a capable personnel and suitable utensils were established, in which the aim would be less waste and better food. Dr. Escudero has recently returned from a twenty-day stay in Rio de Janeiro, where he gave lectures on dietetics.

The Hypophysis and Metabolism

In a lecture before the Academy of Medicine of Buenos Aires last August, Dr. Houssay stated that the anterior lobe of the hypophysis may have an influence on the basal metabolism but this is only through the thyroid. In twenty-seven dogs deprived of the hypophysis (twenty-two of which were studied in Buenos Aires) there was a metabolic decrease averaging 16 per cent. Dogs deprived of the hypophysis show only an incomplete hypothyroidism, because if the thyroid is removed the metabolism drops still more—to 25 per cent below normal. By removing only the thyroid of the dogs the same drop in the metabolism is obtained and the following removal of the hypophysis does not modify further the metabolism. The injections of extract of the anterior lobe of the hypophysis stimulate the thyroid.

and produce in the dog an increase of the metabolism, which may rise to +128 per cent. In dogs deprived of either the thyroid or both the thyroid and the hypophysis the injection of extract of the anterior lobe of the hypophysis either fails to increase the metabolism or increases it but slightly. The hypophysis, therefore, does not have a direct action on the basal metabolism of the dog but an indirect action on it, through the thyroid. The lesion of the tuber cinereum in dogs produces genital atrophy and enormous adiposity in the animals. The metabolism was studied in twenty-two of these cases (eleven of Grafe, five of Mazzocco and six of Solari). In this group thirteen dogs presented decrease of the basal metabolism. Nevertheless, in several of the animals there was neither atrophy nor flattening of the thyroid epithelium, which are observed in dogs deprived of the hypophysis. The cause of the decrease of the metabolism in dogs with lesions of the tuber cinereum is still unknown. The specific dynamic action is normal in dogs deprived of the hypophysis (six of Artundo, nine of Mazzocco and five of Houssay and Artundo). The removal of either the thyroid or both the thyroid and the hypophysis produces a diminution of the specific dynamic action. Dr. Houssay stated in his lectures that the anterior lobe of the hypophysis contributes to the production of sugar and recesses to its consumption by the organism. In the Buenos Aires letter in *THE JOURNAL*, October 7, the translation of some sentences was incorrect. In the original it was stated that Dr. Houssay said that the principal function of the hypophysis is on metabolism while the translator added the words "of the carbohydrates." On page 1167 the words "in the production" were omitted. He also stated that the hypophysis plays an essential role in the metabolism of the carbohydrates which is only exceeded by that of the pancreas and that of the liver. It was interpreted as appeared on page 1168 of *THE JOURNAL* that the role of the hypophysis exceeds that of the pancreas and that of the liver.

Prizes Awarded

At the commencement exercises at the Faculty of Medicine of Buenos Aires, October 6, the following prizes were awarded: the Wilde award to Dr. T. Reza for her work on "Infantile Delinquency in the United States and in Argentina"; the Wernicke prize to Dr. J. Bacigalupo for his work on "Fasciola Hepatica in Argentina"; the prize for the best paper to Dr. J. Diez for his work on 'Surgery of the Lumbar Sympathetic'; the prizes for the best theses presented in course of 1932 to Drs. A. E. Roffo for his work "Biology of Ultrashort Waves," A. Tachella for his work on "Basal Metabolism in Surgery" and F. J. Manfredi for his work on 'Experimental Duodenal Ulcer'; the Luis Guemes prize to Dr. A. Camauer for his work on "Clinical Studies of Diseases of the Tubero-Infundibular Region"; the A. Centeno prize to Dr. F. de Elizalde for his work on "Werthoff's Disease," and the Lagleyze prize to Dr. G. von Grollman for his work on 'Diathermy in Ophthalmology'.

National Congress of Medicine

The fifth National Congress of Medicine will be held at Rosario, Santa Fe, in July, 1934, under the auspices of the national government. Amebiasis will be the official topic. The congress will meet at the Faculty of Medicine of Rosario and at the Centenario Hospital.

University News

The following speakers have recently lectured in Montevideo: Drs. E. Hug on 'Treatment of Poisoning with Hydrocyanic Acid by Sodium Nitrite and Sodium Hyposulphite'; B. A. Houssay on 'Hypophysis and Endocrine Glands'; and J. Govea on 'Sclerosis of the Pulmonary Artery.' Dr. Faure Fremiet of the College de France gave eight lectures on 'The Physio-

chemistry of the Cell', Drs. Cerrutti of Rosario on "Endocrine Functions of the Semiferous Canals," Lambette of Antwerp on 'Osteosynthesis,' and Hahn of Berlin on hygiene. The following speakers from Montevideo have recently lectured in Argentina: Drs. Velazco Lombardini on cardiology, Surraco on urology and Garcia Otero on diseases of the lung.

Lectures by Foreign Professors

As a result of the economic depression, few foreign professors have been invited by the faculties of medicine of Buenos Aires to give lectures. However, lectures in the near future are expected to be given by Drs. Lambottel of Antwerp, Filipo Bottazzi of Naples, Faure-Fremiet of Paris and M. Hahn of Germany.

Personal Items

Dr. E. Hug has been appointed professor of pharmacology at the Faculty of Medicine of Rosario—Dr. E. Finochietto was appointed honorary professor to the Faculty of Medicine of Buenos Aires—Drs. J. Arce and A. H. Roffo were appointed representatives of Argentina to the International Congress of Cancer, recently held at Madrid—Dr. B. A. Houssay has been appointed to speak on the functions of the hypophysis at the "Jornadas Medicas," a medical week, which will be held at Brussels, in June 1934.

Dr. Lignieres Is Dead

Dr. J. Lignieres came from Paris to Argentina in 1898 to be the director of the Instituto Bacteriologico of the Association of Argentina Farmers. Since then he has also held the following positions: director of the Instituto Bacteriologico of the National Department of Agriculture, professor of bacteriology on the Veterinary Faculty and member of the National Academy of Medicine. His most important studies were on hemorrhagic septicemia. He isolated an actinobacillus. He made studies on trypanosomiasis and tuberculosis. Recently he showed open opposition to the extensive use of Calmette antituberculous vaccine. His last studies are those related with immunization against aphthous fever.

RIO DE JANEIRO

(From Our Regular Correspondent)

Nov. 5, 1933

Opening of the Most Complete Hospital in Brazil

The Penitencia Hospital, which is the best equipped hospital in Brazil, was opened October 29. It has been under construction for five years and cost about eight million dollars. This elegant hospital is erected on a tract of more than eight thousand square meters in one of the most beautiful spots in Rio. It has a right wing for women and a left wing for men, connected by a central block giving the building the shape of a letter H which facilitates access to all departments. On the ground floor there are a splendid hall in colored and white marble and various consultation offices for physicians. Here also are the administration offices and the well equipped sections for the specialties. There is a most complete roentgen department, with modern apparatus. There is a section devoted to skin diseases and syphilis. Rooms are equipped for ophthalmology, diathermy, otorhinolaryngology and odontology. The electric power plant of the building furnishes 600 kilowatts. On the upper floors are wards, some of eight and some of four beds, all equipped with apparatus that raises or lowers them easily; a section of private rooms with six large apartments and thirty-eight small rooms, thirteen utility rooms, four dining rooms, four linen rooms, four recreation rooms, an office for the director, waiting rooms and finally, on the upper floor of the central part of the building, the section of surgery with a central operating room faced with opaline material and receiving its electrical illumination from a system of lenses.

that converge the light toward the center. All ventilation and refrigeration is effected by machinery installed on the roof. To the side the operating room communicates with the bath, anesthesia, sterilizing and surgical equipment rooms. There are also four small operating rooms. The section of major surgery of the new hospital is one of its most admirable and complete installations. On the roof there is a garden for the recreation of patients. Enamel, opaline, marble and crystal produce a mellow interior effect. The illumination shows good taste and excellent adaptation. Without doubt the Penitenciar Hospital is one of the most beautiful monuments in Brazil.

Brain Abscess

Within three months Dr. David de Sanson has reported to the National Academy of Medicine a second case of brain abscess of the frontal region. His patient is on the way to recovery. He took the occasion to review the first case which he presented May 11 and to show the patient entirely cured. Whereas in the first case, the classic symptoms of cranial hypertension imposed an immediate operation, in the second case it was possible to wait the evolution of the abscess and to intervene at the opportune moment. In the second case the cause was also a frontal sinusitis with osteomyelitis much more extensive than in the first case. Besides all the external table of the frontal bone, a large part of the internal table laterally was also removed and the meninges were widely exposed. In the two cases the collection of pus attained a volume of between 150 and 200 cc.

Influence of Economic and Social Factors on Physical Development of Children

Before the Medical and Surgical Association of Minas Gerães, as reported in the *Brazil-medico* October 7, Dr. Fernando de Magalhães Gomes lectured on his study of the physical development of children, in which he was guided by the determination of the four indexes of Pirquet, Palmer-Brenton, Pignet and Quetelet. The index of Palmer-Brenton merits consideration because of its biologic foundations and practical value in indicating the degree of osseous development. From a knowledge of these indexes, from the physical development and from the biotype, the pediatrician will be enabled to draw conclusions concerning the feeding of children. In the 470 children examined, the indexes showed extremely low figures in the poor classes. Dr. Magalhães Gomes attributes a large part of malnutrition to the defective feeding of children. His investigation showed that the feeding is deficient especially in proteins. The importance of milk as one of the fundamentals affecting the physical development of children was pointed out by the author. The graphic study of the development of the stature obtained by the author and by Dr. Ernani Agricola in 7000 children calls attention to the pronounced increase in height of the children of Minas Gerães between 9 and 10 years which has never been observed in the mulatto children of São Paulo and Rio.

Marriages

WILLIAM F. HEALY, Evansville Ind. to Miss Ruth Gresham of Logansport, Nov. 15, 1933.

EARL W. BAILEY, Bunker Hill Ind., to Miss Mildred M. Fish of Toledo Ohio, Nov. 29, 1933.

ALBERT RUFUS SHELDON to Miss Grace Glidden both of Highland Park Ill., Dec. 15, 1933.

HOWARD WAKEFIELD to Miss Thelma I. Roach both of Chicago, Dec. 31, 1933.

JOHN HERMAN LONG, Baltimore, to Miss Eleanor Porter Legg Dec. 21, 1933.

SILVAN WILLIAM SIMON to Miss Jeanne Rice, both of Chicago January 5.

Deaths

Christopher Sumner Witherstine, Philadelphia, College of Physicians and Surgeons, Medical Department of Columbia College, New York 1878, formerly lecturer on therapeutics Temple University School of Medicine, visiting physician to the Home for Aged, Little Sisters of the Poor, 1880-1889 Germantown Almshouse, 1880-1881 and the Germantown Hospital, 1881-1883 foreign associate member Societe Francaise d'Hygiene de Paris, author of 'International Pocket Medical Formulary', associate editor of *Annual of the Universal Medical Sciences*, 1888-1896, *Sajous' Annual and Analytical Encyclopedia of Practical Medicine* since 1898, aged 79, died, Dec. 25, 1933 in the Presbyterian Home for Aged Couples and Aged Men, of arteriosclerosis and hypertension.

Leroy Crummer Los Angeles Northwestern University Medical School Chicago 1896 member of the House of Delegates of the American Medical Association 1917, 1919 and 1920, clinical professor of medical history and bibliography University of California Medical School and professor of the history of medicine, University of Southern California School of Medicine professor of medicine University of Nebraska College of Medicine, Omaha 1919-1925 when he became emeritus professor served during the World War, formerly on the staffs of St. Joseph's and Presbyterian hospitals Omaha author of "Clinical Features of Heart Disease" associate editor of *Annals of Medical History*, aged 61, died, January 2 of heart disease.

Howard Davis Haskins Portland Ore., Western Reserve University Medical Department, Cleveland 1895 professor of biochemistry, University of Oregon Medical School, formerly assistant and associate professor of organic chemistry and biochemistry at his alma mater author of "Organic Chemistry" and co-author of "A Textbook of Laboratory Diagnosis", aged 62, died Nov. 20, 1933, of heart disease.

Andrew Pinkney Brown Davis Okla., Vanderbilt University School of Medicine Nashville Tenn., 1893, member of the Oklahoma State Medical Association, aged 64, died Dec. 13, 1933 in the Wesley Hospital Oklahoma City, of cerebral hemorrhage, following an operation for carcinoma of the intestine.

Milton Edward Gregg, Mottville N. Y., Baltimore Medical College 1896, member of the Medical Society of the State of New York served during the World War, aged 63 died Dec. 13, 1933 in the Auburn City (N. Y.) Hospital, of injuries received when he was struck by an automobile.

William Barker Hills, Upper Montclair, N. J. Harvard University Medical School, Boston, 1874, member of the Massachusetts Medical Society, formerly associate professor of chemistry at his alma mater, aged 83, died, Dec. 24, 1933, of cerebral hemorrhage and arteriosclerosis.

Horace O. Dodge, Denver, Chicago Medical College 1888, at one time professor of therapeutics and physical diagnosis at the University of Colorado School of Medicine Civil War veteran aged 93 died Dec. 29, 1933, in the U. S. Veterans' Hospital, Oteen, N. C., of senility.

William Henry Hancker, Farnhurst, Del., Jefferson Medical College of Philadelphia 1873, member of the Medical Society of Delaware and the American Psychiatric Association, formerly superintendent of the Delaware State Hospital, aged 83, died, Dec. 29, 1933.

Emmet Emerson Newcomer, Washington, D. C., Tulane University of Louisiana School of Medicine New Orleans 1921, member of the Medical Society of the District of Columbia, aged 41 died, Nov. 25, 1933, of coronary thrombosis and hemorrhagic gastro-enteritis.

William Ezra Wetmore, Utica, N. Y. University of the City of New York Medical Department 1889, member of the Medical Society of the State of New York for many years on the staff of St. Elizabeth's Hospital, aged 66, died, Dec. 2, 1933, in New Hartford.

Henry Lonzo Akridge, Brunswick Ga. Atlanta Medical College 1915 member of the Medical Association of Georgia, served during the World War city and county health officer, aged 43 died Dec. 17, 1933, in St. Vincent's Hospital, Jacksonville Fla.

Charles Francis Booth, New York College of Physicians and Surgeons Medical Department of Columbia College New York 1883, member of the Medical Society of the State of New York aged 73 died Dec. 30, 1933, of chronic myocarditis.

Stanley White Barber, Gathersburg, Md., Medical College of Virginia, Richmond, 1913, member of the Medical and Surgical Faculty of Maryland, aged 45, died, Nov. 19, 1933, in the Montgomery County General Hospital, Olney, of acute nephritis

Isaac Pearson Willits ♂ Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1880, for many years on the staff of the Germantown Dispensary and Hospital, aged 73, died, Dec. 11, 1933, of coronary thrombosis

Phineas Henry Ingalls ♂ Hartford, Conn., College of Physicians and Surgeons, Medical Department of Columbia College, 1880, for many years on the staff of the Hartford Hospital, aged 77, died Dec. 14, 1933, of heart disease

Leo Halpin, Freeport, N. Y., Cornell University Medical College, New York, 1906, member of the Medical Society of the State of New York, on the staff of the Mercy Hospital, Hempstead, aged 50, died, Dec. 23, 1933, of pneumonia

Nelson William MacMurphy, Belmont, N. H., University of Vermont College of Medicine, Burlington, 1891, member of the New Hampshire Medical Society, aged 75, died, Nov. 23, 1933, of chronic myocarditis and bronchopneumonia

Charles Carlyle Driscoll ♂ Lafayette, Ind., Kentucky School of Medicine, Louisville, 1893, on the staff of the Lafayette Home Hospital, aged 68, died Dec. 19, 1933, in the Methodist Hospital, Indianapolis, of pneumonia

Frank Reid Yarbrough, Auburn, Ala., University of Tennessee Medical Department, Nashville, 1898, member of the Medical Association of the State of Alabama, aged 61, was found dead, Dec. 21, 1933, of heart disease

Samuel Martin Parrish, Raton, N. M., St. Louis University School of Medicine, 1907, member of the New Mexico Medical Society, served during the World War, aged 52, died, Dec. 14, 1933, of pulmonary tuberculosis

Charles Henry Branch, White Cloud, Mich., Kentucky School of Medicine, Louisville, 1905, member of the Michigan State Medical Society, aged 57, died, Dec. 19, 1933, in a hospital at Fremont, of cerebral hemorrhage

Charles Edward White, Fairport, N. Y., University of Michigan Medical School, Ann Arbor, 1896, member of the Medical Society of the State of New York, aged 62, died, Nov. 23, 1933, of cerebral hemorrhage

Elliott Lawson Baker, Jr. ♂ Columbus, Ga., University of Georgia Medical Department, Augusta, 1931, aged 33, died, Dec. 4, 1933, in the Georgia Baptist Hospital, Atlanta, of cerebral hemorrhage and hypertension

Hugh McCallum Thiebaud, Vevay, Ind., University of Louisville (Ky.) School of Medicine, 1895, member of the Indiana State Medical Association, aged 73, died, Dec. 18, 1933, of carcinoma of the mouth

Albert Henry McIntire, Springfield, Ohio, Starling Medical College, Columbus, 1904, member of the Ohio State Medical Association, aged 63, died, Dec. 21, 1933, of dilatation of the heart and chronic nephritis

Henry Barker W. Carmichael, Montreal, Que., Canada, McGill University Faculty of Medicine, Montreal, 1892, L.R.C.P., Edinburgh, Scotland, 1892, aged 66, died in December, 1933, at Bournemouth, England

Harry Horace Dilley ♂ Des Moines, Iowa, Rush Medical College, Chicago, 1917, served during the World War on the staff of the Iowa Methodist Hospital, aged 41, died, in December, 1933, of uremia

Emory Willis Peery, West Palm Beach, Fla., University of Maryland School of Medicine, Baltimore, 1891, member of the Florida Medical Association, aged 67, died, Dec. 4, 1933, of cerebral arteriosclerosis

Joseph Albert Charlebois, Ottawa, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1908, on the staff of the Ottawa General Hospital, aged 49, died Nov. 20, 1933, of coronary thrombosis

Richard Joseph O'Connell, New York, Bellevue Hospital Medical College, New York, 1879, member of the Medical Society of the State of New York, aged 77, died Dec. 19, 1933, of pneumonia

William Rufus Hardin ♂ Louisiana, Mo., Washington University School of Medicine, St. Louis, 1899, aged 58, died Dec. 11, 1933, in the Pike County Hospital, of asthma and chronic myocarditis

Frank Webb Parks, Brinson, Ga., Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912, member of the Medical Association of Georgia, aged 50, died, Dec. 16, 1933, of heart disease

William Alexander Morrison ♂ Boston, Harvard University Medical School, Boston, 1889, aged 77, died, Dec. 19, 1933, in the Boston City Hospital, of uremia and arteriosclerotic heart disease

Joseph Hart, Dudley, Pa., Jefferson Medical College of Philadelphia, 1889, formerly member of the state legislature of Maryland, aged 72, died, Dec. 18, 1933, of cerebral hemorrhage

Emory H. Morrow, Altoona, Pa., Homeopathic Hospital College, Cleveland, 1883, member of the Medical Society of the State of Pennsylvania, aged 75, died, Dec. 19, 1933, of pneumonia

Thomas Francis Dunn, Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1902, aged 56, died Dec. 24, 1933, in the Lankenau Hospital, of injuries received in a fall

Austin Trafton Brant ♂ Boston, Harvard University Medical School, Boston, 1907, fellow of the American College of Surgeons, aged 52, died, Dec. 15, 1933, of cardiovascular disease

James A. Hunter, Fairfax, Mo., Bellevue Hospital Medical College, New York, 1881, member of the Missouri State Medical Association, aged 83, died, Nov. 28, 1933, of acute hepatitis

Sigmond Rosenthal, Aberdeen, S. D., Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1896, aged 71, died, Dec. 15, 1933, of myocarditis

William S. Booze, Annapolis, Md., College of Physicians and Surgeons, Baltimore, 1879, aged 70, died Dec. 6, 1933, in the Homeopathic Hospital, Wilmington, Del., of heart disease

Louis Francois Molleur, Dillon, Mont., Victoria University Medical Department, Coburg, Ont., Canada, 1890, aged 68, was found dead, Dec. 9, 1933, of a self-inflicted bullet wound

John Delbert Nichols ♂ Mooseheart, Ill., Medical College of Indiana, Indianapolis, 1893, medical director of the Mooseheart Hospital, aged 63, died, January 3, of pneumonia

Joseph Alexander Packer ♂ Alexandria, La., Memphis (Tenn.) Hospital Medical College, 1904, on the staff of the Baptist Hospital, aged 54, died, Dec. 2, 1933, of heart disease

Vernon Robins ♂ Louisville, Ky., University of Louisville School of Medicine, 1894, city chemist, aged 61, died, January 1, of pulmonary tuberculosis and arteriosclerosis

George Clinton Blades, Baltimore, Maryland Medical College, Baltimore, 1900, formerly coroner, aged 61, died, Dec. 29, 1933, of diabetes mellitus and myocarditis

Egbert G. Appleton, Beaver Dam, Wis., Hahnemann Medical College and Hospital, Chicago, 1902, aged 57, died, Dec. 16, 1933, in the General Hospital, Madison

Edwin G. Kyte, Detroit, Indiana University School of Medicine, Indianapolis, 1909, served during the World War, aged 48, died, Dec. 23, 1933, of heart disease

Thomas Green Dunlap ♂ Atlantic City, N. J., University of Louisville (Ky.) School of Medicine, 1898, aged 57, died, Dec. 15, 1933, of acute coronary occlusion

George Washington McKinnon ♂ Arcata, Calif., McGill University Faculty of Medicine, Montreal, 1888, aged 72, died, Nov. 21, 1933, of pernicious anemia

Peter L. Gillespie, Wymore, Neb., John A. Creighton Medical College, Omaha, 1901, aged 58, died, Dec. 17, 1933, in Lincoln, of Alzheimer's disease

George Milton Dorris, Bolivar, Tenn., Vanderbilt University School of Medicine, Nashville, 1880, aged 79, died, Dec. 17, 1933, of heart disease

Isaac Park Park, Revere, Mass., Medical School of Maine, Portland, 1892, aged 66, died, Nov. 26, 1933, of cerebral hemorrhage and arteriosclerosis

Albert Ernest Grant ♂ Durham, N. H., Dartmouth Medical School, Hanover, 1897, aged 60, died Dec. 8, 1933, of cerebral hemorrhage

Augustus Herman Keller, Philadelphia, Jefferson Medical College of Philadelphia, 1896, aged 66, died Dec. 25, 1933, of pneumonia

William B. Buchanan, Chicago, Jenner Medical College, Chicago, 1908, aged 55, died, Sept. 9, 1933, of heart disease

Thomas Wright Watson, Long Beach, Calif., Detroit College of Medicine, 1896, aged 62, died, Nov. 7, 1933

Bureau of Investigation

TWO MORE QUESTIONNAIRES

The Beacon Bureau of Research and the Commodity Research Bureau

In this department of *THE JOURNAL* for December 30 the questionnaire nuisance was again discussed. Since that article was prepared two more questionnaires have been brought to the attention of the Bureau of Investigation. One comes from the 'Beacon Bureau of Research' Post Office Box 149 Boston, Mass. As has been previously said the use of some high-sounding name such as Modern Research Society, National Research Bureau, Medical Research Bureau, etc. etc. is a common method by which advertising agencies or commercial concerns or those employed by one or both approach physicians in an attempt to get an expression of expert opinion at the cost of a postage stamp.

The letter from the Beacon Bureau of Research of Boston is frankly mimeographed. Not even the name of the physician who receives it heads the letter. The letter is signed—"with a rubber stamp—John D. Burdett who is described as Supervisor." The Beacon Bureau of Research states that "An able Boston dermatologist frankly told a client of ours that he knew little about the uses of soap and water or their effect on the skin and on public health." Because of this alleged ignorance on the part of physicians in general and dermatologists in particular, the Beacon Bureau of Research was submitting to physicians a 'few questions' that it would like to have answered, and that when these answers had been compiled the results would "later be reported by our client to the profession." Some of the questions that the doctors were asked to answer were:

'Is your knowledge of soaps based on scientific data concerning individual brands, or merely upon your experience with various kinds of soap?' (Please check.) Scientific Data _____ Experience _____

"When you suggest frequent daily hand washings what reasons primarily do you give _____

"When you are asked about soaps, what brands do you suggest for the following uses by healthy normal people _____

Face _____ Shampoo _____

Hands _____ Infants _____

Bath _____

"Do you favor the use of soap and water for any abnormal skin or scalp conditions and how frequently do you have occasion to recommend such treatment? _____ For what condition? _____ What soaps do you suggest for these conditions? _____ Frequency _____

"What soap do you have in use in your office at the present time? _____

From the character of the questions it was fairly obvious that the Beacon Bureau of Research was either a fancy name for some advertising agency that was working up data for some concern that sold soap or was a name assumed for the purposes of the questionnaire by a soap manufacturer. As Sherlock Holmes would say "Elemental, my dear Watson. Investigation indicates that the Beacon Bureau of Research is a fancy name used by a soap manufacturer!"

About the same time that physicians were receiving letters from the Beacon Bureau of Research on soap some physicians wives were getting a questionnaire from another 'research outfit' known as the Commodity Research Bureau operated from the eighth floor of 305 East 45th Street New York City. These letters were sent to the presidents of certain women's clubs. A physician in Texas sent us one of the letters and also one of the several postcards that came with each letter. The physician wrote:

"I am enclosing a letter and card sent my wife as president of a club. This club is composed of mature women with old-fashioned ideas of what is nice. The impudence of some of these people who wish to work a racket like the one proposed is beyond understanding. I suppose that there are presidents of some clubs who will give free service by using the club hours to get women to sign up the cards. My wife was sent about

twenty cards. I rescued one and the letter from the waste basket to send you. Who is the Commodity Research Bureau?"

The letter sent out on the stationery of the Commodity Research Bureau was signed "James W. Blackburn." Mr. Blackburn made a personal appeal to the presidents of the women's clubs in his opening paragraph, which read:

"Will you do me a favor? I have just graduated from Leland and I'm trying to make good at my first job. I've been asked to distribute the enclosed cards among club women and get them to answer three simple questions. The success of my job depends on the number of cards I get filled in during the next two weeks."

The cards that Mr. Blackburn enclosed and which were to be returned to Mr. Blackburn, propounded the following questions:

1. What cigarette do you smoke?
2. How long have you been smoking this brand?
3. What cigarette (if any) did you smoke before?

One can visualize the reaction of many women to questions of this sort. The crudity of sending such questions indiscriminately to women throughout the country might be explained by the fact admitted by Mr. Blackburn that he is just out of college and working at his first job. It was not, however, Mr. Blackburn who was sending out these letters from the eighth floor of 305 East 45th Street. The entire eighth floor of that address is occupied by an advertising agency, Lord & Thomas and Logan Inc. whose experience in the advertising world one might suppose would have prevented them from making a *faux pas* of this kind. In any case one wonders whether it has not yet dawned on the better type of advertising agencies and the more intelligent manufacturers that the questionnaire method of working up data for advertising purposes is an impertinence and a nuisance. The very fact that most of the questionnaires that come out are sent in the name of some concern that has no existence except on paper and are carefully calculated to keep from the recipient of the questionnaire the name of the concern that is back of it would indicate that it is recognized that there is no legitimate excuse for imposing on the public either professional or lay, in this manner.

Correspondence

"SPINAL ANESTHESIA IN HYPERTENSION"

To the Editor.—My preliminary note on the use of spinal anesthesia in hypertension (*THE JOURNAL* Oct. 28 1933 p. 1410) has apparently served to arouse considerable interest in this subject if I may judge from the number of favorable communications that have been received. The objection of Dr. L. J. Bragman (*THE JOURNAL* Dec. 16 1933 p. 1985) to this method on the 'theory that lowering blood pressure in persons with hypertension and arteriosclerosis may bring on attacks of hemiplegia and aphasia' is perhaps more academic than real.

In my own series of 3,000 spinal anesthetic records, I did not encounter a single instance of hemiplegia, aphasia or convulsions. Dr. Lazarus (Lazarus, J. A., Pick, C. J., and Rosenthal, A. A. *Tropacaine Hydrochloride in Spinal Anesthesia*, *Ann Surg* 97:757 [May] 1933) tells me that in his series of 2,500 cases he has never seen this particular type of complication. Dr. H. C. Falk (Death from Spinal Anesthesia, *Am J Surg* 9:461 [March] 1931), in his series of 4,000 spinal anesthetics has written to tell me that he likewise has never seen hemiplegia, aphasia or convulsions following such drops in blood pressure. Dr. P. N. Charbonnet (*Spinal Anesthesia in a Series of 300 Abdominal and Pelvic Operations*, *Am J Obst & Gynec* September 1933) writes that his use of spinal anesthesia in more than 700 cases has never resulted in the complications mentioned. Dr. Louis Abelson in a series of 3,000 cases and Dr. Charles J. Pick with 3,200

have both volunteered the information to me that they likewise have never seen this particular complication.

In the brief period since Dr Bragman's letter was published there has been accumulated altogether a combined series of more than 22,000 spinal anesthetic cases in which no single instance of hemiplegia, aphasia or convulsions was recorded.

This communication, however, is not written with the intention of minimizing the theoretical complications that may follow the sudden lowering of the blood pressure in persons presenting the alarming symptoms associated with the prodromal phases of apoplexy. From a purely statistical point of view the complications suggested by Dr Bragman have apparently not developed. For this reason the method of sudden lowering of blood pressure by spinal anesthesia is still the simplest and most expeditious procedure in the treatment of those cases previously described in my original communication.

ALBERT S. HYMAN, M.D., New York

Director, Witham Foundation for the Study
and Prevention of Heart Disease

To the Editor—I have read Dr Louis J. Bragman's communication on spinal anesthesia in hypertension in *THE JOURNAL*, Dec 16, 1933, page 1985. Your readers will be interested in a short note appearing in the December issue of the *American Journal of Surgery* wherein I discuss the control of inaccessible hemorrhage by blood sequestration in the lower extremities through high elastic ligation of the thighs. There is an immediate and great reduction of systemic blood pressure, and the application of this principle in cerebral hemorrhage is suggested. The method is extremely simple and is apparently without danger.

In a communication from Dr George W. Reese on the same page as Dr Bragman's note, vomiting in spinal anesthesia is mentioned, an accident which I too have observed. Surely, vomiting is not conducive to the arrest of cerebral hemorrhage.

HOWARD LILIENTHAL, M.D., New York

LEUKEMIC INFILTRATIONS OF THE CENTRAL NERVOUS SYSTEM

To the Editor—In his discussion of the article by Garvey and Lawrence on facial diplegia in lymphatic leukemia (*THE JOURNAL*, Dec 16 1933), Dr R. H. Jaffe said: "While in malignant tumors metastases develop from the primary tumor by the implantation of cells derived from the primary tumor, the leukemic infiltrations develop locally from the undifferentiated mesenchyma."

Many pathologists accept the fact that the local undifferentiated cells of the mesenchyma (mesodermal tissue) throughout the body participate in the provision of the leukemic elements. An example of the aboriginal proliferation of cells in leukemia is furnished by the observation that in the subcutaneous leukemic nodules the cells are not imported but produced locally. However, lymphomas found in the brain are essentially formed by immigrated cells. In my article on leukemia and the central nervous system (*Arch Path* 2:23 [Jul] 1926) to which Garvey and Lawrence made reference, I said: "The occurrence of lymphomas in tissues like the brain where lymphoid cells are normally absent, is due to the passage of the vascular wall by lymphoid cells with the ultimate formation of large nodules, which occasionally grow as autochthonous units."

If one is to accept the notion that lymphocytes like macrophages originate from undifferentiated perivascular cells, one must also appreciate that in the brain their number is not sufficient alone to form large lymphomas, illustrations of which were given in figures 4, 5 and 6 of my article. Moreover a

study of the vessels reveals that their lumens as well as the Virchow Robin spaces, are crowded "to capacity" with leukemic cells. Ruptured vessels resulting in wide hemorrhages, and diffusion of white cells are also found.

The accumulation of leukemic cells in the brain is defined as "colonization" by immigrating cells and differs from the implantation of the cells in metastases of malignant diseases.

B. M. FRIED, M.D., New York

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

TREATMENT OF CHANCROIDS

To the Editor—Will you let me know the latest and best treatment for chancroids?

H. B. TAYLOR, M.D. Anking China

ANSWER—The best treatment of chancroids consists in prophylaxis. The use of plenty of soap and water following exposure will ordinarily preclude a case of chancroids. Once they have been established, and provided a true diagnosis has been made by the microscope, early treatment is recommended. An early case can occasionally be abated by the local application to the individual lesions of pure phenol followed by alcohol. In case bubo formation has already begun, this form of therapy is contraindicated, as it predisposes to suppuration of the bubo. Naturally if this form of therapy is used, all lesions must be carefully treated, none being overlooked.

Other approved local remedies are hot astringent soaks of potassium permanganate or of boric acid 1:3,000, three or four times a day. As the Ducey bacillus grows best when shut off from air, it is well to use no bandages. The lesions should be kept exposed and dry heat should be employed in the form of an electric light inside a tent. Sprinkling the lesions with powdered iodoform is also helpful. If the patient has a long foreskin and a complicating balanitis, circumcision under hospital conditions is helpful and will lessen sick days enormously (Rauschkolb, I. E. Circumcision *Arch Dermat & Syph* 21:251 [Feb] 1930). The skin edges should be approximated with clips as sutures tear out. One should not hesitate to cut right through the chancroidal ulcers. With careful hospital technique the results are excellent. Following operation asepsis and loose sterile gauze flaps over the penis may be used. No bandages should be applied. The hot applications and dry heat and iodoform should also be continued.

If the patient has developed a bubo, rest in bed and local heat are essential. If the patient is seen just at the time when the bubo has begun to soften the following injection technic is satisfactory (Miskjian, H. G. Chancroidal Buboes *THE JOURNAL*, Oct 30 1926, p. 1436; Cole, H. N. Venereal Disease Information 10:1, 1929). In performing the technic, one should wait until fluctuation is noted, with a certain amount of softening over the lymph nodes. A slight nick 1 cm in length is then made with a sharp knife near the base of the surface slanting down toward the thigh. Under gentle expression the pus is allowed to run out as much as it will. Following this a compression bandage is applied, plenty of gauze being used immediately over the lymph node in order to get heavy compression for a period of twenty-four hours. During this time the patient is supposed to lie flat in bed with the legs unflexed, in order to get as much pressure locally as is possible. The bandage is then removed, the pus in the cavity is completely evacuated by pressure with the fingers, and under aseptic precautions 1 or 2 cc of Mercier's solution (iodoform, guaiacol, eucalyptol and 95 per cent alcohol, each 10; balsam of Peru 30; ether, 100) is injected into the cavity of the lymph node. A record syringe is used for this purpose; the nozzle of the syringe without a needle being simply forced into the small aperture that was made twenty-four hours before the elbow of the syringe being pressed up firmly against the skin in order to prevent the fluid from escaping. This fluid, which causes severe burning for a few seconds, is allowed to remain in the cavity of the lymph node for one minute. It balloons out the cavity in such a way that all the interstices and pockets receive a certain amount of the preparation which is antiseptic, astringent and reducing in its properties. The hope is that

the cavity will be entirely sterilized from this contact with the fluid. The fluid is then allowed to run out from the opening and is gently expressed to get out all the remaining Menciére solution. After this another heavy compression bandage is applied and allowed to remain in place for forty-eight hours. The patient is again advised that he must not flex his legs but should keep them extended in order to have heavy compression over the area. At the time the bandage is removed one may note that some clear serum runs from the opening of the lymph node cavity. This simply indicates an irritation type of fluid and is of no moment. The fluid is pressed out and another compression bandage is applied and allowed to stay on for another twenty-four hours. At the end of this time, if the cavity still continues to discharge pus another injection of Menciére's solution will have to be made according to the technique described.

In a large proportion of the cases if the technique is properly carried out one treatment will be sufficient to cure the bubo. In certain of them if pus is noted instead of serum one or two more injections may be necessary. The injection should not be repeated in less than three days. With this injection technique, hospital bed days have been enormously lessened and likewise sick days for the patient.

In European countries *Emelcos vaccine* (*Ducroix bacillus*) is used with great success. Government regulations prevent the entrance of this valuable agent into the United States. It is of special value when buboes have developed.

In treating a chancroidal infection the physician should not lose sight of the fact that his patient may have a double infection of chancroids and complicating syphilis. A weekly Wassermann test should be done in such a case until all chance has passed of syphilis developing.

AMEBIC DYSENTERY IN CHILD

To the Editor—A boy aged 2½ years for the past four months has had attacks of vomiting and slight diarrhea with low grade fever. Examination reveals the presence of *Endamoeba histolytica* in the stools. There is no blood but some mucus is seen at times. In between these attacks he is quite well and the stools are rather firm and normal in appearance. His appetite has not been up to usual and his usual vigor has been somewhat reduced since the beginning of this disorder. The child's mother is suffering from an amebic infection. What would be the treatment in a child of this age. Please include dietary advice as well as medicinal. Please omit name.

M. D. California

ANSWER—It is obvious that the most important point in the treatment of this child would consist in preventing reinfection from the mother, who is also suffering from the disease or from any other member of the family who might be infected. It might be necessary to separate the child from the mother and treat either or both of them in a hospital.

There is some difference of opinion as to the selection of the proper drug to be used since a number of remedies have been recommended and medical writers are not all agreed as to their relative efficiency.

The emetine preparations have been advised though their use is not without considerable danger. Emetine is but slowly excreted, so that cumulative poisoning may readily occur on repeated use. It is particularly toxic to the heart muscle. If used at all, its dosage should be based on body weight and should not exceed 1 milligram ($\frac{1}{160}$ grain) per kilogram of body weight. It should be given intramuscularly one injection daily in the following doses: 0.065 Gm (1 grain) for an adult, 0.02 Gm ($\frac{1}{4}$ grain) for children 8 years of age, and 0.01 Gm ($\frac{1}{80}$ grain) a day for younger children. This dosage should be continued for six days and then half of the doses mentioned should be continued for the following six days. This should constitute a course of emetine treatment, following which there should be a rest period of ten days or more. Emetine bismuth iodide may be given in keratin coated pills or capsules, by mouth. The dose for a child is from 0.016 to 0.065 Gm ($\frac{1}{4}$ to 1 grain) twice daily. This preparation should not be given at the same time that emetine injections are used. Emetine bismuth iodide is difficult and unpleasant for the patient to take and may cause intense emesis. Like the other emetine preparations, it should not be given over an extended time.

Acetarsonone may be given in 0.1 Gm (1½ grain) doses once daily for about eight or ten days followed by an interval during which the drug is omitted for eight or ten days. If fever, gastro-intestinal symptoms or skin eruption occurs its administration should be stopped.

Carbarsone, another arsenical has been recommended because of its low toxicity. Carbarsone has been tested by a number of authorities and is thought to be effective in amebic dysentery. A child of 2½ years may be given 0.065 Gm (1 grain) once or twice daily for a period of ten or twelve days.

There are a number of drugs related to iodohydroxyquinoline among which may be mentioned chumofon which is marketed under the names *maivodin* and *vitren*. Of this group *iodohydroxyquinoline* or *vioform* has been preferred by a number of writers. The dose of *vioform* for an adult is 0.25 Gm (4 grains) once or twice daily. For children this dose should be reduced according to age.

CROSS AGGLUTINATION OF BLOOD—ASPIRATION OF SPINAL FLUID

To the Editor—1. What is the explanation of cross agglutination occurring within the same blood group? Recently in attempting to find a donor for a blood transfusion it was practically impossible for me to find suitable blood within the same group as there was always agglutination when the serum of the recipient was typed directly with the cells of the possible donor. Is this common? Does marked anemia on the part of the recipient have any influence? Would it be safe to use such bloods although only a small amount of agglutination occurred? 2. What is the explanation for the fact that in using spinal anesthesia there is frequently difficulty in aspirating the spinal fluid into a syringe although the spinal fluid drops out of the needle freely? I have frequently gotten into this difficulty and although I was sure that the needle was in the subarachnoid space as evidenced by the flow of spinal fluid the flow of spinal fluid stopped as soon as a little suction was applied by the syringe. Isn't this probably due to the aspiration of some tissue into the eye of the needle?

FRANK R. GUIDO, M.D., Visalia, Calif.

ANSWER—1. Cross agglutination within the same blood group may be due to the following factors:

(a) Subgroups within any one of the four blood groups. e. g. group A has been reported to contain several subgroups. If the recipient is in group A and the donor in a subgroup of group A, cross agglutination might take place comparable to that occurring between two distinct blood groups.

(b) Auto agglutination. Rarely the recipient's serum may agglutinate his own erythrocytes as well as those of all donors. Auto agglutinins are demonstrable at temperatures lower than the temperature of the body when they are absorbed from the serum and attached to the red cells. The auto agglutinins can be freed from the erythrocytes by washing and resuspending in physiologic solution of sodium chloride at 37°C.

(c) Rouleau formation (pseudo agglutination). A heavy rouleau formation may be mistaken for true clumping. This error can be avoided by observing microscopically the process of rouleau formation. Abnormal temperatures and drafts encourage rouleau formation. Dr. A. S. Wiener discussed rouleau formation in *THE JOURNAL*, Oct. 21, 1933, page 1317.

(d) Sensitization. One transfusion of blood from a given donor may occasionally sensitize the patient to this blood as demonstrated by the clumping of the donor's red cells by the serum of the recipient.

Cross agglutination within the same blood group is not common.

Marked anemia, blood dyscrasias, severe toxemia and sepsis on the part of the recipient apparently increase the occurrence of cross agglutination within the same blood group.

A donor's blood should not be transfused when there is agglutination in the mixture of the recipient's serum and the donor's corpuscles.

2. Placing the syringe on the needle that has been inserted in the subarachnoid space may displace the needle either pulling it out of the space or pushing the needle through the space.

In these cases the opening of the needle is in close proximity to the membrane and while spinal fluid may come out in drops aspiration produces a plugging of the lumen by drawing the membrane to it. This occurs particularly when the needle is inserted at an angle and not perpendicular to the canal, and its opening lies either just beyond the dura or close to the dura all the way across the canal.

Cerebrospinal fluid circulates through the lumbar subarachnoid space at a definite rate which can be increased only by an increase of pressure within the subarachnoid space (such as by pressure on the jugular vein). Removing fluid from the lumbar subarachnoid space by aspiration does not serve to increase the rate of flow of fluid into this space but simply serves to create an area of negative pressure within it. This results in an obliteration of the subarachnoid space by collapse of the subarachnoid and dural tissue (it is to be kept in mind that the dura in the lumbar region is much less adherent to the bony wall than it is in the thoracic and cervical regions). The result of this collapse is to shut off the flow of cerebrospinal fluid from the subarachnoid spaces above, both by virtue of block of the subarachnoid space and by virtue of clogging of the end of the needle by tissue. Thus it is not possible to aspirate cerebrospinal fluid from the subarachnoid space at a

rate faster than that at which it flows of its own accord. And by virtue of the block above, no fluid may be obtained at all. An attempt to aspirate cerebrospinal fluid may cause trauma to the dura and subarachnoid tissue and headache. Aspiration is therefore undesirable.

TOXICITY OF NAPHTHALENE

To the Editor—I have a patient who in the course of his employment comes in contact with naphthalene crystals and gases. Recently while performing an experiment he inhaled the fumes from a mixture of cement asbestos fiber, silica and naphthalene which had been heated to 335 F. That night he had a typical acute asthmatic attack, which lasted for forty-eight hours. After a week's rest he returned to work and several days later he had another asthmatic attack. The patient thinks that the naphthalene gas is the cause of his asthma. Could I determine his sensitivity to naphthalene by means of the patch test? I would appreciate any information or references on the hazards of naphthalene. Please omit name.

M D, New Jersey

ANSWER—Naphthalene has been mentioned as a so-called industrial poison by numerous investigators and writers. As far back as 1884, Evers (*Beil klin Wchenschr* 42 593) reported a case of eczema resulting from contact with the crystals used as an insecticide. Since then many similar cases have been reported in dermatologic literature, the sensitive individuals exhibiting varied symptoms, from mild headaches and loss of appetite to severe intoxication with vomiting, diarrhea and prostration, as well as the typical lesions of an acute eczema.

Peterson, Haines and Webster (*Legal Medicine and Toxicology* 3 694) say: "It is moderately volatile at ordinary temperature, and poisoning has resulted from inhalation of its vapors, thus persons sleeping under bedclothes dusted with naphthalene as a moth powder have suffered from loss of appetite, headache and eczema."

In the individual case under investigation, sensitivity could be tested by means of the patch test, which has been used successfully by other investigators. However, the investigation should not stop there. A roentgenogram of the patient's lungs is of primary importance, because of the possibility of a silicosis or an asbestosis being present. Cement, asbestos and silica have all been known as causes of respiratory disorders, and many papers have been written on the subject of pneumoconiosis from each of these substances. It is well known that this condition may be present for years before any symptoms appear, and it is not an unusual finding in the roentgenograms of lungs of older asthmatic persons. The knowledge of this fact is especially important in the treatment and prognosis of the case.

It must be borne in mind, too, that this patient may be suffering from a true bronchial asthma, and the onset of his initial attack, following the inhalation of fumes might be merely coincidental. Many asthmatic attacks may be precipitated or made worse by the inhalation of gas or fumes when the actual cause is something entirely different. In this case the routine scratch and intradermal testing with proteins should be carried out, as well as a differential blood count for the presence of an eosinophilia. A history in the family of hay fever, asthma, urticaria or migraine, or the presence of some other allergic manifestation in the patient himself, would be a still further aid in the diagnosis.

VACCINATION AND BONE TUBERCULOSIS

To the Editor—Is active tuberculosis of the bone in a child a contra-indication to vaccination against smallpox? May such vaccination be expected to cause an exacerbation in quiescent bone tuberculosis? Will you state a few references covering the question?

HENRY McCUSKER, M D, Providence R I

ANSWER—It is difficult to formulate rules in such circumstances. There is no doubt that vaccination in an active and even in latent bone tuberculosis will put the defensive mechanism of the body to the test. Although there are no specific references in the literature to an exacerbation of tuberculous bone lesions, H A Gins (*Zentralbl f Bakt* 127 77 [Dec 30, part 1] 1932) reported three cases of tuberculous meningitis in apparently latent childhood tuberculosis following vaccination. There is no reason why the same could not happen in bone tuberculosis. This is particularly true in children.

Especially could such a result be possible in the occasional patient having bone lesions as a result of vaccinia (Brinkmann, *E Ztschr f orthop Chir* 57 208 1932. Solito, M. *Quadrant radiol* 3 73, 1932. Smith, R M. *New York M J* 108 618 1918).

But in adult disease there is apparently little risk, since both Wiese (*Deutsche med Wchenschr* 45 580 [May 22] 1919) and Mark (*THE JOURNAL*, March 8, 1919, p 704) found no

untoward effect in more than 200 cases each of pulmonary tuberculosis.

Regarding specific examples of tuberculous bone lesions and vaccinia, the literature on the subject is scanty. As a working rule it might be wise to refrain from vaccination only while the disease is early or in the stage of active evolution, and not then when the child has been definitely exposed. Following definite exposure, it is better to take a chance on mild vaccinia than on virulent smallpox, irrespective of the outcome.

EXPOSURE GUIDE FOR ROENTGENOGRAPHING HEART AND LUNGS

To the Editor—I should like an exposure guide for the heart and for the lungs in infants and children up to 16 years. The manufacturer of the x-ray machine I use recommends for adult chests (lungs) a distance of 40 inches 30 milliamperes, a kilovolt peak of from 65 to 90 depending on the depth of the chest. For a depth of 7 inches a kilovolt peak of 65 and for a depth of 12 inches a kilovolt peak of 90 and an exposure time of one fourth second. For hearts the distance is increased to 72 inches and the time to one second. These figures are for flat films only made with cassettes containing intensifying screens. If published omit name and town.

M D Ohio

ANSWER—The matter of x-ray technic in the examination of heart and lungs is still an open question. At the present time various technics are being used, ranging from 30 to 400 milliamperes, in some instances 1,000 milliamperes is being used.

If a high milliamperage is used a broad focus tube is necessary, in order to withstand the large amount of energy used. It also follows that if a broad focal spot is used less detail can be obtained, and this can be compensated for only by increasing the target film distance. Therefore, if high milliamperage is used, from 400 to 1,000 milliamperes, the tube distance would of necessity be at least 72 inches. The kilovoltage, when one is using high milliamperage, ranges between 45 and 75 kilovolts, according to the thickness of the patient. The time in most instances is around one-twentieth second.

If 30 milliamperes is used, the target film distance is in the neighborhood of 36 inches. The focal spot of a 30 milliamperage tube is small and therefore gives rather sharp detail. Usually the kilovoltage is from 65 to 85, and the time ranges between one-fourth and one-half second. The 100 milliamperage technic is the most popular at this time, a 6 kilowatt tube having a focal spot from 2.5 to 3 mm being used. The usual target film distance is 48 inches, the kilovoltage from 65 to 85 and the exposure time usually from one-tenth to one-twentieth second. It is not necessary to use an exposure faster than one-twentieth second, as almost all movement can be obviated by an exposure of one-twentieth second. Satisfactory films can be obtained with the last mentioned technic.

AREA OF TELEROENTGENOGRAMS

To the Editor—Will you please advise me where I may secure a reliable formula for calculating the surface area of six foot teleroentgenograms. Also I should like to have the adult tables for calculating heart surface areas according to Eyster.

P W FLAGGE M D, High Point, N C

ANSWER—P C Hodges has shown (*Am J Roentgenol* 11 466 [May] 1924) that when a subject sits erect and breathes quietly for examination either by teleroentgenography or orthodiagraphy, individual variations in heart size are less than 10 per cent. It follows that normal tables based on orthodiagraphic cardiac area measurement may be used to compute the normal frontal plane area for comparison either with teleroentgenograms or with orthodiagrams. The actual silhouette areas obtained from teleroentgenograms must be subjected to correction for distortion. In general, 10 per cent for area and 5 per cent for greatest transverse diameter will serve for films made at a six foot target film distance. The exact distortion factor for any particular setup may be computed easily by substituting the proper values in the proportion $A_h A_r T_h T_r$, in which A_h equals the unknown or actual heart size, A_r equals the cardiac area of the film, T_h equals the distance from the tube target to the central plane of the heart, and T_r equals the distance between the tube target and the film. A_h and T_r are readily measurable. T_h may be computed by measuring the distance between the plane of the film in the cassette changer and a point 8 cm in front of the cassette changer (which point will represent the average position of the heart in the chest) and subtracting this distance from the value for T_r .

Van Zwaluwenberg and Warren (*Arch Int Med* 7 137 [Feb] 1911) gave the following formula as a satisfactory substitute for the planimetric measurement of the cardiac area taken from the film: one fourth of 3.1416 times the product of

the long axis and the short axis. Although this is fairly satisfactory, the actual measurement of the cardiac silhouette with a planimeter designed to read in square centimeters is much more satisfactory. Instruments of this sort can be purchased from firms dealing in engineering instruments. This instrument is extremely easy to operate.

A formula for predicting the normal heart surface area for adults appeared in an article by Hodges and Eyster (*Am J Roentgenol* 12 252 [Sept] 1924). This article contains a convenient set of tables for ready reference. These tables were republished together with similar tables for estimation of the transverse diameter by Hodges and Eyster (*Irish Int Med* 37 707 [May] 1926).

CIRCUMCISIONS UNDER LOCAL ANESTHESIA

To the Editor—I do many circumcisions. Occasionally I have a case in which the organ swells on the dorsum the skin turns black and leathery blebs form and eventually there is some sloughing of the skin. It is not like an infection—there is no pus—there apparently being just death of the tissue from having its nutrition cut off. I should like some light on the subject. My first case was in a paralytic and I attributed it to devitalized tissues. I used 0.5 per cent of procaine hydrochloride with epinephrine. Then I had two or three cases in close succession in which I used nupercaine 1:1000. I changed back to procaine without the epinephrine and in the course of time I had two more such cases. Recently I did one under general anesthesia thinking possibly that the trouble in the previous case was due to local anesthesia but the same condition developed. In the last three cases I have avoided the slough by prompt and active measures—using the heat lamp and antiphlogistic treatment constantly in alteration. So far as I can recall in each of these cases the dorsal artery was very large and had to be ligated. Is it possible that the dorsal artery had not the usual branches and that when the main artery was severed there was not sufficient blood supply to the area? Understand these are only occasional cases among many. I wonder whether others have had the same experience. Please omit name.

M D Colorado

ANSWER—Necrosis of the skin of the penis following circumcision has been noted by a number of surgeons following the use of local infiltration anesthesia. Braun in his book on local anesthesia called attention to the danger of a slough from using too large amounts of epinephrine.

McWhorter (*Surgical Clinics of Chicago* 4 151 [Feb] 1920) pointed out the danger of a slough in any region having a poor blood supply or end arteries from infiltration anesthesia and that certain drugs were more toxic and slowly absorbed than others, procaine probably being the least toxic.

He advocated the following rules:

- 1 The use of 0.5 per cent procaine hydrochloride with one drop of 1:1000 epinephrine to 15 cc of solution.
- 2 Operating without the use of a constrictor at the base of the penis.
- 3 Injection under little tension and the use of a minimum amount of solution.
- 4 The choice of nerve blocking anesthesia for circumcision in place of the infiltration method.
- 5 Care in preserving the blood vessels from injury by the needle and rigid hemostasis.
- 6 The use of interrupted sutures.
- 7 Careful asepsis and frequent loose postoperative dressings.

Warm moist boric acid solution compresses have been found beneficial.

Almost certainly a strict adherence to the technic and principles outlined will prevent future complications.

DISCONTINUING MILK SECRETION

To the Editor—A woman aged 24, had her second baby about two months ago. She nursed her child for six days only 2 ounces (60 cc) of milk could be pumped out of her breasts on the seventh day post partum. In spite of applications of camphorated oil complete abstinence from drinking and breast binders milk still formed. I recommended theobromine sodiosalicylate (*C. Merck's Jahresbericht* 46 145 1932) to my patient. She took 0.5 Gm five times a day for ten consecutive days, without discontinuing the abstinence from drinking the application of camphorated oil and the wearing of very tight breast binders. The only visible result of the theobromine treatment was a loss of weight of 3 Kg (from 57 Kg to 54 Kg). What would you suggest as the next possible treatment? Please omit name.

M D New York

ANSWER—For a long time potassium iodide has been recommended to diminish the secretion of milk, but the results are inconstant. More satisfactory results have been reported by Wachtel (*Zentralbl f Gynak* 53 987 [April 20] 1929) for the administration of thiothiod, which not only inhibits the secretion of milk but also acts as a diuretic.

Ten years ago Frankl (*Am J Obst & Gynec* 6 399 [Oct] 1923) proved that in animals known to have an ample supply of milk the effective grafting of placental tissue temporarily

prevented the secretion of milk. This is true in spite of the fact that the placental hormones prepare the breast during pregnancy for their secretory function. Stimson (*Am J Obst & Gynec* 4 413 [Oct] 1922) reported a case in which the secretion of milk remained in abeyance until retained pieces of placenta were removed from the uterus, after which the flow of milk was normal. Hence it may be advisable to administer placental extracts in this case to try to suppress the flow of milk.

G Van S and O W Smith (*Am J Physiol* 103 336 [Feb] 1933) showed that large doses of estrogenic substance (in this case, theelin) prevent lactation in rabbits after parturition. It was not always possible to stop lactation once begun particularly if it had continued for some time before treatment was instituted. It appears that the estrogenic factor of the placenta is largely if not entirely responsible for the antilactogenic effect of placental remnants. Whether or not these results are applicable to man is conjectural but in view of the uncertainty as to composition and potency of placental extracts the use of a preparation of known activity would seem preferable. Of course, such use is not without possible dangers.

INFESTATION WITH GIARDIA

To the Editor—Will you kindly let me know the life history of *Giardia lamblia* as I do not find it described in any of the books available and also the latest method for dealing with infestation with this flagellate? Some time ago I received for examination a stool from a patient with acute diarrhea with mucus and blood a child aged 7 months of American parentage. The specimen which was sent in the baby's diaper was nearly dried up when received it was clay colored and showed no mucus but no visible blood. Microscopic examination revealed numerous light brown oval cysts each about 15 microns in length and 10 microns broad with a central axostyle running straight along its axis and two faint nuclei. The diaper had a peculiar odor not unlike that of fresh pork. A fresh specimen specially asked for showed in addition to the cysts a few actively motile *Giardia* organisms which could be easily distinguished by their characteristic shape and the peculiar tumbling movements. This fresh stool also had the odor described and contained red blood corpuscles, dead leukocytes and a large amount of cellular element. The flagellates had evidently just passed into the cystic stage as in every cyst only one straight axostyle could be detected nor it showed any S shaped division or four nuclei. The child was treated with dilute bowels with laxatives of weak gumme and a specimen examined three days subsequently still showed a few *Giardia* cysts but in a disintegrated condition. Three days later no cysts could be detected and the stool did not have the peculiar odor. The child is quite well now. Please omit name.

M D Kodukuru South India

ANSWER—The life cycle of all the *Giardias* is comparatively simple.

Infection can be experimentally acquired by swallowing the flagellate forms but as these are short lived outside the body they are probably of little practical importance. The cysts however can live outside the body for several months provided they are protected from certain adverse conditions, chief among which is drying. After being swallowed, the cysts pass to the small intestine where encystation takes place and two flagellates emerge from each cyst. These reproduce by binary fission and colonize chiefly the duodenum. Some of the flagellates pass down the intestine and if they are not swept out too quickly encyst and undergo one or sometimes several divisions after encystation.

The case report strongly suggests an acute *Giardia* diarrhea. Most investigators believe that *Giardia* may produce intestinal disorder, but so far it has been impossible to get unequivocal evidence of its pathogenicity and to eliminate possible concomitant factors. There is no good evidence that the parasite ever produces ulceration or penetrates the intestinal mucosa. It is generally held that although the infection may give rise to a marked diarrhea with quantities of mucus, no blood occurs in the stools. In any case most infections are not associated with any observable symptoms.

SENSITIVITY TO HOUSE DUST

To the Editor—When a patient with symptoms of allergy shows a marked hypersensitivity by skin tests to house dust, how may a preparation from house dust be made suitable for hypodermic injection to increase the subject's resistance? What would be the initial dose?

HUBERT M. ENGLISH M D, Cary Ind

ANSWER—The usual method of preparation of house dust extract for treatment purposes is as follows. The dust is collected, preferably with a vacuum cleaner, from the rug-upholstered furniture and mattresses. A weighed amount is covered with ether, to remove the fatty materials and allowed to stand for twenty-four hours. This ether is drained off and fresh ether added. Usually two ether extractions suffice. The residue, after the final draining off of the ether, is spread

on filter paper and allowed to dry. The extracting fluid is then added in a quantity of ten times the weight of the dust. The extracting fluid used ordinarily is Coca's solution which consists of an aqueous solution of 0.5 per cent sodium chloride, 0.4 per cent phenol and 0.25 per cent sodium bicarbonate. After twenty-four hour extraction the material is filtered and the filtrate is sterilized by Berkefeld filtration. Sterility of the solution is assured by making aerobic and anaerobic cultures of the filtered material.

When the extract has been proved sterile it is ready for use. Most patients may begin with a 0.05 cc dose of this extract. In very sensitive individuals this stock dust may have to be diluted ten or a hundred times before it is ready for use.

COLT

To the Editor—Is gout as prevalent as it was formerly? If not why not? Is it still supposed to be due to wine drinking? If so has wine drinking decreased? Please omit name. M D West Virginia

ANSWER—Statistics on the prevalence of gout are probably misleading because of the fact that many cases are not diagnosed and because it is not certain whether the cases of so called irregular gout should really be classified with this disease. The conservative opinion is that in cases which do not present tophi in which urate crystals have been microscopically identified, the diagnosis of gout cannot be definitely established.

The consumption of wine and of alcoholic (especially malt) beverages is supposed to favor the onset of gout and to aggravate the condition when present. However, gout may occur in teetotalers. Prohibition in this country with its coincidental increase in home production and extralegal supply has made the estimation of wine consumption almost impossible. Recent European figures show a declining tendency in wine consumption.

For a discussion of the probable incidence of gout the reader is referred to an article by Joseph H Pratt (*M Clin North America* 8 1685 [May] 1925).

PREPUTIAL INFLAMMATION

To the Editor—Can you tell me of an effective method of treatment for stubborn preputial inflammation? This condition occurred in a man aged 56 and has persisted over three months. The only history obtainable was that of a possible contraction through use of a urinal while in the hospital. The Wassermann reaction is negative. There is no urethral discharge. Retraction of the prepuce is painful. The glans is extremely sensitive. There are scattered raw areas with loss of mucous membrane over the glans and especially around the corona glandis. No deep excavations are noted in the superficial shallow ulcerations. There was a slight mucopurulent discharge. Smears show numerous coarse irregular spirochetes similar to those of Vincent. Cultures as well as smears are negative for the bacillus of Dugrey. The following measures have not been effective: dusting powders, such as cornstarch or cornstarch with calomel and bismuth irrigations with potassium permanganate 1:8000, iodoform powder and the local use of 1 per cent neosphenamine as in Vincent's angina. The last mentioned could not be tolerated and was discontinued after one application on account of the possibility of producing neosphenamine necrosis. Irrigations with plain water containing hydrogen dioxide could be tolerated fairly well. Two per cent aluminum acetate was not tolerated very well. 1:2500 metaphen was tolerated fairly well but does not improve the condition. Treatment on the whole is very annoying and unsatisfactory on account of the extreme sensitivity of the glans. Kindly omit name. M D Michigan

ANSWER—This infection, in all probability, is due to an anaerobic organism.

If the prepuce could be kept behind the glans so that the under surface of the prepuce and glans penis could be exposed to the air, healing might follow. This should be supplemented by the application of solution of hydrogen dioxide. If the prepuce is tight and retraction not possible, circumcision should be carried out.

DIATHERMY AS AID TO PROSTATIC MASSAGE

To the Editor—I would appreciate it if you would answer the following questions: 1 As an adjunct to prostatic massage in the treatment of chronic prostatitis is diathermy of much value? 2 If so where can an apparatus be purchased for home use? 3 What is the price of such an apparatus? Please omit name. M D Iowa

ANSWER—1 Medical diathermy if judiciously administered is a powerful adjunct to the mechanical treatment of prostatitis.

2 The various makes of diathermy apparatus approved of by the Council on Physical Therapy of the American Medical Association are furnished by any reputable surgical instrument house. Diathermic treatments of any kind should be administered only by an experienced operator.

3 The price of a diathermy apparatus varies from \$100 to \$600 according to the number of additional appliances and the magnitude of current to be furnished.

EXTENSIVE HIRSUTISM

To the Editor—Do you know of any treatment given to the mother to reduce the tendency to excessive hairy condition in the child excluding any glandular deficiency in the mother?

A G DAVIS M D Utica, N Y

ANSWER—If glandular deficiency were excluded in the mother there probably would be no tendency to excessive hairy condition in the child. Hirsutism and the various disorders of hair growth and distribution, particularly on the side of excess growth, are due to some glandular disorder, usually pituitary or suprarenal dyscrasias of some sort. Some teratomas of the pineal gland are accompanied by precocious sexual and somatic development which includes overgrowth of hair. Tumors of the suprarenal cortex in children are also accompanied by precocity. Some children showing what are ordinarily thought of as signs of pituitary deficiency exhibit an excessive growth of lanugo like hair. This is most often particularly marked on the distal extremities. There is no way of telling in advance whether a child is likely to exhibit excessive hair growth except when it might have a long line of ancestors who are victims of overgrowth of hair. In this instance the hereditary features would be likely to victimize the child. Even so this tendency is probably based on an endocrine factor. There is nothing that can be done in the way of treatment to the mother to prevent its development in the child.

TREATMENT OF TRACHOMA

To the Editor—I should like to have sent to me a method for the treatment of trachoma in school children. 140 in the grade school and 75 in the high school. It is present in about 75 per cent of the pupils. Copper citrate 5 per cent has been tried for only a short interval and many are using mild silver protein 5 per cent but no rational systematic method of eradication is being used. An Indian reservation 21 miles up the river is a probable source as the Indians have had it for years with serious sequelae but only about 3 per cent of the adults that I have examined have any sequelae and only 0.5 per cent have active trachoma.

M D Nevada

ANSWER—This is a difficult problem, for the treatment of trachoma is an individual affair. General methods of treatment may be outlined, but these methods must be varied to fit the clinical condition in the individual case. In general cleanliness and prevention of secondary infection are of great importance. The first can be achieved only by the education of the infected individuals; the second can be attained by the constant and regular use by each patient of an eyewash of 1:5000 mercuric oxycyanide in distilled water from two to four times daily. In the individual case if follicles are present an expression should be performed. If there are not many follicles massage of the conjunctiva yields the best results. The eyes should be anesthetized and the tarsal and transitional fold conjunctiva rubbed vigorously, either with a plain smooth glass rod or else with a cotton wound applicator that has been saturated in chaulmoogra oil. The massage should be continued until the oil saponifies and should be repeated every two to five days, according to the severity of the disease. Powdered boric acid may be substituted for the oil. After all, it is probably the massage that is the efficacious factor. During the massage particular attention should be paid to the caruncle, Pannus, corneal ulceration and certain other complications are definite contraindications to vigorous massage. The sequelae should be treated as they arise. In conclusion, it is recommended that this condition be reported to the United States Public Health Service, which has physicians in the field to cope with such epidemics.

PHLEBITIS OR CELLULITIS

To the Editor—About two months ago a girl aged 16 years was struck by an automobile and an abrasion resulted about the size of a lemon on the lower part of the left leg. Also there was a large hematoma on the calf of the leg. A short time after this she was sent to the hospital because of chills and a temperature of 105 F. Hot packs were applied and the area of abrasion was opened with profuse drainage. White blood cells numbered 29,000 polymorphonuclears 89 per cent. Later an incision was made from the ankle to just above the knee and a foul necrotic area opened in its entirety. At present the white blood cells number 19,000 and the polymorphonuclears 69 per cent. The temperature is normal in the morning and afternoon but this necrotic purulent process continues to spread. Cultures of pus show staphylococci, streptococci and B. pyocyaneus. Scarlet red ointment, mercurochrome, merthiolate, surgical solution of chlorinated soda and hexylresorcinol S T 37 have been used. What would you suggest to stop this process? Is there any vaccine or therapy for B. pyocyaneus infection?

HUGH P. MUIR M D Columbia, Mo

ANSWER—It seems probable that following the local infection a phlebitis developed which suppurated and broke open. While a low grade cellulitis might explain the symptoms, it is likely

that phlebitis is the chief cause of the persistence of symptoms and the chronicity of the infection

Antiseptics on the surface of the wound are of little value in combating infection in the lymphatics or veins

The worst infection is undoubtedly the streptococcic, which is made more virulent by the other organisms

There is no vaccine used for pyococcus infections, which are not ordinarily serious alone. Vaccines would not seem to be indicated in this case

Extension to the bone with osteomyelitis occasionally occurs and a roentgenogram of the entire limb should be made

If the infection is limited to the soft parts it should be treated as a phlebitis or cellulitis. Incisions should be made for any pus pocket either in the veins or in the soft tissues. Heat usually by hot massive moist packs is often helpful together with absolute rest in bed with the leg elevated slightly

It may be necessary to open and possibly excise the saphenous vein throughout its extent if infected but it should be ligated high up before any manipulation. One should not ligate it until certain that the deeper veins are not also involved. In such a case prolonged rest in bed with general symptomatic treatment will usually result in recovery although a persisting edema of the leg may result

FUNCTIONS AND METABOLIC RATE OF NERVE FIBERS

To the Editor—Why is it that white nerve fiber is able to do so much with evidence of little metabolism while high nerve centers display high metabolism?

WALTER P. MOENNING, M.D., Indianapolis

ANSWER—The sole function of the nerve fibers is the conduction of impulses from one end to the other, or from the middle in both directions. The functions of the centers are much more complex, as shown by (1) polarity or irreversibility of conduction (only from afferent to efferent neurones), (2) considerable delay in the passage of impulses because of the cells and synaptic junctions, (3) great variability in irritability and in the magnitude of discharge, (4) alternation of excitatory and inhibitory discharges, (5) after discharge of impulses after stimulation is over and, most important, (6) the ability to form new functional connections, which underlies the development of conditioned reflexes and the phenomena of learning and memory. It is not surprising that the metabolic rate of the centers is many times greater than that of the fibers and that the centers are much more easily fatigued and are more profoundly affected by cessation of circulation (asphyxia) and by general anesthetics than are the nerve fibers

SINGER'S NODES

To the Editor—Please give me a statement by some authority dealing with the condition commonly referred to as singer's nose that is concerning the difficulty which a professional singer might experience from excessive use of his voice.

M. D. Indiana

ANSWER—Evidently the word "nose" is a typographical error, the term "nodes" being the proper one. This condition is characterized by the appearance of small white nodules or nodes on the vocal cords, most often situated at the junction of the anterior and middle thirds. The etiology is supposed to be the improper use of the voice, causing undue friction or contact between the cords. More complete details regarding the singer's nodes may be obtained by consulting the following references in the literature:

- Segre, R. Vocal Nodules as Revealed by Stroboscope *Valsalta* 9:380 (May) 1933
 Bajkay, T. Pathogenesis and Therapy of Nodule of Vocal Cords *Otolaryngol.* 77:134 (Feb. 18) 1933
 Silbiger, B. Removal of Nodules in Singers *Wien med Wchenschr.* 78:966 (July 14) 1928
 Prevot, M. Nodules in Singers *Rev. gen. de clin. et de therap.* (suppl.) 40:2517 (Dec. 11) 1926
 Cuvillier, J. Polyps on Vocal Cords *Medecine* 6:313 (Jan.) 1925

OBESITY AND PITUITARY EXTRACTS

To the Editor—I have a patient who is 24 years of age and weighs 250 pounds (123 Kg.). I have been having her take posterior pituitary tablets for the last three months and her weight came down to 220 pounds (99.7 Kg.) but now she is still taking the posterior pituitary gland product. Most of her weight is around the abdomen. What treatment do you advise now? Would whole pituitary be indicated? Please omit name.

M. D. Illinois

ANSWER—Most workers on obesity have not a great deal of faith in the value of any type of pituitary given by mouth. The basis of all reduction procedures must be a subcaloric diet. In the case under discussion, it would seem advisable to do a basal metabolism test and if there is a lowered rate thyroid extract is indicated with a reduced diet.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

- AMERICA BOARD OF DERMATOLOGY AND SYPHILIGOLOGY Clerks June Sec. Dr. C. Guy Lane 416 Marlboro St. Boston
 AMERICA BOARD OF OBSTETRICS AND GYNECOLOGY Officers (First B. Candidates) The examinations will be held in various cities of the United States and Canada, April 7. Oral (all candidates) Cleveland, June 12. Sec. Dr. Paul Titus 1015 Highland Bldg. Pittsburgh
 AMERICAN BOARD OF OPHTHALMOLOGY Cleveland June 11 Sec. Dr. William H. Wilder 122 S. Michigan Blvd. Chicago
 AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec. Dr. W. J. Wherry, 1500 Medical Arts Bldg. Omaha
 CALIFORNIA Los Angeles Feb. 26 March 1 Sec. Dr. Charles B. Pinkham 420 State Office Bldg. Sacramento
 CONNECTICUT Basic Science New Haven Feb. 10 Prerequisite to license examination Address: State Board of Healing Arts 1899 Yale Station New Haven
 ILLINOIS Chicago Jan. 23-25 Supt. of Regis. Dept. of Reg. and Edu. Mr. Eugene R. Schwartz Springfield
 IOWA Des Moines Feb. 20-22 Dir. Division of Licensure and Registration Capitol Bldg. Des Moines
 NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Feb. 14-16 May 7-9 (limited to a few centers) June 25-27 and Sept. 12-14 Ex. Sec. Mr. Everett S. Elwood 225 S. 15th St. Philadelphia
 NEW YORK Albany Buffalo New York and Syracuse Jan. 29 Feb. 1 Chief Professional Examinations Bureau, Mr. Herbert J. Hamilton Room 315 Education Bldg. Albany
 PUERTO RICO San Juan March 6 Sec. Dr. O. Costa M. de la Cruz Box 536 San Juan
 VERMONT Burlington Feb. 7-9 Sec. Dr. W. Scott Day Underhill
 WYOMING Cheyenne Feb. 5 Sec. Dr. W. H. Hasel, Capitol Bldg. Cheyenne

Pennsylvania July Examination

Mr. Charles D. Koch, former secretary, Pennsylvania State Board of Medical Education and Licensure, reports the examination held in Philadelphia and Pittsburgh, July 11-15, 1933. Four hundred and thirty-eight candidates were examined, 427 of whom passed and 11 failed. The following schools were represented:

School	PASSED	Year Grad	Number Failed
University of Arkansas School of Medicine	(1932)	1	
George Washington University School of Medicine	(1932)	5	
Cornell University School of Medicine (1930)		21	
(1931) (1932) (1933)		1	
Howard University College of Medicine	(1932)	3	
Loyola University School of Medicine	(1932)	1	
Northwestern University Medical School	(1931)	4	
Rush Medical College	(1931)	1	
Indiana University School of Medicine	(1929)	1	
State University of Iowa College of Medicine	(1932)	1	
University of Kansas School of Medicine	(1932)	1	
University of Louisville School of Medicine	(1932)	1	
Johns Hopkins University School of Medicine	(1932)	8	
University of Maryland School of Medicine and College of Physicians and Surgeons	(1931)	1	
Harvard University Medical School	(1932)	1	
Tufts College Medical School	(1932)	4	
University of Michigan Medical School	(1932)	6	
St. Louis University School of Medicine	(1931)	1	
Washington University School of Medicine	(1932)	1	
Creighton University School of Medicine	(1932)	1	
University of Nebraska College of Medicine	(1931)	1	
Cornell University Medical College	(1932)	1	
N. Y. Univ. and Bellevue Hosp. Med. Coll.	(1932)	1	
University of Buffalo School of Medicine	(1932)	3	
University of Rochester School of Medicine	(1931)	2	
Ohio State University College of Medicine	(1927)	1	
Western Reserve Univ. School of Medicine	(1931)	1	
University of Oklahoma School of Medicine	(1932)	60	
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1932)	18	
Jefferson Med. Coll. of Phila. (1930), (1931) 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	(1932)	73	
Temple University School of Medicine	(1931)	1	
U. Pennsylvania Sch. Med.	(1930)	21	
University of Pittsburgh School of Medicine	(1932)	65	
Woman's Medical College of Pennsylvania	(1931)	2	
Meharry Medical College	(1931)	1	
University of Texas School of Medicine	(1932)	1	
University of Vermont College of Medicine	(1932)	3	
Medical College of Virginia	(1932)	2	
University of Virginia Department of Med.	(1930)	2	
Marquette University School of Medicine	(1932)	1	
Queen's University Faculty of Medicine	(1932)	1	
University of Western Ontario Medical School	(1932)	1	
McGill University Faculty of Medicine	(1932)	1	
Univ. de la Habana Facultad de Medicina y Farmacia	(1928)	1	
School	FAILED	Year Grad	Number Failed
Keokuk Med. Coll. Coll. of Phys. & Surg.	(1904)	1	
University of Michigan Medical School	(1931)	1	
Cleveland Homeopathic Medical College	(1908)	1	
Hahnemann Medical College and Hospital of Phila.	(1932)	1	
Jefferson Medical College of Philadelphia	(1932)	1	

Temple University School of Medicine	(1932)	3
Meharry Medical College	(1932)	1
University of Wisconsin Medical School	(1930)	1
Université de Montpellier Faculté de Médecine	(1932)	1

Fifteen physicians were licensed by reciprocity and 14 by endorsement from March 31 to August 30. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Georgetown University School of Medicine	(1919)	Ohio	
University of Louisville School of Medicine	(1930)	Kentucky	
Johns Hopkins University School of Medicine	(1915)	Minnesota	
Harvard University Medical School	(1929)	New York	
College of Physicians and Surgeons, Columbia College	(1894)	Dist. Colum.	
N. Y. Homeopathic Med. College and Lower Hospital	(1911)	Ohio	
University of Cincinnati College of Medicine	(1927)	Ohio	
Hahnemann Medical College and Hospital of Philadelphia	(1917)	(1912-2)	New Jersey
Jefferson M. Coll. of Philadelphia	(1924)	None	(1932) New Jersey
Temple University School of Medicine			(1928) New Jersey
University of Pennsylvania School of Med.	(1930)	Mass.	New Jersey

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
George Washington University School of Medicine	(1930)	N. B. M. Ex.	
Georgetown University School of Medicine	(1932)	N. B. M. Ex.	
University of Maryland School of Medicine and College of Physicians and Surgeons	(1930)	N. B. M. Ex.	
Harvard University Medical School	(1929)	N. B. M. Ex.	
Tufts College Medical School	(1931)	N. B. M. Ex.	
University of Nebraska College of Medicine	(1931)	N. B. M. Ex.	
Cornell University Medical College	(1911-2)	N. B. M. Ex.	
Jefferson Medical College of Philadelphia	(1929)	N. B. M. Ex.	
Temple University School of Medicine	(1932)	N. B. M. Ex.	
University of Pennsylvania School of Medicine	(1929)	N. B. M. Ex.	
Woman's Medical College of Pennsylvania	(1930)	N. B. M. Ex.	
Medical College of Virginia	(1930)	N. B. M. Ex.	

* License has not been issued.
† Licenses of two of these physicians have not been issued.
‡ License of one of these physicians has not been issued.

California October Examination
Dr. Charles B. Pmckham, secretary, Board of Medical Examiners, reports the written examination held in Sacramento Oct. 17-19, 1933. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Forty candidates were examined, 35 of whom passed and 5 failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
College of Medical Evangelists	(1933) 81	2	83
Stanford University School of Medicine	(1933)	82	84
University of California Medical School	(1933)	85	
George Washington University School of Medicine	(1933)	78	79
Georgetown University School of Medicine	(1933)	83	
Northwestern University Medical School	(1933)	89	1*
Rush Medical College	(1933) 84	2	85
University of Illinois College of Medicine	(1933)	85	86
Tulane University of Louisiana School of Medicine	(1932)	80	2
Harvard University Medical School	(1932)	85	3
University of Michigan Medical School	(1932)	79	6
St. Louis University School of Medicine	(1933)	80	6
Creighton University School of Medicine	(1933)	81	3
University of Nebraska College of Medicine	(1932)	90	2
Temple University School of Medicine	(1932)	78	7
University of Pennsylvania School of Medicine	(1930)	81	8
Vanderbilt University School of Medicine	(1929)	87	3
Baylor University College of Medicine	(1933)	81	4
McGill University Faculty of Medicine	(1932)	85	8
Charkovsky Universitet, Russia	(1923)	78	7†
School	FAILED	Year Grad	Per Cent
Bennett Medical College	(1915)	62	3
Chicago Medical School	(1927)	66	9
University of Illinois College of Medicine	(1931)	72	1
Hahnemann Med. College and Hospital of Philadelphia	(1902)	58	1
Psycho-Neurological Institute Medical College, Russia	(1917)	72	2†

Ten physicians were licensed by reciprocity and 2 by endorsement from October 25 to November 23. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Univ. of Colorado School of Med.	(1925)	New York	(1931) Colorado
State University of Iowa College of Medicine	(1931)	Iowa	
University of Louisville School of Medicine	(1926)	Indiana	
University of Michigan Medical School	(1931)	Michigan	
University of Nebraska College of Medicine	(1924)	(1925)	Nebraska
University of Cincinnati College of Medicine	(1933)	Ohio	
University of Oregon Medical School	(1928)	Oregon	
University of Tennessee College of Medicine	(1930)	Tennessee	

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Oregon Medical School	(1931)	N. B. M. Ex.	
University of Minnesota Medical School	(1930)	N. B. M. Ex.	

* Applicant has received an M.D. degree and will receive an M.D. degree on completion of internship.
† Verification of graduation in process.

Book Notices

Paralysis in Children By R. G. Gordon, M.D., D.Sc., F.R.C.P., Physician, Bath and Wessex Orthopaedic Hospital, and M. Forrester Brown, M.D., M.S., Surgeon, Bath and Wessex Orthopaedic Hospital. Cloth Price \$1.50. Pp. 328, with 116 illustrations. New York & London: Oxford University Press, 1933.

In this volume on the paralysis of childhood the authors have correlated in a unique manner the neurologic with the orthopedic aspects. It is impossible to separate neurology from orthopedics if one is to have a complete understanding of the various types of paralysis. In order to treat these diseases adequately the orthopedist must know the neurologic changes underlying the paralysis. It enables him to prognosticate with greater finesse and to avoid unnecessary and useless reconstructive surgery. The book is divided into three parts. The first part deals with general subjects, such as the physiology of movement, the location of the neurologic lesion, the general pathology of paralysis and the interpretation of various syndromes. This part contains the most interesting diagrams, showing various neurologic schemes which clarify the physiology of the nervous system. In a composite manner aided by ingenious diagrams, the authors present the diseases and their particular points of attack in the central or peripheral nervous systems. The second part is entirely clinical and is replete with typical case histories of the various syndromes expressed in the different types of paralysis. Of especial interest is the presentation of the muscular dystrophies, anterior poliomyelitis and spastic paralysis. The third part is concerned with the treatment of paralysis in children and presents mostly physical therapeutic and nonoperative orthopedic measures. Although orthopedic operations are concisely discussed, the technical details are justifiably omitted because of the availability of extensive orthopedic works completely elaborating surgical detail. The authors are to be congratulated for their pioneer attempt to combine the neurologic and orthopedic points of view of paralysis in children.

Oeuvres de Pasteur Réunies par Pasteur Vallery Radot, professeur agrégé à la Faculté de médecine de Paris. Tome VI. Maladies virulentes, virus vaccins et prophylaxie de la rage. Fascicules I et II. Paper Price 160 francs. Pp. 906. Paris: Masson & Cie, 1933.

This volume (in two parts) of Pasteur's collected works contains practically everything that he published on infectious pathology in reports of learned societies and congresses and in medical journals. Here are given verbatim the famous discussions in 1874 in the Academy of Medicine on putrefaction and fermentation. Here are Pasteur's papers and reports on puerperal fever, furunculosis and osteomyelitis, on the anthrax bacillus and *Vibrio septique*, on vaccines against chicken cholera and anthrax, on rabies and antirabic treatment, beginning with experiments on the saliva of an infant dead of rabies. Finally come a series of documents relating to anthrax, including the experiments at Pouilly-le-Fort, and to rabies and antirabic vaccinations. This volume the next to the last of the complete works, contains writings that rank with those of greatest importance in medical literature. It always will be of fervent interest to physicians and biologists. Step by step are presented in original form the details of Pasteur's epochal achievements in the decade ended with 1886.

A Sixth Venereal Disease Climatic Bubo Lymphogranuloma Inguinale. Esthomiène, Chronic Ulcer and Elephantiasis of the Genito-Ano-Rectal Region. Inflammatory Stricture of the Rectum. By Hugh Stannus Stannus, M.D., Ph.D., F.R.C.P., Physician to the French Hospital, London. Cloth Price \$4.25. Pp. 270, with 16 illustrations. London: Baillière Tindall & Cox, 1933.

This compact volume which includes 933 references from the world literature, endeavors to expose properly what is known today about lymphogranuloma inguinale or the sixth venereal disease. The author acknowledges that it has already been termed the fourth venereal disease by several authors, as Lottrup in 1927, Cedercreutz in 1928 and Rezende in 1928. However he prefers to limit this term to the genital infection of Vincent's organism, then adding granuloma inguinale as the fifth disease and lymphogranuloma inguinale as the sixth. He states that the use of this term is no suggestion that it should be common usage. The author reviews the subject of climatic

bubo and lymphogranuloma inguinale bringing out their geographic, etiologic, clinical, bacteriologic and pathologic similarity. The intracutaneous reaction of Frei is carefully explained and its specificity for this disease discussed. As yet no specific treatment for the disease has been found. In later chapters the author develops the subject of later manifestations of lymphogranuloma inguinale—elephantiasis of the pudenda, esthiomene, the genito-anorectal syndrome and inflammatory stricture of the rectum. He takes the view that all inflammatory strictures of the rectum are due to lymphogranuloma inguinale. He discusses the many different names that have been given to the disease, and he thinks that the term lymphogranuloma inguinale is most unfortunate. He is inclined rather to accept the term 'poridontitis,' though he is not averse to the suggested name 'lymphopathia venerea.' On the whole, he has reviewed the literature carefully and covered the field quite fully. Throughout the entire volume the word 'gland' is employed where the accepted term is lymph node, e.g., the 'glands' in the groin. A too frequent use of abbreviations is noted. True, they simplify the work of the writer and perhaps of the reader if he is familiar with the terms, thus, C. B. (chlamydiae bubo), L. I. (lymphogranuloma inguinale), W. R. (Wassermann reaction), and K. I. (potassium iodide). The reviewer was not familiar with N. A. B. (p. 183). On page 155 and in several following places mention is made of the Dmelcos reaction, negative or positive. To an American medical reader this might not be sufficient explanation of a reaction to the chancroid organism vaccine (bacillus of Ducrey). Unfortunately, this valuable test is rarely employed in America and is almost unknown to the general practitioner. Some mistakes of the printer are to be found, especially with the use of foreign languages, notably German, as in reference 380 on page 233. The illustrations are only fair. On the whole, the book can be highly recommended to dermatologists, obstetricians, gynecologists, proctologists, surgeons, internists or general practitioners who are interested in a disease that is only just now being properly brought before the members of the medical profession.

Pathogenic Microorganisms. A Practical Manual for Students, Physicians and Health Officers. By William Hallock Park, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, New York City, and Anna Wessels Williams, M.D., Assistant Director of the Bureau of Laboratories of the Department of Health, New York City. Fifth edition. Cloth. Price \$7. Pp. 867 with 226 illustrations. Philadelphia: Lea & Febiger, 1933.

The high standard of this textbook of medical bacteriology and protozoology has been maintained in the present edition by a careful revision and an incorporation of the essential newer knowledge in the field. The wide experience of the authors allows them to furnish a critical opinion on numerous controversial subjects in bacteriology and public health. The enlargement of the section dealing with filtrable viruses is a welcome improvement, consistent with the more recently acquired information and the growing appreciation of their significance. While the volume is increased by fifty pages and several excellent illustrations, it is not too bulky. The arrangement of the chapters in a logical order of subjects is an improvement over the previous edition. The bacterial nomenclature is conservative and, although the book is remarkably free of typographic errors, one question why the generic name 'Hemophilus' is regularly spelled 'Hemophylus'.

Étude et traitement de la méningite tuberculeuse. Par Thérèse A. Jousset. Préface du Dr. André Jousset, professeur agrégé à la Faculté de médecine de Paris. Paper. Price 30 francs. Pp. 152 with 10 illustrations. Paris: Masson & Cie, 1933.

In four chapters the authoress thoroughly covers the most important problems pertaining to tuberculous meningitis—the etiologic and clinical features, the cerebrospinal fluid changes, the experimental and pathologic data and the treatment. In the last, most important, chapter she brings out the advantages of allergin in the treatment of tuberculous meningitis, a method introduced in 1927 by Prof. André Jousset of the Laennec Hospital in Paris. Allergin is a soluble extract of tubercle bacilli. It is a colloid substance and a veritable toxin which is totally different from tuberculin. Injected into the sub-

arachnoid space or hypodermically, it provokes a strong allergic reaction for a period of from ten to forty-eight hours. The existing signs and symptoms, such as coughing, aphonia and cerebrospinal manifestations, first become aggravated but soon subside and are followed by gradual improvement. When used early, before the tubercle bacilli have destroyed the ganglion cells, recovery sets in and the spinal fluid becomes normal. Histories of fifteen personal cases treated by the authoress with allergin are recorded with startling, almost unbelievably favorable, results. It is needless to state that the diagnosis of the cases treated and their clinical and serologic examinations, were carried out according to the most vigorous rules and that the subject was on the whole handled with extreme care and modesty. In view of the fact that, according to the statistics of the League of Nations, tuberculous meningitis causes in Europe annually 100,000 deaths, a scientific method of treatment that promises such wonderful results deserves the highest consideration as well as a thorough and extensive trial. Though details of the methods of preparation of allergin are not given in the monograph, the abundant bibliography may supply the necessary information.

Hirnehirurgie. Erfahrungen und Resultate. Herausgegeben von Dozent Dr. Hans Hoff, Assistent der Universitätsklinik für Neurologie und Psychiatrie in Wien, und Dozent Dr. Leopold Schönbrunner, Vorstand der chirurgischen Abteilung und des Strahlentherapeutischen Institutes des Krankenhauses der Stadt Wien. Mit einem Vorwort von Prof. Dr. Otto Lotzi, Vorstand der Universitätsklinik für Neurologie und Psychiatrie in Wien. Paper. Price 40 marks. Pp. 472 with 238 illustrations. Leipzig & Vienna: Franz Deuticke, 1933.

It is difficult to understand why this book was written except perhaps to give one of the authors (Hoff) the opportunity to discuss several more or less new reactions, little used and of doubtful value in the diagnosis of intracranial tumors. The title is misleading; it is not a treatise on surgery of the brain but is concerned almost exclusively with brain tumors. After some brief introductory sections concerning the history and general symptoms of brain tumors, the main body of the book consists of a series of case reports with some disjointed remarks about each. Fifty years ago such a collection of data might have been of some value, but today many American clinics could fill whole libraries with such case reports. No general conceptions emerge from this confused mass of material, although the author (Hoff) makes a feeble attempt to summarize beginning on page 344. The fourth and fifth sections are the work of a surgeon (Schönbrunner) who spent some months in Cushing's clinic, though evidence is lacking that he learned anything there. The technique described is antediluvian and its antiquity is reflected in the tabulation of results. The book serves no useful purpose except to bear eloquent testimony that the Viennese medical school, once the Mecca of the American postgraduate, has lagged far behind the progress of neurologic surgery.

Lehrbuch der gerichtlichen Medizin mit gleichmässiger Berücksichtigung der deutschen und österreichischen Gesetzgebung und des gemeinsamen Entwurfes 1927. Von Dr. Fritz Reuter, o. ö. Professor der gerichtlichen Medizin in Graz. Paper. Price 18 marks. Pp. 609 with 121 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1933.

As indicated in the title, this textbook on legal medicine is based on German and Austrian legislation. The book follows closely the traditions of the Vienna medicolegal school, and it is intended mainly for medical students and as a ready source of information about medicolegal problems for practitioners. The book opens with a discussion on a variety of legal matters of interest to the physician as such and as an expert or witness in medicolegal cases. Then comes a part on crime, the criminal, criminal psychology, personal responsibility, and allied questions. Forensic sexual problems, including abortion, receive extended and thorough treatment. The next section deals with the more general aspects of 'attacks on body and life' and leads to the consideration of the various forms of violent death and poisonings. The book will be of interest to medicolegal workers everywhere. It is an authoritative representation of medicolegal teaching and practice in the countries for which it is especially designed and the medicolegal methods and standards of which in essential respects are worthy of emulation in the United States.

Medicolegal

Dental Practice Acts Validity of Title of Act, Delegation of Legislative Powers—Hunt was prosecuted for practicing dentistry without a license. He was discharged on a writ of *habeas corpus*, the trial court holding the Florida dental practice act to be unconstitutional. The state appealed to the Supreme Court of Florida, Division A.

The practice of dentistry, said the Supreme Court, is not an absolute, unqualified or vested right, but is subordinate to the police power of the state. In the proper exercise of police power the legislature may control and reasonably regulate the practice of dentistry. The act under consideration the court continued, is not contrary to public policy nor is it within the domain of the exercise of police power. Hunt contended, however, that the title of the act violated a provision in the Florida constitution requiring the subject of an act to be briefly expressed in its title. The title of the act reads: "An Act to Regulate the Practice of Dentistry, Dental Surgery and Dental Hygiene in the State of Florida and to Provide Penalties for the Violation of Any of the Provisions of This Act." This title, it was argued, did not indicate that a board of dental examiners was to be created by the act, that fees were to be collected from applicants, and that large sums of money were to be collected by the board and expended in such manner as the board deemed proper. The point to be determined said the Supreme Court, is whether these matters are so irrelevant or unrelated to the subject of the act as expressed in the title as to violate the constitutional provision. When the title of an act expresses its subject with sufficient certainty as to give reasonable notice of matters dealt with by the act and of its scope and reasonably leads to inquiry as to its contents it is sufficient even though it is not an index to the act with respect to all its related provisions. To regulate the practice of a profession it is necessary to provide an elaborate if not complex machinery. The matters contained in the act here under review, which are urged by the defendant as invalidating the act are necessary incidents to or tend to make effective or to promote the object or purpose of the legislation of which the title gives reasonable notice to both legislators and the people and such matters may be regarded as properly connected with the subject of the act expressed in the title. The court concluded that the title did not violate the provisions of the constitution.

Section 9 of the act provides that an applicant for a license must be a graduate "from an accredited dental college as defined by the National Association of Dental Examiners." This provision Hunt contended, constituted an unconstitutional delegation of legislative authority to the National Association of Dental Examiners. The quoted clause, said the Supreme Court should be given a construction that will save it from condemnation. The legislature is presumed to have been in possession of the knowledge as to what dental colleges had been classed as accredited by the National Association of Dental Examiners. It is presumed to have been informed as to the meaning of the word "accredited" and its significance in this connection to the practice of dentistry in the state. Being thus informed and possessing the power the legislature may be considered as having directed by that clause that a person desiring to practice dentistry should submit proof of graduation from a college which may be classed as accredited as defined that is, as that term had already been defined by the National Association of Dental Examiners. Even if it should be maintained that the term as defined means a list of colleges already named by the national board there would be no objection to the act. In such case the conditions with which the applicant must comply will be definite, certain and not unreasonable. To sustain the defendant's contention continued the court that the clause constituted an unconstitutional delegation of legislative authority the court would be compelled to write into the act after the words as defined the following "or that may at any time hereafter be defined." This however, the court could not do. The term as defined if relating to colleges has reference to certain colleges then on the list as accredited colleges if it refers to the term "accredited" then it is left within the powers of the state board of examiners to determine whether the college

from which the applicant produces his diploma measures up to the definition of the term "accredited" as defined by the national board.

The Supreme Court of Florida concluded that the provision under consideration as construed by the court, attempted no unconstitutional delegation of legislative powers. The judgment of the court below in the *habeas corpus* proceedings, discharging Hunt was reversed and he was ordered remanded to the custody of the sheriff.—*Spencer v Hunt (Fla)*, 147 So 282

Unlicensed Practice of Medicine Enjoined—Dr Sloan, a licensed physician on behalf of himself and all other physicians similarly situated, filed a bill in the circuit court, Cabell County, W. Va., for an injunction to restrain Mitchell from continuing the unlicensed practice of medicine. Later two other licensed physicians practicing in the community in which Mitchell operated joined Dr Sloan as complainants. In the bill of complaint it was alleged among other things, that Mitchell had built up a large practice, had charged and received large sums of money for services rendered, and had thereby deprived the complainants and other licensed physicians of the opportunity of attending the patients thus treated. This the complainants alleged caused a loss of practice to them and a diminution in their professional incomes and a further diminution in their earnings and those of other licensed physicians might be anticipated unless Mitchell was restrained from continuing his activities. By his conduct and advertisements, Mitchell, it was further alleged, had degraded and injured the professional reputation of the complainants and would unless enjoined further injure their reputations and impair the monetary value of their licenses. The amount of damage done to the complainants by Mitchell's activities and the amount of damage that would result in the future if Mitchell should not be enjoined it was pointed out was uncertain. The legal remedy for such damages as they might thus sustain was therefore inadequate. A demurrer to the bill of complaint, interposed by Mitchell, was sustained by the trial court, and the complainants appealed to the Supreme Court of Appeals of West Virginia.

In our opinion said the Supreme Court of Appeals, the allegations contained in the complaint present a *prima facie* case for equity jurisdiction. The court cited with approval the case of *Dvorchen v Apartment House Association* 38 Ohio App 265 176 N. E. 577, decided by the court of appeals of Ohio, March 9 1931, which decision the Supreme Court of Ohio refused to review, by an order of June 10, 1931. In that case, the plaintiff a licensed attorney, instituted a suit for the benefit of himself and all other attorneys at law similarly situated to enjoin the defendant, a corporation, from practicing law in Ohio. The Ohio court said:

The right to practice law is an exclusive valuable privilege exclusive in that it is restricted to those who after special training and after examination and determination of special fitness are accorded the right to follow the profession of attorneys and counselors at law and valuable in that it carries with it the opportunity to secure material benefits and to earn a livelihood not given to those outside the profession. This right is in the nature of a franchise and a practicing attorney at law and others similarly situated have such an interest as members of the legal profession in the nature of a property right as will support the authority of such attorney at law to proceed as a proper party in an action to secure equitable relief against encroachment upon such right by a corporation.

Cases are legion continued the Supreme Court of Appeals of West Virginia holding that the right of a licensee to practice his profession is a property right, or a right in the nature of a property right, or a valuable franchise, or a valuable privilege. Although most of these cases are the outgrowth of proceedings for the revocation of professional licenses, their recognition of the high order of the licensee's right is as pertinent in a case such as the present one as they were in revocation proceedings. Again the fact that criminality is involved in certain conduct does not prevent a court of equity from entertaining jurisdiction to enjoin such conduct. While some courts emphasize the doctrine that equity will not ordinarily take cognizance of proceedings for the prevention of alleged improper conduct when the law has provided a statutory penalty for such conduct a more liberal and modern view has much to be said in its favor. Thus in *Kentucky State Board*

of *Dental Examiners v. Payne*, 213 Ky. 382, 281 S. W. 188, in which an unlicensed person was enjoined from practicing dentistry, the court said:

It is freely admitted that equity will not enjoin the commission of a crime as such as for instance it will not enjoin one from carrying concealed deadly weapons or from committing any other crime whether it be a felony or misdemeanor where nothing else is involved except the commission of the crime but where the chief purpose of the statute is to provide for the public welfare by regulating (not prohibiting) some already lawful calling and only provides a penalty for refusing to comply with such regulations and which penalty is enacted as a punishment for such refusal we can discover no logical reason why a court in administering the laws of its jurisdiction would be powerless to prevent the doing of the prohibited act merely because a penalty (only nominal in this case) is attached for a refusal to comply with the regulation.

The Supreme Court of Appeals therefore concluded that the trial court erred in sustaining the demurrer to the bill of complaint. Accordingly, it directed that the demurrer be overruled and the case proceed to trial.—*Loan v. Mitchell* (W. Va.) 168 S. E. 800

Fee Splitting Contrary to Sound Public Policy—A testator created trusts in favor of two hospitals, subject to a condition that each hospital adopt and enforce rules requiring all physicians practicing therein to pay to the hospital 10 per cent of their fees received for services performed in the institution. In a proceeding to settle the estate of the testator, the hospitals contended that the condition imposed on them a rule of conduct violative of public policy in that it compelled "fee splitting," a practice prohibited by the canons of ethics of the medical profession. It was also contended that the condition was impossible of enforcement and unreasonable, and that its application would result in the loss of the services of eminent physicians who would refuse to subscribe to the practice of fee splitting, with consequent impairment of the efficiency of the hospital in its treatment of free patients. Furthermore if the rule was enforced, it was claimed physicians would exact excessive fees in order to meet the additional payments to the hospitals. In the opinion of the surrogate court, New York County, N. Y., the condition sought to be imposed by the testator was obnoxious, contrary to the best interests of the community, impossible of performance and void. It is immaterial, said the court, whether the division of medical fees occurs between a physician and a hospital, or a physician and a physician, or between a physician and a hospital. In the latter case an outside agency participates financially in the compensation of the physician licensed by the state to practice medicine. Inevitably such a method of division would lead to deterioration in the medical staffs of hospitals with attendant injury to the public. Such a rule would likewise subject some physicians to the temptation of overcharging their patients in order to meet the requirements of the hospital rule. The court ordered the condition stricken from the will and the income of the trust created paid to the two hospitals free from any condition.—*In re Sterne's Estate* (N. Y.), 263 N. Y. S. 304

Evidence Impeachment of Medical Witness—In this case two police officers were charged with assaulting a prisoner in their custody. A physician was called to testify as to his examination of the prisoner, on whose body he found certain indications of violence. On direct examination he testified that the complaining witness in the case, the prisoner was brought to his office by a lawyer for whom he had testified in accident cases. On cross examination, he further testified that the lawyer had represented him in some matters of legal business and that he considered him a very good friend. Counsel for the police officers then proposed to ask the witness, the physician, if the lawyer had acted as his personal attorney in a proceeding before a grand jury involving a charge of abortion against the physician, which charge was subsequently dropped. The trial court sustained an objection to this question on the ground that it was too remote. In this ruling said the Court of Appeals of the District of Columbia, the trial court did not err. Furthermore, continued the court, in addition to the question being inherently improper, impeachment of the type here attempted proceeds on conviction not on indictment or attempted indictment and the physician witness had not been convicted of the crime involved. The particular question excluded could afford no basis for any legitimate inference impeaching the

credibility of the witness. It was clearly the right of the police officers to reveal the relation existing between the medical witness and the complaining witness in the prosecution and this had been done to a reasonable degree by showing the friend personal and professional relations existing between the physician and the lawyer who brought the witnesses together.—*Moslyn v. United States* (District of Columbia), 64 Fed. (2d) 115

Narcotics Indictment Must Specify Narcotic Drug Unlawfully Possessed—In Texas, the possession, sale or other distribution of narcotic drugs is prohibited by chapter 9, Acts of the Forty-Second Legislature, 1931. The term "narcotic drugs" is defined to mean opium, morphine, heroin, coca leaves, cocaine, marijuana, or any compound, manufacture, salt, derivative or preparation thereof. Under this act one Baker was convicted on an indictment charging that he "did unlawfully possess a narcotic drug" without naming the drug. He appealed to the court of criminal appeals of Texas, contending that the indictment was defective. While under the act, the court said, morphine, opium, heroin, coca leaves, cocaine and marijuana are all classed as narcotic drugs, it is manifest that an indictment in which an offense against the act is charged, should name the particular narcotic which the defendant is accused of possessing. In the absence of such an averment, the accused lacks information on which he may prepare his defense. Since the indictment in the present case failed, on its face, to name the particular narcotic it was insufficient. The judgment of conviction was reversed and the prosecution ordered dismissed.—*Baker v. State* (Texas), 38 S. W. (2d) 334

Malpractice Failure to Reduce Fracture No Evidence of Negligence—The plaintiff fractured his femur and the defendant-physician was employed to treat the case. He attempted for a period of about eighteen days to reduce the fracture by various means but his efforts were unsuccessful. The defendant was then dismissed and another physician employed who succeeded in getting the bones in apposition. A complete recovery followed. The plaintiff later instituted suit against the first physician the defendant in this case. The only expert witness who testified at the trial was the second physician, who reduced the fracture. At no time did he testify, however, that the treatment given by the defendant physician was not the ordinary and usual treatment generally used by physicians in that vicinity. At the conclusion of the plaintiff's testimony, the trial court directed a verdict for the defendant and the plaintiff appealed to the Supreme Court of Iowa.

Negligence on the part of a physician is not presumed but must be affirmatively proved, said the Supreme Court. The evidence in this case contained no criticism of the treatment administered by the defendant. No testimony was given showing any want of the use of the ordinary skill and care exercised by physicians generally in the community in which the defendant practiced. There was evidence that the fracture was not reduced by the defendant during the time he had charge of the case but no inference of negligence can be drawn from the fact that the treatment was unsuccessful or that it failed to produce the best results. Evidence was lacking, too, to show that what the defendant did or omitted to do caused the plaintiff to suffer pain. A complete recovery resulted and the plaintiff's only claim for damages, as shown by his petition, was for pain, mental anguish and nervousness, and for such, resulting from the original injury, the law does not permit him to recover. It follows, concluded the Supreme Court, that the trial court did not err in directing a verdict for the defendant.—*Hair v. Sorensen* (Iowa), 247 N. W. 651

Society Proceedings

COMING MEETINGS

Annual Congress on Medical Education and Licensure Chicago February 12-13 Dr. W. D. Cutter 535 North Dearborn Street Chicago Secretary
Tri States Medical Association of the Carolinas and Virginia Charlottesville Va Feb 12-14 Dr. James M. Northington 804 Professional Building Charlotte N. C. Secretary

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St Louis

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- Intraauricular Septal Defect Associated with Mitral Stenosis S McGinn and P D White Boston—p 1
- *Paroxysmal Pulmonary Hemorrhages—Syndrome in Young Adults with Mitral Stenosis B S Oppenheimer and S P Schwartz New York—p 14
- Clinical Conception of Rheumatic Heart Disease S A Levine Boston—p 26
- Rheumatic Manifestations in Subacute Bacterial Endocarditis in Children O Saphir and S A Wile Chicago—p 29
- Rheumatic Heart Disease III Embolic Manifestations Soma Weiss and D Davis Boston—p 45
- Mitral Stenosis Clinical and Pathologic Study of One Hundred Cases C S Stone and H S Feil Cleveland—p 53
- Rheumatic Heart Disease in Southern Florida Incidence and Clinical Notes E S Nichol Miami Fla—p 63
- *Interpretation of Lead Inversion in Bundle Branch Block A D Nichol Cleveland—p 72
- Complete Heart Block in Hyperthyroidism Following Acute Infections Report of Six Cases with Necropsy Findings in One Case A C Davis and H L Smith Rochester Minn—p 81

Paroxysmal Pulmonary Hemorrhages—Oppenheimer and Schwartz report the cases of three young adults less than 30 years of age, suffering from chronic rheumatic cardiovalvular disease with mitral stenosis, who presented recurrent attacks of pulmonary hemorrhages. The attacks were characterized at times by an "aura" with psychogenic manifestations, severe pains between the shoulder blades, and palpitation of the heart. In one patient an urticarial rash ushered in the seizures. The onset of the attacks was usually during an afebrile period and came on many years after the first evidence of rheumatic fever. The attacks themselves were characterized by dyspnea, pain asthmatic breathing, cough and hemoptysis. At first the expectoration was frothy in nature, but later there were frank hemoptyses in quantities of from one to several hundred cubic centimeters of blood. The lungs during the seizures showed evidences of either localized or diffuse transudation in the alveoli, and there was a characteristic roentgen picture that was often mistaken for pneumonia. The attacks would last from one hour to several days and with their cessation the lung signs cleared up entirely. It was impossible to prevent the onset of the seizures in these patients by any medication. Morphine sulphate and atropine sulphate administered in adequate doses following the seizures seemed to allay the fear and abate the hemoptysis. Two of the patients died within three years following the onset of the recurrent episodes. In the one necropsy no bleeding point could be found. It is probable that in the absence of any embolic or thrombotic manifestations in the lungs, such seizures are the result of some reflex stimulation of the capillaries lining the alveoli resulting in hemorrhages from diapedesis, or possibly also from rupture of capillaries lining the walls of the bronchial tree.

Lead Inversion in Bundle-Branch Block—Nichol measured the QRS, the QE and the isometric period in eighteen normal persons, in seven cases of bundle branch block in which the QRS was upright in lead I and downward in lead III, in twenty-two cases with various types of disease of the heart but with a normal duration of ventricular excitation and in nine cases of disease of the heart with a prolonged period of ventricular excitation but in which the electrocardiogram was not typical of bundle-branch block. The electrocardiogram the subclavian pulse tracing from the left supraclavicular fossa and the apical heart sounds were registered simultaneously. Pulse tracings were recorded by a Frank segment capsule and

sounds by Wiggers' modification of Frank's method. The segment capsules were fixed approximately 92.5 cm from the recording camera and arranged in such a manner that the middle of the reflecting mirrors, the lens of the projecting microscope of the electrocardiogram and the lens of the camera were in the same horizontal plane. All records were checked for parallelism by Garten's method. No corrections were made when the effect due to parallax was less than 0.004 second. After suitable records were secured, lantern slides were made, projected on a screen with a magnification of from 10 to 12 diameters and the required intervals measured on the image with a celluloid ruler graduated in half millimeters. Determinations were made on three cycles in leads I and III. The intervals determined were (1) the duration of the main ventricular complex of the electrocardiogram, (2) the QE or the interval between the beginning of the QRS and the onset of the cardiac ejection phase as evidenced by the rise of the subclavian pulse tracing, and (3) the isometric contraction phase by Wiggers' method. In five of the seven cases of bundle-branch block the first sound was definitely reduplicated or split, but, as the first component of the reduplicated sound preceded the onset of ventricular excitation, it could hardly be attributed to asynchronous systole of the ventricles. In such cases the beginning of the second component was taken as indicative of the onset of ventricular contraction. The most pronounced doubling of the first sound occurred in a case presenting a PR interval of slightly more than 0.2 second. In a patient who showed a complete auriculoventricular block and ventricular complexes typical of the usual type of bundle-branch block, the first sound varied in intensity with the PQRS relations and there appeared to be a critical As-Vs interval at which doubling of the first sound appeared.

American Journal of Cancer, New York

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- Etiologic and Pathologic Aspects of Squamous Cell Carcinoma of the Penis Among the Chinese Analytic Study of One Hundred and Seven Cases S K Ngai Peiping China—p 259
- Bases for Histologic Grading of Carcinoma of the Breast C D Haagensen New York—p 285
- Histologic Factors in Prognosis of Mammary Cancer Treated by Radical Operation and X Rays W A Evans Jr Detroit—p 328
- Treatment of the Bleeding Breast J M Wainwright, Scranton Pa—p 339
- Histogenesis of Ewing's Sarcoma of Bone Postmortem Report of Case P J Melnick, Chicago—p 353
- Polymorphous Sarcoma of the Uterus R J Needles Detroit—p 364
- Squamous Cell Epithelioma Originating in Chronic Osteomyelitic Cavities Report of Two Cases P Bianco Buffalo—p 373
- Calcium Potassium and Inorganic Phosphate Content of the Serum in Cancer Patients Effect of Roentgen Ray Radiation on the Level of These Substances in the Blood Serum of Cancer Patients H Jackson Jr and F H L Taylor Boston—p 379
- Tar Cancer in Mice Maintained on Diets Supplemented with Fresh Liver A F Watson London England—p 389

Polymorphous Sarcoma of the Uterus—Needles presents a case of polymorphous sarcoma of the uterus and reviews three from the literature. He states that the most reliable criterion in the diagnosis of these neoplasms is polymorphism as there is no principal type of cell. The four tumors occurred in women past middle age and the first symptoms were either vaginal bleeding or abdominal tumor. None of them were diagnosed until microscopic studies were made. The case of Kelly and Cullen was primary in a fibroid nodule, while Angier's, Masotti's and the author's cases seemed to arise from endometrium. Angier seemed to believe that his case had a close relation to the blood vessels, while Masotti denies any such evidence. The author summarizes by stating that polymorphous sarcoma of the uterus is an unusual tumor arising from the fibroid tissue, from the blood vessels or from the endometrial stroma. In gross appearance it is not different from many other tumors and is not to be distinguished from other sarcomas. Histologically, its chief feature is an extreme polymorphism of the types of cells. Oval, spindle, round and polygonal cells with giant cells and cells resembling endothelial elements are to be found. Care should be taken to examine many sections of sarcomas of the uterus in order that these tumors may be diagnosed when present. This is especially true of the so-called endotheliomas, giant cell tumors and those showing milder degrees of variation in the types of cells.

American J Obstetrics and Gynecology, St Louis

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- Background of Our Natal Year Presidential Address I. I. Keene Philadelphia—p. 471
- Anatomic Variations in Female Pelvis and Their Effect in Labor with Suggested Classification W. L. Caldwell and H. C. Moloy New York—p. 479
- Granulosa Cell Ovarian Tumors as a Cause of Precocious Puberty Report of Three Cases I. Novak Baltimore—p. 505
- Young Human Ovary of Early Menstrual Period J. C. Itzenberg Minneapolis—p. 519
- Analysis of a Series of Nonconvulsive Cases of Toxemias of Pregnancy I. L. Adair Chicago—p. 530
- Comparative Studies of Blood in Nonconvulsive Toxemias of Pregnancy W. J. Diekmann Chicago—p. 543
- Nephritis and Pregnancy J. R. Goodall Montreal—p. 556
- *Coincident Surgical Exposure and Radium Therapy in Treatment of Extensive Cervical Cancer A. H. Curtis Chicago—p. 569
- Survey of a Series of Myometomies with a Follow Up H. I. Miller and C. H. Tyrone New Orleans—p. 575
- Indometrial Hyperplasia and Its Relation to Endocrine Dysfunction J. F. King Buffalo—p. 582
- *Reaction of Mature Human Ovary to Antuitrin S. S. H. Geist New York—p. 588
- *Study of Effects of Theelin on Gonorrheal Vaginitis in Children R. M. Lewis New Haven Conn.—p. 593
- Pelvic (Rectal) Palpation of Female Monkey with Especial Reference to Ascertainment of Ovulation Time C. C. Hartman Baltimore—p. 600
- Advanced Carcinoma of the Cervix Report of One Hundred and Sixty Six Necropsies C. A. Behney Philadelphia—p. 608
- Further Studies of Fascial Planes Surrounding Vagina A. P. Sears Syracuse, N. Y.—p. 614

Treatment of Cancer of Cervix—Curtis demonstrates the feasibility of coincident surgical exposure and radium therapy in the treatment of extensive cervical cancer in three cases. Complete surgical recovery has occurred in one, with an accompanying gross disappearance of the growth and free mobility of a now apparently healthy uterus. One patient has made an almost complete surgical recovery, except for some irregularity in the contour of the uterus incident to partial destruction of the cervix and lower uterine segment. The other patient has at present some necrosis of the cervix and adjacent cellular tissues with considerable associated pelvic cellulitis and profuse discharge, which contains some fragments of tissue. The bladder and ureters are in excellent condition despite the nearby destructive process; this bladder would undoubtedly have been injured by the radiation had it not been spared by preliminary dissection and retraction at the time of treatment. When the surface has become free from necrosis and infection, a pelvic examination is made under anesthesia to determine the extent of the growth and the amount of intervention required and surgical exposure of the cancer-bearing uterus and adjacent cellular tissues is undertaken. The bladder is mobilized upward, the cervix encircled with an incision as in making a radical vaginal hysterectomy, and the vaginal mucosa dissected laterally and posteriorly, along natural lines of cleavage. Radium needles or radon seeds are inserted where needed and indicated, assuring the safety of the adjacent vulnerable organs. After the radium needles (or radon seeds) have been buried a chain tandem of radium capsules is inserted into the uterine canal in the usual manner. A vaginal pack completes the procedure. Until further experience warrants the total radiation should not exceed 3,500 millicuries. Even that amount may be excessive.

Reaction of Ovary to Anterior Pituitary-Like Principle—Geist gave fifty women between the ages of 30 and 48 from 600 to 2,200 rat units of anterior pituitary like principle from pregnancy urine, over a period varying from thirty-six to a hundred hours the administration of which resulted in definite changes in the ovaries. The injections were given subcutaneously, as much as 600 units being given in one day in divided doses. In a control series of twenty-five noninjected women the ovaries in four showed changes comparable to those found in the injected women. The ovaries of the injected patients presented a marked congestion of the vessels of the hilus with occasional extravasations into the hilus, probably due to rupture of small vessels or diapedesis. In the stroma there was also a marked increase in the vascularity and not infrequently hemorrhagic extravasation. Apparently there is no stimulation of the follicles; rather the follicles cease to develop beyond the point that they have reached at the time of the injection. The number of cystic follicles seems

increased. They are from 2 to 20 mm in diameter. The wall is smooth or thrown into small folds, the lining is glaucous or dark and pigmented and the cystic follicles are hemorrhagic. Occasionally the gross appearance suggests the positive Aschheim Zondek reaction in the rodent. In some specimens the epithelium is low, in others many layers of granulosa cells are present. Occasionally there is no demonstrable epithelial lining. Cast off masses of granulosa cells are found in the follicular fluid and the inner wall occasionally presents a granulosa layer that is being desquamated. In some sections, ripe follicles are arrested and show a cumulus with a degenerating ovum with hypertrophy of the thecal cell. The theca lutein cells in many instances are prominent and increased in number. Occasionally a yellow body is found with massive hemorrhage into it. The intensity of the reaction in the ovary seems to bear a direct relationship to the amount of hormone injected. The patients who received the injection over a period of ninety-six hours or more seemed to be most affected. In normal pregnancy the ovaries present changes somewhat similar to the foregoing and it is possible that this similarity is dependent on the same factor, the increased anterior pituitary-like hormone in the blood.

Effects of Theelin on Gonorrheal Vaginitis—Lewis used theelin in the treatment of eight children suffering from severe vaginal infections accompanied by a purulent discharge (typical gonococcus vaginal infection). Smears showing gram-negative intracellular diplococci morphologically resembling gonococci were taken as a criterion for the diagnosis of gonococcal infection. Positive cultures were not obtained from the vagina. One of the children presented a typical gonococcal arthritis and positive cultures were secured from the aspirated knee joint involved. In another child aged 5 days, a typical gonococcal ophthalmitis developed followed in twenty-two days by vaginal infection. In the eight children constituting this series no other form of treatment was employed while theelin was being given. The vulvar surface was sponged with saline solution when it became fouled with vaginal secretions. Four of the patients gave histories of recent infection, the others of from six to twenty months. The patients received daily one, two or three hypodermic injections of theelin of 50 rat units in the arm or leg. The total dosage of theelin, as well as the duration of its administration required to arrest all vaginal discharge and cause the gonococci to disappear from the vaginal smears, varied. In four patients having infections of long standing, theelin was given for ten or twelve successive days only, the total amounts varying between 850 and 1,000 rat units. The child who was given 1,000 rat units hypodermically received also approximately 250 rat units by vaginal suppositories. These children had been treated previously with local antiseptics. In the other four patients, larger quantities of theelin given over a longer period were necessary to arrest the vaginal discharge and to yield smears negative for gonococci. The patient receiving the least amount of theelin was given over a period of nineteen days a total of 2,800 rat units hypodermically and 450 rat units by vaginal suppositories. The leukorrhea stopped soon after treatment was begun and smears became negative after twenty days. There was no recurrence of symptoms at the end of the four months. Another child received 100 rat units daily for thirty-one days. The discharge ceased and smears became negative on the twenty-sixth day. The longest course of treatment continued for ninety-eight days. During this time with occasional interruptions 8,450 rat units of theelin was given hypodermically and 250 rat units by vaginal suppositories. No local irritation resulted from the administration of theelin nor were there unfavorable general symptoms. The children receiving the larger amounts of theelin exhibited a hypertrophy and an increased vascularity of the labia majora and minora and of the introitus which resembled the conditions found in the newborn child. In no case did uterine bleeding result from or follow the treatment with theelin. In the majority of the cases vaginal discharge ceased in one to three weeks after treatment was instituted. At the conclusion of treatment the discharge was absent in all eight patients and smears were negative for gonococci. Desquamation of epithelial cells in large numbers was usually found in from seven to twenty-one days.

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Am J Roentgenol & Rad Therapy, Springfield, Ill

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Calcification in Aortic and Mitral Valves—Sosman and Wosika state that the roentgenoscopic and roentgenographic visualization of calcified heart valves during life is possible with present-day roentgen apparatus Aortic stenosis with calcification is a common observation in older patients Calcification in

the leaflets of the mitral valve is accompanied by definite signs of mitral stenosis Calcification in the fibrous ring of the mitral valve, at least, may be entirely unrelated to disease of the cusps and produce no cardiac symptoms For roentgenoscopy adequate preparation of the eyes is essential, a beam of rays of fairly high penetration is required, a small aperture is necessary both to concentrate the attention and to cut down secondary radiation and the position of the patient is important, as the dark areas of calcification can best be seen with the patient rotated so that the right shoulder is from 15 to 20 degrees forward a modified right antero-oblique position In roentgenography the most confusing shadows are those of the calcified costal cartilages so common in older persons These may be so extensive and so marked that it is impossible to be certain of the shadow of calcified valves which were seen clearly during roentgenoscopy Here too, calcified glands and calcified areas in the lung may be confused with the shadows cast by the calcified valves The film should be used only to check the amount and distribution of the calcification and to furnish a permanent record for demonstration

Physical Foundations of Chest Roentgenography—Wilsey states that the sharpness of outline of roentgen shadows of the tissues of the lung is governed chiefly by the movement of the tissues with the heart beat and the size of the focal spot of the roentgen tube The mutual adjustment of these factors to produce the best resultant sharpness may be worked out by the analytic method of Bouwers The application of this method to roentgenography of the chest indicates that, in the main the times of exposure giving the best definition or sharpness of lung tissue are in the neighborhood of one-twentieth second The analysis also shows that the best prospects for marked improvement in sharpness lie in the use of a rotating target line focus roentgen tube and in the synchronization of the exposure with the phase of minimum movement of the lung, as proposed by McPhedran and Wevl The latter procedure has the additional merits of permitting longer times of exposure decreasing the power required of the roentgen machine and minimizing the distortion in the stereoscopic image caused by movement of the lung tissues between stereoscopic exposures

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A Sign of Early Cell Necrosis in Mastoiditis—Berg and Constans describe a new sign of early cell necrosis In checking the surgical observations and the mastoid roentgenograms immediately after the operation, they noticed that cases not showing frank cellular necrosis roentgenologically, but in

which the walls of the cells showed the following roentgen changes, were necrotic (1) the walls of the cells would appear to be slightly widened, (2) the density of the walls of the cells seemed to be slightly increased, (3) the edge of the walls of the cells would show a fine fuzziness and (4) the walls of the cells could be traced out completely. The authors observed this sign in eleven cases of their series that showed the four foregoing changes in the walls of the cells. Ten of these showed necrosis of the walls of the cells at operation. In the other case the cells contained pus and the walls of the cells appeared to be intact.

Therapy of Actinomycosis—From a study of the literature and their observation of eight cases Archer and Barker state that the response to therapy directed against actinomycosis varies with the anatomic location. Cervicofacial involvement almost invariably responds well to surgical curettage, iodide and roentgen irradiation and frequently even to surgery alone, when the disease is well localized. When there is more extensive involvement, iodides and radiation therapy should be used as adjuncts to surgery, since complete surgical extirpation of the diseased tissues would be impossible on account of the complex cervicofacial anatomy and facial disfigurement. The cases of actinomycosis with thoracic and abdominal involvement present a different problem. Surgery in these cases plays a minor part and should be used only to evacuate pus and to establish drainage. Massive doses of iodides and roentgen irradiation are the principal therapeutic agencies. The results in these patients are not brilliant but sufficient improvement has been noted to warrant the continuation of this method of treatment until the advent of a more satisfactory therapeutic regimen. Since thoracic and abdominal cases are usually not diagnosed until there is extensive involvement it is apparent that one cannot hope for complete surgical removal of all the diseased tissue. This being true too radical surgery with dissection of all sinus tracts would tend to spread the process rather than to effect a cure. The best results in this type of case seem to be obtained by keeping these patients continuously on iodides by mouth up to the limit of tolerance, combined with roentgen irradiation, and by using surgery only for the evacuation of collections of pus.

Annals of Internal Medicine, Ann Arbor, Mich

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Splanchnic Nerve Section in a Diabetic Patient—De Takats and Fenn performed bilateral splanchnic section on an 18 year old diabetic girl to stabilize and increase her sugar tolerance. There has been an immediate drop to one half of her previous insulin requirement, which seems to be due to an increase in insulin sensitivity and which has persisted for four months after the operation. The operation resulted in an abrupt change of the dextrose insulin ratio of the diabetic child from 25:1 to 5:1. This change occurred after section of the left splanchnic nerves, whereas the later sectioning of the right splanchnic nerves did not produce any further improvement. During the postoperative period of four months the patient's weight increased 15 pounds (6.8 Kg). It is of some significance that several subsequent attacks of infection of the upper respiratory tract did not upset her insulin requirement. This now seems to be stabilized at from 20 to 25 units for a diet of 120 Gm of available dextrose.

Diagnostic Use of Iodine in Thyrotoxicosis—Means emphasizes the fact that iodine is a helpful agent in the diag-

nosis of thyrotoxicosis as well as in its treatment. Whenever there is any doubt or question of its presence the effect of iodine should be observed. Isolated basal metabolic rates are not enough. Sufficient data to observe definite levels and trends must be obtained. The absolute level is of little significance. The fluctuation is what counts. A drop from plus 9 to minus 8 with iodine and return to plus 9 when the drug is stopped is significant. When thyrotoxicosis is truly present, even though in a slight degree, the response to iodine is definite, delicate and exact.

Archives of Dermatology and Syphilology, Chicago

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- Drug Eruptions II Dermatitis Eczematosa Due to Drugs Marion B. Sulzberger and F. Wise New York—p. 461
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 *Psoriasis of Mucous Membranes Report of Two Cases with Review of Literature B. Usher Montreal—p. 488
 Vitiligo Chemical and Histologic Study, with Consideration of Pityriasis S. W. Becker Chicago—p. 497
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 *Modification of Therapy with Gold Compounds in Lupus Erythematosus Preliminary Communication J. W. Jones and H. S. Alden Atlanta, Ga.—p. 544
 Pseudoxanthoma Elasticum and Angioid Streaks Disease Syndrome with Comments on Literature and Report of Case G. M. Lewis and M. B. Clayton New York—p. 546
 *Roentgen Treatment of Primary Lesion of Tularemia H. L. Fier Pittsburgh—p. 557
 Epidermophytids and Trichophyton Reaction J. A. Tolmach and E. F. Traub New York—p. 560

Psoriasis of Mucous Membranes—Usher reports two cases of psoriasis of the mucous membranes. The features of the first case that were suggestive of the psoriatic nature of the lesions on the surface of the tongue were the clinical course closely paralleling that of the eruption on the body, the absence of irritating factors, such as syphilis and tobacco, which might account for leukoplakia, the desquamation of the epithelium with prompt recurrence, and the changes seen in the histologic section. While the sections were not entirely typical, their chief features—acanthosis, papillomatosis and parakeratosis—made the condition compatible with psoriasis, especially when one took into consideration the maceration that affects a lesion on the under surface of the tongue. The diseases that one might consider—leukoplakia, geographic tongue, lichen planus or an infection due to yeast—could be ruled out without difficulty because of the clinical course of the eruption and because of the laboratory observations. In the second patient the diagnosis of psoriasis was made with a certain degree of reservation. The overlying epithelium unlike that of the first case, could be scraped off only with difficulty and the underlying bleeding was not characteristic. Moreover, the histologic sections from the mouth were not characteristic of psoriasis and were not similar to those from the body. From the sections alone a diagnosis of leukoplakia could be made. Against a diagnosis of leukoplakia were the sex and the age of the patient and the absence of syphilis, excessive smoking or other irritative factors. The diagnosis of buccal psoriasis was made entirely from the clinical course of the eruption. The coincidental appearance of the lesions on the mucosa and on the body, their reaction to treatment with a gold compound with no local therapy, and their subsidence would appear to substantiate the diagnosis of psoriasis.

Gold Compounds in Treatment of Lupus Erythematosus—Following the report of Monash and Traub, Jones and Alden began treatment in a case of lupus erythematosus adhering to their technique except that they employed a prepared aqueous solution of gold sodium thiosulphate. Owing to the limited supply of this preparation they began to treat only a part of the diseased skin, i. e., one side of the face. After

three weekly intradermal injections of 10 mg each, improvement was manifest, but strangely the improvement occurred on the side of the face that had not been treated. The patient complained of the discomfort of multiple needle punctures and recourse was had to a single subcutaneous injection in the upper part of the arm. Improvement progressed with the continuance of this manner of giving the drug, and the patient complained of little discomfort at the site of the injection. Four additional patients having lupus erythematosus were treated. The treatment was similarly successful. Not more than 25 mg of the drug was given at weekly intervals. A patient with a long-standing case of lupus vulgaris to whom extensive treatment had been given previously was also treated both intradermally and subcutaneously with no apparent effect on the disease. Intramuscular injection of the gold preparation was attempted, but the patient complained of far more pain and discomfort than when it was given subcutaneously. All these patients are under treatment at the present time, and all have presented immediate good results.

Roentgen Treatment of Primary Lesion of Tularemia
—Baer treated two primary lesions of tularemia on or about the third day with a dose of a half unit of unfiltered x-rays over the affected area. In the first patient, hot wet dressings of boric acid were applied to the thumb and arm. The pain, which affected the thumb and extended up the arm had ceased three hours after the roentgen treatment. On the following day the redness and swelling of the thumb, together with the lymphangitis and tenderness, had disappeared. The temperature and pulse rate became normal. There was no axillary tenderness. The patient made an uneventful recovery. On the first day of examination the agglutination test for tularemia was negative. The agglutination test taken about thirteen days after the inoculation gave a reading of 1:320. Two months later the agglutination test was positive, 1:80. In the other patient the pain in the finger subsided six hours after treatment. The temperature and pulse rate became normal. He made an uneventful recovery. The first agglutination test for tularemia was negative. About fourteen days after inoculation the reading was positive, 1:160, and six weeks later 1:80.

Archives of Ophthalmology, Chicago

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- Intimate Relation Between Ophthalmology and Neurology. Some Reminiscences. B Sachs New York—p 433
The Proper Time for Operation in Strabismus. J H Dunnington New York—p 438
Trachoma in Egypt. P K Olitsky and J R Tyler New York—p 440
Circulation of the Aqueous. III Reabsorption of Crystalloids. J S Friedenwald and H F Pierce Baltimore—p 449
Esophoria and Exophoria as Cause of Obsolete Asthenopia. Cure by Surgical and Other Means. W T Davis Washington D C—p 451
Osmotic Equilibrium Between Blood and Intraocular Fluid as Influenced by Anisotonic Injections. Clinical Significance. A M Yudkin and A Gilman New Haven Conn—p 465
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Cataract in Albino Mouse Resulting from a Deficiency of Vitamin C (B). W C Langston P L Day and K W Cosgrove Little Rock Ark—p 508

California and Western Medicine, San Francisco

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Illinois Medical Journal, Chicago

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- Choice of Cataract Extraction for Senile Cataract. O B Nugent and W A Fisher Chicago—p 320
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Treatment of Peptic Ulcer with Powdered Okra. J Meyer E E Seidman and H Necheles Chicago—p 339
Cystography as an Aid in Urologic Diagnosis. H J Burstein Decatur—p 344
Urologist and Roentgenologist. Their Interrelationship. B L Adelsberger, Peoria—p 347
Value of Roentgenograms in Lesions of Urinary Tract. A Sprenger, Peoria—p 350
Clinical Application of Excretion Urography. A J Heibel Chicago—p 353
Use of Sodium Amytal in Myoclonic Encephalitis. F G Norbury Jacksonville—p 358
Value of Eradicating Tuberculous Mastoid and Middle Ear Disease in Pulmonary Tuberculosis. I Muskat Chicago—p 361
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Massive Pulmonary Atelectasis in Relation to Artificial Pneumothorax. Case Report. R F Elmer and C E Boylan Chicago—p 371
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Prevention of Malpractice Suits. I S Trostler Chicago—p 387
Consideration of Pyo Ureter. Case Reports. E W White, Chicago—p 391
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Treatment of Peptic Ulcer with Okra—The experience of Meyer and his associates with powdered okra, in a selected group of carefully studied peptic ulcer patients, points to the relief of the predominating symptoms of pain and gastric discomfort following a short period of administration. This confirms the recent report of Jones, Ivy and Atkinson. The relief of symptoms despite an active acid response in a greater number of the authors' patients (72 per cent) may seem at first difficult to interpret. It has been shown by one of them that the pain of gastric ulcer is independent of acid secretion. They suggest that the associated gastritis is the principal cause of pain. It is likely that the okra relieves the symptoms by alleviating this gastritis and duodenitis. These observations are in accord with the remarks of Mathieu, who raised the question as to whether the favorable results obtained by the use of agar mucin were due to some other factor than a mechanical one. The authors' observation in dogs of the decreased emptying time of the stomach following the administration of okra suggests that this also may be an important factor in the relief of symptoms. The increased acid response to okra in a greater number of their patients (72 per cent) and in 50 per cent of normal students suggests a striking similarity to the results obtained by Rivers and others on using impure gastric mucin. Whether this vegetable contains a histamine-like substance is now being studied. It is striking that in but two instances were the symptoms (such as heartburn) following the use of okra sufficient to warrant its discontinuance.

Johns Hopkins Hospital Bulletin, Baltimore

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- Relation Between Thrombophlebitis of Inferior Vena Cava and Occlusion of Hepatic Veins (Endophlebitis Hepatica Obliterans). R H Rigdon Durham N C—p 162
Persistence of Immunity After Abolition of Allergy by Desensitization. A R Rich F B Jennings Jr and Lillian M Downing Baltimore—p 172
Focal Cell Reactions in Tuberculosis and Allied Diseases. Being the William Sidney Thayer and Susan Reid Thayer Lectures for 1933. T Smith Princeton, N J—p 197

Immunity After Abolition of Allergy—Rich and his associates carried out experiments on *Pasteurella aviseptica* and pneumococcal infection to determine whether immunity would be any the less efficient after the abolition of allergy by desensitization. When the capacity for reacting with allergic inflammation is completely destroyed by the injection of large doses of killed bacteria into the veins of hypersensitive immune animals immunity to intracutaneous infection with millions of lethal doses of living virulent bacteria remains intact. Inflam-

mation at the site of infection in such animals is far less in amount than in untreated allergic immune animals—far less, indeed, than in normal controls but the bacteria are prevented from spreading from the site and are as effectively destroyed as they are in the allergic immune body. The immune state acts to enhance the protective power of the inflammatory mechanism so that much less, rather than much more, inflammation is required to protect the body from infection. Damage to the tissue at the site of infection is also far less in the desensitized animals than in the allergic ones. Even in the highly allergic immune body therefore allergic inflammation is not necessary for protection against infection, and in its absence the body is protected with much less damage to the tissue than that which occurs in the allergic body.

Journal of Bone and Joint Surgery, Boston

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- Study of Degenerative Changes of Menisci of Knee Joint and Clinical Significance Thereof M. S. Burman and C. J. Sutor New York—p. 835
- *Extra Articular Arthrodesis of the Shoulder R. W. Jones Liverpool England—p. 862
- Irresponibility of Its Roentgenographic Appearance and Clinical Significance S. Kleinberg New York—p. 872
- Recurrent Dislocation of the Jaw I. Mayer New York—p. 889
- Inability of the Knee Joint Due to Injury of Anterior Crucial Ligament Report of Eleven Operated Cases A. Krada New York—p. 897
- Block Osteotomy of the Femur E. W. Ryerson Chicago—p. 920
- *Treatment for Fracture of the Neck of the Femur C. W. Leadbetter Washington D. C.—p. 931
- *Hip Fusion Operation I. A. Chandler Chicago—p. 947
- *Acromioclavicular Dislocation Autoplastic Reconstruction C. C. Schneider Milwaukee—p. 957
- *New Method of Arthrodesis of the Shoulder Joint Incorporating the Control of the Scapula A. I. Brett Boston—p. 969
- Prevention of Subluxation of Humeral Head Following Operations for Arthrodesis of the Shoulder Joint G. Wagoner Haverford Pa.—p. 978
- *Arthroplasty of the Elbow F. H. Albee New York—p. 979
- Rational Treatment of Bone Tuberculosis C. K. Potter Oak Terrace Minn.—p. 986
- Congenital Absence of Odontoid Process Resulting in Dislocation of the Atlas on the Axis S. M. Roberts Boston—p. 988
- Osteopetrosis Case Report H. Jeter and C. I. McChesney Oklahoma City—p. 990
- The Smith-Lowe Splint F. H. Smith San Francisco—p. 991
- Sebaceous Cyst of the Distal Phalanx F. I. Curtis and C. I. Owen Detroit—p. 998
- The Os Epipyramis Report of Case A. B. Ferguson New York—p. 1001
- Rupture of the Long Head of the Biceps Brachii J. O. Rankin Wheeling W. Va.—p. 1003
- Simple Method for Making Plaster Casts of Feet F. N. Reed Santa Monica Calif.—p. 1007
- Probable Birth Fracture of Neck of Femur C. F. Ekenberry and J. F. LeCocq Seattle—p. 1010
- Acute Osteomyelitis of Patella T. Christopher Evanston Ill.—p. 1012
- Plaster of Paris Buttress for Use in Cases of Fracture of Humerus Treated by Means of Traction in a Thomas Splint J. B. Stenbuck New York—p. 1015
- Zipper Attachment to Muslin Retractor for Treating Fractures of Femur in Children H. E. Conwell Fairfield Ala.—p. 1017
- Subastragaloid Dislocation with Displacement of Astragalus Outward S. W. Boorstein New York—p. 1026

Extra-Articular Arthrodesis of Shoulder—Jones describes an operation by which solid bony fusion can be secured without opening the joint, and the arthrodesis is definitely extra-articular. Three cases are reported in which a sufficient interval of time has elapsed to judge the operation. In no case was there any aggravation of the disease or recurrence elsewhere and in all three cases bony ankylosis resulted. A straight incision is made over the point of the shoulder, centering on the tip of the acromion. It extends upward for about 3 inches midway between the clavicle and the spine of the scapula, and downward for a similar distance toward the deltoid insertion. The flaps are dissected sufficiently to expose the whole of the outer surface of the upper 3 inches of the humerus, the outer third of the clavicle, the acromioclavicular joint and the outer third of the spine of the scapula. The deltoid is separated subperiosteally from the clavicle, acromion and scapula and the fibromuscular flap is turned downward. Both upper and lower surfaces of the acromion are freshened by removal of the cortical layer of bone. A broad flap of bone 1 inch wide and 2 inches long is raised from the outer surface of the upper end of the humerus by driving an osteotome vertically into the upper part of the greater tuberosity immediately

beyond the capsular attachment, the osteotome being held in the long axis of the humerus. The flap of bone is gently levered outward but is not completely fractured at its base, so that when the osteotome is removed the flap tends to spring back into position. The clavicle and the spine of the scapula are partly fractured a few inches from their outer ends. The arm is abducted and the whole acromioclavicular mass is angulated downward, hinging at the point where the bones were half fractured. It is wedged underneath the flap of bone raised from the humerus, so that its raw, freshened surfaces are impacted into the cancellous bone of the upper shaft of the humerus. Fixation may be augmented by a few strong sutures, and, if necessary, chips of bone or osteoperiosteal grafts from the tibia may be implanted. The wound is closed in layers and the limb is encased in a plaster spica cast in a position of 80 degrees of abduction, 30 degrees of forward flexion and 30 degrees of external rotation.

Fractures of Neck of Femur—Leadbetter suggests a method for the manipulation of fractures of the neck of the femur in which the patient is anesthetized, the uninjured leg is harnessed to the foot stirrup and flexed at the hip at 90 degrees with the lower leg at 90 degrees to the thigh and direct manual traction in the axis of the flexed thigh is made, together with slight adduction of the femoral shaft. The thigh is internally rotated approximately 45 degrees. The leg is slowly circumducted into abduction, the internally rotated position being maintained. The amount of abduction varies with the patient and can be measured accurately representing the difference in degrees of the angle made by the fractured neck of the femur with the shaft and the angle between the neck and the shaft on the normal side, as evidenced by the roentgenogram. After the leg has been brought down in the measured degree of abduction and internal rotation the heel of the injured leg is allowed to rest on the outstretched palm. If the reduction is complete the leg will not exert itself. Should there be no interlocking of the fragments, the leg will slowly rotate externally.

Hip Fusion Operation—Chandler outlines an operation for the obliteration of the hip joint and the development of an extensive area of fusion. The patient is placed on the well side at an angle of about 45 degrees. A long vertical incision is made over the lateral aspect of the hip extending from the crest of the ilium directly over the greater trochanter to the juncture of the upper and middle thirds of the thigh. The incision is carried through the subcutaneous tissue and splits the tensor of the fascia lata exposing the lateral aspect of the greater trochanter, the gluteus medius and the origin of the vastus lateralis. The incision is then carried through the periosteum and origin of the vastus lateralis and through the midportion of the gluteus medius, parallel to the muscle fiber. It is deepened to the superior aspect of the femoral neck and crosses the hip joint at right angles to the upper acetabular margin. Heavy flaps of bone attached to the periosteum and muscle insertions are then elevated from the anterolateral and posterolateral aspects of the greater trochanter and the upper end of the shaft. The capsule and periosteum of the femoral neck are elevated anteriorly and posteriorly from the line of incision. These flaps are retracted anteriorly and posteriorly, exposing the trochanter. A massive graft, consisting of the main portion of the greater trochanter and the lateral cortex of the upper portion of the femoral shaft, is removed by parallel cuts which converge in cross section through the cortex and cancellous tissue. The capsule is stripped from the superior margins of the acetabulum. A curved arthroplasty chisel is used to denude the surface of the femoral head and the opposing articular cartilage of the acetabulum. Fragments of cancellous bone taken from the bed of the graft are firmly pressed into this space. A hinged flap of bone is elevated from the outer table of the ilium just above the acetabular margin, and a recess made in the ilium to receive the cortical portion of the graft. The graft is then turned end for end and the cortical portion driven into the recess above the acetabulum. Better contact can be secured if the thigh is abducted. The trochanteric portion of the graft will make contact with the graft bed in the upper end of the femur when the thigh is in a natural position or slightly abducted. With the graft in

place, the hinged osteoperiosteal flaps removed from the trochanter are brought into position covering the free end of the graft. The periosteum and origin of the vastus lateralis are sutured, the fascial, subcutaneous tissues and skin are loosely sutured, and a double spica cast is applied to hold the thigh in the position of election until bony fusion is complete.

Acromioclavicular Dislocation—In the reconstruction of the acromioclavicular joint, Schneider prefers fascial flaps taken from the lower two thirds of the thigh so as to include the iliotibial band. The fascial strip, 8 inches long and three-fourths inch wide, tapered at each end, is removed and split longitudinally in two pieces one-half inch and one-fourth inch in width, respectively. These are placed in saline solution and the fascial sheath is closed with a continuous number 1 chromic catgut suture, followed by skin closure. Approach to the acromioclavicular joint and coracoid process is made through a 4 inch incision at the inferior outer margin of the clavicle, curved downward at the anterior margin of the deltoid. The superior acromioclavicular ligament is dissected off the upper surface of the acromion from the articular surface laterad for about one-half inch. Two three-sixteenths inch drill holes equidistant from the articular margin, are made in the acromion and two similar holes are drilled in the clavicle at the same distance from the joint. Restoration of the inferior acromioclavicular ligament is accomplished with a mattress suture of the one-fourth inch fascial loop, each end of which is carried downward through a clavicular drill hole, laterad across the inferior surface of the joint and up through its respective drill hole in the acromion. The ends of this loop are then crossed on the superior surface of the acromion and sutured to each other with twisted silk. Next the coracoclavicular ligaments are reconstructed by carrying the one-half inch fascial strip under the inferior surface of the coracoid process upward behind the clavicle subperiosteally at the site of insertion of the trapezoid and crossed on the superior surface of the clavicle, where the loop, under tension is sutured with braided silk. The ends of this loop are drawn along the superior surface across the acromioclavicular joint and sutured together with silk to the acromial end of the acromioclavicular ligament, previously dissected up, thus restoring the ligament. The muscle and skin are closed in layers, the wound is dressed, and a Dillehunt cast is applied for immobilization. The author reports two cases of reconstruction of the acromioclavicular joint in professional athletes in whom he employed this method.

Arthrodesis of Shoulder Joint—Brett states that contractions must first be overcome by maintaining the arm in abduction in a plaster bandage previous to surgical intervention. He has obtained a complete range of motion in two patients who have been able to resume laborious work within a period of four months following the arthrodesis by the following technic. A curved skin incision over the shoulder joint, or a straight incision beginning high above the acromion and running downward parallel to the shaft of the humerus, may be used. The fascia is incised and the tissues and muscles are freed and retracted. The capsule is split longitudinally and dissected back from its attachment on the anatomic neck of the humerus, except for the portion about the posterior third of the bone. The head is then forced out of the glenoid cavity by rotating the arm outward. The surfaces of the head glenoid and under side of the acromion are carefully denuded of cartilage, so that the cancellous bony structures are exposed. The cartilage on the peripheral edges of the glenoid should be removed so that bony contact can be established with the head. With the arm in from 70 to 80 degrees of abduction and in from 20 to 30 degrees of forward flexion a hole about one-fourth inch is drilled from just below the greater tuberosity through the humeral head in line with the center of the glenoid, then through the glenoid and finally into the spine of the scapula, until the end of the drill is palpable in the outer scapular musculature. A massive graft three-eighths inch in width and varying in length from 3 to 5 inches taken from the tibia is shaped so that it will fit snugly. A hole is drilled through the upper border of the head and glenoid and the humerus is tied in place with kangaroo tendon. The graft is driven through the head and glenoid and out through the spine of the scapula, until it is palpable at the end of the drill hole.

The acromion process is broken down in the manner of a greenstick fracture and fixed to the head by means of stay sutures of number 3 chromic catgut or kangaroo tendon, which are passed through the drill holes. The capsule is sutured down on the humerus for further stability. The musculature and skin are sutured. A well fitting plaster spica cast, embracing the shoulder and chest down to the umbilicus and extending from the neck to the fingers is applied with the shoulder in the position of from 70 to 80 degrees of abduction and from 20 to 30 degrees forward of the frontal plane. At the end of two months, the upper half of the cast is removed to permit braking and massage, and the patient is instructed to begin raising and lowering his arm voluntarily. At the end of from two to four weeks, the entire cast is removed and exercises are given daily to produce hypertrophy of the scapular muscles.

Arthroplasty of the Elbow—Albee presents a method of arthroplasty of the elbow which has the following advantages: 1. The approach gives the freest exposure possible without jeopardizing important structures. This point cannot be too highly emphasized, because the success of the operation depends on the most meticulous care in the removal of all peripheral bone (especially in front of the joint) and the suture of the interposed fascia-fat graft. 2. It enables the surgeon to remove a sufficient amount of bone to insure complete freedom of motion without jeopardizing stability. Stability is brought about by the antagonistic pull of the flexors and extensors on a lever of which the fulcrum comes at the newly formed joint and the posterior arm (the olecranon) is long enough to allow a sufficient antagonistic action of the triceps to bring this about. 3. Early immobilization without danger of separation or non-union of the ulnar parts is made possible by using a long, sliding inlay olecranon-ulna graft to which the insertion of the triceps is undisturbed and an accurate mortise fit of this graft into its proper gutter.

Journal of Experimental Medicine, Baltimore

58 385 512 (Oct. 1) 1933

- Experimental and Statistical Evidence of Particulate Nature of Bacteriophage. R. T. Teemster and W. F. Wells. Boston.—p. 385.
Function of Gallbladder Epithelium as Osteogenic Stimulus and Physiologic Differentiation of Connective Tissue. C. B. Huggins and J. F. Sammet. Chicago.—p. 393.
Races That Constitute the Group of Common Fibroblasts. III. Differences Determined by Origin of Explant and Age of Donor. R. C. Parker. New York.—p. 401.
Studies on Pseudorabies (Infectious Bulbar Paralysis, Mad Itch). I. Histology of Disease with Note on Symptomatology. E. W. Hurst. Princeton, N. J.—p. 415.
Some Observations on Specificity of Bacterial Allergy to Certain of the Neisseriae. C. P. Miller and Ruth Castles. Chicago.—p. 435.
Further Studies on Influence of Testicle Extract on Effect of Toxins, Bacteria and Viruses and on Schwartzman and Arthus Phenomena. F. Duran Reynolds. New York.—p. 451.
*Intranasal Virulence of Pneumococci for Mice. L. T. Webster and Anna D. Clow. New York.—p. 465.
*Fibrinolytic Activity of Hemolytic Streptococci. W. S. Tillett and R. L. Garner. Baltimore.—p. 485.
Relation of Vitamin C Deficiency to Intestinal Tuberculosis in Guinea Pig. M. McConkey and D. T. Smith. Ray Brook, N. Y.—p. 503.

Intranasal Virulence of Pneumococci—The experiments of Webster and Clow show that smooth colony pneumococci fresh from human beings, instilled in small doses into the nasal passages of mice raised under standard conditions, brought about a characteristic infection which spread to healthy contacts inciting in them the carrier state or fatal infection. Differences in response by individual hosts to the same dose of a given culture ranged from a complete refractory or nasopharyngeal carrier state, or a local cervical lymphadenitis to fatal lobular or lobar pneumonias with or without pleurisy, empyema and pericarditis, and acute fatal septicemia. Pneumococci exhibited consistent individual strain differences with respect to ability to infect when instilled intranasally into mice, and also differences in the spread to contacts. Degree of intranasal virulence paralleled demonstrable ability to spread to contacts. The degree of intranasal virulence of the strains did not parallel intraperitoneal virulence in 50 per cent of the strains—high intranasal virulence was accompanied by either high or moderate intraperitoneal virulence, and low intranasal by high moderate or low intraperitoneal virulence. Type III strains were of relatively high intranasal and intraperitoneal virulence; type II strains were mostly low in intranasal but

high or moderate in intraperitoneal virulence and type I strains were all low in intranasal but either high or moderate in intraperitoneal virulence. Most of the strains of other types were low both in intranasal and in intraperitoneal virulence. The intranasal virulence of pneumococci was not enhanced by animal passage. Nasal passage reduced the intranasal virulence to zero but did not affect intraperitoneal virulence, colony form and agglutinative specificity. Passage by the intraperitoneal method maintained the characteristic level of intranasal virulence for a period and increased intraperitoneal virulence in some instances but did not affect colony form or agglutinative properties.

Fibrinolytic Activity of Hemolytic Streptococci.—Illett and Garner tested twenty eight strains of Streptococcus hemolyticus, isolated from patients suffering from various manifestations of streptococcal infection for the capacity to liquefy fibrin clot. Broth cultures of all the strains induced fibrinolysis. Of eighteen strains of Streptococcus hemolyticus of animal origin only three were capable of causing dissolution of clot. Completely negative results were obtained with thirty-eight strains of other bacterial species. The plasma of many patients recovered from acute hemolytic streptococcal infections when clotted in the presence of active cultures is highly resistant to fibrinolysis. Furthermore serum derived from patients whose plasma clot is resistant often confers on normal plasma clot an antifibrinolytic property. One example of the resistance possessed by the blood of convalescent patients is presented. In contrast to the susceptibility of normal human fibrin clot to liquefaction by active culture, normal rabbit fibrin clot is totally resistant to dissolution when tested under comparable conditions. The insusceptibility of rabbit fibrin clot is manifest provided the coagulatum is composed of rabbit constituents. When human thrombin is used to clot rabbit plasma or fibrinogen in the presence of active cultures, fibrinolysis is not prohibited. The part of thrombin in determining the resistance or susceptibility of rabbit fibrin to dissolution offers a suggestive approach to problems relating to the underlying mechanism.

Journal of Urology, Baltimore

30 381 498 (Oct.) 1933

- Conservation in Urology. H. C. Bugbee. New York—p. 381.
Cystinuria and Cystine Stones. Further Observation of This Condition with Report of Three New Cases. H. L. Kretschmer. Chicago—p. 103.
End Results in Treatment of Forty Cases of Nontuberculous Ureteral Stricture. F. G. Crabtree and H. A. Kontoff. Boston—p. 421.
*Transplantation of Ureters into Large Intestine. Clinical and Pathologic Study. I. Brady and C. C. Shaw. Baltimore—p. 449.
Diverticula of the Male Urethra. R. M. LeComte and M. J. Herschman. Washington D. C.—p. 463.
Intravenous Urography. H. C. Ochsner. Rochester. Minn. W. A. Wishard Jr. and H. O. Mertz. Indianapolis—p. 475.
Bilateral Pelvic Kidneys. M. Muschat. Philadelphia—p. 483.
Extrarenal Calices. I. I. Veseen. Chicago—p. 497.
Unilateral Fused Kidney Complicated by Stone in the Left Ureter. G. J. Thompson and J. T. Priestley. Rochester. Minn.—p. 491.
Pyclocystitis Caused by a Streptococcus Appearing in the Urine in Two Forms. C. C. Snelhof. Chicago—p. 497.

Transplantation of Ureters into Intestine.—Brady and Shaw cite three cases of complete urinary incontinence in which the ureters were implanted into the sigmoid. In none was it possible to restore urinary control by any simpler operative procedure. In one case the transplantation was entirely successful and the patient is leading a perfectly normal life two years after operation. One patient died two months later of peritonitis and an ascending genito urinary infection. At operation the sigmoid was found badly inflamed and adherent to a left tubo-ovarian abscess, which was removed. The third patient had complete urinary control for almost two years but succumbed to a subsequent condition in no way directly associated with the implantation (carcinoma of the bladder). The authors believe that if this patient had not developed carcinoma she would have enjoyed many years of normal life after this operation. Since the bladder was not exposed to trauma as is the case in instances of exstrophy of the bladder, there was no reason to suppose that a malignant condition would be especially apt to develop in this area. Most urologists admit that Coffey's operation offers the best results in cases of exstrophy of the bladder. However, many authors feel that whenever a ureter is implanted into the rectum severe infection of the ureter and kidney will follow and that hydro ureter and hydronephrosis

will develop in the vast majority of instances. The authors' almost negative observations in their second case that came to necropsy do not substantiate this opinion. Their experience definitely encourages implantation of the ureters into the intestine together with cystectomy, in cases of exstrophy and in selected cases of carcinoma of the bladder, provided there is no infection or malignant invasion of the lower part of the intestine.

Kentucky Medical Journal, Bowling Green

31 459 510 (Oct.) 1933

- Relationship of Public to Medical Profession. J. G. Sherrill. Louisville—p. 496.
Breastly Dysentery. Report of Case. R. I. McCormack. Louisville—p. 497.
Congenital Pneumothorax. P. F. Barbour. Louisville—p. 499.
Pericardectomy for Tuberculous Pericarditis. R. A. Griswold. Louisville—p. 501.

Medical Journal and Record, New York

128 181 216 (Sept. 20) 1933

- Artificially Pollenized Atmosphere in Treatment of Hay Fever. Preliminary Report. A. S. D. Flor. Yonkers N. Y.—p. 181.
Calcium Metabolism in Pregnancy. J. Apperman. New York—p. 183.
Insulin Therapy in Certain Disorders of Nutrition. Follow Up Report of Thirty Five Patients Treated During the Past Two Years. C. W. Lueders. Philadelphia—p. 188.

129 217 232 (Oct. 4) 1933

- Study of Syphilis as it Appears in a Medical Dispensary. M. Bernstein and J. T. Farrell Jr. Philadelphia—p. 217.
Present Position of Research on Etiology of Rheumatism. Experimental Production of Acute Articular Rheumatism in Monkeys and Chronic Rheumatism and Catarrh in Guinea Pigs and Rabbits. L. Bertrand. Antwerp. Belgium—p. 219.
Determination of Basal Metabolic Rate by Means of a Formula. A. Fine. New Orleans—p. 221.
Relation of Emotional Tone to Blood Calcium. D. A. Laird and J. V. Stephen. Hamilton N. Y.—p. 223.
Insulin Therapy in Certain Disorders of Nutrition. Follow Up Report of Thirty Five Patients Treated During the Past Two Years. C. W. Lueders. Philadelphia—p. 225.

Missouri State Medical Assn Journal, St. Louis

30 389 426 (Oct.) 1933

- Etiology, Diagnosis and Treatment of Coter. A. S. Jackson. Madison, Wis.—p. 389.
Hendriches Associated with Endocrine Disorders. D. L. Sexton. St. Louis—p. 391.
Effect of Anterior Lobe Pituitary, Thyroid and Gonads on Preadult Growth. A. A. Werner. St. Louis—p. 393.
Anxiety Stimulus as a Factor in Disease. L. H. Fuson. St. Joseph—p. 404.
Polyneuritis of Pregnancy. A Vitamin Deficiency Disorder. D. T. VanDell. Kansas City—p. 407.
Operation for Retroversion of the Uterus and Varicosities of the Broad Ligaments. L. M. Hetherington. Kansas City—p. 409.

Operation for Retroversion of Uterus.—Hetherington describes an operation for the correction of retroversion and the obliteration of some of the varicose veins and the straightening of the other veins of the broad ligaments in which a median incision is made and the intestines are packed back with gauze. Two incisions are made about three fourths inch apart, the upper ends of which begin opposite the insertion of the round ligaments and are carried down the anterior wall of the uterus about 2 inches, one eighth inch deep into the musculature of the uterus. A flap is raised about an eighth of an inch thick the length of the two incisions. A long hemostat is passed under the flap and the round ligament grasped far enough from its insertion with the fundus of the uterus so that it can be pulled straight across to the opposite side beneath the flap. This carries the fold of the broad ligament with it. The round ligament is anchored to the uterus at the outer edge of the incision with number 2 formalized or chromic catgut a round curved needle being used which is inserted about one fourth inch from the margin of the incision dipped well into the uterine wall and brought out just under the edge of the flap and through the bend of the round ligament. This suture should be tied. The round ligament is seized with a hemostat at a point below equal to the length of the incision drawn through as above and sutured. One or two intermediate sutures are taken. The forceps is now passed under the flap from the opposite side and the free round ligament with the broad ligament is brought through and over the first suture line and anchored in the same manner as before except that the interrupted sutures are passed through the broad ligament into the

uterine wall and emerge through the free edge of the flap. The round and broad ligaments are drawn through at the lower end of the flap and anchored with two or three more interrupted sutures. A like line of suture is passed through the free edge of the flap on the other side, going through both layers of broad ligaments and into the wall of the uterus. Three or four interrupted sutures will close the wound and complete the operation.

New England Journal of Medicine, Boston

209 615 666 (Sept 28) 1933

- Diaphragmatic Hernia and Secondary Anemia Ten Cases A V Bock J W Dulin, Boston and P A Brooke, Worcester Mass—p 615
Extension of Preventive Measures in Adult Life W H Robey Boston—p 625
Estrin Therapy in a Case of Hemophilia R L Brown Rochester N Y and F Albright Boston—p 630
Normal Labor N W Philpott, Montreal Canada—p 633
Posterior Occiput G C Melhado, Montreal Canada—p 635
Clinical and Economic Features of Arthritis in Members of Military Service P B Matz Washington D C—p 639

209 667 714 (Oct 5) 1933

- *Thyroidectomy in Treatment of Advanced Congestive Heart Failure and Angina Pectoris S A Levine E C Cutler and E C Eppinger Boston—p 667
Clinical Aspects of Persistent Right Aortic Root H B Sprague C H Ernund and F Albright Boston—p 679
Carcinoma of Stomach in a Girl Aged Nineteen G Levene, Norwood Mass and F E Wheatley Boston—p 686
Fractures of Scaphoid in Athletes F S Hopkins Springfield Mass—p 687
Human and Bovine Infection in Extrapulmonary Tuberculosis C S Chang Middleboro Mass—p 690
Traumatic Rupture of the Kidney D S Adams and B C Wheeler Worcester Mass—p 693
Nevus Pilosus Pigmentosus Congenitus Its Skin Responses to Drugs M S Stern, Boston—p 694
Opportunities and Needs for a Medical Institution in Massachusetts J Warren—p 697

Thyroidectomy in Heart Failure and Angina Pectoris—Levine and his associates performed partial or complete removal of the normal thyroid in twelve patients suffering from the most severe forms of heart disease. There were four having angina pectoris, four having valvular heart disease and auricular fibrillation, and four having nonvalvular congestive heart failure. They were all hopeless cardiac cripples and, for the most part bedridden. Improvement in six was marked. In three, it was slight to moderate. In one there was no improvement. In one sufficient time has not elapsed to judge. There was one operative mortality in a patient who was moribund at the time of the operation. The most promising patients at present seem to be those suffering from angina pectoris. This work was a direct and logical sequel of the clinical experience in the care of ordinary thyrocardiac patients. The results were sufficiently beneficial to warrant the conclusion that this new procedure will prove helpful in the treatment of properly selected patients suffering from various forms of heart disease who do not improve under the measures customarily used.

Northwest Medicine, Seattle

32 357 400 (Sept) 1933

- The Psychoneuroses A T Mathers Winnipeg Manit Canada—p 357
Neurocirculatory Asthenia and Hyperthyroidism Diagnostic Study W H Bueermann Portland Ore—p 364
Relief of Pain on Sympathetic Basis P G Flothow Seattle—p 369
Fetor Oris (Halitosis) Medical and Dental Responsibility G L Grapp Seattle—p 375
Ringworm of Hands and Feet S E Light Tacoma Wash—p 380
Milder Varieties of Coronary Occlusion Diagnosis Without the Electrocardiograph R P Howard Pocatello Idaho—p 385
Revolutionary Changes in Medical Practice G W Swift Seattle—p 387

Philippine Islands Med Association Journal, Manila

13 411 450 (Sept) 1933

- *Treatment of Typhoid Fever by Partial Exsanguination and Blood Transfusion Preliminary Report P T Lantin and F Guerrero Manila—p 411
Recent Advances in Our Knowledge of Cancer L Gomez Manila—p 417
Disability Evaluation Under Compensation Law J Santillan Manila—p 427

Treatment of Typhoid—Lantin and Guerrero employed transfusion after partial exsanguination in seven and transfusion only in three cases of typhoid positively diagnosed by blood

culture. Eight of the ten patients treated made a complete recovery. Another patient is on the road to convalescence. The other patient died, but in the opinion of the authors this was in no way attributable to the treatment. Despite the unfavorable prognosis indicated by late blood cultures in some of the cases, the toxic symptoms improved and gradually subsided after treatment until complete recovery was obtained. In the cases with moderate intestinal hemorrhages, in which transfusion without exsanguination was performed recovery was obtained.

Psychiatric Quarterly, Albany, N Y

7 547 742 (Oct) 1933

- Community Work in Mental Hygiene Guide for Conducting Mental Hygiene Clinics and Public Education in Mental Hygiene S Brown II New York—p 547
Present Day Concept of Cerebral Birth Palsies E W Murtz Thiells N Y—p 563
*Treatment of Juvenile General Paralysis H W Potter New York—p 593
Chemical and Immunologic Investigations on Proteins of Nervous System R J Block, New Haven Conn and E Brand New York—p 613
Etiology of Chronic Alcoholism Resume of the Literature with Two Case Reports J L Smalldon Poughkeepsie N Y—p 640
Social Work with Mental Defective H B Crutcher New York—p 662
New Developments in Care and Training of Mental Defectives C L Laux Newark N Y—p 672
Nursing Homes for Mental Patients P Smith New York—p 682
Staff Committees as an Aid to Administration S W Disgrove Utica N Y—p 691

Treatment of Juvenile Dementia Paralytica—Potter treated thirty-eight cases of juvenile dementia paralytica with malaria or tryparsamide or both, twenty with common arsenicals and bismuth or mercury compounds and two with radiotherapy and diathermy respectively. Of the twenty patients who were treated with common arsenicals, seventeen continued to undergo a mental and physical deterioration and several of these died. In twenty-seven of the thirty-eight treated with malaria or tryparsamide the treatment was effective in that it prevented further deterioration, five gained a complete remission and nine a partial remission. The observations as to the effect of treatment were made at least one year after treatment was instituted and, in the majority of instances, a period of from two to five years. In studying the factors that affected the prognosis in the thirty-eight patients treated with malaria or tryparsamide the author found that the prognosis is better in (1) patients who prior to the onset of the dementia paralytica were of normal mental level, (2) patients who were in or past adolescence when the symptoms developed, (3) patients showing the expansive and confused reaction types and (4) patients in whom the elapsed time between the onset of the disease and the treatment did not exceed two years. Sex, character of the onset and antisyphilitic treatment prior to the onset did not appear to affect the prognosis.

Southern Medical Journal, Birmingham, Ala

26 753 832 (Sept) 1933

- Medulloblastoma Involving the Kidney E P Alyea Durham N C—p 753
Leprosy in the Southern United States From Histories of Six Hundred and Thirty Seven Cases Hospitalized in the National Leprosarium O E Denney Carville La—p 763
Medicolegal Investigation Problem for Coordinated Medical and Legal Talent W D Forbus and J S Bradway Durham N C—p 768
Surgical Teaching Hospital Period E P Lehman University Va—p 771
Fractures of the Fibula W W Harper Selma Ala—p 776
Palatine Tonsils Some Remarks Concerning Their Surgical Removal J D Thompson Port Arthur Texas—p 778
Outline of Maternal Hygiene Program and Results of Six Years Work in Williamson County Tennessee W C Williams Franklin Tenn and E L Bishop Nashville Tenn—p 782
Bacteriologic Study of Urinary Infection in Pregnancy and Puerperium with Especial Reference to Use of Urinary Antiseptic T K Brown St Louis—p 788
Prophylaxis of Functional Mental Disease L F Woolley Towson Md—p 802
Neurophilis Analysis of Vanderbilt University Hospital Material Over a Period of Seven Years W M Dedman and H J Morgan Nashville Tenn—p 809
Cirroid Aneurysm of the Scalp P Fite Muskogee Okla—p 816
Giant Tumor of Breast Report of Case W F Martin, Charlotte N C—p 822
Ectopic Pregnancy with Simultaneous Intra Uterine Twin Pregnancy L Smith Atlanta Ga—p 823

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 553-590 (Sept. 23) 1933

- Observations on Gynecologic Aspects of Endocrinology F. Novak — p. 553
Gynecologic Aspects of Endocrinology R. W. Johnstone — p. 557
Isolation of Intercal Bacteria from Sewage and Water and Its Bearing on Epidemiology W. J. Wilson — p. 560
Recent Experimental Work on Etiology of Hodgkin's Disease C. I. Van Rooyen — p. 562
Manipulative Treatment of Painful Feet P. Wiles — p. 563

East African Medical Journal, Nairobi

10: 159-188 (Sept.) 1933

- Epidemiologic Observations on Plague in the Lango District of Uganda R. F. Barrett — p. 160
Carbon Tetrachloride in Treatment of Hookworm Disease and Temazis J. A. Carman — p. 181

Edinburgh Medical Journal

10: 401-441 (Sept.) 1933

- *Simple Test of Renal Efficiency A. M. Clure and C. P. Stewart — p. 401
Clinical Studies in the Pathology of Bone D. M. Greig — p. 413
Chorea: Short Study of Two Hundred Cases H. I. Wallace — p. 417

Simple Test of Renal Efficiency—M. Clure and Stewart recommend the following test for the study of the excretion of any chosen material in functional irregularities of the kidney (total solids, electrolytes, urea, hydrogen ions, chloride), but for simplicity the total solids as measured by specific gravity, may best be taken. Without heavy supper drinking the patient is asked to empty the bladder at bedtime and again on waking. The latter specimen is collected. He is to note both times exactly. Thereafter, the patient taking no fluid on waking and taking a light dry breakfast, urine is to be collected at intervals of from fifteen to sixty minutes depending on the rate of secretion. Two hours after breakfast he is to drink from $1\frac{1}{2}$ to 2 pints of water and the collection of samples of urine is continued until the height of the diuresis is past the time of each micturition being noted. By such means, samples varying greatly in minute volume can be taken within a relatively short time from normal persons. The only measurements to be made on these are the volume and the specific gravity, and the data are examined by means of a graph, the logarithm of the specific gravity being plotted against the logarithm of the volume per minute. Only the last two figures of the specific gravity readings are taken into account.

Journal of Laryngology and Otology, Edinburgh

48: 585-656 (Sept.) 1933

- Discussion on Acute and Chronic Inflammatory Disorders of the Ethmoidal and Sphenoidal Sinuses: Etiology and Treatment of Acute and Chronic Inflammatory Disorders of the Posterior Sinuses F. Lemaire and A. Aubin — p. 585
*Effect of Radical Antral Surgery on Bronchitic Asthma W. P. Warner and C. McGregor — p. 595

Effect of Surgery on Bronchitic Asthma—Warner and McGregor selected thirty-one asthmatic patients for radical antral operation. In removal of the thickened mucoperiosteum local anesthesia was used in nearly all the cases. The canine fossa was exposed by a horizontal incision just above the gum margin and an opening was made in the anterior wall of the antrum. The mucoperiosteum was stripped from the bony wall by a periosteal elevator and completely removed. An intranasal opening was made in the inferior meatus. This opening extended as high as the attachment of the inferior turbinate and was made as close as possible to the floor of the nose. It extended anteriorly to the posterior surface of the ascending process of the superior maxilla and posteriorly from one-half to two-thirds the length of the nasal wall of the antrum. In some cases a flap of nasal mucous membrane was turned into the antrum. When the inferior turbinate seemed to obstruct the antranasal opening, either the anterior end was removed or that portion opposite the opening. No ethmoidal work was done, as this could be dealt with later if necessary. The patients were observed closely for from six months to two and a half years, and in only two cases were the results decidedly favor-

able and permanent to date. All patients had a period of freedom from asthma following the operation but relapsed later. The longest period was twenty-seven months, the shortest two weeks, and the average of all cases four months. The patients apparently benefited had had asthma for a relatively short time and presented markedly thickened mucoperiosteum. The authors treated five patients having chronic bronchitis by radical removal of the thickened mucoperiosteum and observed them for a period of two years. No benefit was seen to be obtained as a result of the operation.

Journal of Pathology and Bacteriology, Edinburgh

37: 169-336 (Sept.) 1933

- Species Immunity to Virulent Streptococci H. D. Day — p. 169
Classification of Dysentery Coli Bacteriophages: III. Correlation of Serologic Classification with Certain Biochemical Tests. F. M. Burnet — p. 179
Factors Influencing Pathogenicity of Bacteria F. H. Teale — p. 185
Acute Pericarditis: Review of Two Hundred and Fifteen Autopsies L. N. Pyrah and A. B. Pain — p. 233
Stability of the Mitis: Intermediate and Gravis Types of Bacillus Dysenteriae May H. Christison — p. 243
Outbreaks of Infectious Petromela in Laboratory and Wild Mice C. A. McGaughey and R. Whitehead — p. 253
*Importance of Adequate Reduction of Peptone in Preparation of Mediums for Pneumococcus and Other Organisms H. D. Wright — p. 257
Observations on Functions of Mucus and Early Stages of Bacterial Invasion of Intestinal Mucosa H. W. Florey — p. 283
Renal Lesions in Pyloritis and Nephritis of Pregnancy D. Baird and J. S. Dunn — p. 291
Pathology of Reticular Tissue Illustrated by Two Cases of Retrolens with Splenomegaly and Case of Lymphadenoma Joan M. Ross — p. 311

Peptone Culture Medium—According to Wright, the difficulty in preparing a broth suitable for the cultivation of pneumococci is largely due to the incomplete reduction of peptone. This may readily be overcome by adding peptone to the broth before any heat is applied and so exposing it to the powerful reducing action of meat or meat infusion during the steaming process. Hinton's method of preparing broth owes its advantages to the fact that it provides for adequate reduction of the peptone. Other features in this method, especially filtration through glass wool, have been found to be of minor importance. The presence of oxidized peptone in broth renders it relatively unsuitable for the cultivation of many aerobes and for *Clostridium tetani*. This inhibitory effect must be taken into account in experiments relating to accessory growth factors and oxidation-reduction potential.

Journal of Tropical Medicine and Hygiene, London

36: 265-280 (Sept. 15) 1933

- Toxicity of Carbon Tetrachloride and Its Allied Halogen Compounds J. W. Tomb and M. M. Helms — p. 265
Amebic Liver Affection: Symptoms and Treatment with Review of Twenty-Five Cases A. G. Biggam and P. Ghahoungui — p. 280

Lancet, London

2: 627-682 (Sept. 16) 1933

- Some Considerations in Treatment of Acute Suppuration F. D. Saner — p. 627
*Relationship Between Antronic Principles in Stomach and Liver J. F. Wilkinson and J. Klein — p. 629
Parenteral Acriflavine in Treatment of Gonorrhoea E. Hughes and C. A. Birch — p. 633
Value of Meningococcal Complement Fixation Test: Serologic Study of One Hundred Cases with Symptoms of Meningitis H. A. Cookson and J. E. Sinclair — p. 634
Tuberculous Meningitis in Adults: Review of Twenty-Nine Cases A. H. Holmes — p. 635
*Cancer of Larynx: Anchorage of Radium in Its Treatment A. Asherson — p. 640
A Case Demonstrating the Value of Gordon's Test in Hodgkin's Disease R. F. Ogilvie and C. E. Van Rooyen — p. 641
*Treatment of Cancer with Connective Tissue Extracts H. S. Baker — p. 643
Anerobic Gram-Negative Bacillus as a Cause of Pyemia A. W. Franklin — p. 645
Specific Treatment for Trichomonad Vaginitis J. R. Goodall — p. 648

Antianemic Principles in Stomach and Liver—Wilkinson and Klein describe experiments that confirm previous evidence that the antianemic principles in hog's stomach and in liver are not identical, and that the active principle of the stomach, hemato-poietin, acting on some substance present in protein food, produces a hematopoietically active thermostable substance similar to or identical with the active principle of

the liver. They review the evidence that hemitopoietin is much more unstable than the active intranemic principle in liver and has different properties from it. When stomach fractions containing the thermolabile hemitopoietin are incubated with beef or gastric muscle, hemitopoietically active material is obtained which is relatively heat resistant. These experiments are considered to effect *in vitro* the synthesis of a substance similar to or identical with the active principle of the liver. It is therefore considered that the enzyme hemitopoietin by acting on some substance present in protein food—e. g., beef—may produce *in vivo* a substance which is stored as the active principle found in liver until it is required for the formation of red cells. Hemitopoietin is present in the normal stomachs of man, carnivorous animals and omnivorous animals but has not been found in the stomachs of herbivorous animals. The available evidence goes to show that true pernicious anemia is a type of deficiency disease characterized by the absence from the gastric secretion of a specific enzyme hemitopoietin, in addition to the pepsin and hydrochloric acid. The authors' evidence for the enzyme nature of hemitopoietin is based on (1) experiments with gastric juice, (2) incubation experiments involving the action of the thermolabile hemitopoietin on an extrinsic substrate (beef or stomach muscle) giving a relatively heat resistant product similar to or identical with the active principle of the liver, (3) the invariable association of pernicious anemia with deficient secretion of enzyme, (4) the difficulty of extracting hemitopoietin from gastric tissue, (5) its apparent destruction by the prolonged action of pepsin and trypsin, (6) its association with the protein fraction of gastric press juice, (7) its instability and (8) its sensitiveness to chemical treatment and heat.

Cancer of Larynx.—To overcome the difficulty of fixation of the needles, Asherson found anchorage by means of a catgut templet and a silkworm gut tension suture of value. The templet is a loosely woven mesh of seven dry absorbable catgut. The radium needles transfix it, in a close palisade, in the way that pins are stacked in rows on paper. Before operation the sterilized threaded radium needles are fixed to the strip by transfixion. The needles are stacked close together, in parallel palisade formation. When the bed for the radium needles has been exposed by resection of part of the hyoid and thyroid cartilages—e. g., for carcinoma of the epiglottis—a loaded strip is cut and trimmed to correspond to the size of the bed. The templet is lowered into position and the skin sutured over it. There is no difficulty in recovering the radium at the end of seven days, as the catgut mesh has disintegrated by then. In anchorage by means of a silkworm gut tension suture the needles can be retained indefinitely in place by being strung on and suspended from a fixed nonabsorbable suture. A strong silkworm gut is passed through the eyes of the threaded radium needles, which are drawn together snugly and parallel with one another. To each free end of the silkworm-gut is threaded a curved, cutting-edge needle. The serried palisade of radium needles is placed in the operative bed formed for it after resection of the cartilage. The adjacent attached needle transfixes the tissues, from within outward, at the upper, anterior, deepest part of the radium bed, taking up sufficient tissue to ensure a firm anchorage. The needle further transfixes all the tissues, emerging through the skin at some distance from the margin of the incision. An artery forceps is attached to the free end of the silkworm gut after the needle has been detached. The other end is similarly drawn through the upper posterior and deepest part of the radium bed and then through the skin and an artery forceps attached to it. The first point of entry of the needle on each side is such that traction simultaneously exerted on both ends of the silkworm gut will draw the embedded silkworm gut line taut and so draw the radium needles into position firmly, retaining them in place. After the skin incision has been sutured, the free ends of the silkworm-gut are tied together firmly over it. It forms a tension suture and may be tied over a small pad of gauze to act as a dressing stay suture obviating the use of a pressure bandage. To withdraw the radium, the silkworm suture is severed on each side close to the skin. It has been the author's custom when embedding radium to twist all the attached double threads into one cable knot this about 3 inches from the needles cut the

redundant ends short and coil the cable up in the depth of the wound at its lower part. The wound is then completely sutured. When the wound is reopened, the edges are gently prized apart with dressing forceps and the cable is easily picked up. Even if only a single thread is located, traction on it will withdraw the entire bundle. Extraction of the needles may be facilitated by previously tying a single withdrawal thread around the cable and allowing it to come through the lower end of the incision. The author believes that fixation by the stay nonabsorbable suture is the method of choice, as it is rapidly performed and there is no occasion to excise a window from the cartilage to fit the exact length of the radium needles available.

Cancer Treated with Connective Tissue Extracts.—Baker outlines a method of treatment which has given encouraging results in thirteen cases of inoperable cancer. He is of the opinion that the excessive growth of cells is controlled by substances secreted in the connective tissue of their area. It is not an unreasonable postulate that a factor exists to inhibit the tendency of living cells to reproduce themselves indefinitely and his work is based on the view that this factor is a substance secreted locally outside the blood stream and discharged into the lymph. If a cell, or group of cells, is deprived of adequate inhibition—e. g., by lymph stasis or actual failure of secretion—it will reassert its fundamental tendency toward unlimited growth. It is not impossible that the inhibitory factor is an enzyme and for various reasons it is considered that its major function is lipolytic. It is secreted in the connective tissues and functions to the best advantage in the area of its secretion. In normal healthy persons it is destroyed in the lymph nodes and eventually, if it escapes this, in the blood stream. Treatment is designed to introduce this essential substance into the carcinoma by the intravenous administration of an extract of connective tissue derived from an area, in the pig or cow, corresponding to that of the primary growth in the patient. The author's experience with this treatment has been that the patient loses his cachectic appearance and the carcinoma diminishes in size and becomes attenuated in vigor. This suggests that by repeated courses of treatment at lengthening intervals the carcinoma may be deprived of its power to destroy life. Assuming that the inhibitory factor has been introduced in the blood stream in sufficient quantity and is circulating, it is manifest that it will attack the overgrowth of cells, at any rate cells from its own area, wherever it may meet them. That is to say, its action can be expected to, and in fact does apply to metastases as well as to the primary growth. The preliminary dose was in every case 1 cc. Subsequent doses were increased gradually with a view of overcoming a postulated increasing resistance of the blood to inhibition. The maximal dose was 25 cc. The author thinks that the method of choice is without doubt the intravenous route and that the interval between doses to secure a proper clinical effect should not exceed four days. The immediate result of the injection is flushing of the skin around the area of injection. This is followed by flushing of the face suffusion of the conjunctivae and discomfort—sometimes amounting to pain—in the tongue, within about thirty seconds. If large doses are given these symptoms are followed by a throbbing headache, which may last for half an hour. Rigors occurred in one case.

2 683 734 (Sept 23) 1933

- Neurasthenia Toxic and Traumatic H V Dicks—p 683
- Physiology of Insulin G H Tuttle—p 687
- Nembutal in Labor Record of One Hundred Cases of Nembutal and Chloral Narcosis Freda C Kelly—p 690
- Effect of Adrenalin in Certain Muscular Disorders J St C Elkington and M W Goldblatt—p 693
- Clinical Manifestations of Hypocalcemia in Renal Failure T I Bennett—p 694
- *Experiments in Alleged Cancer Producing Qualities of Tomatoes M J A des Ligneris—p 698
- *Treatment of Pulmonary Tuberculosis by Gold Record of Fifty Cases W V Cruden—p 699
- Congenital Umbilical Hernia Report of Case of Amniotic Hernia E Freshman—p 701
- Syncope Attacks as Symptom of Intussusception R W B Ellis—p 703

Alleged Cancer-Producing Qualities of Tomatoes.—Des Ligneris negates Askanazy and Bellows successful production of peritoneal sarcoma in rats by means of injections of

tomato juice Neither in rats nor in mice did a single case of sarcoma occur, nor did the subcutaneous or intracutaneous injections of tomato juice into mice when added to tarring hasten the formation of skin tumors The author's results have been confirmed by Collier and Jaffe Lischl and Kussat Iriomow Pawlowa and Schabard The negative results as well as the positive results of Bellows and Askuray suggest that the presence or absence of an inherent constitutional factor in the experimental animals is of paramount importance If this factor is present it is easy enough to produce true tumors by means of any chronic irritation of adequate severity and duration but if this factor is absent unspecific irritations like the irritation caused by injections of tomato juice elicit no true neoplastic response

Treatment of Pulmonary Tuberculosis by Gold—Cruden began to give gold injections to fifty tuberculous patients because large amounts of sputum remained tubercle bacillus positive for failure to improve or insufficient improvement under ordinary sanatorium regimen or because of an acute spread of the disease If albuminuria was absent the intravenous injections were commenced The first dose given was usually $\frac{1}{40}$ gram and the injections were continued at weekly intervals unless complications ensued The usual course consisted of two injections each of $\frac{1}{40}$ $\frac{1}{20}$ $\frac{1}{10}$ $\frac{1}{5}$ $\frac{1}{2}$ $\frac{1}{4}$ and 1 gram (0.002 0.003 0.006 0.016 0.032 0.05 and 0.065 Gm. respectively) of Sincrysin and a double thiosulphate of gold and sodium (Crystalline) Ten of the patients received Sincrysin and thirty eight double thiosulphate of gold and sodium The remaining two were given a proprietary gold preparation used for epilepsy (Solgarin) in total doses of $1\frac{1}{2}$ and $1\frac{1}{10}$ gram (0.12 and 0.123 Gm.) respectively The results confirm the generally accepted view that gold treatment has at any rate a temporarily beneficial effect in selected cases of pulmonary tuberculosis being especially useful in rendering the sputum tubercle bacillus negative and diminishing its amount There appears to be a simultaneous improvement in the general condition of the patient The psychologic effect on certain patients of a form of treatment additional to the ordinary sanatorium regimen is quite convincing and is of definite benefit to the patient The fact that complications (of a mild nature) occurred in 70 per cent of patients shows the necessity for close supervision Urinary complications (hematuria, mild albuminuria and jaundice) were frequent All trace of icterus disappeared within five weeks of the onset after the administration of dextrose and purified sodium thiosulphate The two patients receiving the proprietary gold preparation experienced nausea vomiting and syncope The patients soon recovered from these complications and appeared to have benefited from the course as evidenced by their general improvement and the disappearance of bacilli from the sputum

Medical Journal of Australia, Sydney

2 395 430 (Sept 23) 1933

- An Address F St J Poole—p 39
- Simulation of Vascular Disease of Cerebrocalcarine Pathway by Cerebral Tumor K B Nord—p 400
- Some Experimental Work on Poliomyelitis R Southby and Margot McKie—p 404
- Use of Iodine in Thyrotoxicosis H R C Porte—p 411

2 431 464 (Sept 30) 1933

- Present Position of Injection Methods in Treatment of Varicose Veins and Hemorrhoids V M Coppleson—p 431
- Quinine Urea Treatment of Hemorrhoids A E Panting—p 436
- Observations on Cases of Rarer Forms of Anemia C T C de Cresigny—p 439
- Congenital Multilocular Bladder C Edwards—p 443

Quart Bull, Health Org, League of Nations, Geneva

2 179 352 (June) 1933

- Therapeutics of Malaria Principles of Treatment Based on the Results of Controlled Experiments Third General Report of the Malaria Commission—p 181
- Report on Best Methods of Safeguarding the Public Health During the Depression—p 286
- Administrative Machinery by Which Adequate Nourishment of the Poor Is Ensured in Great Britain M D Mackenzie—p 353

South African Medical Journal, Cape Town

7 639 674 (Oct 14) 1933

- Doctor and Patient E B Fuller—p 641
- The Vernes Seroflocculation Test for Tuberculosis R Murray—p 645

Paris Medical

2 393 424 (Nov 18) 1933

- Carbon Monoxide Intoxication Balthazard and Melissinos—p 393
- Medical Technical Committee in Application of Law on Social Insurance, J Teclercq—p 399
- Attitude for Military Service and Penal Responsibility A Fribourg Blanc—p 404
- Distinction Between Secret of Patient and Secret of Criminal Ducret and H Desolles—p 409
- Fight Against Tuberculosis in Social Insurance C Gernez—p 410
- Evaluation of Invalidity M Muller—p 419

Carbon Monoxide Intoxication—Balthazard and Melissinos state that the variations of the coefficient of intoxication in carbon monoxide poisoning are due to physiologic causes and do not impair the theory which attributes death in carbon monoxide poisoning to anoxemia They found that in all cases in which the value of the coefficient was between 0.42 and 0.8 the carbon monoxide was if not the sole at least the principal cause of death This is not the case if the coefficient has a value of less than 0.42, which is plausible only in cases in which the period of survival is more or less prolonged Coefficients of 0.05 or less, regarded by some authors as a sign of carbon monoxide poisoning denote on the contrary, that death is due to some other cause The organism can withstand without inconvenience doses of carbon monoxide corresponding to coefficients of 0.1 0.2 and even 0.3 Such values might be observed in persons remaining near a fireplace or a poorly installed heating plant without any experience or discomfort on their part If these persons are found dead their death must be attributed to some other cause than carbon monoxide poisoning The finding of values below 0.42 in manifest cases of carbon monoxide poisoning may be due to technical errors in determination of the coefficient or to putrefaction of the reduced hemoglobin (with preservation of that combined with carbon monoxide) in cases in which examination is made long after death The authors demonstrated experimentally that reduction of the oxygen content in the atmosphere lowers the coefficient of carbon monoxide intoxication and inversely increase of the oxygen content raise the coefficient They consider the administration of pure oxygen, preferably under pressure, the only rational and efficacious therapy in carbon monoxide poisoning

Presse Medicale, Paris

11 1901 1924 (Nov 23) 1933

- Treatment of Arterial Hypertension by Intravenous Injections of Octyl Alcohol A Clerc J Sterne and R Paris—p 1901
- Mortality in 120 000 Spinal Anesthetics C Angelesco and S Tronaru—p 1904
- Prevention of Serum Accidents by Ingestion of Ephedrine and Its Regular Renewal I P Levy—p 1906

Treatment of Arterial Hypertension—Clerc and his associates report that in ten of eighteen patients intravenous injections of octyl alcohol in a weak aqueous solution produced a progressive and sometimes lasting reduction of arterial hypertension The octyl alcohol also exerted a diuretic and a general sedative action to a degree not observed with other hypotensive agents They employed the alcohol rigorously purified obtained by redistillation in a 1 100 000 dilution with distilled water The series of intravenous injections was started with a dose of 10 cc later increased to from 15 to 20 cc and repeated every other day The series averaged from twelve to fifteen injection, but in some cases as many as eighteen were given The diuresis observed even in patients in whom the arterial tension was not decreased (sixteen out of eighteen) and the sedation of functional disturbances (observed in fifteen patients) usually became manifest between the third and fifth injections The lowering of the arterial tension usually appeared toward the eighth or tenth injection progressing gradually but never descending below normal A relative lowering of the surface tension of the blood was observed No strict parallelism between the various phenomena produced by the injections was observed In some cases the duration of the hypotensive effect lasted only a few weeks in others several months and in one case six months Repetition of the series of injections after an interval of several weeks produced in some cases the renewal and in others the accentuation of the favorable effects The injections are not attended by any undesirable effects and there are no contraindications to their use While the individual response to the treatment is variable the most favorable cases are those presenting the least cardiorenal involvement The authors think that this

therapy while not miraculous or constant in its effects merits the attention of clinicians

Prevention of Serum Accidents by Ephedrine—In view of the constantly increasing frequency of serum disease Leva recommends the ingestion of ephedrine before the injection of serum and at regular intervals afterward for the prevention of serum accidents. He considers it superior to epinephrine because it is efficacious when ingested and its action is slower, more gentle and more lasting. The first tablet of ephedrine is ingested one hour before the injection of the serum and thereafter a tablet is taken every eight hours (even during the night) for fourteen days. For children aged from 1 to 4 tablets of 0.01 Gm are used, for children aged from 4 to 9, tablets of 0.02 Gm and for patients of more than 9 years tablets of 0.03 Gm. In a grave case of diphtheria in which a delay of one hour before serum injection is considered dangerous, a solution of ephedrine containing the equivalent of the tablet may be injected parenterally twenty minutes before the serum injection. The author employed this method of prophylaxis in a number of patients ranging in age from 18 months to 55 years, who received intramuscular or subcutaneous injections of nonpurified antidiphtheritic serum in doses varying from 10 to 500 cc spread over several days. Among seventy-eight children receiving this treatment five experienced marked reactions with strong or average eruptions and general symptoms, while fourteen had only slight eruptions without general symptoms and fifty-nine had no reaction at all. Among thirty-nine adults receiving the same treatment eight experienced strong reactions while thirty-one experienced no reaction or only slight cutaneous eruptions without general symptoms.

Clinica Medica Italiana, Milan

64 999 1100 (Nov.) 1933

- *Chronic Abdominal Splanchnopathy and Diabetes Mellitus L. Cannavo—p. 999
- Endocrine Function of Pancreas in Splenomegaly M. Gavazzeni—p. 1046
- Aqueous Extracts of Liver Administered Parenterally and Allergic Reactions Agglutinating Power Phagocytic Index and Complementary Rate E. Macchia—p. 1059
- Relation Between Carbohydrate Metabolism and Metabolism of Oxalic Acid G. Battistini—p. 1074

Chronic Abdominal Splanchnopathy and Diabetes Mellitus—Cannavo describes a form of diabetes mellitus secondary to chronic abdominal splanchnopathy which he found in a number of patients at an earlier age than that of hypertonic diabetes, the diabetic symptoms beginning between 30 and 40. It is not accompanied by arterial hypertension and is a genuine pancreatic diabetes. In the beginning period it shows a notable diminution of external pancreatic secretion. It occurs in patients presenting a long history of dyspeptic symptoms, resulting from chronic appendicitis, cholecystitis or peptic ulcer. The development of diabetic symptoms is always preceded and accompanied by classic pancreatic symptoms. Roentgenologic examination generally reveals enlargement of the pancreas and marked changes in form of the serous membrane that surrounds and envelops it. Histologic examination demonstrates the presence of interstitial pancreatitis with lesions of the secretory cells of the pancreas. Hereditary diabetes and etiologic factors such as syphilis, malaria typhus and epidemic parotitis, which often influence the genesis of true diabetes were not present in this form of the disease.

Archiv für klinische Chirurgie, Berlin

177 1756 (Oct. 18) 1933 Partial Index

- Indications and Contraindications in Treatment of Fractures G. Magnus—p. 265
- *Operative Shock E. Rehn—p. 360
- Further Experiences in Treatment of Vertebral Fractures L. Bohler—p. 424
- *Localization of Bacteria in Bones W. Schulze—p. 450
- *Involvement of Rectum and Genito-Urinary Organs in Lymphogranuloma Inguinale E. Gohrbandt—p. 611
- *Successful Attacks at Surgical Treatment of Uremic States W. Rieder—p. 618
- Influence of Biopsy on Prognosis of Cancer of Breast W. Siemens—p. 651
- *Surgical Treatment of Angina Pectoris W. Braeucker—p. 664

Treatment of Fractures—Magnus states that 4518 cases of fractures were treated in one year at the Hospital for Miners at Bochum. His conclusions are based on experience derived

from eight years of service at this institution. Between 1925 and 1930 there were treated 3,432 fractures of the long bones. Of these, 102 (3 per cent) were treated by the open method of reduction, while 3,330 were treated by the conservative method of closed manual reduction. The operative method was resorted to only when the conservative method proved ineffective. The average time chosen for operative intervention was the twelfth day. The indications for surgical intervention were failure to accomplish correct anatomic apposition of fragments, inability to maintain the reduction and failure of bony union. Interposition of the soft parts was the principal cause of failure of reduction. The author has adopted the principle of not leaving any foreign fixation material in the wound but of relying instead on purely osteosynthetic methods of maintaining reduction principally on the autoplasmic bone transplant. Duration of treatment with the open method was longer than with the closed method. The average time in the case of a fracture of the forearm between the operation and consolidation of the bone was forty-four days, and between operation and return to work seventy-eight days. The author resorted to wire suture of the fragments in twenty-six instances. In his method the wire is introduced subcutaneously and is tied on the skin. The suture is easily removed after the fracture is consolidated. The results with this method were not always satisfactory. In sixteen cases of fractures of the forearm it gave ten excellent, four satisfactory and two poor results. The average duration of treatment was 122 days. Percutaneous nailing has a narrow field of application and was resorted to in only three instances. In recent years the author resorted more and more to the method of free bone transplant whenever compelled to operate. This method was particularly successful in fractures of the forearm. It gave an excellent result in eleven out of twelve cases, and a pseudarthrosis in one. There were thirty-one instances of pseudarthrosis among 1,602 fractures. One of the reasons for the relatively frequent pseudarthrosis in the material was the fact that fractures occurring in miners are the result of severe trauma accompanied by extensive tissue necrosis. The author is enthusiastic about the method of bone fixation with a free bone transplant. The process of bone healing was little, if at all, influenced by the various calcium preparations, by viosterol and by injections into the seat of the fracture. The success of operative reduction depended on the completeness of reduction and a sufficiently long and efficient fixation. Of 428 cases of fracture of the radius, only 6 were subjected to an open operation, in the rest, manual closed reduction was carried out under general anesthesia. While local infiltration anesthesia permits of easy reduction, preference is given to general anesthesia for purely psychic and humane reasons. The severity of the fractures of the tibia is attested by the fact that, out of 813 cases, 63 came to amputation. The skeletal method of traction has been substituted for all other methods, not only in fractures of the lower extremities of adults but in fractures of the upper extremities and in children as well. Long continued traction is indicated in the type of fracture that is likely to lead to shortening of the limb. Control roentgen examinations by means of a portable apparatus without disturbing the fracture are a great aid in the treatment. The final results are judged on the basis of shortening of the limb and the function of the joint. Vertebral fractures not complicated by injury to the spinal cord were treated by the purely functional method, that is without an attempt to reduce the fracture or to fix the spine in a plaster cast. Impaction was considered a favorable element and no attempt was made to reduce it. Fractures of the clavicle fall into the same category of functional treatment. No attempts were made at reduction or fixation, and treatment was limited to massage and motion.

Operative Shock—Rehn stresses the necessity for the employment of scientific methods in determining the character of postoperative circulatory disturbances and the origin and development of operative shock. Methods reflecting the momentary condition of the circulation rather than its functional capacity are of no value. This can be said particularly of the most frequently resorted to method of measuring the peripheral blood pressure. It does not reflect the true condition of the circulation even when combined with determinations

of pulse frequency and amplitude. Electrocardiographic studies disclose disturbances of rhythm and the condition of the heart muscle, but not the functional capacity of the heart. Methods capable of determining the quantitative hemodynamics are the only ones free from objection. These methods give, in minute volume, information regarding the peripheral circulating blood volume and the condition of the heart as well. It is in combination with this method that the measuring of blood pressure and the study of the pulse acquire an importance in the estimation of the true condition of the circulation. When performed by a well trained investigator, the method is absolutely reliable as well as harmless even to the sick. If an operation is to be regarded as an equivalent of physical exertion, a normal person with a normal heart should respond to it with an increase in the minute volume. Such was found to be the fact. Diminution in the volume of the circulating blood signifies a state of depression. The rise in the minute volume is an expression of a successful attempt at compensation. Shock will develop if the volume of the circulating blood continues to fall so that the blood supply to the heart becomes insufficient in spite of the increase in pulse frequency. A damaged heart may fail to meet the increased demands made on it. In either instance a diminution in the minute volume is demonstrable. It is synonymous with shock. A fatal outcome as a direct result of operative shock has become much less frequent than was formerly the case. The disturbances described require a great importance, however, because of certain secondary effects on the composition of the blood and the central nervous system, which may bring about fatal collapse. Less direct consequences are encountered after a free interval in the form of thrombosis, embolism, pneumonia and late collapse.

Treatment of Vertebral Fractures—Böhler believes that vertebral fractures should be treated as any other fracture by reduction of fragments and fixation. His views were opposed by all discussers at the last meeting of the Congress of German Surgeons. The method, however, was used in England and in the United States of America for years. Since 1930 the author began to treat his patients, after the reduction of fracture and fixation in a plaster jacket, by putting them through systematic exercises. Disability after a vertebral fracture when injury to the cord and injury from subluxation are discarded is in a direct relation to the degree of distortion of the vertebral column. Vertebral fractures accompanied by distortion of the vertebral axis lead to permanent disability because the static conditions are changed and because still further distortion of the column will cause displacement of the thoracic and abdominal viscera. No injury to the spinal cord will take place if the reduction is accomplished with the aid of local anesthesia, the extension in suspension taking from fifteen to twenty five minutes until the gibbosity disappears and a marked lordosis becomes evident. One is certainly obliged to reduce the fracture in the presence of paralytic symptoms. Laminectomy becomes necessary in a few cases in which reduction cannot be accomplished by extension. This is the case when the articular processes are dislocated but not fractured. When a patient is put to bed in a plaster cast he is rendered both physically and psychically ill. The muscles become weak, the bones lose some of their calcium content and the vertebral joints become stiff. The author's patients are permitted to walk without a cane on the second or third day after the application of the cast. Twice daily the patients are put through exercises of the arms bending of the knees, extension of the legs and muscling up of the body on rings. To strengthen the muscles of the back, the body is made to rise from a horizontal to a vertical position. Lifting of the thighs while lying flat on the back develops particularly the ileopsoas muscle, which bears the closest relationship to the fractured vertebrae. Toward the end of the treatment the patients are made to carry a weight on their heads for from twenty to forty minutes. They begin with a weight of from 1 to 2 Kg., which is increased to 50 Kg. Patients treated in this manner are in the best physical and mental condition. Eighteen patients treated on this regimen gave excellent results. Of these seven had fractures of cervical, four of thoracic and seven of lumbar vertebrae. They were able to resume heavy work in from four to seven months. Not one was receiving compensation one and a half years later.

Localization of Bacteria in Bones—Schulze states that the tendency of bacteria to localize in the metaphysis of the bone in hematogenous infections is due to the peculiar structure of its blood vessels. This refers not only to the arterial distribution but to the form of the capillaries as well. The roentgenologic and histologic pictures of experimental bone tuberculosis in rabbits bears a marked resemblance to that of certain forms of human bone tuberculosis and congenital syphilis of the bone. The conclusion is drawn that the special forms of bone disease observed in human beings are likewise conditioned by the character of the blood supply. Anastomosing arterial branches that pierce the epiphysis are found in the area between the epiphysis and metaphysis of the tubular bones in man and in many animals. They can be demonstrated even before the ossification is completed. Such perforating branches do not exist in dogs. Injection of small amounts of India ink in Ringer's solution into the femoral artery of young dogs caused cone-shaped areas of disturbed growth. This was caused by embolic blocking of a branch of the nutritive artery running toward the metaphysis. These localized areas of disturbances of growth furnish additional proof of the fact that the large nutritive branches running to the metaphysis are terminal arteries.

Rectum and Genito Urinary Organs in Lymphogranuloma Inguinale—Gohrbandt says that lymphogranuloma inguinale has so far been considered a venereal disease unrelated to syphilis, gonorrhea, tuberculosis, carcinoma, soft chancre, or ordinary infection. Diagnosis in the early cases is easy but in the advanced case may be difficult. Frei's skin reaction when positive is of the greatest importance in diagnosis. The spread of the lesion in men and in women is different because of the difference in the distribution of the lymph nodes and lymph vessels. In women, the lymph nodes involved are those of the introitus and of the perineum, and the perirectal and the iliac nodes, in men, the perirectal and the deep nodes of the pelvis. The disease in women manifests itself in the beginning as an edematous, frequently elephantiasis-like swelling of the external genitalia, principally of the labia associated with a more or less pronounced ulceration. The involvement of the rectum is of interest to the surgeon. The author has seen fifteen such cases in the last two years, twelve in men and three in women. The superficial nodes perforate on the skin and the deep nodes into the rectum. The latter event leads to an aggravation of the condition because of a mixed infection. The author has seen as many as twelve fistulas opening into the rectum. This condition is accompanied by high fever. Scar formation leads to the gravest forms of stricture of the rectum. With regard to therapy, he states that the milder cases are amenable to treatment with the heavy metals, in particular with gold preparations. He obtained good results with a gold preparation ("Solganal") introduced by Naumann of Hürt. Careful passage of sounds and irrigations are helpful. In the more severe cases the creation of an artificial anus becomes necessary. Extirpation of the rectum is likely to prove fatal to patients, who are usually in bad condition.

Surgical Treatment of Uremic States—Rieder reports a case diagnosed by internists as one of malignant nephrosclerosis, in which he denervated one kidney. Subsequent studies showed that the urinary output by the denervated kidney increased from three to five times. Increase in the absolute values of urine-forming substances was recorded in the presence of diminished concentration of the urine from that side. All uremic symptoms disappeared. The blood pressure fell from 200 to 140/90. The patient was exhibited at the Congress of Surgeons nine months later in perfect health and restored to full working capacity. The author warns against indiscriminate denervation in every case of malignant nephrosclerosis or glomerulonephritis. Functional improvement may be expected in those cases only in which the disease depends primarily on the existence of spastic states. It is not possible to recognize these cases with any degree of certainty, because no knowledge exists as to the cause of nephrosclerosis and glomerulonephritis or as to the time of onset and existence of these vegetative disturbances. His operative results would suggest that the progression in such cases depended on spasmodic states. Operation is

of no value when the process has advanced so far as to be irreversible. The indications for denervation must be strictly limited. The problem is to select a suitable case. The happy outcome in the author's case suggests that there exist certain forms of beginning uremia in which denervation of a kidney results in considerable improvement. He calls attention to two cases of glomerulonephritis of mild severity which showed no tendency to healing and which responded favorably to the denervation operation. In the more severe cases of uremia the operation is almost certain to precipitate a state of acidosis with a fatal outcome. To obtain a favorable result it is necessary to resect all the nerve fibers running along the anterior and the posterior aspects of the renal artery from its origin at the aorta to the renal hilus. An exact knowledge of the rich nerve plexuses about the kidney as well as of their origins is essential to successful operation.

Influence of Biopsy on Prognosis of Cancer of Breast

—Siemens calls attention to the experimental work of Francis Wood, in which the latter inoculated 400 rats with Flexner's carcinoma. A biopsy was performed in half of the animals. The tumor was removed in all. Several months later the animals were killed. Necropsies showed that the animals on which biopsy was performed did not develop more pulmonary metastases than the control group. The comparative figures presented by the author to show the influence of a biopsy on the subsequent course of cancer of the breast include only those cases in which a radical operation and subsequent irradiation were carried out. It is generally agreed that the operation must follow shortly on the histologic diagnosis. From 1913 to 1929, 309 cases of carcinoma of the breast were treated surgically at the University of Kiel. Diagnosis of carcinoma from biopsy was made in 59. The tissue was removed with a scalpel. The axillary lymph nodes were found enlarged on palpation in all but 9 of these cases. No histologic proof of metastatic invasion of axillary lymph nodes was found in 28 cases (47.9 per cent). All 28 patients survived the five year limit. These results suggest that extension of carcinoma cells did not take place between the time of the biopsy and the time of the operation. In the remaining 31 patients the glands were found to have undergone malignant degeneration. Of these 10 died before reaching the three year limit, 9 died between the three and five year limit, and 4 died between the five and ten year limit. The better results in the biopsy group were undoubtedly due to the fact that they were earlier cases. However, the author feels justified in concluding that the biopsy did not aggravate the morbid process, did not accelerate the growth of the neoplasm and did not stimulate the formation of metastases. Even the group with palpable carcinomatous lymph nodes, in whom a biopsy was made, showed a 10 per cent improvement in the results for the three and five year periods and a 21 per cent improvement for the ten year period, when compared with the group in which biopsy was not made. Biopsy was made in six inoperable cases. Five of these patients died within the next two years, and one was alive seven years later. Apparently there was no untoward effect in this group as well. In performing the biopsy the entire growth must be widely excised. The "rapid method" followed immediately by the radical operation is to be recommended. In sixteen cases in which this method was carried out, the results compare favorably with other groups. Of these patients, 81 per cent survived the three year period and 69 per cent survived the five year period.

Surgical Treatment of Angina Pectoris—Braeucker obtained excellent results in five cases of angina pectoris by operative intervention. In the first case severe attacks of angina pectoris, the result of coronary sclerosis and aneurysm of the heart, disappeared after the section of communicating branches on the left side from the fifth cervical down to and including the first thoracic. The patient was symptom free three years later. The second case was one of severe angina pectoris resulting from syphilitic aortitis. The patient was still symptom free two years after a left-sided ramisection (from the fifth cervical to the first thoracic) and extirpation of the inferior cervical and the two upper thoracic ganglions. In the third case, complicated by syphilitic aortitis and aortic insufficiency, the patient was symptom free one and a half

years after the extirpation of the inferior cervical and the two upper thoracic ganglions. The fourth patient was symptom free three years after a bilateral ganglionectomy, and the fifth, two years and eight months after a left cervical ganglionectomy. The author believes that noxious irritants proceeding from a cardiac or aortic lesion set up an irritation in the ganglions, the regional centers of the cardiac plexuses. The ganglions respond by creating a return vasoconstricting reflex with resulting ischemia of the cardiac musculature, the probable cause of an attack of angina pectoris. In the absence of a cardiac or aortic lesion, the attacks may be provoked by abnormal irritation of the extracardiac nervous elements. This type, in which no organic lesion is demonstrable, is termed vasomotor angina pectoris. The lower cervical and the upper thoracic ganglions play an important part in the painful syndrome because most of the centripetally running cardiac and aortic impulses must pass through them. The good result after ramisection is explained by the hypothesis that it allays the irritability of the ganglion. The author, while operating on the neck under a local anesthetic, made an observation previously recorded by Leriche, that the stimulation of the stellate ganglion provoked a typical anginal attack and that injection of procaine hydrochloride into it stopped the attack. The same observation was made when the first thoracic ganglion was electrically stimulated. These ganglions receive impulses proceeding from the heart, which are then relayed as vasoconstrictors to the periphery. The automatic capacity for generating reflex impulses is retained by these ganglions even after their severance from the spinal cord by sectioning of the communicating branches. This explains why better and more permanent results are obtained by ganglionectomy than by mere sectioning of the communicating branches. The idea that the stellate ganglion plays an important part in the regulation of cardiac activity loses its validity when the ganglion becomes the seat of pathologic reflexes. The author concludes that bilateral extirpation of the inferior cervical and of the two upper thoracic ganglions is the operation of choice for the relief of angina pectoris.

Deutsche Zeitschrift für Nervenheilkunde, Berlin

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Cysticercosis with Clinical Aspects of Cerebral Tumor T. von Lehozsky—p. 193

*Aspects of Babinski's Sign H. Sehestedt—p. 212

Fever Therapy F. Hoff—p. 218

Studies on Catalase Content of Skin and Brain in Neurosyphilis A. Marchionini and Berta Ottenstein—p. 220

*Symptomatology and Pathologic Foundations of Increased Tension of Musculature in Chorea Minor O. Reisch—p. 227

Poisoning with Soft Soap After Attempted Abortion and in Animal Experiment R. Mackay and G. Haselhorst—p. 270

Babinski's Sign—Sehestedt points out that when Babinski first described the extension reflex of the great toe as an indication of a lesion of the pyramidal tract he also noted that this reflex is nearly always present in healthy nurslings. Many explanations have been attempted but an entirely satisfactory explanation for the presence of the reflex in nurslings and its disappearance in older children has not been given as yet. Some authors explain its presence in nurslings through the incompleteness of the pyramidal tracts. Others reject the equation of the extension reflex in nurslings and adults and its relation to lesions of the pyramidal tract and consider it an athetotic movement due to an insufficiency of the pallidal system. Others (particularly Zador) found that not all lesions of the pyramidal tract are accompanied by the sign, while the sign may appear in the absence of such lesions, and they assume that influences of the pallidal system are involved. Numerous other students have pointed out that the change in this reflex takes place during the period when the nursling learns to stand and walk and they conclude that the presence of the extension reflex in children who can stand and walk is pathologic, except that during the transitional period an acute disease may cause a relapse. Since on the basis of this theory, it was reasonable to assume that older children who do not walk for longer periods would lose the flexion reflex and would reassume the extension reflex, the author studied Babinski's reflex on sixty-two children aged from 6 to 15 years, who had been bedridden for months or years. His observations corroborate the theory that Babinski's sign is the original reflex of the sole of the

foot and that the flexion reflex is a conditioned reflex, the result of static conditions and lost by lack of exercise. This makes it unlikely that the extension reflex in nurslings is the result of the incomplete development of the pyramidal tracts, as has been assumed by some investigators. The author is inclined to agree with Zador that between the Babinski extension reflex in nurslings and the form that occurs in adults there are probably close connections.

Muscular Tension in Chorea Minor—Reisch was able to study the conditions under which increased muscular tension develops, in a patient in whom the tension phenomenon persisted for months after the disappearance of the choreic restlessness. In order to explain the concurrence of reduced resistance in passive movements and of increased tension of the musculature produced by reflex action he calls attention to similar observations in other extrapyramidal syndromes reports of which are to be found in the literature.

Medizinische Klinik, Berlin

29 1571 1602 (Nov. 17) 1933

Frequently Recurring Errors in Examination for and Diagnosis of Syphilis and How They Can Be Avoided. W. Schonfeld—p. 1571.
Diagnosis and Therapy in Disturbances of Menstruation. H. Siebke—p. 1573.

Radical Operation of Carcinoma of Tongue. C. Neményi—p. 1576.
*Blood Transfusion in Malignant Diphtheria. H. Dimmel—p. 1578.
*Lymphangitis in Connection with Agranulocytosis. R. Boveri—p. 1579.
Results of Examination of Blood According to J. Lewenstein's Method in Tuberculosis and Other Diseases. Mathilde Munster-Frank—p. 1581.

Demonstration of Tubercle Bacilli in Circulating Blood. I. Stadler—p. 1582.

Vasectomy in Sterilization of Males. R. Bertelsmann—p. 1584.
Iodine Illumination in High Altitude Climate in Healthy Persons and in Those with Hyperthyroidism. I. Szisz—p. 1584.
Climate and Vegetable Int and Similar Problems of Applied Phyto-geography. W. Zimmermann—p. 1587.

Blood Transfusion in Malignant Diphtheria—Encouraged by the favorable reports of blood transfusion in malignant diphtheria, Dimmel tried this method in sixteen cases in children ranging from 2 to 13 years. The quantities of transfused blood averaged 200 cc. The mortality rate was 35 per cent and, compared with another group of cases of malignant diphtheria in which blood transfusion had not been employed and in which the mortality was 66 per cent this mortality rate was rather low. However, since the cases were comparatively few, the percentages are of slight significance since a single case will make a great percental difference. But aside from the criterion of the mortality rate, the great change that was effected in the general condition and the rapid disappearance of the toxic symptoms indicate the effectiveness of the transfusion. The author is unable to answer definitely the question as to how the blood transfusion exerts its influence whether the antitoxin content of the transfused blood plays a part or the infusion of the blood as such, irrespective of the antitoxin content, is sufficient, but he observed that a donor's blood which had been given successfully in two cases had in extremely low antitoxin content. Blood transfusion was never the only therapeutic method, but the children also received intravenous and intramuscular injections of antitoxin, and circulatory remedies were likewise administered. Since blood transfusion involves little danger and the treatment of malignant diphtheria is still unsatisfactory, the author thinks that blood transfusion should be tried.

Lymphangitis in Connection with Agranulocytosis—Boveri relates the histories of two patients in whom agranulocytosis manifested itself acutely, although the anamneses revealed that disturbances had existed for some time previously. Shortly after the appearance of the agranulocytosis, lymphangitic processes occurred in both cases on the third day of observation. Thus the lymphangitides cannot be considered the causal factors of agranulocytosis but rather the sequelae. Worthy of note are the points of origin of the lymphangitides for in both cases they had existed for some time as harmless surface injuries. In one woman it was a horny growth at the base of the great toe, and in the other woman a slight injury of the finger. Not until the severest stage of agranulocytosis had been reached did these lesions become the starting points of lymphangitides. The question is How did the lymphangitides develop? The author is convinced that they cannot be con-

sidered metastases of a generalized sepsis, but he is inclined to make the complete lack of resistance of the organism and tissues responsible for their development. He assumes that originally apathogenic organisms became pathogenic in that the lowered resistance caused a relative increase in their virulence.

Strahlentherapie, Berlin

18 401 600 (Nov. 8) 1933

Atmospheric Currents in Connection with Disease Manifestations. I. Kohler and F. Hiesh—p. 401.

Influence of Radium and Roentgen Rays. Ultraviolet Radiation and Heat on Cell Division in Warm Blooded Animals. Studies on Tissue Cultures. J. Juul and T. Kemp—p. 457.

Action of Alpha Rays on Tissue Cultures. H. C. Andersen and M. Fischer—p. 500.

Ray Biology of Tissue Cultures. Hildegard Vollmar and B. Rajewsky—p. 504.

Permeability of Skin for Radon. W. Santholzer—p. 519.

Comparison of Doses in Protracted Fractional and in One Time Roentgen Irradiations. H. Wintz—p. 533.

*Combined Use of Hormones of Anterior Lobe of Hypophysis and of Irradiation in Treatment of Genital Carcinoma of Women. G. Ernst—p. 552.

Therapy of Chronic Pleural Empyemas. U. Ellerbrock—p. 567.

Spectrographic Investigations on Various Types of Tubes for Border Line Rays. O. Gfrörer and Heinz Berger—p. 570.

Filter and Filter Combinations for Measuring Rays in Region of Ultraviolet Spectrum by Means of Photocell. E. O. Seitz—p. 578.

Suitability of Ultraviolet Dosimeter for Measurement of Radiations of Sun. F. W. P. Götz—p. 589.

Adjustable Protective Screen for Use in Therapeutic Irradiations. G. Jorgensen—p. 592.

Living Organism Functioning as Aerial. K. Moessel—p. 593.

Roentgen Therapy of Inflammation of Nail Bed. W. Jessen—p. 599.

Protracted Fractional and Massive Irradiations—Wintz points out that a review of the literature on the results obtained with Coutard's method of protracted fractional roentgen irradiation of malignant tumors reveals that they are not uniform. Some roentgenologists say that the method is excellent, while others reject it completely. Wintz imitated Coutard's method in the roentgenotherapy of squamous cell carcinoma of the cervix. He considered all factors that influence the applied and the effective doses. The doses were computed as well as determined by measurements on phantoms and human subject. Then the correlation was established between the doses employed in massive irradiation and in Coutard's fractional method and it was found that for the skin the ratio was 1:2, for carcinoma 1:2.4, for the intestine 1:2.2 and for the connective tissue 1:1.4. The doses for carcinoma are so large that they alone explain the destruction of the growth. The author is convinced that the effects obtained with Coutard's method cannot be considered the result of the increased radiosensitivity produced by the distribution of the dose. He maintains that the single irradiation is superior to Coutard's protracted fractional irradiations as regards the efficacy of the smallest intervention, as well as biologically, in that the radiosensitivity is more favorable.

Treatment of Genital Carcinoma—The fact that the Zondeks and Hartoch were able to arrest the growth of inoculated carcinomas in white mice by the administration of prolan A and B induced Ernst to try medication with a preparation containing prolan A in several women with inoperable or relapsing carcinomas of the genitalia and in a man with carcinoma of the penis. In addition to the hormone preparation the patients also received irradiations with radium and with roentgen rays. In three cases the effects of the irradiations had already subsided when the hormone therapy was begun so that it was possible to determine the efficacy of the hormone treatment. It was found to be negative in all three. In five cases namely, four genital carcinomas in women, and one carcinoma of the bladder the hormone therapy was accompanied by a loss in weight. But although the administration of the hormone of the anterior hypophysis did not bring the desired results in the treatment of genital carcinoma in women the author emphasizes that the same hormone preparation proved highly effective in ovarian dysfunction particularly in amenorrhea.

Roentgen Therapy of Inflammation of Nail Bed—According to Jessen, the inflammation or suppurative of the nail bed often presents therapeutic difficulties. In surgical treatment, for instance, which formerly was the usual pro-

cedure the patient becomes bedridden and thus incapacitated for several weeks. The author obtained favorable results with roentgen therapy. He was able to cure simple pronychia of the fingers or toes with one or two high voltage roentgen irradiations, the second being given ten days after the first. The dose was 30 per cent of the unit skin dose and a 4 mm aluminum filter was used. In the more severe forms of ingrown toe nails, which generally have existed several weeks before medical aid is asked the nail bed is severely inflamed, red and swollen and the nail is partly loosened by a suppuration underneath it. The loosened portion of the nail is removed if possible, from 4 to 6 mm away from the nail bed. After that, 30 per cent of the unit skin dose is applied and a second irradiation is given two weeks later. The author asserts that all his patients improved rapidly and that not a single one was incapacitated for work.

Zentralblatt für Chirurgie, Leipzig

60 2593 2656 (Nov. 4) 1933

- Problem of Bone Sarcoma G. Ahlhausen—p. 2594
Extensive Intestinal Varices as Cause of Peritonitis Case T. Rinecker—p. 2598
Gastric Lipoma and Peptic Ulcer F. Mandl and A. Vogl—p. 2600
Unusual Developmental Anomaly of Neck Case J. Kadebo—p. 2601
Bleeding Breast as Precancerous State I. Philipowicz—p. 2603
Modification of Engels' Syringe for Blood Transfusion G. Gollnow—p. 2606
Prostigmata in Treatment of Peritoneal Tuberculosis of Young B. Trentmann—p. 2607

Bleeding Breast as Precancerous State—According to Philipowicz, histologic studies of bleeding breasts by various investigators reveal the following underlying causes: cystic mastopathy, cystadenoma, cystic papilloma and true carcinoma. He stresses the lack of unanimity in the opinions as to the question of the danger of malignant transformation and as to the proper treatment of these cases. In his own material there were five patients with malignant conditions in eight cases of bleeding breasts. Geographic and racial variations may account for the diversity of opinions on the subject. The author reaches the following conclusions: A small palpable tumor may be widely excised and submitted to a histologic study. In the absence of a palpable tumor the patient is to be kept under observation. When, however, this is not feasible and the patient is past 40, a radical operation should be performed. The author is opposed to compromise in the matter of treatment for the reason that the radical operation is no more deforming or dangerous than the mere amputation of the breast. On the other hand the danger of recurrence is real after the conservative method of breast amputation. Biopsy is uncertain and dangerous. There exist social indications for radical operation in these cases, namely, when the patient is not sufficiently intelligent to cooperate and is past 40, and when there is a history of cancer in the family, especially of the breast.

Zentralblatt für Gynäkologie, Leipzig

57 2657 2704 (Nov. 11) 1933

- Technic of Registration of Movements of Human Uterus H. Knutius—p. 2658
Salpingograms of Uterine Tubes from Fetuses and Children H. von Knorre—p. 2662
Genesis of Endometriomas and Aspects and Cure of Rare Gynatresia A. Rieck—p. 2665
Leptothrix of Vagina H. Starck—p. 2672
Monamniotic Twin Pregnancy H. Baumgart—p. 2673
Large Benign Angiomatous Polypous Cystadenoma in Woman Aged 70 Henriette Ipsilanti—p. 2677
Reply to Remarks by Max Stüchel About My Method of Tamponing K. Legothetopulos—p. 2679
Modification of Male Gonads by Hormone of Anterior Lobe of Hypophysis K. Fukushima—p. 2680

Genesis of Endometriomas—Rieck emphasizes that all studies on the genesis of endometrioma should try to answer the question whether the endometrioma originated in the uterus or not. He accepts Sampson's theory, which gives a misplacement of endometrium as the cause and he formulates the statement that where there is an endometrioma there must be or must have been a functioning endometrium. He asserts that Robert Meyer's theory of the development of endometriomas from the epithelium of the peritoneal serosa has not yet been furnished with conclusive evidence. He sets himself the task to explain the cases which apparently are incompatible

with a uterine origin and which as a result are often explained as originating from the epithelium of the serosa, in the light of the theory of the uterine origin. He cites the case of a woman with endometriosis in whom menstruation was absent but in whom the ovaries functioned normally. Meyer's theory of the development of the endometrioma had been recognized as correct in this case, but on closer investigation an atresia of the body of the uterus was found, and the author thinks that the absence of the menstrual flow in the presence of functioning ovaries, which must have caused endometrial hemorrhages, would explain the endometriosis. He reviews other cases of atresia of the body of the uterus in which menstruation was absent. He considers these cases important in view of the generally accepted rule that operative treatment should be omitted in the absence of menstruation, for in these cases surgical treatment would be helpful. He cites a case treated by him several decades ago. He made a fistula connecting the body of the uterus with the vagina, and the woman had normal menstruation for twenty-five years, but in another case the fistula had closed again and an endometrioma developed. The author concludes that if, in an otherwise healthy, sexually mature girl uterine and peritoneal pains develop periodically without a menstrual hemorrhage and if bimanual examination reveals no other cause for the absence of menstruation, atresia of the body of the uterus may be thought of, and, if probing reveals a uterine canal from 3 to 4 cm in length and the uterus is of normal length, the diagnosis of atresia is almost certain, and the presence of an endometrioma, no matter whether in the umbilical or inguinal regions, makes it still more so. The surgical intervention should be vaginal in cases of this nature.

Modification of Gonads by Hormone of Hypophysis—Fukushima reviews the literature on this subject and finds that some of the reports are contradictory. He was doubtful particularly of the results obtained by Joel and Constantin who observed that the injection of the urine from pregnant women effected an enormous increase (from six to eight times the original volume) in the size of the testicles and of the epididymis. He duplicated their tests and found either an extremely slight increase or none at all. He thinks that the ovarian hormone contained in the urine acted as an antagonist to the hypophyseal hormone. He tested the hypophyseal hormone extracted from the urine of pregnant women and found that the testicles of the animals had become hyperemic and were almost twice their original size. He thinks that this stronger action of the hypophyseal hormone was due to the fact that the inhibiting influence of the ovarian hormone was absent. In order to demonstrate this more conclusively, he heated the urine from pregnant women to the boiling point and then injected it into the test animals. The ovarian hormone is thermostable and consequently unaffected by heating to the boiling point, while the hypophyseal hormone is thermolabile and becomes impaired by a temperature of from 60 to 65 C. The injection of the urine thus treated did not increase the size of the testicles.

57 2705 2768 (Nov. 18) 1933

- Pressure Marks and Bone Injuries as Permanent Sequelae After Use of Forceps P. Caffier—p. 2706
*Simple and Six Phasic Sedimentation of Erythrocytes in Macromethods and Micromethods in Inflammatory Processes of Small Pelvis J. L. Rollin—p. 2712
*Coagulation and Viscosity of Blood During Pregnancy and After Delivery I. Esiaschwili—p. 2717
Pathogenesis of Gynecologic Hemorrhages and Remarks on Its Therapy H. Goecke—p. 2721
*Rectal Application of Urine from Pregnant Women in Certain Menstrual Anomalies T. Warschawsky—p. 2729
Metranokter H. Starck—p. 2734
Predetermination of Sex in Human Subjects O. Schoner—p. 2737

Sedimentation Tests in Inflammatory Processes of Small Pelvis—Rollin made comparative studies with macro and micro procedures and also compared the single reading of the reactions with the six-phasic (every fifteen minutes) readings. He reaches the following conclusions: If a good method is employed for instance, that of Kowarski, and if the person performing the test has sufficient practice the micromethod can well serve as a substitute for the macromethod. But because of its greater reliability, the macromethod remains the best for practical application. The micromethod should be resorted to only in cases in which venipuncture is inadvisable. The six phasic sedimentation gives more exact results than

does the simple one, but in gynecology it has no essential advantages over the simple one

Coagulation of Blood During Pregnancy—Farschwich shows that pregnancy influences the coagulability and the viscosity of the blood. There is, however, no definite relationship between blood pressure, coagulation and viscosity, and the state of the one does not permit an estimate of the other. With the progress of pregnancy coagulation becomes accelerated but a strict parallelism cannot be detected. The coagulability is considerably increased at the end of pregnancy. Normal values are reached again on the fifth or sixth day after delivery. The coagulability is practically the same on the day preceding and the day following delivery. The viscosity becomes reduced during normal pregnancy. This decrease is most pronounced during the second half of pregnancy but again reaches normal values on the fifth or sixth day following delivery. The author thinks that influences from the endocrine glands and from the placenta are involved in these changes and that it is desirable to make investigations in this direction.

Enemas of Urine from Pregnant Women in Menstrual Anomalies—After calling attention to reports on the subcutaneous administration of the urine of pregnant women in the treatment of menstrual disturbances, Warschawsky relates his experiences with the rectal application. The urine was that of women whose pregnancy was in the ninth or tenth lunar month. In order to avoid infection (gonorrhea, tuberculosis) and to exclude the action of prolam which may produce serious changes in the ovaries, the urine was boiled and then administered in the form of enemas, which, as a rule, were given twice daily between the seventh and twenty-fifth days of the menstrual cycle, but in some instances also immediately preceding and during the menstrual period. During the first few days enemas of 25 cc were given but later the quantity was increased to 50 cc. In this manner the patient receives daily from 1000 to 2000 mouse units of folliculin. The author points out that this treatment was intended as a substitutional therapy and consequently was employed in cases of secondary hypomenorrhea or oligomenorrhea with manifestations of ovarian dysfunction, particularly in older women. In discussing the action mechanism involved in this rectal therapy, he states that by way of the hemorrhoidal plexus and the hypogastric vein the substance goes directly into the vena cava and thus into the systemic circulation without passing through the liver. He stresses the great resorptive capacity of the rectum. Case reports indicate that the treatment gave results in a number of cases, and, since untoward effects were entirely absent, further trials with this method seem justified.

Vrachebnoe Delo, Kharkov

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Problem of Pain M. M. Gubergits, Shur, Beryland and Kamenetskiy —p. 299

In Defense of Local Anesthesia Ya. O. Galperin —p. 311

Pathogenesis of Edema N. D. Strazhesko —p. 321

Treatment of Auricular Fibrillation I. I. Fainshmidt —p. 325

*Clinical Evaluation of Aschheim-Zondek Reaction A. E. Mandelshtam and E. M. Kaplun —p. 389

Clinical Value of McClure Aldrich Reaction in Children N. M. Frishman and S. Ya. Vaysberg —p. 397

The Aschheim-Zondek Reaction—According to Mandelshtam and Kaplun, the Aschheim-Zondek test was accurate in 98.3 per cent of their cases of early pregnancy. The test proved of considerable practical value in cases in which pregnancy was complicated by the coexistence of a myoma or an ovarian cyst. It proved to be of even greater value in the differential diagnosis of extra-uterine pregnancy from inflammatory swellings of the adnexa. A positive test favors definitely an extra-uterine pregnancy, while a negative result does not entirely rule out the existence of an extra-uterine pregnancy with a lowered hormone activity of the trophoblast (dead ovum). Operative intervention is indicated in these cases if the reaction is positive. When negative, the question of intervention must be decided by the clinical picture. The chorio-epithelioma reaction of Aschheim-Zondek proved to be valuable in cases of hydatid mole. It makes it possible to recognize the transition of the mole into a chorio epithelioma as well as to recognize early recurrence of metastases after the operation.

Acta Chirurgica Scandinavica, Stockholm

77 103 398 (Nos. 7) 1933

Treatment of Residual Cavities and Fistulas After Operations for Lung Abscesses I. Key —p. 305

*Endometriosis in Urinary Bladder F. Settergren —p. 317

Kelation of Acute Pancreatitis to Operative Interventions on Stomach and Duodenum R. Lauren —p. 323

Rupture of Hydronephrosis H. G. Skarby —p. 361

Endometriosis of Urinary Bladder—Settergren states that endometriosis of the urinary bladder is relatively rare, there being only twenty-two cases on record. His patient, a woman aged 27, complained of painful urination limited to the menstrual period. Cystoscopic examination revealed a tumor, the size of a hazelnut in the vicinity of the right ureteral opening. A second cystoscopic examination performed during menstruation demonstrated an increase in the size of the tumor. The tumor was removed through a high cystostomy operation. The patient was rendered symptom free. Pain on urination limited to the menstrual period, possibly with hematuria, constitutes the one characteristic symptom of endometriosis of the urinary bladder. A cystoscopic examination should be made both in the intermenstrual period and during the menstrual period. The cystoscopic picture may suggest varices, angioma or carcinoma. No treatment is indicated in the absence of symptoms or in patients close to the menopause. Röntgen irradiation of the ovaries is to be recommended in patients of this age requiring treatment because of symptoms. In younger patients presenting symptoms, radical extirpation by laparotomy is the best treatment.

Bibhotek for Læger, Copenhagen

125 379 420 (Oct.) 1933

*Significance of Plasma Proteins in Clinic A. H. Johansen —p. 379

Plasma Proteins in Clinic—Johansen says that an understanding of the physiology of the plasma proteins is important in the study of numerous functions in which healthy and pathologic conditions unnoticeably merge into each other. Determination of the total protein and of the most important fractions usually gives reliable information as to the phase of many disease conditions. Determination of the plasma proteins gives more reliable information than the sedimentation reaction concerning the activity of infections, because there is a considerable error in the sedimentation reaction when the disease is complicated with anemia. Attention is called to the significance of the plasma proteins in disorders of the liver and kidneys and to their peculiarities in patients with malignant tumors, especially certain tumors of the bone marrow.

Hospitalstidende, Copenhagen

76 1017 1028 (Oct. 12) 1933

*Circulation Under Anemic Conditions H. E. Nielsen —p. 1017

Circulation in Anemic Conditions—Nielsen made seven teen determinations of the circulation by Grollman's acetylene method in one patient with pernicious anemia and in one with hemolytic jaundice. The lowest hemoglobin values were accompanied by an increase in the minute volume and the beat volume of the heart and of the utilization coefficient. During improvement the two types of anemia showed no essential difference in their reaction, which consisted of a reduction in the minute volume and the utilization coefficient. The increased utilization coefficient is regarded as an economical arrangement, easing the work of the heart, but at the same time an encroachment on the reserves of the organism.

76 1029 1056 (Oct. 19) 1933

*Investigations on Nephritic Retinitis H. Ehlers —p. 1029

Short Wavelength Therapy K. Overgaard —p. 1044

Nomenclature in Danish Pharmacopoei 1933 K. O. Møller —p. 1054

Nephritic Retinitis—The frequency of this disorder does not seem to Ehlers to be decreasing. He says that the reduced number of cases of nephritic retinitis during the years of rationing from 1918 to 1921 might indicate that the disturbance can be influenced by diet. His fifty-six cases afford no evidence of notable improvement in prognosis. There was hypertension in the central artery in all cases, but equally high hypertension in the central artery was found without nephritic retinitis.

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MYASTHENIA GRAVIS

FOURTH REPORT THE ONSET AND COURSE OF THE DISEASE

WALTER M. BOOTHBY, M.D.
ROCHESTER, MINN.

Between April, 1932 and May, 1933, we have had at the Mayo Clinic twelve cases of myasthenia gravis. At the recent meeting of the Association of American Physicians I reported¹ in considerable detail the results we had obtained by treatment in these cases with ephedrine and glycine (the amino acid glycine, to be differentiated from the photographic developer glycin). This can be briefly summarized as follows: Ten of the patients definitely improved on treatment with glycine and ephedrine, or the ten who improved all have been able to be up and about and, with the exception of two of the oldest (one woman, aged 79, and one man, aged 69), they have been able to carry on light work, four of the ten showed very marked improvement, one of whom received glycine alone without ephedrine, in two the only result was cessation in the downward progress of the disease (one of these patients recently died from causes not directly attributable to the myasthenic syndrome). In addition to our own cases, I have been indirectly in touch with about as many more, and most of these have also shown improvement. Remen² has reported one very striking example of improvement. In five of six cases in which we have tried to decrease or omit the glycine there was a gradual aggravation of the symptoms, which again improved with administration of sufficient glycine. Therefore, I believe one may feel confident that glycine is of definite benefit in myasthenia gravis.

Lo Harriet Edgeworth³ belongs the credit for the discovery and demonstration on herself of the beneficial action of ephedrine in myasthenia gravis, we have also confirmed her observations. Thomas, Milhorat and Techner⁴ discovered that in a certain type of case classified as progressive muscular dystrophy the patient could be benefited by the use of glycine. Following up

this point I tried the effect of glycine in the treatment of myasthenia gravis, my first report⁵ on the beneficial effect in this disease was made practically simultaneously and entirely independently of a similar report by Remen in Germany.

Myasthenia gravis is by no means as rare a disease as is generally supposed, as is evidenced by the fact that between May 1 and June 10 of this year we have had eight new cases of which only four had been recognized, and the patients came to us as a result of our previous reports¹ on the subject. It is, of course, too early to evaluate the effect of treatment in this recent group. A report, however, of the onset and course of the combined group of twenty cases will, I think, prove timely and will help in the more prompt recognition of the disease. One does not need to emphasize the importance of an early diagnosis in order that the patient may be placed as soon as possible on the appropriate regimen and treatment and instructed how to avoid complications and how to regulate his life so that physical exertion will be decreased to an amount which will not tax the reserves built up by treatment with glycine, or ephedrine, or both.

In table 1 are given the duration of symptoms before diagnosis was made and the total duration of the disease up to June of this year, as well as the order in which the symptoms of the disease developed. Any such tabulation can present only an approximate picture of the course of the disease, which, among the patients who have had a long history, was interspersed with periods of more or less remission and occasional periods of what appeared to be complete intermission.

It will be noted that in seven of the twenty cases (35 per cent) there was a history of an acute infection shortly before the onset of the symptoms characteristic of myasthenia gravis. Thirty-five per cent must certainly be considered a large number to have happened to have an unrelated infection of the upper air passages or other streptococcic infection. On the other hand, it must not be overlooked that the remainder gave no such history, although possibly in the cases of longer duration a mild infection might have been forgotten. Careful study by Dr. Robertson of the muscles obtained at necropsy in two of these twenty cases, as well as the reports in the literature, suggests very strongly that the underlying cause is some type of infecting organism which elects to localize in the muscles in some manner corresponding to localization in joints in chronic arthritis. This suggestion by no means a new one is merely called to attention for the purpose of future observation and study.

From the Section on Clinical Metabolism, the Mayo Clinic.
Read before the Section on Pharmacology and Therapeutics at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 15, 1933.

¹ Boothby, W. M. Myasthenia Gravis. Third Report. The Effect of Treatment with Glycine and Ephedrine. *Tr. A. Am. Physicians. Ann. Int. Med.* to be published.

² Remen, L. Zur Pathogenese und Therapie der Myasthenia gravis. *Neuropathologica Deutsch. Ztschr. f. Nervenh.* 128: 66-78, 1932.

³ Edgeworth, Harriet. A Report of Progress on the Use of Ephedrine in a Case of Myasthenia Gravis. *J. A. M. A.* 94: 1136 (April 12) 1930. The Effect of Ephedrine in the Treatment of Myasthenia Gravis. Second Report. *ibid.* 100: 1401 (May 6) 1933.

⁴ Milhorat, A. T., Techner, Fritz, and Thomas, Karl. Significance of Creatine in Progressive Muscular Dystrophy and Treatment of This Disease with Glycine. *Proc. Soc. Exper. Biol. & Med.* 29: 609-611 (Feb.) 1932. Thomas, Karl, Milhorat, A. T., and Techner, Fritz. Untersuchungen über die Herkunft des Kreatins. Ein Beitrag zur Behandlung progressiver Muskelatrophie mit Glykokoll. *Ztschr. f. physiol. Chem.* 205: 93-98, 1932.

⁵ Boothby, W. M. Myasthenia Gravis. A Preliminary Report on the Effect of Treatment with Glycine. *Proc. Staff Meet., Mayo Clin.* 7: 557-562 (Sept. 28) 1932. Boothby, W. M., Adams, Mildred, Power, M. H., Edgeworth, Harriet, Moersch, F. P., Woltman, H. W., and Wilder, R. M. Myasthenia Gravis. Second Report on the Effect of Treatment with Glycine. *ibid.* 7: 737-756 (Dec. 28) 1932.

The order of the onset of symptoms is with minor variation, consistent and characteristic. First the patient complains of fatigability or of becoming unduly tired and hardly feels able to carry through his ordinary daily routine, as fatigue develops there is frequently blurring of vision due to diplopia which sends the patient to the ophthalmologist or optician for glasses. At this time there may be transient ptosis of one or both eyelids and also, sometimes weakness of the muscles of expression, if the onset of these symptoms has been sudden, the condition has been erroneously diagnosed in some cases as a slight "stroke." Occasionally, after a few weeks, the diplopia and ptosis may clear up and remain absent for months or even years. More frequently weakness of the muscles of the tongue and pharynx develop in a short time or may even precede the diplopia. The first sign of weakness of the muscles of phonation is usually noticed as a phenomenon of fatigue after prolonged talking, such as

character of the disease, even without treatment, and the marked improvement following use of glycine and ephedrine, one should not allow the patient to become discouraged even if the effect of treatment for several months does no more than to stop the progressive course of the disease.

The third group of muscles to become involved is composed of those of the extremities. Sometimes however, the arms or legs may be the first to be noticeably involved. In one of our cases the arms and hands were first involved, and in another the legs, and the muscles of phonation and deglutition were not involved until later. In some the weakness of the arms and legs becomes so great that the patients can walk only very short distances without falling down and then can rise up only after a period of rest. The muscles of the neck are often involved to the extent that the patient has to support his head and, if lying down, to move his head with his hands by grasping his hair. The mus-

TABLE 1—*Myasthenia Gravis Twenty Cases*

Case	Age Years	Sex	Duration Before Diagnosis Made, Years	Infection at Onset	Duration to June 1934, Years	Order of Onset of Symptoms Nature and Region Affected
1	50	♂	4		5	1 Talking and swallowing with regurgitation - ptosis 3, mucus
2	17	♀	5		6	1 Weakness of legs (falling) - mucus of face - ptosis 4 speech and deglutition
3	36	♀	1		4	1 Change in voice (nasal twang) 2 Fatigue in talking and swallowing 3 diplopia
4	34	♀	2	1 erysipelas	4	1 Swelling of lips and tongue 2 speech 3 swallowing with regurgitation 4 diplopia 5 mucus 6 fatigability
5	77	♂	4 months		1	1 Arms and hands 2 legs - ptosis 4 swallowing
6	4	♂	2 weeks		1	1 Arms and legs - diplopia and swallowing
7	56	♂	4		1	1 To be 2 diplopia 3 fatigability 4 speaking and swallowing 5, extremities
8	69 1/2	♂	1/2		1	1 Weakness of neck 2 speech and swallowing
9	37	♀	6	1 pneumonia (influenza) Sore throat	11	1 General weakness after influenza in bed 3 months of partial remission
10	47	♂	1 month		11	1 Fatigability 2 ptosis 3 speech 4 swallowing 5 speech 6 extremities
11	70	♀	-		21	1 Intelligibility - diplopia 3 ptosis 4 swallowing 5 speech 6 extremities
12	21	♂	8 5		9 6	1 Ptois and weakness muscles (paralytic stroke) 2, swallowing 3 speech 4 extremities
13	40	♂	1, 2	Influenza	1	1 Ptois 2 diplopia remission 1 jaw 5 throat and swallowing 6 forehead 7 tongue and lip (speech) 8 left arm 9 right arm 10 neck 11 legs 12 intercostals
14	41	♀	2		1	1 Diplopia recovery 1 Diplopia 2 legs 3 speech 4 swallowing
15	28	♂	4	Streptococcal infection of tongue Rhino-pharyngitis	4	1 To be 2 fatigability on talking 3 swallowing 4 extremities
16	33	♂	4		4	1 Fatigue on talking, chewing, smiling, swallowing 2 arms and leg ptosis
17	42	♂	1 month		2 months	1 Fatigability 2 ptosis and diplopia 3 extremities 4 swallowing
18	74	♂	1 month		1 month (died)	1 Diplopia muscles of tongue (chewing) swallowing 2 arms and leg
19	55	♂	3	Influenza Rhino-pharyngitis	2	1 A snap (?) in head 2 nausea 3 talking 4 swallowing general weakness 1 respiratory muscles
20	21	♀	1		2	1 Vocal cord 2 tongue and articulating 3 swallowing 4 arms and legs 1 Nasal twang, 2 speech 3 swallowing 4 extremities

in public speaking or in reading aloud, as fatigue develops, the pronunciation gradually becomes indistinct and slurred and may possess a nasal twang. Weakness of the muscles of deglutition is first noticed as difficulty or fatigue on chewing meat or in swallowing, as a consequence, the patient tends to select a semisoft diet, as the weakness progresses there is regurgitation through the nose, when chewing and swallowing become more difficult the whole picture of the disease rapidly becomes more marked accelerated in part by the weakness secondary to insufficient nourishment, loss of weight may be very rapid. In an actively progressing stage of the disease the patient may be in marked negative nitrogen balance even on a liberal, semisolid diet. At such a time the feeding of a high calory, high vitamin diet in liquid form, through a Rehfuß tube introduced through the nose becomes a necessity, first, to afford sufficient nourishment and secondly to prevent choking and pneumonia from inhalation of food. In an occasional case this method of feeding must be maintained for months and is to be preferred to gastrostomy. On account of the remitting

character of the disease, even without treatment, and the marked improvement following use of glycine and ephedrine, one should not allow the patient to become discouraged even if the effect of treatment for several months does no more than to stop the progressive course of the disease.

The third group of muscles to become involved is composed of those of the extremities. Sometimes however, the arms or legs may be the first to be noticeably involved. In one of our cases the arms and hands were first involved, and in another the legs, and the muscles of phonation and deglutition were not involved until later. In some the weakness of the arms and legs becomes so great that the patients can walk only very short distances without falling down and then can rise up only after a period of rest. The muscles of the neck are often involved to the extent that the patient has to support his head and, if lying down, to move his head with his hands by grasping his hair. The mus-

cular weakness of some patients is so extreme that they may be unable to turn over in bed to raise their arms to their heads or in fact, to make any appreciable movement, and the intercostal muscles even may become involved. There is both pathologic and clinical evidence that occasionally the heart muscle is affected by the disease. In one case dyspnea was produced by the extreme weakness of the pharyngeal and laryngeal muscles, which permitted the epiglottis to fall backward and to obstruct the passage of air into the lungs like a flap valve. This necessitated, first, tracheotomy and then artificial respiration for ten days in the Drinker respirator, which was followed by improvement to the extent that the patient was up and about his room. He later died from causes not directly attributable to the myasthenic syndrome.

Exercise or use of the muscles involved always produces rapidly increasing fatigue. For example, a patient may be able to walk half a block without much difficulty and then rapidly becomes weak and may fall. The patients are almost invariably better after a short rest and especially in the morning. However an occa-

sional patient will have considerable difficulty in dressing in the morning and then be in fairly good condition during the forenoon, with a marked period of depression around 4 or 5 p m. The so-called myasthenic response of the muscle to electrical stimulation is by no means an invariable phenomenon.

As pointed out in the foregoing and in the table the course of the disease is usually gradual, with involvement of first one group of muscles and then of another, with irregular periods of remission or intermission. On the other hand, some patients present a very fulminating type of the disease, with rapid and progressive involvement of various groups of muscles, which may end in death within four or five weeks after onset of the disease, from profound weakness, inanition and dehydration, unless proper steps are taken in time to prevent the latter complications.

On all of our patients we have carried out extensive investigation of the chemistry of the urine and blood. The details of these studies will be reported elsewhere, as they are of more interest to the student of intermediary metabolism than to the clinician. The practical results, however, may be briefly summarized as follows:

1 The blood shows no characteristic or consistent change, in either the nitrogenous or the inorganic constituents, which is of value in the diagnosis of the disease.

TABLE 2—Amount of Creatine Nitrogen in the Urine

Case*	Males†		Case	Females†	
	Amount of Creatine Nitrogen Daily			Amount of Creatine Nitrogen Daily	
	Before Taking Glycine, Mg	Maximum While Taking Glycine, Mg		Before Taking Glycine, Mg	Maximum While Taking Glycine, Mg
1	30	110	2	0	110
2	40	120	3	70	80
6	10	150	4	10	60
7	30	90	9	170	200
8	40	100	14	20	170
10	20	40			
12	40	430			
13	20	190			
15	20	110			
16	10	60			
17	20	40			
19	20	40			

* Numbers correspond with those of table 1.
† Quantities of 20 mg of creatine nitrogen or less are open to question but as these values were obtained for several days they probably indicate that at least traces were present.

2 The urine shows no abnormal constituent other than creatine. In table 2 are listed the average amounts of creatine nitrogen excreted daily, before administration of glycine was started, a few of the patients had been receiving ephedrine for a varying length of time when the urine was first examined by us. The maximal amount of creatine nitrogen excreted after the patient had been receiving glycine for from two to six weeks or more is also given. As can be seen administration of glycine causes a definite and sometimes a very marked increase in the creatine nitrogen. Later, a decrease in the amount excreted sometimes occurs, which may or may not be coincident with clinical improvement. The reaction is quite similar in both men and women. This increase in excretion of creatine following administration of glycine is not confined to patients with myasthenia gravis, for we obtained it in three normal women who were used as controls and also in a few other individuals who did not have myasthenia gravis.

SUMMARY

The diagnosis of myasthenia gravis in the fully developed case is easy and is based on the history and the progressive development of the characteristic type of weakness outlined. True muscular paralysis from other causes, however, must be ruled out by detailed neurologic examination. Probably the greatest difficulty arises in the slowly developing case, in knowing just when in the progress of the disease, one is justified in making a positive diagnosis of early myasthenia gravis as opposed to some neurotic or functional disturbance. Unfortunately, laboratory data are of little practical help in arriving at the correct diagnosis, although the course of excretion of creatine is of considerable value in following the progress of treatment. Both ephedrine and glycine are valuable drugs in the treatment of the disease, and by their proper use a large proportion of patients with myasthenia gravis is benefited, many are so greatly helped that they can continue to work.

THE EFFECTS OF GLYCINE (GLYCOLL) IN MUSCULAR DYSTROPHY

WITH ESPECIAL REFERENCE TO CHANGES IN STRUCTURE AND COMPOSITION OF VOLUNTARY MUSCLE

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G. R. KINGSLEY, M.S., R. P. CUSTER, M.D.
AND
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The report of the remarkable therapeutic action of glycine¹ in progressive muscular dystrophy by Thomas, Milhorat and Techner² has been followed by widespread trial of this substance in the dystrophies and in other diseases primarily involving the muscles. Beneficial effects in muscular dystrophy have been substantiated by Kostakow and Slauck,³ Chanutin, Butt and Royster,⁴ and Beard and Tripoli.⁵ Boothby⁶ and Remen⁷ have shown that glycine is of value also in the treatment of myasthenia gravis. It would appear, however, that the treatment of muscular dystrophy has not been successful in many instances and that certain patients suffering from this disease do not respond to glycine therapy. This is evident from the reports of Boothby,⁶ Milhorat,⁸ and Brand and Harris.⁹ Aside

From the Divisions of Biochemistry and Pathology of the Laboratories and the Department of Neurology of the Philadelphia General Hospital.
Read before the Section on Pharmacology and Therapeutics at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 15, 1933.
1. Glycocol, Merck, contributed by Merck and Company through the courtesy of Mr. R. E. Gruber, has been used in this study.
2. Thomas K. Milhorat, A. T. and Techner F. Ztschr. f. physiol. Chem. **205** 93 1932 **214** 121 1933.
3. Kostakow, S. and Slauck, A. Deutsche med. Wchnschr. **59** 169 (Feb. 3) 1933. Deutsches Arch. f. klin. Med. **175** 25 302 1933.
4. Chanutin, Alfred, Butt, H. R. and Royster, L. T. J. Biol. Chem. **100** 111 (May) 1933.
5. Beard, H. H., and Tripoli, C. J. J. Biol. Chem. **100** 111 (May) 1933.
6. Boothby, W. M. Proc. Staff Meet. Mayo Clin. **7** 257 (Sept. 28) 1932.
7. Remen, L. Deutsche Ztschr. f. Nervenheilk. **128** 66 1932.
8. Milhorat, A. T. Deutsches Arch. f. klin. Med. **174** 487 (Jan. 12) 1933.
9. Brand, Erwin and Harris, M. M. J. Biol. Chem. **100** 111 (May) 1933. Metabolic and Therapeutic Studies in the Myopathies. J. A. M. A. **101** 1047 (Sept. 30) 1933. Dr. Leonard G. Rowntree has brought to our attention three additional cases of progressive muscular dystrophy in which glycine failed to bring about improvement as well as one case of myasthenia gravis that responded favorably to the administration of glycine.

from the suggestion of the latter that glycine may be effective only in certain forms of muscular dystrophy, there is at present no explanation for the apparent failure in these instances. Conclusions in regard to the efficacy of the treatment have been based largely on the clinical observation of the changes in the physical function of the muscles. As slight changes in muscle function are not easily detected, it is to be expected that differences of opinion would arise in regard to the effects of the therapy.

To avoid this difficulty we have utilized in the present study in addition to the usual physical procedures for estimating therapeutic action, the more objective method of chemical and microscopic examination of the muscle. A great incentive to the use of this method of approach was the opportunity it offered for learning how the glycine acted on the muscle. In the evaluation of results of the treatment, information obtained from the biopsies of the muscles has been considered in connection with the clinical response and also in relation to the excretion of creatine and creatinine in the urine.

The results obtained by the use of glycine therapy in eight cases of progressive muscular dystrophy and in one case of generalized chronic myositis are reported.¹⁰ Of the dystrophies, six conformed in all respects to the characteristic clinical picture (five showed a familial history of the disease), while in two others the diagnosis was not as clearly established. The muscles of the latter showed essentially the same histologic picture as the true dystrophies (cases 2 and 3). The group included both early and advanced stages of the disease.

The diagnosis of chronic myositis was made in patient 9, a woman, aged 65, whose case from the clinical standpoint could be readily included as one of muscular dystrophy and was at first so considered. However, biopsy of the muscles indicated the existence of a marked chronic inflammation with cellular exudate and fibrous tissue proliferation while the muscle fibers were comparatively normal. The usual symptoms of muscle inflammation were lacking.

Besides glycine, certain auxiliary and supplementary measures have been utilized in the treatment of these conditions. High protein diets, gelatin, beef extract and ephedrine have been tested, and a consideration of the effects of these substances is included.

EXPERIMENTAL

The general procedure employed in the study of this group of patients is outlined in the protocols. The excretion of creatine and creatinine was measured before and at frequent intervals after treatment, during periods when the patients received house diets from which meat and meat soups had been omitted. The method of Folin¹¹ was used.

Specimens of muscle were taken from the vastus externus.¹² This muscle seemed to be fairly representative of the condition of the larger voluntary muscles, although others were often more severely affected. Post-treatment biopsies were taken from the same portion of the muscle as the first specimens. In two instances, however, the corresponding muscle of the opposite leg was utilized for the second biopsies, and third biopsies were performed later, close to the original incision, to verify the results. Nitrous oxide anesthesia

was used except in a few cases in which procaine hydrochloride was substituted. Precautions were taken to prevent the anesthetic solution from entering the muscle proper. The fascia lata was exposed and divided without stimulation of the muscle. A specimen was then removed as rapidly as possible and divided into two portions of about 0.5 Gm each. One of these was weighed quickly and immediately ground with sand in a chilled mortar containing cold 5 per cent trichloroacetic acid. The filtrate obtained was used for analysis of the muscle extractives.

The remainder of this portion of the muscle was utilized for the determination of water, ether extract (extraction of the dried specimen in a Soxhlet extractor for seventy-two hours), and total nitrogen (by the macro Kjeldahl test on the fat free residue). A second separate specimen was taken from the exposed muscle for the histologic studies. The possibility of misinterpretation due to lack of uniformity in the diseased muscle was thus lessened to some extent. Chemical and histologic analyses have agreed in eighteen of the twenty biopsies in which both were done.

RESULTS

Although glycine therapy, so far as clinical improvement is concerned has proved to be of rather limited value in the patients with the muscular dystrophy syndrome, there is, nevertheless, evidence for believing that the treatment has had beneficial effects. These are more noticeable in the children than in the adults. One of the children (patient 4) after three months of treatment with glycine regained the ability to stand for brief intervals when support was afforded. In another child (patient 6), after a similar period contractures of the hamstring muscles were ameliorated. Patient 5 showed little change, although the disease apparently has made no further progress. It is uncertain whether improvement has occurred in two children who showed early symptoms of muscular dystrophy. While the latter have been treated only fifteen weeks, Milhorat's patients responded favorably in less than this time. Evidence of improved muscular function is even less tangible in the adult patients and no specific instance can be cited in which there has been undoubted gain in the ability to perform muscular movements that can be ascribed to administration of glycine. Two of the adult patients (patients 1 and 2), however, assert that they have gained strength and that fatigue occurs less readily than before treatment. They testify also that certain operations, such as dressing and various minor movements are accomplished with less effort and that an erect sitting position now can be maintained for longer periods than previously. It will be seen that the assertions of these patients are supported to some extent by data provided by the muscle biopsies. A third adult (patient 3) has failed to maintain the improvement that appeared during the early period of treatment.

While the gains in muscle function did not fulfill expectations, it should be mentioned that administration of glycine has been of considerable benefit in other ways. Among all the patients but in the children particularly, the mental and physical activity has been stimulated as a result of the treatment. No ill effects have been noted as a consequence of glycine therapy. Kidney function as measured by urea clearance determinations has remained unchanged following long periods of glycine administration.

Glycine proved to be of decided value in the case of generalized chronic myositis that was discovered in

¹⁰ We are indebted to the staffs of the Departments of Neurology and of Pediatrics for permission to study these patients and for assistance.

¹¹ Folin Otto J Biol Chem 17 469 1914

¹² The authors are indebted to Dr Philip Ehrig for performing the biopsies.

connection with the studies on muscular dystrophy. In this instance several weeks of glycine feeding enabled the patient to rise to a sitting position without help whereas powerful assistance had previously been required. The ability to walk improved appreciably.

All the patients exhibited creatinuria to a pronounced degree which was further augmented with only two exceptions, by the administration of glycine. In a few instances the creatinine excretion also increased. Both the creatine and the creatinine output remained comparatively stable over long periods with a constant level of glycine feeding. The gradual inversion of the creatine-creatinine ratio reported by Milhorat⁸ and by Kostakow and Slauck³ has not been observed in two cases in which creatine excretion was studied under controlled conditions for long periods. In chronic myositis, glycine therapy caused the excretion of creatine to increase considerably, while a similar observation has been made in an emaciated cachectic female who showed extreme wasting of the muscles, caused apparently by starvation. It appears, therefore that increased excretion of creatine in the urine after glycine occurs not only in progressive muscular dystrophy but in a variety of other conditions in which the muscles may be involved.

Twenty-one biopsies of muscles have been made in thirteen cases, although the results for only nine of the latter are discussed here. The extensive degeneration of the voluntary muscles in progressive muscular dystrophy has been described by Erb,¹³ Lorenz,¹⁴ and others, and our observations are in accord with those reported by these workers. A loss of substance and of structure with replacement by fat and fibro-areolar tissue was to be seen in varying degrees in all cases, dependent roughly on the duration of the disease. Both hypertrophied and atrophied fibers commonly were present in the same muscle. Distortion, fraying, vacuolization, and fission of fibers constituted other changes of importance. The internal structure of the fibers at times was obliterated, and in its place could be seen only homogeneous, unevenly stained material. The quantity of myohemoglobin present in the remaining fibers appeared to be reduced, although individual variation in this respect was considerable. Visible nuclei were increased in number, while the distribution in the fibers was abnormal.

Analyses of the specimens of muscle revealed that characteristic muscle constituents were greatly reduced in concentration, in some instances to small fractions of normal values. In advanced cases the muscles contained only from 5 to 10 per cent of the normal concentrations. Earlier cases, with but partial functional incapacity, contained as much as 50 per cent of normal. Most conspicuous was the deficiency of creatine, which appeared to be diminished to a greater extent than the other substance that have been determined. Exceptions were encountered in the two cases of longest duration, in which the loss of creatine from the muscle had been in approximately the same proportion as the loss of other water soluble extractives. In all the patients, the widespread infiltration of fat and the substitution of connective tissue (estimated by staining reactions) for muscle fibers explained in large part the greatly reduced concentrations of the substances concerned with the normal activity of the muscle. These factors alone, however, were not sufficient to account for the low

values observed, and it is probable that a marked deficiency of water soluble extractives and other characteristic muscle components existed in the surviving muscle fibers. A relatively high total nitrogen in several of the more badly degenerated muscles could be traced to the substitution of fibro-areolar tissue.

Muscle biopsies have been performed after periods of treatment with glycine in six cases, and chemical and histologic data are available for comparison with similar data from pretreatment specimens. Of the eight post-treatment specimens that were subjected to histologic examination, six were of a better quality than the preceding specimens, one was of a poorer quality, and one showed no appreciable changes. An identical distribution was encountered in the results of the chemical analyses. A case in which retrograde changes were suggested by chemical analysis has been classified as showing no gain or possibly slight gain histologically. Actually, in this instance in the later specimen, lowered concentrations of certain extractives were counterbalanced by a higher fat content, hence there was probably no actual change of fiber quality. In the remaining case in which the results of the biopsies were doubtful, the microscopic examination indicated a slight progression of the degeneration, while the chemical changes on the contrary pointed toward a moderate degree of recovery. Possibly the discrepancy may be explained by the short period of treatment in this instance (eleven weeks), since it is not improbable that chemical changes would precede morphologic alterations. One may summarize the evidence provided by the biopsies by stating that in four cases improvement was indicated, while in two others, because of the conflicting data or lack of significant differences, there was no definitely established trend. Additional post-treatment biopsies in two cases, seven months after the last preceding biopsies yielded results substantiating those obtained previously from the same case.

Histologically, the post-treatment specimens differed from those taken before glycine was administered by the greater uniformity in fiber size, better staining reactions and decreased numbers of visible nuclei. Cross striations and longitudinal fibrils were to be seen more clearly. The fat content of the muscle was greatly decreased in most cases, and more myohemoglobin appeared to be present. Photomicrographs showing representative muscle fibers of one of the patients before (fig 1) and after (fig 2) treatment illustrate certain of the changes that have been described.

The muscle specimens taken after treatment showed quantitative differences in chemical composition, which likewise suggested regeneration. The restoration of the muscle appeared to be of a general nature, involving all the muscle constituents that have been studied. Total nitrogen was increased, particularly in the more advanced cases. Creatine concentrations were from two to four times the original figures, and the total acid soluble phosphorus showed like differences. Since the gains in creatine concentration did not exceed the similar gains in other water soluble extractives, the relative deficiency of this substance in the muscle remained uncorrected. Diminution of the proportion of fat in the muscle following the treatment was insufficient to account for the increased concentrations of extractives that have been noted. However, the composition of the muscles of the muscular dystrophy cases was still far from normal after varying periods of treatment, despite the gains that apparently had occurred. Owing to the lack of space for adequate dis-

¹³ Erb W H. *Gesammelte Abhandlungen*. Leipzig: F C W Vogel 1910.

¹⁴ Lorenz H A. *Die Muskelerkrankungen in Spezielle pathologie und Therapie* (Nothnagel) 11: part 3 1904.

cussion, the chemical data from these and other cases will be presented elsewhere in detail.

The absence of unmistakable evidence of improvement in the function of the muscles of these patients led to the trial of several supplementary measures. These included high protein diets, gelatin, beef extract and, in one case, ephedrine. Details are described in the protocols. It is believed that the high protein diets (2 Gm per kilogram for adults, from 3 to 4 Gm per kilogram for children principally in the form of meat) were of definite benefit. Somewhat greater progress (as suggested by muscle biopsy) was made in case 1 during the second treatment period coincident with the use of such a diet. High protein diets, beef extract and gelatin, singly or in combination appeared to be ineffective in the quantities given when glycine was omitted.

As a consequence of the successful use of ephedrine in myasthenia gravis by Edgeworth¹ this drug has been tested in conjunction with glycine in case 3 which

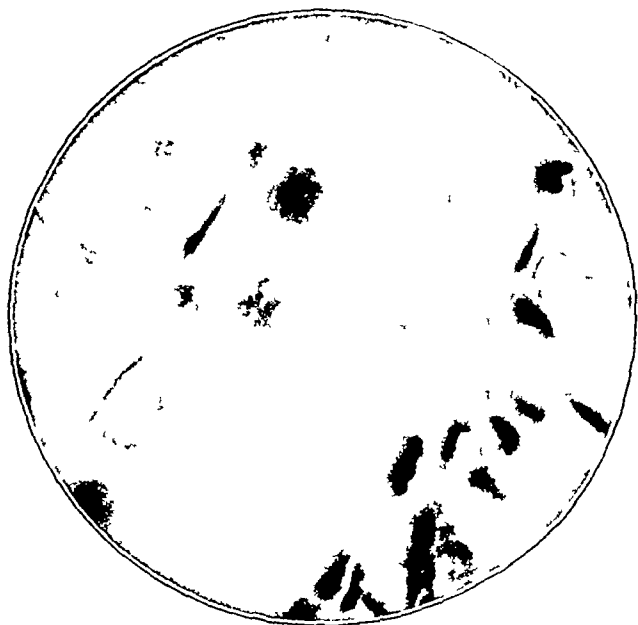


Fig. 1 (case 4)—Control muscle biopsy, Jan. 10, 1933 illustrating a giant fiber that presents almost complete loss of internal structure, vague suggestion of cross striation remaining rather an extreme example. Opposed to this are minute fibers embedded in a fibrous matrix with occasional normal fibers interspersed. Slightly reduced from a photo micrograph with a magnification of 1,021 diameters.

failed to respond clinically when the latter was given alone. While the general condition of the patient was improved, there has been no convincing gain in muscular function. Administration of ephedrine doubled the excretion of creatine which had already been augmented considerably by the feeding of glycine. Muscle sensations of the nature of those described by Thomas, Milhorat and Techner² were pronounced in this patient and were concurrent with periods of excessive creatine excretion after glycine and again after ephedrine.

COMMENT

The biopsies as a whole provide considerable evidence for regeneration of muscle and practically none that indicates further deterioration. Although based on a small number of observations, the distribution of the results favors the view that improvement in the volun-

tary muscles actually had occurred. The use of muscle biopsies for evaluating results of treatment may be subject to errors arising from a lack of uniformity in the muscle, and undoubtedly this factor is responsible for certain discrepancies that have been observed. However, information obtained by performing additional biopsies after further periods of treatment confirmed earlier observations. Clinically, the improvement in the patients suffering from progressive muscular dystrophy has not progressed to the extent that might be expected on the basis of the indicated change in the composition of the muscle. Yet, in view of the extensive deterioration of the voluntary muscles (all of the post treatment biopsies were done in advanced cases) and the fact that marked abnormality persisted even after extended periods of treatment, a rapid clinical response to glycine therapy was not to be expected. It is believed that the evidence of improvement obtained by direct examination of the muscle is, therefore, a more sensitive guide to the earlier effects of glycine therapy than are measurements of muscle function or creatine excretion.

The results are sufficiently indicative of improvement to suggest continuation of glycine therapy. It is hoped that the present studies may be extended over a sufficient period of time to permit a statement of definite conclusions in regard to the effects of prolonged administration of glycine and of the supplementary substances that have been employed. Occupational therapy has been utilized during recent months as an adjunct to the dietary treatment.³ The use of this or of some other form of systematic controlled exercise is strongly advocated.

SUMMARY

The effects of glycine feeding have been studied in nine cases of progressive muscular dystrophy for periods up to fourteen months. Little tangible evidence of improvement in muscular function has been obtained.

Muscle specimens removed at biopsy after treatment were distinctly better in quality, chemically and histologically, than similar specimens taken before treatment. Restoration of various characteristic muscle components accompanied regeneration of the muscle fibers.

High protein diets, beef extract and gelatin proved to be helpful supplements to glycine. Ephedrine has been of value in one case.

A patient with generalized chronic myositis that closely simulated the clinical picture of muscular dystrophy showed considerably improved muscular function following glycine therapy.

Despite the marked improvement in the structure and composition of the muscles in progressive muscular dystrophy after treatment with glycine (as indicated by examination of the biopsy specimens), a great disparity with the normal remained, probably sufficient in many cases to account for the failure of muscular function to be restored to a greater extent. The possibility of inducing further regeneration, perhaps sufficient to bring about unquestioned clinical improvement, remains to be tested.

PROTOCOLS

CASE 1—H. M., a white man, aged 28, had had a progressive muscular dystrophy with pseudohypertrophy for nineteen years. The patient was exceptionally obese, weighing 90 Kg., he presented a typical example of the more advanced stages of the disease with complete loss of the use of the legs and almost total inability to perform movements with the arms. The muscles of the back were extensively involved. The calves

¹⁵ Edgeworth, Harriet. A Report of Progress on the Use of Ephedrine in a Case of Myasthenia Gravis. *J. A. M. A.* 94: 1136 (April 12) 1930. The Effect of Ephedrine in the Treatment of Myasthenia Gravis. *Second Report* 100: 1401 (May 6) 1933.

¹⁶ Occupational therapy has been carried out under the direction of Miss Helen S. Willard of the Philadelphia School of Occupational Therapy.

and thighs showed pronounced pseudohypertrophy. The shoulders and arms exhibited atrophy with a commensurate loss of power. The movements were restricted to those required for eating and personal care. The family history was negative.

The patient excreted in the urine in an average twenty-four hour period 0.173 Gm of creatinine and 0.694 Gm of creatine (as creatinine). Seventy-seven per cent of 2 Gm of creatine given by mouth reappeared in the urine within forty-eight hours.

A specimen of the vastus externus muscle showed degenerative changes of extreme nature. There was extensive replacement of muscle by fat. Few of the muscle fibers were normal. Acid soluble extractives were present in low concentration.

Treatment was divided into two periods of approximately five months and seven months respectively. After the preliminary biopsy and the study of the creatine and creatinine excretion in the urine the patient was fed 15 Gm of glycine daily for seven weeks, then 23 Gm daily for five weeks, and again 15 Gm daily for ten weeks. An ordinary house diet accompanied the treatment during this period. After five months of glycine feeding, a second biopsy was performed. Subsequently, the feeding of glycine was resumed at the rate of 15 Gm daily in conjunction with a diet high in protein, particularly meats. The diet also included 15 Gm of gelatin and, during the last two months, 5 Gm of beef extract daily. A third biopsy was then done.

A few weeks after first receiving glycine the patient stated that he could rise from a lying position and perform certain other movements with greater facility than he could before. At the present time the patient believes that he fatigues less easily. It is difficult for an observer to see any improvement, however, and his condition is practically the same, except for a moderate loss of weight, as it was previous to treatment a year before. Nevertheless, there is no evidence of the progression of the disease, as there had been during previous years.

During the first five weeks of glycine administration the average excretion of creatinine was 0.300 Gm, creatine (as creatinine) 1.090 Gm. Extra creatine (from glycine feeding) subsequently showed no appreciable decrease. Following fifty weeks of treatment when glycine had been discontinued the patient excreted 0.244 Gm of creatinine and 0.682 Gm of creatine (as creatinine) daily during an eleven day period.

Certain features in the appearance of the muscle under the microscope at the end of the first period suggested that some regeneration had occurred. The muscle fibers appeared to be more nearly normal. Cross striations were clearer, and there was less fraying and separation of the longitudinal fibrils. The fibers contained more myohemoglobin. The close of the second period of treatment showed further and more definite indications of an improvement in structure. While variation in fiber size persisted, it was somewhat less marked, and the muscle bulk appeared to be increased. The fiber quality was markedly bettered.

Total nitrogen, creatine and total acid soluble phosphorus were present in higher concentrations in the specimens removed at the end of the first period. Ether extract was much lower in this specimen than in the original. The third biopsy done six months later, substantiated previous gains and showed furthermore that they had been extended. Analyses at this time yielded values that were from three to four times as great as those observed before treatment in a specimen from an adjacent portion of the same muscle.

CASE 2—L. G., a Negro man, aged 45, weighing 50 Kg, complained of muscular dystrophy which had had a gradual onset between the ages of 28 and 30. During the following ten years there had been little change in the patient's condition. Subsequently slow progression of the disease during the five years preceding the present treatment had resulted in the gradual loss of the use of the legs and to a considerable extent, of the arms. The muscles of the shoulder girdles were most severely affected. The hands were not involved. The patient complained of pains in the joints, but these were thought to be of postural origin. Although certain aspects of this case were not fully in accord with the diagnosis histologic examination of the muscle revealed degenerative changes similar to those observed in the true muscular dystrophies. There had been no similar cases in the family. The patient excreted on the average

during twenty-six days preceding treatment 0.460 Gm of creatinine and 0.206 Gm of creatine (as creatinine).

Treatment in this case also was divided into two periods. During the first, glycine was given at the rate of 15 Gm daily with 10 Gm of gelatin. No glycine, as such, was administered during the second period, however, the diet contained gelatin and an abundant allowance of meat, 5 Gm of beef extract was given daily.

Toward the end of the first period and particularly at the beginning of the second, the patient appeared to be able to move his legs with greater facility and seemed improved in other ways as well. The gains made were not sustained, and little if any progress has been made subsequently. At present the condition appears to be stationary so far as clinical evidence is concerned, although the patient believes that he has been benefited.

After glycine was started at the beginning of the first period, the excretion of creatinine remained unchanged at 0.444 Gm. every twenty-four hours, while creatine (as creatinine) rose to 0.356 Gm. In this case, also, there was no reduction in the output of extra creatine. In comparison with the excretion before treatment, creatinine excretion after eleven months had

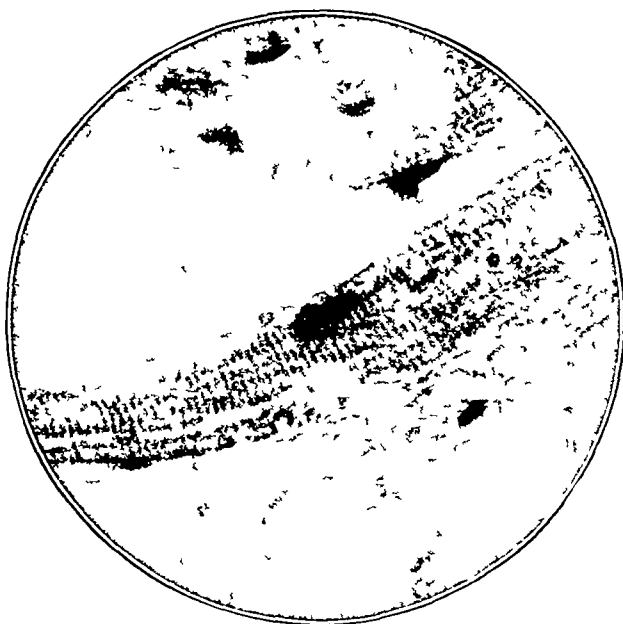


Fig. 2 (case 4)—Muscle biopsy after glycine therapy, April 18, 1933. The fiber presenting normal morphology and diameter. Striation is somewhat clearer in this instance than in the majority of fibers although all show distinct structural improvement and greater uniformity of size. Slightly reduced from a photomicrograph with a magnification of 1,021 diameters.

decreased to 0.370 Gm, and creatine (as creatinine) had increased from the original value to 0.318 Gm.

The muscle biopsy at the close of the first treatment period revealed somewhat greater uniformity among the fibers. Unusually large fibers persisted, but the extremely small degenerated fibers were no longer to be seen. The muscle bulk remained unchanged. At the conclusion of the second treatment period, although the quality of the muscle seemed improved in comparison with the preceding specimens, the impression created was still one of marked abnormality.

The chemical analyses failed to provide any conclusive evidence in this case of restoration of muscle. At the end of the first period the only significant change was the higher total nitrogen concentration (possibly due to a higher proportion of connective tissue). A lowered concentration of creatine in the specimen obtained at the close of the second period was accounted for by the greater fat content. The acid soluble phosphorus in this instance was considerably increased, particularly when the change in fat is considered. Prolonged administration of a high phosphorus diet (beef extract) may have had a bearing on this change.

CASE 3—Rose M., a white woman, aged 27, weighing 67 Kg, had symptoms on which the diagnosis of progressive muscular

dystrophy could not be established with certainty. There had been no other cases in the family. The onset dated back to two pregnancies in close succession. During the subsequent seven years progressive wasting of the muscles of the shoulder girdles of the lower extremities and of the proximal portion of the upper extremities had occurred. Creatinuria was marked. After 15 Gm of glycine daily (plus 2 Gm of protein per kilogram for seven months) there is little reason for believing that the patient has been helped so far as muscular function is concerned although early in the treatment favorable response apparently had been obtained. The administration of ephedrine (three eighths grain [0.024 gm] daily by mouth) likewise had no lasting effect on muscular function but was helpful because of its action in restoring peripheral circulation.

The specimen of muscle obtained before treatment exhibited mild degenerative changes in the fibers. Striation was indistinct and separation of the longitudinal fibrils gave to the muscle fibers a frayed appearance. Staining characteristics were slightly subnormal. There was considerable fat present. A specimen of muscle obtained after treatment showed mild improvement histologically. Chemically the noteworthy change was a significant increase in the phosphocreatine concentration. Other extractives did not change proportionately. The fat content was lowered.

CASE 4—A S, an Italian boy, aged 8 years, weighing 23 kg, had vomiting muscular dystrophy dating from a severe attack of vomiting at the age of 3. Involvement of the muscles appeared shortly afterward and had progressed from that time. The disease had previously developed in an elder brother. At the time that treatment was begun the patient was unable to stand and could rise to a sitting position only by considerable exertion. The upper extremities were not as severely affected. Involvement was uniformly bilateral. The calves showed pseudohypertrophy. In an average twenty-four hour period before treatment there was excreted in the urine 0.204 Gm of creatinine and 0.258 Gm of creatine (as creatinine).

A specimen of muscle taken before treatment showed that degeneration was far advanced, with extensive replacement by fat and fibrovascular tissue. Few of the muscle fibers that remained were normal in any way, many presenting a glassy homogeneous appearance (fig. 1). Results of the chemical analysis were in accord with the histologic observations. The concentration of the acid soluble extractives was very low. Total nitrogen was reduced far less than other constituents, no doubt because of extensive replacement of muscle by fibrous tissue.

After 10 Gm of glycine daily for twelve weeks in conjunction with a high protein diet after the first three weeks, a second muscle biopsy was performed. Subsequently, glycine therapy was resumed.

The patient previously dull and sluggish became much more active and energetic after a few weeks of treatment. While before he had lagged behind the other children of the group, he soon equaled or surpassed those in whom the disease had progressed to about the same extent. At the end of three months of treatment the patient attained the ability to support himself in a standing position when held erect. However, little further progress has been made.

The average daily excretion of creatinine for twenty-four days after glycine therapy was started was 0.212 Gm and of creatine (as creatinine) 0.375 Gm. Following the conclusion of twelve weeks of therapy the excretion in the absence of medication was 0.147 Gm of creatinine and 0.249 Gm of creatine (as creatinine).

The post-treatment specimen of muscle showed considerably less degeneration than did that taken before treatment. The muscle bulk was increased. The fibers were far more uniform and did not present the glassy appearance that had characterized the earlier sample. Cross striation remained indistinct in the main, although certain fibers showed practically normal structure (fig. 2).

Creatine and total acid soluble phosphorus were higher than before in proportion roughly to the improvement indicated by the histologic studies. Because of the extent of the disability of the patient and the pronounced degeneration observed in the muscle before treatment the fact that a response was obtained was especially encouraging.

CASE 5—J M, a white boy, aged 11 years, weighing 28 kg, had progressive muscular dystrophy with pseudohypertrophy. He had been unable to stand for about two years. There were marked contractures of the hamstring muscles. Treatment was the same as in case 4. There has been little clinical improvement.

The muscle before treatment showed extensive fibrous replacement. Badly degenerated fibers predominated. There was great variation in size with many excessively large fibers. In the specimen taken after treatment the fibers were more uniform and a degree of improvement in the quality of the muscle was observed. Chemical analysis also suggested a moderate gain.

CASE 6—H M, a boy, aged 10 years, weighing 27 kg, a brother of patient 5, had progressive muscular dystrophy with similar manifestations to those in case 5 although not as far advanced. Treatment was given as reported in case 4. Minor indications of partial restoration of muscle function were observed while the contractures of the thigh muscle were partially relieved.

The muscle before treatment showed the usual marked variation in the size of fibers. Certain of the fibers were homogeneous and glassy without detectable cross striation. There was moderate fibrosis and fat infiltration. The microscopic appearance after treatment showed no improvement with possibly some added evidence of degeneration as compared with the pretreatment specimen. In contrast to these observations the chemical studies indicated that the muscle had improved.

CASES 7 and 8—Negro boys, aged 12 and 13 years, brothers, showed early progressive muscular dystrophy. Weakness of the muscles of the shoulders, arms, back and legs, first noticed about nine months before, had become progressively worse. The loose shoulders, lordosis and swaying gait were well defined. The calves were hypertrophied. The muscles showed the characteristic alterations that have been described, although in less marked degree. Ten grams of glycine daily with a house diet failed to bring about any appreciable change in the condition of the patients over a period of three months.

CASE 9—H T, a woman, aged 65, had generalized chronic myositis. The onset three years before had been insidious, with progressively increasing muscular weakness. Pain and paresis were absent. The patient lacked sufficient strength to support herself and could not rise to a sitting position without considerable assistance. There was proximal wasting of both the upper and the lower limbs. The facial muscles were also involved. Reflexes were diminished. The patient's temperature was 100 F on admission. It subsided subsequently but tended to undulate. Eosinophilia was absent.

Aside from the advanced age at the onset, the syndrome closely resembled that of progressive muscular dystrophy and it was only with the aid of the information obtained from the muscle biopsy that the differentiation was made. Marked chronic inflammation existed in the muscle. Some fibrous tissue reaction had occurred, and there was considerable cellular exudate that at many points spread the muscle fibers apart. The fibers were relatively normal in size and staining reactions, although cross striation in many was indistinct. On the whole, fiber quality was fair.

Compared with muscular dystrophies of the same duration the chemical changes in the muscle in this instance were relatively moderate. The acid soluble phosphorus was lowered to about half of the normal. Creatine was reduced far more proportionately, than the phosphorus.

Before treatment, the patient excreted in an average twenty-four hour period 0.304 Gm of creatinine and 0.253 Gm of creatine (as creatinine). The administration of glycine for sixteen days caused the creatinine excretion to increase to 0.365 Gm, while creatine increased to 0.340 Gm.

The feeding of glycine at the rate of 15 Gm daily was accompanied by an unmistakable return of strength to all groups of affected muscles. The patient could again walk short distances without aid or support. The greatest response was observed in the muscles of the back, and the ability to rise unassisted to a sitting position was recovered. The general condition was greatly improved. After six weeks of glycine administration the treatment was interrupted by a severe bronchitis. Bronchopneumonia developed and terminated fatally.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. BOOTHBY AND DR. RICHOLD, CLARK,
KINCHEY, CUSTER AND MCCONNELL

HARriet EDGEWORTH PH.D., Tucson, Ariz. Judging from the 100 cases from which I have heard my own experience has been typical. None were correctly diagnosed in an early stage of the trouble. The only symptom is a fatigue which is hard to appraise, as there is no reliable test for it. It may be limited to a few muscles, e.g., eye, jaw or heart and also at first it may be transitory and disappear on rest. That is, the patient may complain of it only after unusual exertion or during a cold or a menstrual period. When I tried under controlled conditions the whole gamut of drugs, endocrine preparations and physical therapy, no benefit resulted. Exposure to strong sunlight, heat, cold, menstruation, worry, excitement, respiratory infections, depressant drugs and over-exertion all affect the symptoms adversely. Because of similarity in the muscular weakness to that occurring in Addison's disease, a suprarenal deficiency has been suspected. Ephedrine differs from epinephrine by only three atoms in a complex molecule. Reports indicate that glycine may be a stimulant of the suprarenal medulla. Marked vasomotor symptoms were prominent in my own case after I became helpless but subsided on the use of ephedrine. On the other hand the ingestion of fresh cortex and the use of all the available suprarenal extracts have not produced any marked improvement in the symptoms of myasthenia gravis. After the best clinical help available and all the reported remedies failed to arrest the progress of the disease, it was felt that a careful chemical study might reveal small changes in such important constituents as sulphur, nitrogen or phosphorus that might be significant. But the only positive observation in all this painstaking and laborious work was a lowered excretion of creatinine and a creatinuria of about 150 mg. daily. This was surprising in a patient who was totally helpless. Swallowing, speaking and breathing were difficult and there was a chronic cyanosis with alarming cyanotic attacks at times. A creatinuria had been reported before in this trouble as well as in other disorders in which asthenia is a prominent symptom, but its relation to an abnormal muscle metabolism or a means of its control was unknown. In fact, in 1920 I found only one chemist who considered it of significance. But a new point of view has developed in muscle chemistry. Unforeseen constituents (such as phosphocreatine, adenine nucleotide and adenosine) in new roles of metabolic interest have been discovered. The energy of contraction is now believed to be supplied by the decomposition of phosphocreatine. Hence the loss of creatine may be as disabling to patients with muscular disease as sugar is to the patient with diabetes. How ephedrine produces a continuous improvement in some patients with myasthenia gravis is unknown. The daily ingestion of it over a period of three years has changed me from a totally helpless bedridden person to my present condition, wherein I live a comparatively comfortable and pleasant life of some usefulness. I have taken glycine daily for several months, discontinued it for a month and then resumed it without demonstrable beneficial effects, but the apparently beneficial effects on other patients using glycine has thoroughly aroused my interest.

DR. FREDERICK P. MOERSCH, Rochester, Minn. Thanks to the observations of Dr. Edgeworth the medical profession has taken a new lease on life regarding muscular diseases. Since her contribution three years ago, many laboratories and hospitals have been working on this problem of muscle disease. My associates and I have had five cases of progressive muscular dystrophy in which glycine was used. One of these patients seemingly is somewhat better. The other four are no worse and no better. The glycine treatment in dystrophies has not been extremely encouraging. We do not do biopsies as a routine in our dystrophies. These patients have long remissions and it seems conceivable that a patient might have an attack and have a spontaneous recovery. Dr. Edgeworth noted the beneficial effects of ephedrine three years ago, and since that time we have used it as a routine until recently. We now start the patients on glycine. Thus far we have had twenty patients with myasthenia gravis on glycine twelve of whom have been under treatment for a considerable period. Ten are

improved, five distinctly improved, one is stationary and one patient died of unrelated causes. The nature of myasthenia gravis is unknown. There are a tremendous number of theories and yet none of them seem to hold up under clinical scrutiny. It seems that infection plays a part. [Two slides from cases of myasthenia gravis were demonstrated, showing marked round cell infiltration, increase of nuclei and changes in muscle fibers.] These observations suggest that one may be dealing here with some infectious process and it may be that myasthenia gravis is related in some roundabout way to dermatomyositis, scleroderma or even muscular dystrophy.

DR. ERWIN BRAND, New York. From the analysis of the papers by Thomas and by Milhorat I am under the impression that out of their eleven cases of muscular dystrophy only case 1 and, perhaps, case 3 showed definite improvement on the administration of glycine. Since these two cases showed an almost negligible creatinuria in spite of their extensive incapacity it is questionable whether they were cases of progressive muscular dystrophy similar to those that have been studied. One should consider the possibility that their two cases were related to myasthenia gravis. My experience with glycine therapy in muscular dystrophy coincides with that of Dr. Moersch. Although in some of the children under my care the mothers were of the opinion that there was some slight improvement in the ability to walk and in general activity I was not aware of any striking beneficial results on examination. I kept some of my patients on meat-free diets for a long time for special studies. Others have received their ordinary regular diet plus glycine. I had a number of patients on a very high protein intake plus glycine. One patient received a diet containing 100 Gm. of protein plus 25 Gm. of glycine plus from 50 to 100 Gm. of casein daily for two months, the patient excreting about 25 Gm. of nitrogen daily. No clinical improvement was noted in spite of this high protein intake. I have recently carried out some experiments with benzoic and phenylacetic acid in order to gain some insight regarding some phases of intermediary protein metabolism. As a result I have formulated a working hypothesis concerning the possible role of glutathione in creatine formation, also in certain mechanisms of detoxification and other aspects of metabolism. Owing to the expensiveness of the glutathione I have started some experiments in which the combination of the three amino acids that go to form the glutathione molecule (glycine, cystine and glutamic acid) have been fed. I hope subsequently to be able to carry out some studies with glutathione itself.

DR. MEYER SOLOMON, Chicago. I have under my management at present a woman aged 25, who has had the condition about six years and who was diagnosed as having hysteria about six years ago. She presents a typical picture, including regurgitation of fluids through the nose, and weakness of the neck, arm and leg muscles. One month ago, after reading the article of Dr. Edgeworth and her encouraging report, I put the patient on ephedrine and can report quite a remarkable change. I didn't tell her what she was getting. Many of these cases are early looked on as being of emotional etiology, especially if symptoms come on very suddenly or the patient falls down getting on a street car or going up steps, as this patient did. The theory is that the symptoms are due to a fear reaction and autosuggestion following a fall with trauma. I would however call attention to the fact that Dr. Moersch has stressed one should be sure that the condition is myasthenia gravis and not a psychoneurosis, because the therapy is different and if the condition is a psychoneurosis the patient will get well if he has faith and confidence no matter what treatment is given. It is necessary to be on guard not to diagnose a functional case as one of myasthenia gravis as well as not to diagnose an instance of myasthenia gravis as a functional type.

MURPHEE B. VISSCHER, PH.D., Chicago. With regard to Dr. Boothby's emphasis on the infectious element in the etiology of myasthenia gravis I wish to state that in creatine determinations in sixty subjects I have found in normal individuals a very considerable creatine output associated with the occurrence of infection of the upper respiratory tract. This was of a very short duration and was not found at other times.

I have found this consistently and feel that this creatinuria during a certain stage of the upper respiratory infection may be of interest in connection with this suggestion. Recent knowledge regarding the function of creatine in muscle metabolism particularly in its relation to the diffusibility of the creatine complex in muscle has not been taken into account. It has been known for twenty years that creatine diffuses out of muscle only after the muscle is fatigued. The creatine in muscle is in an indiffusible state in resting muscle and it is only in the fatigued muscle when the creatine phosphate is broken down into creatine phosphoric acid that creatine can diffuse out. It seems likely that a defect in the rebuilding of creatine phosphate from creatine and the other precursor is of more importance than anything else in the creatinuria of these conditions. Certainly if the creatine were present as creatine phosphate it could not diffuse out. The influence of the ephedrine may be linked up with this mechanism. It is well known that epinephrine and other sympathetic stimulation either direct sympathetic or pharmacologic will accelerate the recovery process in muscle which is essentially the rebuilding of creatine phosphate from creatine and phosphoric acid. In this picture one sees the importance of accelerating the recovery process the resynthesis of creatine phosphate and one wonders whether the therapeutic problem is not directly related to this phenomenon.

DR M. H. NATHANSON, Minneapolis. There is little doubt that the amines related in structure to epinephrine including ephedrine, have the same pharmacologic actions. I felt that I demonstrated this in the paper I presented on the action of epinephrine-like compounds on the heart. The differences are largely quantitative. In view of the similarity in the physiologic action of epinephrine and ephedrine would it not be possible to apply in acute therapeutic test with epinephrine in cases of myasthenia gravis? Epinephrine could be administered in an effective dose and dynamometer tests used to determine whether there is any increase in muscular strength. In regard to ephedrine there appears to be a tremendous variation in the susceptibility of different individuals. It is possible that the drug is at times discarded before a sufficient dosage has been administered. It might be of value to test patients who are receiving the drug with some simple reactions as the blood pressure response, to determine whether they are actually having a systemic effect from the drug.

DR J. H. CLARK, Philadelphia. Our purpose in doing muscle biopsies and in studying them chemically and histologically is to try to determine what is taking place in the muscles. Just as kidney function is determined by blood analyses so we thought muscle analyses would tell what is happening in muscles under glycozell therapy. We do feel that there is a change and for the better but we have been somewhat disappointed in the clinical results obtained in the majority of our cases. We now have patients on occupational therapy to determine whether it will help reeducate muscles.

DR WALTER M. BOOTHBY, Rochester, Minn. Epinephrine has been frequently tried in myasthenia gravis without proving of any definite value. Dr. Edgeworth tells me that at various times it was tried out with her, and in none of the trials did she receive any benefit, her impression was that it made her worse. My experience is not yet sufficiently large to justify any definite conclusion, but I have the impression that the patients who were first started on glycine and kept on that several weeks before starting ephedrine did better than those who had been taking ephedrine a long time before starting glycine. I wish particularly to call attention to the danger of giving too much ephedrine and concur in Dr. Edgeworth's warning on this point (THE JOURNAL, May 6, 1933, p. 1401). I wish to thank Dr. Edgeworth and Dr. Guyton for especially coming to this meeting to make their own reports.

Vitamins Manufactured by Animals.—The vitamins were originally believed to be manufactured only by plants and not by animals, but this view can no longer be accepted. Vitamin A can be made by animals from its precursor carotene, a yellow pigment which is widely distributed in the plant world.—Colwell, S. J. *Vitamins in Clinical Medicine, Practitioner* 132:15 (Jan.) 1934.

VALUE OF SILVER ARSPHENAMINE IN THE TREATMENT OF EARLY SYPHILIS

CONCLUSIONS BASED ON A STUDY OF 104 CASES

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NEW YORK

Although approximately 200 patients with primary and early secondary syphilis have been under treatment with silver arspenamine at the Vanderbilt Clinic since June, 1931, some have been there for less than six months many have failed to return after a few times and others have been transferred, thus, on only 104 of the 200 patients are there data complete enough to include in this report. All of the patients had primary or early secondary lesions.

Observations of the time required for the disappearance of the spirochetes from the initial lesion after treatment was instituted were made on 12 of the 104 patients. The time necessary for the healing of the primary lesion, the disappearance of secondary lesions and the behavior of the Wassermann reaction were studied in the remaining ninety-two patients and the number and the types of complications were tabulated. The number of injections and the total amount of the drug necessary to bring about these changes were also calculated, the results being compared with those obtained with old arspenamine and with neo-arsphenamine.

ROUTINE TREATMENT

The ideal routine treatment at the clinic is to give each patient at least three courses of 10 injections each of silver arspenamine but every physician knows the

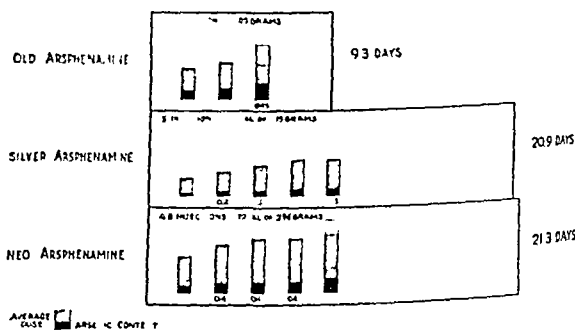


Fig. 1—Average time and treatment required for healing of primary lesions.

difficulty of getting patients, especially those who attend a clinic to adhere to a regular schedule. With men the initial injection is usually 0.15 Gm, the amount being gradually increased so that the last 4 injections will be 0.3 Gm each. With women, the initial injection is usually 0.1 Gm and the amount is gradually increased to 0.25 Gm. With the first course of arspenamine, 15 injections of an insoluble mercury or bismuth preparation are given at intervals of from five to seven days followed by alternate courses of arspenamine and a mercury or bismuth preparation so that each patient will receive at least 30 injections of silver arspenamine and 45 of a mercury or bismuth preparation without interruption.

From the Vanderbilt Clinic, Columbia University College of Physicians and Surgeons.
Read before the Section on Dermatology and Syphilology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 15, 1933.

HEALING OF LESIONS

Primary Lesions—The records in twenty-four of the cases showed that it required as short a period as 2 days and as long a period as 49 days from the initial treatment for the primary lesions to heal the average being 20.92 days. The patients had from 1 to 10 injections and from 0.1 to 2.35 Gm, making an average of 5 injections and 1.15 Gm of silver arsphenamine. The unusually long time that it took for some of the chancres to heal could be explained by the large size of the chancre and the presence of secondary infection.

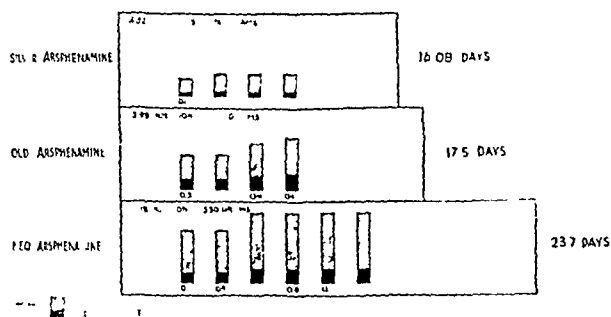


Fig. 2—Average time and treatment required for healing of secondary lesions.

Secondary Lesions—In fifty-two patients with secondary syphilis with lesions of the skin and mucous membranes, it required from 2 to 63 days from the first dose of silver arsphenamine for the lesions to disappear, or an average of 16.08 days. The patients were given from 1 to 10 injections, or an average of 4.02. The number of grams received was from 0.15 to 2.7, an average of 0.765.

In this group, the secondary lesions recurred in one patient. This patient received treatment for three weeks, was absent from treatment for eighteen weeks, and then received an additional two and one-half weeks' treatment followed by a second lapse of sixteen weeks. He had had a total of only 8 injections. The relapse in this case makes the figure for clinical relapse in this group 1.9 per cent.

WASSERMANN REACTIONS

Primary Cases with Negative Serologic Tests—There were thirteen primary cases in which the serologic tests were negative, the diagnosis being established in each instance by positive observations on dark-field examination and by the clinical appearance of the initial lesion. While the Wassermann reaction was negative in all thirteen cases when treatment was begun, it remained so in only two cases. It has continued to be negative in these two to date, a period of twenty-six and forty-four weeks, respectively. Of the remaining eleven the Wassermann reaction became slightly positive (plus-minus) in five, later becoming negative and continuing so in three of the five and fluctuating between negative and plus-minus in the other two. A strongly positive Wassermann reaction (4 plus) developed in the other six patients, in three of these the reactions became negative and have persisted so, in two they fluctuated between negative and plus-minus, and in one the reaction has remained strongly positive to date.

For the purpose of this paper I have classified as positive all Wassermann reactions with a reading of from 4 plus (strongly positive) to 2 plus in both antigens (moderately positive). The term plus-minus (slightly positive) includes those cases with a 1 plus

reaction in both antigens and from a 4 to 2 plus reaction in one antigen and 1 plus or negative reaction in the other antigens, and the term negative, those cases with a 1 plus reaction in one antigen and a negative reaction in the other or negative reactions in both antigens.

Cases with Positive Serologic Tests—The records on eleven primary cases in which the serologic tests were positive showed that from 24 to 103 days after the first treatment were required to produce negative Wassermann reactions, with an average of 59.81 days. The patients in this group received from 8 to 17 doses and from 0.85 to 3.95 Gm, the average being 2.17 Gm of the drug and 10 injections.

In five cases there was a reversal of the negative Wassermann reactions from nine to fifty-six weeks after treatment was begun. In four, the reaction was only slightly positive (in three cases with a 2 plus reaction in the alcoholic antigen, in one case, a 2 plus reaction in the alcoholic antigen and a negative reaction in the cholesterol antigen). In the fifth case there was a relapse to strongly positive in both antigens, after the patient had been absent from treatment for three different periods of from six to nine weeks each.

In addition to the eleven primary cases in which the serologic tests were positive, there were three in which a complete reversal of the positive Wassermann reaction did not take place. Two of these patients were treated regularly for thirty-one and twenty-eight and one-half weeks respectively, one receiving 4.2 Gm of silver arsphenamine in 18 injections, and the other 3.3 Gm in 19 injections. The third received 9 injections, was absent from treatment for twenty-three weeks, and then had 9 more injections. He was given a total of 4.35 Gm in 18 injections. In the first and third cases, the serum remained 4 plus in both antigens of the Wassermann reaction while in the second it showed a 4 plus reaction in the cholesterol antigen only.

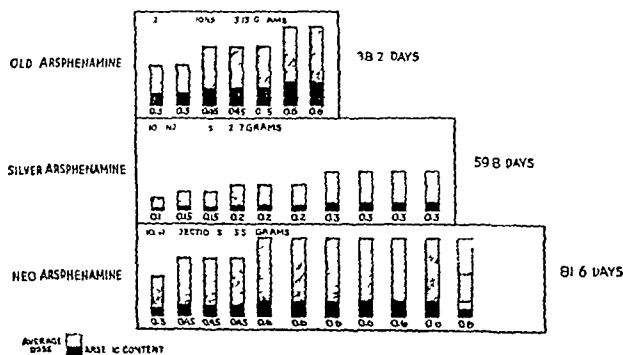


Fig. 3—Average time and treatment required for the Wassermann reaction to become negative in primary cases in which the serologic test is positive.

Secondary Cases—There were sixty-five cases of secondary syphilis, and of this number, negative Wassermann reactions were obtained in fifty-five within from 32 to 362 days after the beginning of treatment with silver arsphenamine the average number of days being 112.89. The number of doses required ranged from 4 to 38, averaging 11.02 injections, the number of grams each patient received varied from 0.65 to 9.10, an average of 2.51.

Of the fifty-five cases in which negative Wassermann reactions were obtained, a serologic relapse occurred in

twenty-one In sixteen of these the relapse was slight, the reaction being only 2 plus in the cholesterol antigen and negative in the alcoholic antigen in eleven cases, 3 plus in the cholesterol antigen and negative in the alcoholic antigen in two cases 2 plus in the alcoholic antigen and negative in the cholesterol antigen in one case and 3 plus in the cholesterol antigen and 1 plus with the alcoholic antigen in two cases In the remaining five of the twenty-one cases in which relapses occurred there was a reversal of the negative Wassermann

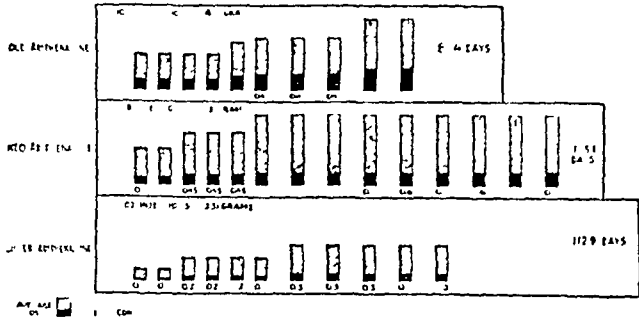


Fig. 4—Average time and treatment required for the Wassermann reaction to become negative in early secondary syphilis

mann reaction to 3 plus in the cholesterol antigen and to 2 plus in the alcoholic antigen in one and to 4 plus in both antigens in four cases The most recent Wassermann reactions obtained in twelve of the twenty-one cases were negative

In the ten of the sixty-five patients with secondary syphilis who did not obtain a complete reversal of their positive Wassermann reactions the reactions remained persistently 4 plus in four, and showed some lessening of intensity in the other six Of the four patients with persistently strongly positive Wassermann reactions one attended the clinic regularly for thirty-one weeks and then was absent and the other three were absent from eight to nineteen weeks after a few injections (from 4 to 6) Of the six cases in which there was some improvement in the Wassermann reaction the reaction in one came down to 4 plus in the cholesterol antigen and to 1 plus in the alcoholic antigen, in a second case to 3 plus in the cholesterol antigen and to 1 plus in the alcoholic antigen, in a third case to a 4 plus in the cholesterol antigen and to negative in the alcoholic

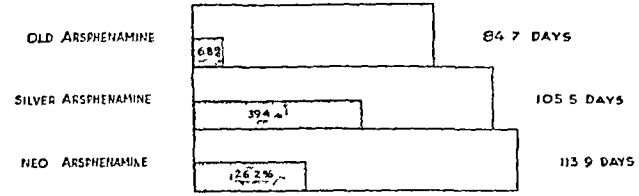


Fig. 5—Comparison by drugs of results based on the first negative Wassermann reaction and the serologic relapses

antigen, in the fourth and fifth cases to 2 plus in the cholesterol antigen and to negative in the alcoholic antigen, in the sixth case, to 2 plus in both antigens under silver arspenamine, later becoming negative with another drug

DISAPPEARANCE OF SPIROCHETES

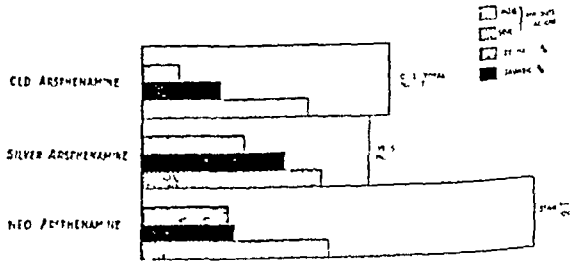
It was only late in the study of the problem that repeated examinations were made of the primary lesions for the time required for the disappearance of spirochetes from the early lesions of syphilis, so that

only twelve cases could be included in this group This phase of the problem did not appear to be important because of the difficulty so frequently experienced in finding the spirochete after repeated examinations even in untreated patients

From the twelve patients with early lesions in which spirochetes were demonstrated it was found that an average of 3.91 days, of 2.37 injections and of 0.35 Gm was required for the disappearance of the spirochetes

SPIRAL FLUID EXAMINATION

A lumbar puncture was performed on 39 of the 104 patients under observation Seven showed a positive serologic test two having only moderately positive reactions with 2 cc with a slightly increased globulin and a syphilitic colloidal gold curve The other five patients had strongly positive Wassermann reactions in a 0.5 cc dilution two with a positive syphilitic colloidal gold curve and an increase in the globulin One of the patients with a mildly positive reaction showed a negative reaction after further routine treatment while the other patient was transferred to another clinic One of the patients with a strongly positive reaction also showed an entirely negative reaction on additional routine treatment the other four patients with strongly positive reactions had only recently undergone spinal puncture and are continuing under treatment One of these patients with a strongly positive Wassermann



membranes. The majority of the cases were of a mild type. In one instance the icterus was marked, lasting twenty-eight weeks, with an exacerbation during a mastoiditis for which operation was performed under ether anesthesia. The jaundice appeared after an average of 133 injections, but in some instances after as few as 4 or as many as 32 intravenous injections. The patients had received on an average of 296 Gm. of silver arsphenamine before the appearance of the jaundice. In some instances the icterus was noticeable after as little as 0.9 Gm. of silver arsphenamine, although one patient had been given as much as 5.5 Gm. before an icteric change was detected in the skin and mucous membranes. The jaundice appeared on an average of 147.6 days after treatment was instituted, the shortest length of time was 69 days and the longest 242. The presence of jaundice was noticed from 1 to 133 days following the last intravenous injection, or an average of 42 days. In two instances the jaundice was preceded by dermatitis and in these two cases the symptoms were very mild and lasted only about two weeks.

There were no cases of generalized exfoliative dermatitis in the group of patients treated with silver arsphenamine, although eight patients did have the eczematoid or scarlatiniform variety. All had a mild type, and no patient was sufficiently ill to require hospitalization. In most instances the treatment with silver arsphenamine was resumed after a short rest period, during which the patient was receiving a mercury or bismuth preparation. Those who showed cutaneous complications had received from 4 to 13 injections, or an average of 7.75, with an average of 1.50 Gm. of silver arsphenamine, the lowest amount being 0.65 Gm. and the highest 2.65. These patients had been under treatment from 12 to 133 days before the dermatitis was noted. The dermatitis appeared as early as 1 day after the last injection and as late as 6 weeks, making an average of 10.9 days from the last treatment with silver arsphenamine.

The ratio of the number of reactions to the total number of patients was 1/4, while the ratio of mild complications to the total number of injections given was 1/129, and that of the severe and delayed combined, 1/88.

PATIENTS OBSERVED MORE THAN ONE YEAR

Forty-four of the group of ninety-two patients were treated and observed for over a year, the average length of time under active treatment being 68 weeks, the shortest 24, and the longest 167 weeks. Eight of these patients were observed for an average of forty weeks after suspension of treatment. The average for both observation and treatment was seventy-five and one-half weeks. This group of forty-four patients received an average of 25.91 injections, and 5.99 Gm. of silver arsphenamine. The highest number of injections was 62.5, and the greatest number of grams to an individual patient was 14.55. Fifteen of the patients have been given over 7 Gm. of silver arsphenamine, and to the present time no one has shown any evidence of an argyria. Only three of these patients received over 40 injections of silver arsphenamine.

Twenty-one patients in this group observed for over one year had a relapse of the Wassermann reaction, sixteen to plus-minus only (less than 2+ in both antigens) and five to strongly positive, or 4 plus. The last Wassermann reactions in sixteen cases were negative. Seven of the twenty-one patients showed more than one relapse of the Wassermann reaction. Twelve

patients in this group had complications, eight having immediate reactions and six delayed reactions. (Two patients had dermatitis, four had icterus.)

ARGYRIA

During the past two years, following extensive treatment with silver arsphenamine in the clinic, four patients have been observed with the typical slate blue-gray pigmentation of the skin seen in persons with argyria. Three were from the Vanderbilt Clinic and one had been treated in another department and transferred to the dermatologic service. The pigmentation was noted after an average of 75 injections (40, 82, 68 and 100) and 12.57 Gm. of the drug (7.35, 16.40, 10.95

Argyria Following Use of Silver Arsphenamine

Description of pigmentation	Case 1	Case 2	Case 3	Case 4
	Skin and mucous membranes a distinct slate gray	Skin and mucous membranes a slate gray	Skin of head and neck a slate gray	Skin and mucous membranes a slate gray
Age at onset	64 years	52 years	5 years	52 years
Sex	Male	Male	Male	Male
Race	Hungarian	Irish	Pollak	Italian
Amount of silver arsphenamine received	7 Gm.	16.40 Gm.	10.95 Gm.	1.6 Gm.
Number of injections	40	82	68	100
Length of treatment with silver arsphenamine	3 1/2 years	9 1/4 years	4 years	4 1/2 years
Interval from last treatment to onset of argyria	11 1/2 months	1 month	10 days	1 1/2 months
Duration of syphilis on admission	40 years	18 years	22 years	2 1/2 years
Wassermann reaction on admission				
Blood	+	—	+	—
Spinal fluid	+	+	+	—
Diagnosis on admission	Tuberculous dorsalis optic atrophy right eye	Tuberculous dorsalis optic atrophy right eye	Tuberculous dorsalis optic atrophy right eye	Demential paralysis
Treatment previous to admission	72 injections of arsphenamine 17 of mercury	15 intravenous injections 7 intraspinal injections	None	70 injections of arsphenamine 50 of mercury
Other drugs after admission				
Mercury	6	2	10	5
Bismuth	38	0	43	105
Others	8 injections of trypan blue	28 injections of arsphenamine	0	20 injections of arsphenamine
Spinal treatment	8	2 1/2	10	8

and 15.6 Gm.) They had received treatment for an average of 5 years (3 3/4, 9 1/4, 4 and 4 3/4 years). Their ages were 64, 52, 55 and 53, respectively. The pigmentation was most marked in the oldest patient—the one who had received the smallest amount (7.35 Gm.) of silver arsphenamine and fewest number of injections (40) over the shortest period of time (3 3/4 years).

The pigmentation was noted within a month and a half after the last injection of silver arsphenamine in three cases, and after thirteen months in the fourth case. Three patients received an average of 63.3 injections of a bismuth preparation. Three received from 2 to 10 injections of mercuric salicylate. The fourth patient had two injections of a mercury preparation only, but no injections of a bismuth preparation.

It is evident from the clinic records of persons treated with silver arsphenamine that argyria should

be borne in mind as a possible complication in all persons treated with that drug, especially in older people receiving repeated injections over a long period of time. It is significant that all four of the cases of argyria were in men who were 50 and over, each one of whom was also suffering with neurosyphilis. Three had optic atrophy, especially marked in the right eye, and tabes dorsalis, while the fourth had dementia paralytica. That argyria is an infrequent complication (especially in younger subjects) following medication with silver arsphenamine is evidenced by the rarity with which one sees or hears of the condition. Of the many patients treated with silver arsphenamine at the clinic since 1919, there are records of only the four cases of argyria, and so far as can be determined only nine have been thus far reported in medical literature following treatment with this drug. Two of the patients have shown a marked decrease in the intensity of the pigmentation after a year's treatment with sodium and

disappeared more rapidly with a fewer number of injections and a smaller total of grams of silver arsphenamine than with neoarsphenamine. In the primary cases with positive serologic tests the average time for the Wassermann reaction to become negative was shorter, with fewer injections, and with a smaller amount in grams than with neoarsphenamine. The same was true of secondary cases except that the average time in days required for the Wassermann reaction to become negative was approximately the same for both neoarsphenamine and silver arsphenamine, the time being 113 and 112.89 days, respectively.

COMPARISON OF COMPLICATIONS FOLLOWING THE ADMINISTRATION OF THE THREE ARSPHENAMINES

On comparison of the complications that arose following the administration of silver arsphenamine with those tabulated after treatment with old arsphenamine

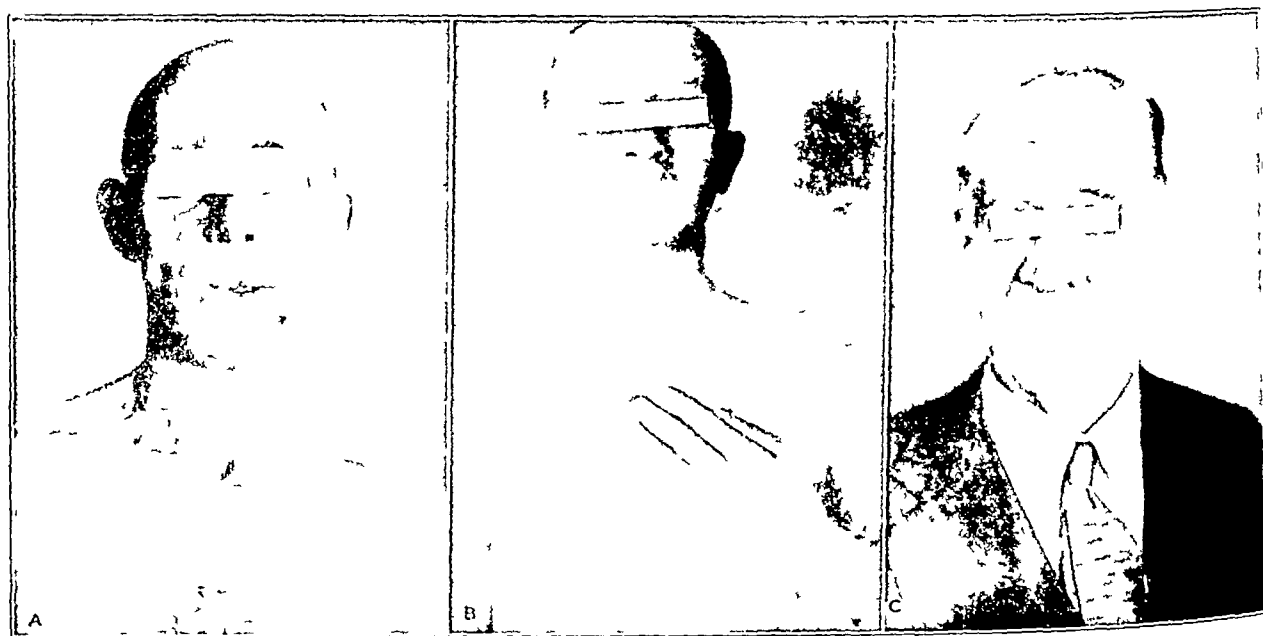


Fig. 7—Cases of argyria. A patient P. O. T. aged 52 who was given 16.4 Gm. of silver arsphenamine in eighty-two injections. B patient aged 55 who was given 10.95 Gm. of silver arsphenamine in sixty-eight injections. C patient H. B. who had argyria following several years' use of mild silver protein.

calcium thiosulphate given intravenously and by mouth. One patient with argyria following long use of mild silver protein has also shown a decided lessening in the intensity of the pigmentation under the same treatment.

COMPARISON OF STATISTICS WITH THOSE OBTAINED WITH OLD ARSPHENAMINE AND NEOARSPHENAMINE

On comparison of the records of the ninety-two patients with primary and early secondary syphilis who received silver arsphenamine with the records of others treated in a like manner with old arsphenamine and with neoarsphenamine, it was found that silver arsphenamine, while decidedly less efficacious than old arsphenamine, is in most respects superior to neoarsphenamine, as can be seen from the study of the charts.

In the primary cases with negative and positive serologic tests, a fewer number of injections of silver arsphenamine, a smaller amount of the drug and a slightly shorter length of time were required to cause the initial lesion to disappear, than was the case with neoarsphenamine. Even the secondary lesions

and with neoarsphenamine, it was observed that silver arsphenamine showed slightly to advantage over the other two in immediate mild reactions, the ratio being 1.8 for silver, and 1.7 for both old arsphenamine and neoarsphenamine. There were no severe reactions with old arsphenamine, while the ratio was 1.53 with neoarsphenamine and 1.33 with silver arsphenamine. The best showing is made with old arsphenamine and the next best with neoarsphenamine, but, it is only correct to state that the delayed reactions after silver arsphenamine were of a much milder character than those following injections of neoarsphenamine. There was not a single case of generalized exfoliative dermatitis after injections of silver arsphenamine, and only one of severe jaundice, that patient having had an exacerbation during an acute mastoiditis and having been operated on under a general anesthetic (ether). Perhaps silver arsphenamine may have an advantage over old arsphenamine and neoarsphenamine in that there is a smaller quantity of arsenic present in each dose—about half the amount of the arsenic in the other two drugs.

From the study of the comparative values of old arsphenamine, neoarsphenamine and silver arsphenamine, I believe that old arsphenamine is proving itself to be the most efficacious remedy, and first choice for the treatment of early syphilis and that silver arsphenamine seems to be in practically every respect, superior to neoarsphenamine. The technic in the administration of silver arsphenamine is just as simple as is that of neoarsphenamine, and it further has the advantage of not possessing the toxic sulphur radical contained in neoarsphenamine and in neosilverarsphenamine.

For the past three years in private practice, I have used old arsphenamine exclusively, except in a few selected cases in which silver arsphenamine was administered. I have given no neoarsphenamine.

In the clinics and hospital with which I am connected, only old arsphenamine and silver arsphenamine are now used.

The greatest objection to the general use of old arsphenamine has been the complicated technic of giving it. While I still advocate administering all arsphenamines by the gravity method and well diluted I have for many years treated syphilitic infants and adults with very small veins by the syringe method with a hypodermic or small needle using old or silver arsphenamine. I have only recently given the fortieth intravenous injection of old arsphenamine to an infant under 1 year of age, injecting the drug into the scalp veins without experiencing the slightest difficulty. Now that the manufacturer of arsphenamine dispenses with each ampule of the drug an ampule of distilled water and another of sodium hydroxide sufficient to alkalize the solution (also litmus paper to test the alkalinity), there can be little reason for not using the most effective antisymphilitic remedy, which I have no hesitancy in saying I believe to be old arsphenamine.

ABSTRACT OF DISCUSSION

DR EARL D. OSBORNE, Buffalo. For several meetings new preparations have been suggested for the treatment of syphilis. If I should give the one reason why silver arsphenamine is not more popular I would say it is fear of the development of argyria. Dr Cannon has honestly pointed out that he has had four cases in a long series in several years' use of this drug. I have not had any cases. I did not get from Dr Cannon what his dosage is over any period of time whether he gives 0.3 Gm every week or 0.3 Gm every five to seven days. European observers have pointed out that the maximum total dosage within the safety limit equals from 7 to 9 Gm. Analysis of the charts of Dr Cannon shows that with the exception of the one old man, the other patients received considerably in excess of the accepted standard of safety with regard to argyria. I have not had any cases, for I have kept the total dosage below 9 Gm. Dr Cannon has justified the observation that the sheet anchor in the treatment of syphilis is arsphenamine. Analysis of his charts shows that the serologic relapses surpass those of sulpharsphenamine. When I cannot use arsphenamine I use neoarsphenamine. Dr Cannon produced effects with silver arsphenamine comparable to those produced with arsphenamine or neoarsphenamine. The late effects such as jaundice are closely connected with the late effect of the metabolism of arsenic in the liver. I wonder whether bismuth compounds were used along with it or whether the patients had previously had arsphenamine or neoarsphenamine. The mere finding of larger amounts of silver arsphenamine in the spinal cord does not mean that it is more effective than any other. That applies to some of the newer drugs as well. As to the combination of silver arsphenamine with heavy metals such as bismuth I have made it a rule to cut the dose of bismuth at least one third for after all one is using two heavy metals and I think Dr Cannon's results were perhaps due to too much heavy metal.

DR A. B. INSON CANNON, New York. I made it a rule to give men from 0.1 to 0.3 Gm of silver arsphenamine, usually beginning with the smaller amount and gradually increasing so that the last four injections were of the maximum dose. A course of ten injections was prescribed, followed by mercury or bismuth compounds at intervals between the courses of silver arsphenamine. In women the doses were somewhat less, the maximum being usually 0.25 Gm. As my purpose was to compare the results from the use of silver arsphenamine with those that I had obtained with arsphenamine and neoarsphenamine, I selected only patients with primary and secondary lesions who had not received any previous treatment. I was surprised by the number of cases of jaundice I had, but, as I remarked, only one of the cases presented a severe type of icterus and that might be explained by the patient's having been operated on for an acute mastoiditis. I make a bile index on each individual receiving treatment and any patient showing an icteric index of 15 or more was counted as a case of jaundice whether or not there was any noticeable change in the color of the skin or sclera, a fact that might in part account for the large number of cases of jaundice I had in the series of patients treated with silver arsphenamine.

MODERN TREATMENT OF BRAIN ABSCESS

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Success in the treatment of brain abscess rests on a tripod of medical actions: first, a correct diagnosis; second, proper operative methods; and third, rational after-treatment.

It is a simple procedure to state the characteristic signs and symptoms of frontal temporo-sphenoidal or cerebellar abscess formation. When, however, increased intracranial pressure, spreading cerebral edema or localized meningeal sepsis jumble the entire abnormal picture into a jigsaw puzzle of contradictions, a clear mind with balanced judgment is most vital. When the symptoms of temporo-sphenoidal or cerebellar abscess are clear and distinct, the diagnosis may be definite. When the converse is true, a carefully taken history may be the determinant of success.

The characteristic focal signs of brain abscess may be absent, and the diagnosis of the condition rest entirely on the presence of general signs and symptoms of intracranial abscess formation. Here, drowsiness with a history of vomiting may clear away the fog of uncertainty resulting from the associated secondary meningitis.

The presence of sinus thrombosis always points to the posterior fossa as the probable site of the brain lesion. In all cases of sinus thrombosis, aseptic torcular or even aseptic cavernous sinus thrombosis resulting from progressive extension of the thrombus may produce signs and symptoms due entirely to obstruction of the cerebral venous flow. In all cases of this kind, extension of the sterile distal end of the clot to the torcula or even to the cavernous sinus may produce signs and symptoms of severe intracranial pressure. Two cases of this type in which the distal extension of the thrombi remained sterile and produced marked venous obstruction are worthy of consideration.

REPORT OF CASES

CASE 1.—L. S., a girl, aged 9, was admitted to the Massachusetts Eye and Ear Infirmary on Jan. 28, 1927. Four weeks

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before admission she had a cold in the head with pain and discharge in the left ear. A simple mastoidectomy was performed two weeks later followed in two days by jugular ligation on the left side. Within the next week signs of increasing intracranial pressure appeared including changes in the fundi, vomiting and bilateral paralysis of the external rectus muscles.

On admittance to the Massachusetts Eye and Ear Infirmary, the middle ear was dry, and the mastoid and jugular wounds were completely healed.

The patient had bilateral palsy of the external rectus muscles and slight facial weakness on the right side. A pupil edema of 4 D in the right eye and 6 D in the left eye was present. The fields of vision were normal and vision was 15/20 in each eye. The spinal fluid was normal on examination, but was under a pressure of 700. The pressure was reduced one half and repeated punctures were made every forty eight hours for two weeks and then every four days for another fortnight. On March 16 the pressure had remained at 150 for two weeks and all the symptoms had entirely cleared up. The papilledema and palsy were no longer present and the fields of vision were normal.

CASE 2.—Lewis T. aged 15 was admitted to the Massachusetts Eye and Ear Infirmary on Sept. 30, 1932 complaining of pain in the left frontal region and tenderness of the left parotid gland with slight increasing exophthalmos of the left eye and edema of the left conjunctiva for the past two days. The onset of the present illness was Sept. 16, 1933 when the patient complained of severe pain in the right frontal region and right nasal pain accompanying a slight cold in the head. Within twenty-four hours a purulent discharge appeared in the right ear and persisted to date. During the night of September 22 the pain became very severe, and the patient vomited several times. The temperature was 100 F. The following day the patient was drowsy and entered the local hospital.

During the next six days the patient vomited twice daily, usually accompanied by nausea and the temperature was septic ranging from normal to 103.6 F. On September 27 the pain in the frontal region had developed into a general headache which later localized in the left side of the head and finally in the left eye. During this time the white blood count ranged between 9,400 and 11,600. The spinal fluid on two occasions was practically normal.

A simple bilateral mastoidectomy had been performed in June 1925 following scarlet fever and a secondary operation on the left mastoid two and one half years later. Neither ear had discharged during the past twenty months. When the patient entered the Infirmary on September 30 the white blood count was only 10,700 with 74 per cent polymorphonuclears and 24 per cent lymphocytes. The blood culture showed no growth in forty hours, and the spinal fluid examination gave entirely negative results except that the Ayer-Tobey test appeared to show a slight partial block of the right jugular vein. Examination of the eye by Dr. Frederick Verhoeff showed ptosis and slight exophthalmos of the left eye, with limitation of motion outward and upward.

The patient had a septic temperature for a week but it was accompanied by marked improvement in the condition of the eye and a constant decrease in both the white blood cells and the polymorphonuclear count. On October 13 the temperature had been normal for five days, and the chemosis and ptosis of the left eye had nearly disappeared. There was little if any limitation of motion in either eye. The discharge from the right ear had practically cleared up. There was still some blurring of the left disk. The patient was discharged to his home on November 2.

DIAGNOSIS

The diagnosis of abscess of the frontal lobe is still in the "dark stages." Edema of the upper eyelid and of the tissues over the frontal sinus points to osteo-thrombophlebitis of the underlying bone. Hence osteomyelitis of the skull and frontal lobe abscess are distinct possibilities. The presence of such edema in an acute infection of the frontal sinus, coupled with

headache, slow pulse and vomiting, suggests involvement of the frontal lobe. The additional signs of drowsiness, euphoria, convulsions and contralateral central facial paralysis with or without weakness of the arm fix that diagnosis. Edema over an infected frontal sinus is equal in importance to edema over the emissary vein in mastoiditis. It is an indication of thrombophlebitis of a neighboring vessel. It is announcing the presence of osteomyelitis or brain abscess or both. Repeated roentgenograms will rule out a diagnosis of osteomyelitis and if edema appears about a week after the onset of the infection of the frontal sinus, or if a periosteal abscess is found, it is of more serious concern. In such cases the posterior wall of the frontal sinus should be carefully examined and removed. The discovery of an extradural frontal abscess practically announces the presence of an accompanying abscess of the frontal lobe. In several of the cases of frontal lobe abscess at the Infirmary the inner frontal wall of the frontal sinus was intact yet not only was the dura affected, but a fistula was present.

When abscess formation is present in the left temporosphenoidal lobe of right-handed persons and vice versa, a sound memory aphasia may be present. When such an abscess develops in a silent temporosphenoidal lobe a quadrantic homonymous hemianopia, or a contralateral hemiparesis or lower facial weakness may determine the diagnosis. Paralysis of the orbicularis oris of hypoglossal origin can easily be differentiated from that of the central facial type.

A nonreacting labyrinth with signs or symptoms of intracranial involvement also favors the diagnosis of a subtentorial lesion. If headache and increased temperature without pain in the retro-orbital region occur during convalescence after complete exenteration of the mastoid in a person with a nonreacting labyrinth any of five types of inflammation of the posterior fossa is possible.

Empyema of the saccus endolymphaticus, infection of the lateral cistern and localized arachnoiditis are difficult to differentiate. Their definite reaction is a localized meningitis. When a definite diagnosis is unattainable the method of procedure used at the Infirmary should be considered. The area of the saccus and the medial cisterna is explored. If a focus of active infection is not obtained the study of the patient's general appearance, temperature curve, white blood count, spinal fluid picture and reflex response will usually point out the source of the inflammation. The dull stuporous patient with cerebellar abscess, with eyes deviated away from the lesion, lying curled up in the bed contrasts sharply with the anxious irritable meningitic patient, or with the bright, animated thrombotic patient. The normal or subnormal temperature curve of the person with brain abscess is as characteristic as the continually high temperature level in meningitis or the saw-tooth septic form in cases of infected sinuses. The very high white blood count singles out spreading meningeal suppuration from the other two lesions. The spinal fluid picture and the reflex responses of the same lesions have similar distinct marks of differentiation. The caloric test will not only inform one of the viability of this labyrinth, but will at times differentiate between supratentorial and subtentorial lesions. The presence of severe vertigo and vomiting after labyrinthine stimulation always favors a diagnosis of supratentorial involvement. Abscess of the frontal and the temporosphenoidal lobe may contain gas. This is demonstrable by roent-

genograms and localizes the abscess. The gas is always under pressure equal to the intracranial pressure, hence when it escapes through the exploratory needle, it usually fills the operating room with its fetid odor. Air can enter a capsulated abscess after exploration, and at times leaks into the subdural space.

TREATMENT

Injection of iodized poppy seed oil 40 per cent has its place in the after-treatment of the capsulated abscess. In recent or noncapsulated brain abscess there is danger in its use. At the Infirmary, therefore, it has been reserved for those cases which have not progressed favorably. If headache with increased temperature or other questionable sign or symptom of imperfect drainage appears, its use may make clear that the drain is not in proper position and is outside the capsular wall. Thus it is a gage of the success of the drainage of the abscess. It has shown in several cases how easily recurrence can be favored by imperfect collapse of the abscess walls and thus demonstrates that at least many of the cases of multiple otitic brain abscesses are satellitic in origin. Apparently the capsulated abscess wall tolerates it. Roentgen evidence of a residue of iodized oil in the capsule of an apparently healed brain abscess has been seen years after the injection.

Capsulated brain abscess is found most frequently in the temporal lobe. Abscesses of the frontal lobe have in many cases a thick lining membrane. Both acute and chronic primary infection may give origin to the formation of brain abscess without any lining membrane, the so-called noncapsulated abscess. Acute cerebellar abscess is rarely capsulated. The treatment of the noncapsulated abscess with its walls of infected and necrotic brain tissue has not been satisfactory. The capsule of the abscess is important not only as a barrier against extension directly, but indirectly through the vascular or perivascular route.

The use of the filiform drain, the Lemaitre method, has been successful in one of the cases at the Infirmary. In other cases, results were satisfactory for a time and then extension or insufficient drainage occurred. Capsular formation in these cases was not a question of time only. Other factors must play an important part in such localization. Deep abscesses will always have a much higher mortality than the superficial type. Complete collapse of the walls of the abscess, as shown by injection of iodized oil is of favorable omen.

The ordinary procedure at the Infirmary is reviewed in the hope of stimulating its improvement.

In cases of acute frontal sinusitis with probably frontal lobe abscess a vertical incision in the median line joining the horizontal Kilian incision enables the scalp to be sutured back exposing the frontal bone. The anterior bony wall of the frontal sinus is then removed. The posterior wall of the frontal sinus is always carefully examined for exposed dura. The posterior wall of the sinus and adjoining frontal bone is then removed. In about 50 per cent of frontal lobe abscesses, diseased dura or a small dural fistula is present. The tip of a small, number 14 catheter is gently inserted for drainage and immediate relief of pressure symptoms. Either of two methods of after-treatment is now possible. The first method includes the dilation of the fistula every forty-eight to seventy-two hours by the insertion of a suitable larger catheter until a number 24 catheter drain is accepted. Several persons have recovered with such treatment only. In other cases it

was hoped that the time element might be thus obtained for capsular formation. In the latter type and in frontal lobe abscess adjacent to a chronic involvement of the frontal sinus the removal of a cone of cerebral tissue reaching to the capsular wall by means of the radio knife and loop of Bovie has been the method employed. It permits the use of the larger size of the Mosher wire gauze drain. The drain can be placed more accurately with little trauma or hemorrhage.

It is safer to enclose the exposed dura with diathermy. A crucial incision is made in the dura to ascertain whether a superficial abscess or flat arachnoid lake is present before exploration is done for a deeper abscess. When the wire drain is suitably placed, various aids, such as rotation of the head, gravity, lowering of the top of the table and suction, may be employed to assist the cerebral pressure in promoting drainage and obliterating the abscess cavity. The formation of a fistulous tract about the drain to the abscess cavity makes the capsular wall extend to the surface of the brain. Thus the method used at the Infirmary approaches in a degree the unroofing operation of King. The drain, if in proper position is allowed to remain undisturbed for about four weeks. The scalp sutures are then removed and the brain permitted to expel the drain gradually. During this period of drainage, little trauma due to manipulation of the drain is transmitted to the walls of the abscess. Hence, the chance of extension of infection through venous thrombosis of the capsular wall vessels is greatly lessened.

In abscesses of the temporosphenoidal lobe, approach through a subtemporal decompression has grown greatly in favor. In moribund patients with a sclerotic mastoid, it is the best method. An extended approach through the mastoid has given the highest average of recoveries. Here as in frontal lobe abscess, granulations on the dura or exposed dura guide one to the meningeal or intracerebral abscess in over 50 per cent of cases. Here the meninges are well walled off. Here a fistulous stalk opens at times. Here, the abscess is frequently near the cortex.

In the treatment of cerebellar abscess as in abscess of the middle fossa, there is some question as to the avenue of approach. If symptoms or signs of labyrinthine involvement preceded those of cerebellar infection, the paramastoid route through Trautmann's triangle, with at times obliteration of the lateral sinus, must be considered. When the abscess is secondary to involvement of the sinus, drainage through the inner wall of the sinus has been the customary procedure at the Infirmary. Examination of the inner wall of the sinus may demonstrate a possible lead or a thrombosed plug in a small venule. If exploration of the mastoid cells posterior to the sinus reveals the presence of an extradural abscess, this area of protective meningeal adhesions should be used.

The importance of deciding which of these three avenues has a given area of meningeal protection may mean the difference between success and meningitis.

There is in the school of the present day one group favoring larger and larger drainage openings while another is using repeated puncture and suction. Rubber drains of fine caliber are favored by the latter group.

The ideal treatment of a brain abscess would be to remove it in toto. This has been successfully accomplished but the surgical shock, the encephalitis, the hemorrhage and danger of infection from the stalk, if present or from the diagnostic puncture or from rupture of the capsule, are insurmountable obstacles in the

way of its success. Hemorrhage into the operative cavity may account for the sudden death in these cases weeks after an apparently successful convalescence. Partial removal of the wall of the abscess by unroofing it with herniation, greatly decreases the danger of the removal in toto.

The Dandy method of repeated tapping of the brain abscess has many points in its favor. It relieves the excessive intracranial pressure for a time and hence furnishes the time factor necessary for proper capsulation of the abscess. One must be open-minded and let the emergency guide the course. All drainage is for the purpose of emptying the abscess cavity so that the intracranial pressure will obliterate it.

ABSTRACT OF DISCUSSION

DR ARTHUR W. ADSON, Rochester, Minn. It may not be amiss to reemphasize two phases of this subject: first, the surgical indications; second, the surgical treatment. In selecting the time to evacuate a brain abscess, one should remember that the condition is not unlike other inflammatory processes and that drainage is most effective when immunity has been established. Every brain abscess passes through three stages: the encephalomeningitic stage, encapsulation, and recovery or fatality. Recovery may take place spontaneously or by surgical drainage and death by rupture of the abscess into the ventricular system. During the first two stages, supportive measures are employed: rest in bed, nourishing diet, ice bags and cool sponges for fever, spinal drainage, and hypertonic solutions to control intracranial pressure. This period usually continues for two or three weeks. When encapsulation takes place, the septic temperature subsides, leukocytosis recedes to 12,000, neurologic symptoms likewise become less diffuse and those that remain suggest a localized cerebral lesion. If the spinal fluid cell count has been increased, it will also return to normal. Small abscesses have been known to heal spontaneously. The pus becomes inspissated and the capsule contracts to form a fibrosed mass. In evacuating an abscess, one must steel dependent drainage, with as little trauma to the brain as possible, and avoidance of surface contamination. This is accomplished by performing a small decompression over the abscess, fixing the meninges to the cortex with catgut sutures and electrical coagulation of the margins. The abscess is partially drained with a brain cannula, after which the capsule is incised along the cannula. The capsule is held with a bivalve speculum with lateral flanges to prevent the cortex from following away from the skull. The remaining pus is evacuated, the cavity is explored with an illuminated retractor, necrotic tags are removed and lateral pockets are thoroughly cleaned. Then two rubber tube drains and two strips of iodoform gauze are inserted; the gauze is picked loosely about tubes and into pockets to prevent sealing of recesses which might cause recurrences. The gauze picks prevent falling of the capsule and retraction of the brain from the skull. The gauze drains are removed slowly over a period of a week, allowing the capsule to contract and form a sinus around the tubes. The tubes are likewise shortened during the second and third weeks, thus permitting granulation and obliteration to take place from the dependent regions first. Sterile abscesses might be effectively drained by repeated aspiration, but even then recurrence can take place. Surgical recovery and prevention of recurrence are achieved by waiting for encapsulation and the development of immunity with thorough, adequate and continuous drainage.

DR R. EUSTACE SEMMES, Memphis, Tenn. The general principles to be followed in handling brain abscess, that is, waiting for encapsulation to take place, and adequate and sufficiently prolonged drainage with the least possible damage to the brain, do not seem to be open to debate. The difficulty arises when the demands of the patient, the abscess and the brain conflict. An abscess may be present in a lobe of the brain without giving local signs. Whether an abscess is present at all is frequently doubtful. It is necessary therefore to employ the simplest method, in the beginning at least. For

this reason I have adopted the plan of making only a perforator and burr opening under local anesthesia, removing a small circle of dura with the electrocoagulation needle, through which a blunt ventricular needle is inserted. When the abscess capsule is encountered and its depth is measured, the point is pushed in and the needle is allowed to drain into a glass tube connected to the needle, where it may be observed and from which a smear can be made for immediate microscopic examination. If the pus contains no organisms I content myself with simple evacuation, to be repeated subsequently if indicated. If organisms are present a metal sleeve is slipped over the needle, which enables one to insert a small piece of rubber tubing, through the capsule without losing it. This simple and safe procedure is particularly applicable to deep abscesses, small abscesses and those in important brain areas. Large superficial abscesses and those in silent areas are, no doubt, more effectively drained by the procedure described by Dr. Cahill or that described by Dr. Adson. Unfortunately, many brain abscesses do not become encapsulated or the intracranial pressure rises to a dangerous point in spite of the usual methods of controlling it, or, in spite of drainage by any of the known methods, spreading, encephalitis or complicating meningitis proves fatal. On the other hand, I can recall two patients who recovered from large abscesses of otitic origin which contained numerous streptococci and had generalized septic meningitis.

DR W. JAMES GARDNER, Cleveland. I was glad to hear Dr. Cahill stress the occurrence of torcular thrombosis. It is a diagnosis that is often overlooked. Many cases of so-called meningismus or otitic hydrocephalus really are cases of thrombosis of the torcular or of the longitudinal sinus. The term meningismus is merely a name coined to camouflage one's ignorance of the true state of affairs. When a spinal puncture is performed in such a case an increased volume of clear spinal fluid escapes. It is therefore customary to say that there exists an increased amount of fluid in the cerebrospinal fluid spaces. This however does not necessarily follow. The large amount of fluid escaping on spinal puncture may be due to increased pressure and not to increased volume. In three cases in my experience in which cerebrospinal fluid was replaced with air for the purpose of encephalography, the total volume of the cerebrospinal fluid was not increased although as much as 60 cc of fluid could be quickly recovered in the course of a simple spinal puncture. The term otitic hydrocephalus as applied to such a case is an actual misnomer. In regard to the use of iodized oil in brain abscess, I have rather hesitated to use nonabsorbable material in an infected field. If a roentgenogram of the abscess cavity is necessary, I prefer to irrigate the cavity with sodium iodide or perhaps introduce a small amount of air. In cases of encapsulated brain abscess in which the localization is in doubt, I feel that encephalography is a perfectly safe procedure. As regards the treatment of abscesses, I am in favor of repeated tapping, especially in long-standing cases rather than of drainage.

DR HARVEY P. CAHILL, Boston. I wish I could have had the good results that Dr. Adson had. In following up the cases I found several in which for many months or longer the patient appeared to be cured when a sudden death took place following so-called uremic coma. I presume that in these cases a complete collapse of the abscess cavity did not occur and that a hemorrhage had probably taken place into the old abscess cavity. I do not believe that packing the cavity would in any way assist the intracranial pressure in obliterating the cavity. If there is a sufficiently extensive fibrosis of the capsular wall to prevent the intracranial pressure from producing a collapse of this wall, packing the interior of the cavity certainly would not assist it. The capsular wall of the otitic brain abscess is thicker and more fibrous than the wall of the metastatic brain abscess. I have also seen cases in which there was not time to wait for the abscess formation to fulfill the demands of perfect localization. I remember one temporoparietal abscess in particular in which the patient became unconscious while the house officer in the outpatient clinic was taking the history. He showed a blood count of 23,000 with a high polymorphonuclear count in the spinal fluid. I performed an emergency subtemporal decompression, drained the abscess with the Mosher wire gauze drain and presented the patient last year at our sectional clinic nine years after the first operation.

FETAL RISKS IN THE FIRST STAGE
OF LABOR FROM UMBILICAL
CORD COMPLICATIONS

CORD DEMONSTRATED BY AMNIOGRAPHY

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The emphasis in obstetrics today is centered on the diagnosis of pregnancy,¹ on methods of delivery,² on better obstetric care³ and on morbidity and mortality statistics.⁴ But a discussion of finer obstetric technique and more astute diagnosis for the child is demanded. One such necessary consideration is the effort to explain the death of the fetus during the first stage of labor and the attempt to prevent that death. Complications of the cord, observation and experience have proved to be one cause of death. The diagnosis of a cord complication during the first stage of labor is an achievement in clinical obstetrics.

I have been able to distinguish two groups of cord complicated cases in the first stage of labor. The first group of cases is practically symptomless. The child is fatally asphyxiated from a compression of the cord before the condition is recognized. (This death must not be confused with that due to abruption placentae.) The stopping of the fetal heart is the only evident sign. It usually occurs during the first few pains in the first stage of labor but may occur from a few hours to several days before labor definitely sets in. The following case reports will illustrate the hopelessness of being able to deliver a live child under these conditions.

CORD COMPLICATION CASES IN WHICH THERE ARE
NO SYMPTOMS

CASE 1—Painful contractions began at 2:20 p.m. the second pain was at 3 o'clock, light painful contractions continued every twelve to fifteen minutes, producing a heaviness in the lumbar region. At 5:30 it was impossible to hear the fetal heart beat. The head was deep in the superior strait. There were active fetal movements as the patient left for the hospital but none after her arrival. The family was informed that the fetus was probably dead, owing, no doubt to a cord complication the compression of the cord disturbing the circulation long enough to cause fetal death. Labor was allowed to progress and at 11:30, after the birth of the head the cord was found to be coiled about the neck in a reverse coil so that the taut, umbilical portion crossed over the placental portion at the left sternoclavicular joint where the cord was compressed by the chin. Postmortem examination revealed no other cause of death.

CASE 2—The patient was allowed to be up and about her room. She was noticing some heaviness only in the upper part of the thighs but no definite painful uterine contractions. When

I saw her about an hour after admission, no fetal heart beat was audible. The fetus had not been active since the afternoon of the day before. The fetal head was fixed in the superior strait. I suggested to the family that the cord was probably compressed under the chin and thus the anterior flexion of the fetal head obstructed the cord circulation and fatally asphyxiated the child. At birth, fourteen hours later, the cord, taut from the umbilicus, was found in a reverse coil about the neck with the crossing under the chin, the place of compression. Autopsy did not show any other cause of death.

CASE 3—The patient had been having preliminary labor pains at recurring intervals for the previous week. In the office, the day before admission, the fetal heart, left below, was of good tone and the rate was 130. On rectal examination, the head in the pelvis was engaging in the ischial-ramic⁵ diameter, the lower uterine segment was obliterated, the cervix was high posterior 1 cm long, hydrated and patulous 1 cm. The activity of the child awakened the patient about 4 a.m. the next day. At 6 o'clock she was admitted, as the uterine contractions were more uncomfortable recurring every three to five minutes. At 6:30 the fetal heart beat was not audible, in direct contrast to the good heart beat of the day before. It was intimated that the cord had become compressed with probably a reverse coiling or with a loop of the cord. At birth thirteen hours later, a reverse coiling about the neck was found on the 7½ pound (3400 Gm) child with the placental portion of the cord over that of the fetal portion, which was taut from the umbilical end.

The following case is an example of fatal compression of the cord by the fetal extremities.

CASE 4—Mrs. C., aged 33, an octipara, stated that she was one and one-half months overdue. Her weight was 244 pounds (110.7 kg). The abdomen was large but not pendulous as there was no diastasis recti abdominis. The fetus was large and the head was well engaged in the superior strait. Back to the left, fetal heart tones were audible and the rate was 124 per minute. The birth canal was relaxed, owing to a second degree tearing and an old bilateral laceration of the cervix complete to the left and half way to the right. The abdomen contained about 5 inches of fat. The child and the uterus occupied practically the whole abdominal cavity, as there was little liquor amni. The patient refused, not being yet in labor, all advice for relief. The nurse reported fifteen days later that the fetal heart was audible, below to the left, and that the rate was 126 per minute, the patient said that if she could be repaired she would come in in a few days as she was a little worried. Examination on admission, sixty days overdue, revealed little added information except that now there was no fetal heart sound. On questioning the patient it was found that at 11:30 the night before admission the child moved very freely but thereafter no movement was noticed. It was then assumed that the excessive movements were agonial and that death was caused by a compression of the cord which stopped the circulation. Labor was induced with solution of pituitary and a 12¼ pound (5783 Gm) dead male child was delivered after a tedious birth. The cord was found to be coiled about the right thigh and again behind the right knee, where it was compressed by the left knee, when it coiled about the left calf and again about the right ankle. These coils used up the entire length of the cord which was 50 cm. The mother was repaired and recovered uneventfully.

It is to be pointed out that there were in these cases until the death of the fetus, no previous indications of a cord complication. In order to understand the gravity of cord complications it is to be remembered that reverse coils on slipping down over the body of the child, form true knots in the cord, while ordinary coils of the cord on slipping down, just add another twist to the torsion of the cord. For the compression to take place it is only necessary that the reverse crossing of the cord be securely caught for example

From the Toledo District Nurse Association, Robinwood Hospital and Women's and Children's Hospital.

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1. Aschheim, Selmir, and Zondek, Bernhard. Diagnosis of Pregnancy from the Urine (by Hormone Demonstration). *Klin. Wochenschr.* 89 (Jan. 1) 1928.

2. De Lee, J. B. The Prophylactic Forceps Operation. *Am. J. Obst. & Gynec.* 1:444 (Oct.) 1920.

3. Standards for Maternity Care Prepared by Committee on Maternity Care of Children's Welfare Federation and Special Committee Appointed by New York Obstetrical Society. *Am. J. Obst. & Gynec.* 20:133-141 (July) 1930.

4. De Lee, J. B. Safeguarding Method at Chicago Living in Hospital. *Mod. Hosp.* 26:6-72 (March) 1931. See also Gardiner and Jordan. *Ischial-ramic Diameter of the Pelvis: A Consideration of Cesarean Section with Survey of 104 Cases in Cleveland Registration Area in Five Years.* *Am. J. Obst. & Gynec.* 23:172-187 (Feb.) 1932.

5. Williams, J. W. Premature Separation of the Normally Implanted Placenta in Obstetrics. *Ed. (New York: D. Appleton & Co., 1911), p. 159.* Gardiner, J. P. The Umbilical Cord Surg. *Gynec. & Obst.* 24:26 (Feb.) 1922.

6. Gardiner, J. P. The Ischial-ramic Diameter. *J. A. M. A.* 86:161 (Jan. 10) 1926.

between the chin and the chest as when pressure is exerted by the fundus on the buttocks, forcing the fetal chest against the chin which remains stationary, owing to the resistance the fetal head encounters when driven against the resistant undilated lower uterine segment. If this position is retained sufficiently long, death ensues. It is the 100 per cent mortality rate in such cases that gives grave concern. So unrecognized are the symptomless coils in this first group of cases and so sudden is the fetal death that, at the present time, it is impossible to expect to save the life of the child by any method of delivery, yet it is not inconceivable to believe that if it was recognized that the fetal cord was being compressed and if delivery was immediately carried out, the child might be saved.

CORD COMPLICATION CASES IN WHICH THERE ARE SYMPTOMS

The second group of cord complicated cases in the first stage of labor includes those which do show symptoms. The prognosis for this group is more hopeful, since there is a chance for the obstetrician to diagnose the cord complication and to save the life of the child. There are three cardinal symptoms that suggest a cord complication: delay in the progress of labor, disturbance in the fetal heart rate and a malposition of the fetus. (Pain at the placental site a definite symptom due to traction, occurs later in the first stage and in the second stage of labor.) There may be, in a single case, all or only one of these symptoms.

Labor is a progressive process and does not normally admit of delay. Any delay in labor is an important symptom and must never be ignored. Delay may mean a cord complication, a dry labor (oligohydramnios), a disproportion (bony or soft parts) or thick unruptured membranes, the importance to the child being in the order given. The latter three symptoms—oligohydramnios, disproportion and thick membranes—can be so easily recognized that they allow a diagnosis of a cord complication by the process of elimination, at least a tentative diagnosis can be made that the cord is so coiled about the parts of the fetus as to interfere with the free progress of labor. This symptom has great possibilities for study.

Variation in the fetal heart rate is the most urgent symptom in the process of delivery. I have found it to be frequently associated with a cord complication. To understand fully the mechanism of the fetal cardiac variation caused by a cord complication it is necessary to recognize the importance of muscle tone in involuntary muscles (of which the uterus is the largest). During labor the action of the uterine involuntary muscle is exaggerated. It has been pointed out that the uterus is contracting and relaxing during the entire period of pregnancy, indeed to a lesser degree at all other times as well. The contractions and relaxations can be observed by the sense of touch and even in some cases by the sense of sight before the onset of labor, in the alternate hardness and softness of the uterine muscle. While these contractions are harmless in themselves, it sometimes happens that a portion of the cord is imprisoned and compressed until there is a definite oxygen want when the fetal movements are increased, stimulated by the struggle for oxygen, and the cord is usually released and the circulation

restored. But if the compression is not relieved as fortunately happens rarely (it is in cases of extreme torsion of the cord at the umbilicus that this fatal accident occurs earlier in pregnancy than do the difficulties discussed in this paper), and if the uterus contracts synchronously, increasing the compression long enough and keeping the child from recovering consciousness sufficiently to extract the cord from the compression (a fatality which occurred in the first four cases reported) the child will die from asphyxia due to failure of cord circulation.

This compression does not however take place as often as one might think for the pulsating vessels tend to assist the moist cord to squeeze out of the trap. Another fortunate provision of nature is that the vessels of the cord are longer than the cord itself. Unless the cord is put on excessive tension the vessels are still not stretched to compression and the blood flow of the cord is not greatly diminished. As is well known, a knot in the cord rarely causes trouble for it recoils on itself because of the presence of the jelly of Wharton. But when there is a coil about the neck the surface of which is more resistant than the surface of the cord, particularly if there is little vernix caseosa and little jelly of Wharton it slips only under increased traction, with increased traction there is a greater chance of compression. The fetal heart rate is a good criterion of the well being of the fetus. The mother's statement that she has recently felt life is not always dependable but feeling the movements while auscultating the abdomen is a sure sign that the fetus is still alive. In the examination of the fetal heart (often a difficult task) it is of great assistance to take simultaneously the maternal pulse. The actual value of the interpretation of the fetal heart rate is not sufficiently appreciated in defining the gravity of active cord complication.

A malposition is the third symptom of cord complication which may draw attention to the fact that the fetus is in danger. If there is no disproportion of the soft or bony parts, tumors fetal or maternal, or fetal monstrosities, a cord complication should be definitely suspected in malpositions. Finding the fetus either fixed or limited in motion in an abnormal position is a probable indication of cord complication. The cord may admit of some movement and an attempt may be made at conversion into a head position, the attempt will proceed just so far but when the force is removed the part will gradually return to its original position. (It is to be remembered that when there is a small or lessened amount of liquor amni the irritability of the uterus may be so active as to cause it to contract down on the fetus, thus permitting little correction in the position.) But, when each attempt at correction is accompanied by a disturbance of the fetal heart rate, a cord complication must be inferred.

TREATMENT

The choice of treatment to be followed in cord complicated cases is dependent on the diagnostic observations. Delay in the progress of labor (it cannot be said that the ideal treatment for delayed labor is to be satisfied with complacently giving a sedative and dismissing the case for the time being), variation in the fetal heart rate and persistent malposition of the child, the amount of liquor amni, the degree of hydration of the cervix and the dilatability of the perineum will influence the

choice of the method of delivery. It is only rarely that a section must be performed in any cord complication but when the indications point to a section it is to be performed and in time to save the child. My first case in which a diagnosis of cord complication was made but the courage of my convictions was not strong enough to carry out my purpose of doing a cesarean section until it was too late is still vividly in my mind.

CASE 5—Mrs. F., aged 20, a primipara, had recurring painful uterine contractions for five hours before admittance. The pelvic measurements showed a roomy pelvis. The cervix was not dilated and was 15 cm long. The position of the fetus was transverse, with the head to the right above the anterior superior iliac spine, and the buttocks were to the left. There was an average amount of liquor amni. The fetal heart at the umbilicus was of good quality and its rate was 135. The membranes were intact. The position could not be changed by reasonable attempts and it persisted in there with slowing of the fetal heart rate. A cord complication was diagnosed. After three hours of increasingly strong uterine contractions there was no change (certainly a delay in the progress) and the fetal heart rate was 130. It was decided that if there was no change in another three hours a cesarean section would be performed and the order was given to prepare for it. The family was acquainted with the decision and accepted the suggested method of treatment. One hour later even though an examination had been made every five minutes the nurse reported that the fetal heart beat was inaudible. The labor was now allowed to proceed and ten hours later a dead female child was born. The taut cord was deeply coiled about the neck and ran around the neck again posteriorly where it coiled about the opposite arm then to the placental attachment. A tentative effort was made in this case to perform a section to save the child.

The case well illustrates two points: the one that if there is any delay in the continuous progress of labor, it ceases to be one of average labor and becomes one in which the attitude of watchful waiting changes to that of active intervention which may mean that an immediate section is necessary to save the child. The other point is that after fetal death the need for a rapid delivery may be immediately over. It is well known that the dead fetus causes less trouble in delivery than a live child. The blood pressure and the general tone being reduced, the child becomes smaller and more compressible. The following case reports demonstrate the significance of the symptoms of fetal heart disturbance and the urgent necessity of immediate action in the emergency.

CASE 6—A woman, after a diagnosis of a cord complication was made, was prepared for a tentative section. Labor was allowed to continue, however, for a time. Because of the failing fetal heart a cesarean section was performed and fortunately a living child was secured.

CASE 7—Mrs. R., a primipara who was at term entered labor with the fetus in a transverse position, maintained in spite of reasonable attempts at conversion into a head position. The pelvis was roomy, there was a moderate amount of liquor amni and there were no abnormalities. While pressure was exerted on the head the fetal heart beat decreased in rate. At one time it went as low as 110 per minute, as soon as the pressure was removed the rate went up as high as 160 later returning to 140. A cord complication was suggested. The patient was prepared for a tentative section but was permitted to continue in labor. Later the fetal heart began to fail there was no cervical dilatation, the membranes were intact and the position of the fetus had not changed (delay in labor). A section was done immediately. The cord with a coil about the neck was cut from the placental insertion; the fetal portion ran from the umbilicus under the perineum up the back to the neck, there completing the coil. The length of the cord

was 55 cm. The deeply asphyxiated child was resuscitated with difficulty. The recovery of the mother and the child was uneventful.

Though case 7 was observed as closely as possible, it is seen that the section was delayed almost too long for the safety of the child.

The following case report illustrates a cord complication retaining the fetus in a breech position, which complication was diagnosed and demonstrated at operation.

CASE 8—Mrs. B., aged 21, a primipara was in good health and weighed 200 pounds (90.7 Kg). Pelvic measurements showed a moderately roomy pelvis. There was a moderate amount of liquor amni. The examination at term still revealed a breech position with the buttocks at the superior strait. The fetal head was in the left hypochondrium, and the back was to the right. The fetal heart was heard 2 cm above the umbilicus. Several efforts had been made to convert the head into a vertex presentation, but it was still impossible under reasonable manipulation to bring the head to the transverse position. On cessation of the effort, the head quickly resumed its original position. The fetal heart was 130 but slowed down to 110 during the trial of conversion. I was of the opinion that the child was so entangled in the cord that the movements were greatly limited. The family was informed that the child could possibly be born but I felt that the chances of a live child were about 50 per cent through the birth canal and probably 100 per cent by cesarean section. The section was chosen. As the case was perfectly clean, labor not having started, the high operation was done so that the cord difficulty could readily be of access. When the membranes were ruptured the cord was seen about the neck with no slackness. The head was delivered; the cord ran from the neck to the left axilla and coiled high about the right arm to the placenta. The true cord intertangling with further delivery was cut and the child delivered. The cord was 60 cm long.

The condition was demonstrated to those about the operating table. In this case there was more than usual risk in allowing the birth to take place by the natural birth route.

It is not good or reasonable obstetric practice to advocate a section in all breech cases that present a cord complication, yet there is more than the usual possibility of the cord being compressed in such breech deliveries than when there are no entanglements about the various fetal parts. The obstetrician should not be too radical⁸ or too conservative,⁹ but ought to stand on the middle path. When the cases just recorded presented a moderate amount of liquor amni, a delay in the progress of labor, no demonstrable abnormalities to prevent the correcting of the malposition, and a slowing of the fetal heart rate on the attempts at turning, it was concluded that the fetuses were dangerously entangled in the umbilical cord and that their chances of surviving the natural birth route were markedly decreased.

It is with cumulative enthusiasm that a new help in obstetrics is gradually being developed. The impossibility of being able to see its difficulties has been one great handicap in the practice of obstetrics. It is now becoming possible to visualize some of the problems that confront the obstetrician. The introduction of roentgenography into the field of obstetrics has great possibilities and without a doubt, will revolutionize both the teaching and the practice of the art. Though the roentgenogram has its limitations yet once the value of visualization is realized the obstetrician will be able to demonstrate his skill in delivery.

⁸ Williams, J. W. The Abuse of Cesarean Section. Surg., Gynec. & Obst. 25: 194-201 (Aug.) 1917.

⁹ Reynolds. Circumstances Which Render the Elective Section Justifiable in the Interest of the Child Alone. Am. Med. 2: 480, 1901.

"Amniography" ¹⁰ (and I accept the name given by Mences) consists of injecting from 10 to 15 cc of some opaque solution skiodan or strontium iodide directly into the amniotic sac and after one-half hour (time for distribution) a roentgenogram is taken. In the roentgenogram the cord as well as the position of the placenta can be outlined and at times the sex can be made out. To be able to trace the cord in a cord-complicated case encourages one to proceed with more confidence in one's outlined method of delivery. The roentgenogram is a permanent record which permits checking back on the technique of delivery in a way not before possible. I have used it now in a series of eight cord-complicated cases. The value of amniography in a difficult case is brought out in the following report.

CASE 9—Mrs. A., a primipara, was at term with the fetus in an inconvertible breech position. Attempts at turning succeeded in moving the head about 45 degrees; it would return to the original position immediately and if the effort was persisted in it caused a disturbance in the fetal heart rate. There was little liquor amnii. A serious cord complication was suspected and consent to a section was secured should it be necessary. The patient was permitted to fall into labor. "Amniography" was used. The roentgenogram showed the cord running up around the back. The placenta was located and the shadow of the scrotum was made out. Labor progressed, the lower uterine segment was obliterated and the cervix was dilated 0.5 cm. There was as yet no disturbance of the fetal heart rate. Since the cervix was well hydrated and the perineum easily dilatable the fetus descended and retracted between the uterine contractions, the fetal heart rate appeared undisturbed and the roentgenogram showed no entanglement about the neck or extremities; it was felt that in spite of the traction of the cord the child could be born by breech presentation. The attempt succeeded. The child was breathing before the birth of the aftercoming head as air was permitted to reach the mouth by way of the vagina. The cord was short 42 cm and had been squeezed up off the body of the child and no doubt the rotation of the fetus allowed the slipping up of the cord. At birth there was no visible demonstration of a cord complication except the shortness of the cord. I have learned that this negative evidence is untrustworthy. In this particular case the roentgenogram showed the cord running about the body.

The visualization of the umbilical cord by means of 'amniography' gave a feeling of confidence not before experienced. It is reassuring when the postoperative diagnosis coincides with the preoperative. The more one becomes acquainted with the symptoms of cord coiled cases the more accurately will preoperative and postoperative diagnoses agree and greater aid will be rendered to both the child and the mother.

CONCLUSIONS

Cord complications too frequently during the first stage of labor cause fatal asphyxiation of the child for which no blame can possibly be laid to the conduct of labor.

The symptoms of cord complications are delay in the progress of labor, disturbance in the fetal heart rate and retained malposition of the child.

Not every cord complication means a cesarean section. But when the definite need for it has been demonstrated the section must be done in time.

'Amniography' has a place in diagnosis as it is an aid in demonstrating a cord complication. This verification gives courage to pursue the outlined treatment.

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ABSTRACT OF DISCUSSION

DR WILLIAM J. DICKMANN, Chicago. I have always insisted that the fetal heart tones must be counted every twenty minutes during the first stage of labor and every five minutes during the second stage and that the rate must be recorded. However, textbooks on obstetrics contain little or nothing about fetal risks or death in the first stage of labor. To determine its importance I reviewed 1003 fetal autopsy records which had been collected by Dr. Adair. There were 136 stillbirths or 13.6 per cent of 2000 Gm or over in which the cause of death was either a cord complication or unexplained. In four cases the cord was prolapsed and in nine the cord was coiled around the neck from one to four times. In one case it was round the thighs. Thus 1 per cent of these stillbirths was caused by a diagnosed cord complication. The remaining 125 or 12.4 per cent may have been caused by similar conditions. At least nothing was found at autopsy other than the symptoms and signs of suffocation. The treatment of intrapartum cord compression is of the utmost importance and is as follows: (1) the use of posture—knee-chest, Trendelenburg or the turning of the patient on one side or the other, and (2) a vaginal examination to determine whether or not the cord is prolapsed, and also the condition of the cervix. The fetal mortality of from 60 to 90 per cent in open and concealed prolapses of the cord demonstrates conclusively that radical intervention is unwarranted for the sake of the baby and maternal mortality statistics indicate its dangers to the mother. In the first stage in addition to the use of posture in intra-ovular bag may be of value. In the second stage with a completely dilated cervix and the head engaged an experienced man will deliver with forceps or, with an unengaged head by version. It is surprising how many cases the fetal heart tones are slow and occasionally irregular, yet the baby is born alive after a spontaneous labor. Dr. Gardiner reports two cesarean sections performed because of slow fetal heart tones in the first stage of labor. For slow or irregular heart tones in the first stage of labor I have not to date performed cesarean sections. I made Dührsen's incisions or dilated the cervix manually although I can recall a number of cases in which I was importuned by the house staff to do something, when a forceps delivery or version could not be done by them with safety. I believe that we as teachers should do no operative procedure that we cannot entrust to a trained resident much less an intern.

DR F. I. KING, New Orleans. I wish to add to what Dr. Dickmann has said regarding the auscultation of the fetal heart tones. I have found that there are a few signs that are of great value in this connection. I notice that immediately after a contraction the heart tone normally is irregular. On the other hand if the baby is in grave danger from prolongation and undue pressure particularly in the second stage of labor there will be a slowing and irregularity of the fetal heart tones throughout the entire period between the pains. If there is a cord complication such as the cord round the neck there will be a slowing and irregularity of the fetal heart tone for a period longer than is normal but not for the entire period of the pain. That to me has been of great value in diagnosing cord complications particularly in cases in which the cord is found to be round the neck. To my mind it has meant that obstetricians should not be in such a great hurry as they should be when the heart tone is irregular and slow for the entire period between the pains. I think that would be of value in the class of cases under discussion.

DR W. PARKS PHILLIPS, La Grange, Ga. In a case of fatal asphyxia due to a complete knot in the umbilical cord some 8 inches from its attachment to the baby this condition was not detected during labor. At delivery I had a dead infant and on inspection of the cord I found a complete knot, which was drawn sufficiently tight to asphyxiate the baby.

DR JOHN P. GARDINER, Toledo, Ohio. The position I take in regard to the symptomatology of cord complications has been forced on me by observation and experience. The three symptoms of a cord complication which I have worked out are delay in labor, disturbance of fetal heart rate, and malposition. One can be very suspicious of a cord complication when one finds these three symptoms. It is difficult as yet to explain fetal death. Very little that is pathologic is shown in death due to asphyxia; this fact in itself gives great leeway for varied opinions as to the

10 Braumann, München med. Wchnsch. 77:1148 (July 4) 1930.
Mences, T. O., Miller, J. D., and Holly, I. F., Am. J. Roentgenol. 24:363 (Oct.) 1930. Ehrhardt, K., Zentralbl. f. Gynäk. 56:947 (April 2) 1932. Staveley, Dulcine, Brit. M. J. 1:937 (May 21) 1932. Kerr, J. M. M., and Mackay, W. C., Edinburgh M. J. 40:2132 (March) 1933.

etiology. The accumulated evidence is that many of the fetal deaths which are unaccountable are due to asphyxia. It is reasonable to assume that a cord (usually 55 cm long or longer) mobile and subject to frequent changes of pressure especially in oligohydramnios, may be compressed causing fetal death. I sympathize with the doctor who spoke of being unable to find the fetal heart beat. Sometimes the difficulty is insurmountable. I stated that, under certain conditions, one cannot be sure that the child is alive unless one feels the fetal movements. One cannot accept the statement of the woman that she feels the fetal movements because she may say she feels them when a fetus is not even present. When one has gotten continuously a distinct fetal heart beat, no matter by what method, it is very difficult to remove the psychologic effect in one's mind and the physiologic effect on one's ear to distinguish at times whether or not the heart is still beating. But when a heart has been beating strongly and regularly and then suddenly ceases, there is grave concern and the simplest method of explaining it is that there is a cord compression. I did not read the case histories included in the paper—three definite histories in which the cord was pinched in a reverse coil between the neck and the chest and was so found at birth, with no traction on the placental side of the cord. The traction was on the fetal side of the cord where the flexion held the cord as it was crossed at the neck until the fetus died. I feel that these cord complicated cases should be more carefully observed, there will then be more definite information in the literature. Matthew Duncan was deeply interested in the study of cord complications, but very few others have followed in his lead.

THE ETIOLOGY AND TREATMENT OF ANEMIA IN PREGNANCY

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Numerous workers¹ have established the existence of a distinct lowering of the hemoglobin concentration in the blood of normal pregnant women. The nature of this "physiologic anemia" and of recovery therefrom has remained confused because seldom have intensive studies been made of the blood of normal women month by month from early pregnancy through and after the puerperium. Such studies² show a steady decline in both hemoglobin and red blood cells from early in pregnancy until the end of the second trimester, after which either no further change or a slight rise occurs. However, observations indicate that within ten days of parturition normal women who have had no significant defects of diet or gastric secretion during pregnancy show an abrupt rise of both hemoglobin and red blood cells to essentially the levels held at the beginning of pregnancy. Correlation of these data with known changes of blood volume in pregnancy indicate that this "physiologic anemia" of pregnancy is not anemia at all in the usual sense, but merely hydremia. Furthermore once the blood volume readjustments of the puerperium are over, no further change of significance occurs during three months post partum.

In contrast to these manifestations it was observed³ that the hemoglobin of a group of pregnant women with complete posthistamine gastric anacidity continued to decline in the last trimester of pregnancy and, after blood volume readjustments were complete, remained 18 per cent below the initial level.

In another group of women who had gastric hypochlorhydria during pregnancy, the same state of affairs was observed with, however, a net lowering of the hemoglobin of only 9 per cent. A fourth group of pregnant women had gastric hypochlorhydria and partook of diets low in iron during pregnancy, the average hemoglobin was 14 per cent lower after pregnancy than at the onset.

It is obvious that pregnancy may be a coincidence during the course of any number of diseases which in themselves cause anemia, such as leukemia, infections and cancer. Furthermore, the gravid state may be responsible for hemorrhage, nephritic and eclamptic toxemias and puerperal sepsis, all of which may produce anemia. Disregarding these anemias of known etiology, there remains a large group of patients who develop a severe anemia during pregnancy which has no obvious cause. Two kinds of such anemia are encountered—one hypochromic in character, the other macrocytic (pernicious) in type. The former has all the characteristics of what has been known in the past as chlorotic anemia or simple secondary anemia and for which more recently idiopathic hypochromic anemia has been the term of choice, since it expresses the fact that the reduction in hemoglobin greatly exceeds that of the red blood cells.

Generally, idiopathic hypochromic anemia occurs in persons who have gastric secretory defects and poor diets. When women suffering from these defects become pregnant, not only may a preexisting anemia be much enhanced but severe anemia may develop during the pregnancy. In the hypochromic anemia of pregnancy there is seldom significant alteration in leukocytes or blood platelets, but stained films show small pale erythrocytes. The chief presenting clinical symptoms are pallor, lack of a sense of well being and excessive fatigability. In the very severe cases edema, dyspnea, prostration and syncope may be observed. Rarely is enlargement of the spleen detected.

Thirty patients with this type of anemia in pregnancy were studied,³ all of whom had severe anemia, with less than 45 per cent hemoglobin (Sahli). Rigorous examination failed to reveal concomitant disease or loss of blood. Since this type of anemia resembled the common hypochromic anemia associated with poor diet and gastric secretory defects, these two factors were investigated. Seventeen of the thirty patients had complete posthistamine gastric anacidity, even when examined after parturition. Ten patients had little or no free hydrochloric acid in the gastric secretion after the usual alcohol test meal, and diminished amounts after histamine stimulation. Two patients only had normal gastric acidity post partum.

With but one exception all the patients who did not have complete anacidity had partaken of diets poor in iron not only throughout pregnancy but often over a period of years. Eight of the seventeen patients with complete absence of gastric free hydrochloric acid had partaken of good if not optimal, diets throughout pregnancy, while the remainder had not had an adequate intake of iron-containing foods. It was thus apparent that either gastric secretory defects or diets deficient in iron-containing foods, or both these factors, were present in all thirty of the patients with hypochromic anemia developing in pregnancy. The relationship of gastric acidity to the absorption or utilization of iron has been discussed elsewhere.⁴

¹ Read before the Obstetrical Society of Boston Feb. 21, 1933.
From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) of the Boston City Hospital and the Departments of Medicine and Tropical Medicine of the Harvard Medical School.
² Bland, P. D., Goldstein, Leopold and First, Arthur. *Am. J. M. Sc.* 1:9-48 (Jan.) 1930. (This reference contains a fairly complete bibliography.)

³ (a) Kuhlmeil, Paul, Zisch, f., Geburthsh. u. Gynak. 90: 511, 1927.
(b) Strauss, M. B. and Castle, W. B. *Am. J. M. Sc.* 184: 663 (Nov.) 1937.

⁴ (a) Strauss, M. B. *Am. J. M. Sc.* 180: 818 (Dec.) 1930.
(b) Strauss, M. B. and Castle, W. B. *ibid.* 185: 539 (April) 1931.
⁵ Mettler, S. R. and Vinot, G. R. *Am. J. M. Sc.* 181: 25 (Jan.) 1931.

In addition to these disturbances it is to be remembered that all these women had what is comparable to loss of blood, since all their infants were born with normal amounts of hemoglobin, no matter how anemic the mothers. The building material for the fetal hemoglobin was of necessity derived from the maternal organism and represented that much loss to the mother.

Treatment of these patients, after control periods without therapy was uniform. Six grams of iron and ammonium citrate was administered daily. Without exception, and irrespective of whether treatment was instituted during or after pregnancy, prompt regeneration of hemoglobin and red blood cells occurred with the restoration of the patient to complete health. Furthermore, the infants born to women severely anemic in pregnancy uniformly develop anemia during the first year of life. If the mothers are adequately treated during pregnancy, this does not occur.

Less patients suffering from the macrocytic (pernicious) anemia of pregnancy were observed.¹¹ These patients usually were more seriously ill than those with hypochromic anemia. They had red blood cell counts of under 2.5 million per cubic millimeter and, in addition to the symptoms of anemia mentioned under the hypochromic type, marked nausea and vomiting occurred in five and diarrhea in two patients. Fever, without demonstrable infection abating when intravenous therapy was employed was observed in nine patients. Soreness of the tongue was present in four patients and splenomegaly in two. Mild combined sclerosis of the spinal cord developed once. All but one patient had had during pregnancy and frequently prior to it, a distinctly limited intake of animal protein food.

In these women the number of erythrocytes was more markedly diminished than the amount of hemoglobin, resulting in a color index above 1. The red blood cell counts varied from 1.05 to 2.5 million per cubic millimeter and the hemoglobin from 20 to 50 per cent (Sahli). In stained films the red cells showed moderate variation in size and shape with oval macrocytes, microcytes and an occasional tailed form. Rarely megaloblasts were observed. Mean corpuscular volume determinations showed a somewhat increased cell size (from 105 to 130 cubic microns), on the average not so marked as in Addisonian pernicious anemia. The concentration of hemoglobin in the red blood cells was, however, slightly reduced. The leukocytes and blood platelets were either normal or slightly decreased. A relative increase of lymphocytes accompanied the leukopenia in most cases. The serum color was either normal or slightly more yellow than normal. In five of these patients achlorhydria occurred, in four hypochlorhydria and in one normal acidity of the gastric contents after histamine injection. One patient with achlorhydria, when reexamined two years later, showed normal acidity.

It was therefore apparent that these patients with macrocytic anemia of pregnancy, like those with hypochromic anemia had both defects of gastric secretion and deficient diets, the latter being chiefly lacking in animal protein.

These patients can be relieved of their anemia with liver or potent liver extract administered by mouth or by injection, just as in Addisonian pernicious anemia. However, once completely well relapse does not ordinarily occur as it does in the Addisonian type, unless pregnancy again occurs. Practically all these patients had in addition to the deficiency of the true

pernicious anemia type, referred to later, an added deficiency correctible by iron therapy. The loss of hemoglobin to the fetus may well explain this. Experiments¹² pursued over a number of years have shown that Addisonian pernicious anemia is due to a failure of a reaction to occur between a stomach factor present in normal gastric juice and a diet factor associated with vitamin B. It has been shown that a lack of the stomach factor alone or a lack of the diet factor alone may result in a failure of this reaction essential for hematopoiesis and in rare cases it is believed that a failure of absorption may produce the same effect, even though stomach and diet factors are normal. Accordingly experiments were undertaken to determine whether the same mechanisms of deficiency were responsible for the macrocytic anemia of pregnancy.

It was found that these patients generally had a partial lack of the stomach factor, since the administration of 200 Gm of beefsteak or 16 Gm of autolyzed yeast (both rich sources of vitamin B) produced some improvement as measured by reticulocyte responses and since greater effects were obtained when, in addition 150 cc of normal human gastric juice was administered with the beefsteak or yeast. In one patient experiments showed no stomach factor whatever present during the last ten days of pregnancy, with a moderate amount reappearing within a week of parturition. This patient later showed a partial loss of this factor in the seventh month of a subsequent pregnancy.

These observations then indicate that analogous mechanisms are involved in the production of the macrocytic (pernicious) anemia of pregnancy and Addisonian pernicious anemia.

Other observations¹³ indicate that disturbances of gastric secretion occur to a greater or lesser extent in more than half of pregnant women. In order to prevent the development of anemia in pregnancy it is therefore essential that a diet adequate in iron and in protein be consumed. It may well be advisable in practice to supplement the diet with iron, as is commonly done with calcium.

If the gastric secretory defects are so marked that an adequate diet alone does not suffice to prevent anemia iron in sufficiently large doses such as 6 Gm of iron and ammonium citrate daily, should be prescribed for the hypochromic type of anemia and potent liver extract derived from 300 to 600 Gm of liver daily for the pernicious type of anemia. If vomiting prevents oral administration from 2 to 5 cc of a potent solution of liver extract for intramuscular use such as No. 343 N. N. R., may be given daily. In very severe cases, and especially if infection supervenes, transfusion of blood in addition to the measures described may be necessary to save the life of the patient until the bone marrow commences to pour out new erythrocytes. Otherwise blood transfusion is generally unnecessary and may sometimes be dangerous.

CONCLUSIONS

- 1 The "physiologic anemia" of pregnancy is only the effect of hydiemia.
- 2 The hypochromic anemia of pregnancy is due either to a direct dietary deficiency or to a deficiency conditioned by gastric anacidity, hypochloridity or aso-

6 Castle W. B. Am. J. M. Sc. 178:748 (Dec.) 1929. Castle W. B. and Townsend W. C. *ibid.* 178:764 (Dec.) 1929. Castle W. B. Townsend W. C. and Heath, C. W. *ibid.* 180:305 (Sept.) 1930. Castle W. B. Heath, C. W. and Strauss M. B. *ibid.* 182:741 (Dec.) 1931. Strauss M. B. and Castle W. B. New England J. Med. 207:55 (July 14) 1932. *Lancet* 2:111 (July 16) 1932. Strauss M. B. and Castle W. B. Am. J. M. Sc. 184:652 (Nov.) 1932.

ciated defects in the presence of the fetal demand for blood-building materials. It may be completely relieved either during or after pregnancy by the administration of iron in suitable (usually large) doses.

3 The macrocytic anemia of pregnancy is generally due to a temporary lack in the gastric juice of a specific intrinsic factor which has been shown to be absent from the gastric juice of patients with Addisonian pernicious anemia in relapse. The ultimate complete return of this factor after delivery is hypothesized. In other cases the lack of the extrinsic factor (associated with vitamin B) from the diet may produce similar effects. The macrocytic anemia of pregnancy ordinarily may be completely relieved with liver extract, although iron is frequently required in addition.

4 The similarity of the etiologic mechanism involved in the hypochromic anemia of pregnancy and idiopathic hypochromic anemia in the absence of pregnancy, and in the macrocytic anemia of pregnancy and Addisonian pernicious anemia, is pointed out.

5 The development of anemia in pregnancy may best be prevented by supplying the pregnant woman with an adequate intake of blood-building materials.

LEG ULCERS DUE TO THYROID DYSFUNCTION

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The conception of the skin as an organ of the body intimately connected with the other organs and not merely a protective covering is too obvious to need any repetition or emphasis. However, in the studies made of skin diseases, attention has been directed chiefly toward the skin itself and the effect of internal influences has been generally overlooked. Every textbook under the caption of etiology will make a casual reference to metabolic disturbances, influences of the central nervous system, and the importance of the endocrine system, but, from a practical standpoint, little has been done to utilize these systemic changes in therapy. The treatment of cutaneous disorders is still essentially a local problem and very few conditions are relieved by specific internal therapy. Andrews¹ states that in the obscure field of endocrinology, one finds expressions of glandular dysfunction of the skin more than in any other organ and illustrates this statement by the examples of myxedema, chloasma and the pigmentation of Addison's disease, but, in view of the great incidence of endocrine disturbances, it is surprising how few cases of skin changes have been reported as due to dysfunction of the hormones. Richter² quotes Virchow as pointing out that the stimulative properties of the hormones are nutritive, functional and formative. They work independently in part and in part through the nervous system. They regulate metabolism, govern growth and serve as a stimulus to the preservation of the organic structure. The endocrine glands play a greater role in view of these multitudinous functions in the etiology of cutaneous disorders than they are given credit for. For many years glandular products have been used in dermatologic therapy for a great variety of cutaneous ailments but the amount of thera-

peutic success has been small and controversial reports have been many.

Of late the relationship between disturbances of the thyroid gland and peculiar skin changes in the lower extremities has been arousing interest. An odd eruption of the legs following thyroidectomies has been observed by various dermatologists all over the world. Hektoen³ gives the first reference in the literature of a bilateral, mucilaginous, circumscribed infiltrate of the legs associated with exophthalmic goiter. Dubreuilh⁴ first described a myxedematous nodular infiltration of the skin unassociated with exophthalmic goiter. O'Leary⁵ gave the case histories of eight patients observed in the Mayo Clinic showing myxedematous plaques in the legs associated with thyroid disturbances. He termed this condition "circumscribed myxedema." Pillsbury and Stokes⁶ reported one case in great detail and exhaustively reviewed the literature. Netherton⁷ presented a case before the Cleveland Dermatological Society and Wright,⁸ likewise, before the Atlantic Dermatological Conference. Von Lewtschenkow⁹ first showed the myxedematous nature of this condition and Dossekker¹⁰ termed the ailment an atypical tuberous myxedema. Slonimskaya and Glauberson¹¹ consider the skin changes found in thyroid insufficiency due to a cutaneous dysarthrosis, a part of a general dysarthrosis symptom complex. They report three cases of atypical circumscribed myxedema and speak of twenty-eight more cases recorded in the Russian literature. Kilbourne¹² cites a most unusual case in which an enormous ulcer of seventeen years' duration on the lower part of the right leg healed completely in ten weeks after the daily ingestion of 15 grains (1 Gm.) of thyroid extract. With the exception of Kilbourne's case, I have not been able to find reported in the literature another example of leg ulcers definitely shown to be due to thyroid dysfunction. In view of the comparative frequency of thyroid disturbances and the great number of thyroidectomies done every year, it is surprising that more such cases are not on record. Because of the rarity of this condition, the following case is reported as an example of leg ulcers produced by dysfunction of the thyroid gland.

REPORT OF CASE

History—A white woman aged 39, a native of Pennsylvania, had done housework all her life. In February, 1925, she noticed a rash on her legs which itched considerably. The eruption consisted of red round marks that were slightly raised and extended from her ankles to above her knees. In a few weeks small ulcers appeared varying in size from a pea to 24 mm. in diameter. Gradually the ulcers spread, coalesced and became deeper. These extensive ulcerations remained on her legs despite a great variety of therapeutic procedures until her admission into the York Hospital in October, 1931. In August, 1925, she first noted that her neck was increasing in size and she was informed by her physician that she had a goiter. The swelling became larger and persisted until her

1 Andrews G. C. *Diseases of the Skin*. Philadelphia W. B. Saunders Company, 1930, p. 22.

2 Richter Wilhelm. Local Myxedema of the Skin in Its Relation to Addison's Disease. *Dermat. Wehnschr.* 84: 7 (Jan. 1) 51 (Jan. 8) 192.

3 Hektoen Ludvig cited by Watson William. *Clin. J.* 7: 93 1895.

4 Dubreuilh W. Fibromes multiples folliculaires scleroderme consecutive. *Ann. de dermat. et syph.* 7: 569 1906.

5 O'Leary Paul. Localized Solid Edema of the Extremities in a Case with Exophthalmic Goiter. *Arch. dermat. & syph.* 21: 57 (Jan.) 1930.

6 Pillsbury Donald and Stokes John. Circumscribed Myxedema of Skin. *Arch. Dermat. & Syph.* 24: 255 (Aug.) 1931.

7 Netherton E. W. A Case for Diagnosis. *Arch. Dermat. & Syph.* 27: 702 (April) 1933.

8 Wright C. S. Scleroderma Circumscripta. *Arch. Dermat. & Syph.* 27: 711 (April) 1933.

9 von Lewtschenkow D. D. Ein elterer Fall von myxomatose Hautdegeneration. *Monatsschr. f. prakt. Dermat.* 60: 239 1912.

10 Dossekker W. Ueber einen Fall von atypischen tuberosem Myxodem. *Arch. f. Dermat. u. Syph.* 123: 76 1916.

11 Slonimskaya V. M. and Glauberson S. A. Three Cases of Atypical Circumscribed Myxedema. *Sovrem. pikhonevol.* 11: 252 (Oct. Nov.) 1930.

12 Kilbourne V. J. Leg Ulcers of Unrecognized Etiology. *J. A. M. A.* 98: 1955 (June 4) 1932.

admission to the hospital. She suffered from severe headaches almost migrainous in character, and had noted a marked thinning and coarsening of her hair. Her menses began at 13 and had always been regular until the last six years, when they became scanty and infrequent, often missing three or four months. She was the mother of eight children, living and well, and had one miscarriage before the birth of her oldest child. Her past medical history was of no consequence. Her mother died of tuberculosis, but she had a father, five brothers and four sisters, living and well and free from any acid-fast infection.

Examination—The irises reacted normally to light and in accommodation. Her eyes showed no exophthalmos or the other characteristic signs of exophthalmic goiter. The thyroid gland was enlarged symmetrically with a doughy consistency. A bruit was present over the gland. Her skin was dry and shiny, giving an almost translucent appearance. Her hair was sparse and coarse, with a moderate alopecia. On both lower extremities large ulcers



Fig 1—Left leg three days after admission to the York Hospital in October 1931

were present above and below the active lesions. No varicose veins were observed. Dorsalis pedis pulsations were present in both legs. The heart and lungs were normal. She appeared rather sluggish and slept a good deal during the day.

The urine was normal except for a faint trace of albumin. A blood count showed 3 500 000 red cells, 75 per cent hemoglobin, 8 500 white cells, and a normal differential. The blood sugar was 92 mg per hundred cubic centimeters. Two Wassermann tests of the blood were negative and the spinal fluid showed a negative Wassermann reaction in all dilutions and no increase in cells or globulin. A roentgen examination of the legs presented no evidence of any pathologic changes of the bone. Staphylococci were found in a culture of the secretions. The basal metabolism was minus 34. A biopsy was made shortly before her discharge from the hospital. A marked infiltration of mucin throughout the cutaneous network was seen. Marked vacuolization was present and the elastic and collagen fibers were separated and displaced. Large numbers of stellate cells were observed. The epidermis was essentially normal.

Course—She was given 2 grains (0.13 Gm) of thyroid extract three times daily, and wet dressings of 1 3000 potassium permanganate were applied to the ulcerated areas. In five weeks these lesions, which had persisted unchanged for six years, had healed entirely. Her basal metabolic rate decreased to minus 8, and six weeks after her admission she was sent home. About one year after her discharge from the hospital she returned with similar ulcers on her left leg. The right leg remained completely healed. In a short while under the routine described the ulcers closed again, leaving only scars behind. In February, 1933 the ulcers occurred again in her right leg. Strangely enough the basal metabolism then was plus 40. Rest in bed and small doses of iodine brought the metabolic rate down to plus 1 and again the ulcers closed. This change from hypothyroidism to hyperthyroidism seems to be characteristic of these leg lesions and was noted and commented on by O'Leary,⁵ Pillsbury and Stokes,⁶ and other observers.

Differential Diagnosis—Eloesser¹³ states that leg ulcers are usually of three types: arteriosclerotic, infectious, or due to varicose veins. These conditions can be quickly eliminated in this case. The patient showed no sclerosis in other parts of the body and the blood pressure and kidneys were normal.

No varicose veins were seen and she showed no obvious focus of infection. Local antisepsis and rest in bed were never of any avail until glandular therapy was instituted. Syphilis could be eliminated on account of the family history, the negative blood and the spinal Wassermann reactions, and by the gross and microscopic pathologic appearance. The ulcers of erythema induratum were considered, but the clinical picture was not that described by Bazin. The edges of the ulcers had not undermined and the coloration was not blue or bluish red. Nor was there any evidence of tuberculosis in other parts of the body. The blood count excluded from consideration the ulcers of sickle cell anemia or a severe secondary anemia. Rare conditions that cause ulcerations—fungi, drugs and the like—can all be conclusively eliminated.

Even though staphylococci were found in the secretions the diagnosis of a pyodermic gangrenosa seems rather untenable. The disease is generally associated with anemia and colitis, neither of which conditions was present. The staphylococci were probably secondary invaders. The appearance of these ulcerations at the same time as the increase in size of the thyroid gland, the effective response to thyroid therapy, the changes in the basal metabolism corresponding to the clinical improvement of the legs leave no other diagnosis but that of ulceration of the lower extremities due to thyroid dysfunction.

COMMENT

This case arouses many interesting questions. In what way did the lack of the thyroid hormone aid in the production of the ulcers? Was this stage of deep ulceration an advanced stage from that of the so-called circumscribed myxedema described by the various authors already enumerated? Eppinger¹⁴ advances the theory that there may be somewhere in the organism a

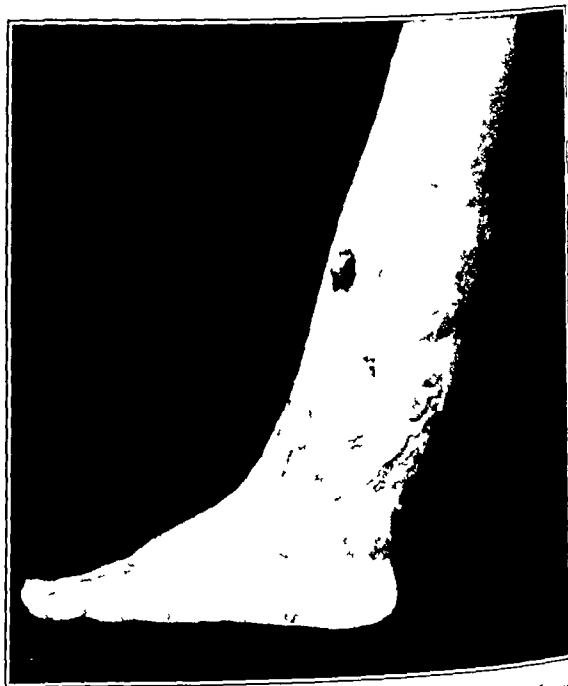


Fig 2—Left leg six weeks after admission to the hospital, showing complete healing of the ulcers. The open lesion above the healed areas is the site of the biopsy.

barrier that prevents the thyroid hormone, of which there is no lack, from reaching regions lying beyond it—a local myxedema as distinct from a general myxedema, which is caused by a general lack of hormone. That thyroid hormone certainly plays a part in the healing of wounds is corroborated by the common

observation that wounds heal slowly in myxedematous patients. Accordingly, Eppinger¹⁴ applied thyroid extract locally in torpid cutaneous ulcers and obtained very good results. The local application of hormone products to wounds and ulcers is nothing very new, for the French, particularly, have been applying insulin to facilitate healing ever since insulin was discovered. Pautrier, Schmid and Ullmo¹⁵ report two cases of leg ulcers of long duration cured in two weeks by the application locally of insulin. However, other observers, prominently Nathan and Munk¹⁶ feel that the good effects are due to the acidity of the solution and not

to the specific reaction of the hormone. Eppinger explained his good results by the assumption that in the biologic exchange of fluid the quality of the membrane plays an important role. The surroundings of the wounds or ulcers may have been so injured that it is impermeable to the thyroid hormone, which is such an important factor in the regeneration of cells.

The presence of myxedematous symptoms in cases of hyperthyroidism seems rather anomalous. Most of the cases reported of circumscribed myxedema of the extremities occurred in exophthalmic goiter conditions following operation. In the case reported in this

exophthalmic goiter, comes to the fore and the hormone secretion reacts with hypothyroidism instead of with hyperthyroidism. Therefore, Richter believes that the paradoxical finding of myxedematous cutaneous symptoms in exophthalmic goiter has its explanation in a tertiary stage of exophthalmic goiter, which is hormonally associated with hypothyroidism.

It is nothing unusual to see patients going from physician to physician and from clinic to clinic complaining of severe ulcerations of the lower extremities which do not seem amenable to any treatment. A basal metabolism test might in some cases help to solve the problem and thyroid extract, used both internally and locally, might be very useful in healing some of these lesions. In every case of severe ulcerations of the lower extremities a careful physical examination and laboratory study should be made, for the majority of such disorders are due to systemic changes and not to local causes.

SUMMARY

1 This was a case of deep ulcerations of the lower extremities associated with myxedema.

2 The internal administration of thyroid extract quickly healed, in a few weeks, ulcers that had persisted unchanged for six years.

3 The cutaneous changes in diseases of the thyroid are not well understood or explained, and the relationship between circumscribed myxedema of the legs and leg ulcers of obscure etiology is suggested.

142 East Market Street

Clinical Notes, Suggestions and New Instruments

AN UNUSUAL CASE OF CARDIOSPASM

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This case is reported principally because the esophagus was so dilated that it led to a clinical and roentgen diagnosis of fluid in the pleural cavity, and an aspiration of the esophageal fluid was made through the chest wall. This interesting clinical mistake has not heretofore been reported, as far as I have been able to determine from the literature. The case is interesting also because of the slight degree of dysphagia. This, of course, was a factor in forming the error in diagnosis.

L. W., a Negro, aged 35, admitted to Baylor Hospital outpatient department, April 19, 1932, stated that he had been working as a chauffeur and had been in fair health until February 26. On that day as he was riding on a street car, he felt a sudden pain in the pit of his stomach and he "broke out in a cold sweat." He got off and, after walking two blocks, he vomited about a pint of dark red—to black—fluid which he thought was blood. Since that time, he said, he had taken only liquids and a soft diet but within a half to one hour after almost every meal he had vomited a large amount of fluid. This had been present up until the time of admission. He said that he thought he had a little fever but no chills. He gradually grew weaker and, during the two weeks prior to admission, was confined to bed. He lost during that time about 40 pounds (18 Kg.). He said nothing about having any dysphagia when questioned at first, but later on leading questions led to the admission of some trouble in swallowing. He said that he had had some burning in his hands and feet during the last few weeks. The family history and past medical history were negative.

The patient was small and emaciated. He was apparently comfortable. The blood pressure was 102 systolic 68 diastolic. The pulse was 88, the temperature, 99 F. Examination revealed no changes except those found in the chest. There were flatness and diminished breath sounds at the right base up to the



Fig. 3.—Appearance of patient in February 1933 showing the enlarged neck and the scars of the healed ulcers on her legs.

paper the patient noted the return of her ulcers when the basal metabolism was high as well as when it was low. The presence of hypothyroidism and hyperthyroidism in the same patient at the same time is rather confusing and difficult to explain. Richter² quotes Kocher as assuming that exophthalmic goiter has three stages: a primary stage marked by intense symptoms, a secondary stage marked by a relenting and changing of the symptoms in accordance with the intervention of endocrine correlations, and a third stage characterized by regressive changes. Since all the parts of the thyroid and the other endocrine glands are not equally affected the clinical picture can vary enormously. Thus, for instance, part of the thyroid gland may return to a normal colloid condition, or the regressive changes may advance to such an extent that atrophy, which is ordinarily not a part of the histopathologic picture of

15 Pautrier, Schmid and Ullmo. Leg Ulcers in Patients Without Hyperglycemia Cured by Insulin Used as a Local Application. *Bull. Soc. franç. de dermat. et syph.* 33: 544, 1926.
16 Nathan E. and Munk A. Local Insulin Treatment of Ulcers. *Klin. Wchnscrh.* 6: 1747 (Sept. 10) 1927.

level of the sixth dorsal vertebra. Tactile fremitus and voice sounds were also diminished. The heart was not enlarged, and the sounds were entirely normal. There were no rales at the apexes of the lungs. There was slight pitting edema of the feet. The reflexes were normal.

Tentative diagnosis was made of military tuberculosis with pleural effusion, or carcinoma of the stomach with pulmonary metastases. An immediate diagnostic aspiration in the mid-scapular line was made in the clinic. The fluid contained yeast cells and a few blood cells. An x-ray film of the chest revealed "a large encapsulation of fluid in the right mediastinum and the right chest." A lateral view was made later and a report was made of "encapsulated mediastinal pleurisy." A second tap was made and a large amount of fluid was recovered which had an odor of decomposed gastric juice. The patient was given barium by mouth which revealed that the so-called encapsulated fluid was really a hugely dilated esophagus (fig. 1). An esophagoscopy examination was made the fluid removed, and a diagnosis of cardiospasm established.

There were no ill effects following the aspiration probably because the dilated esophagus was approximated so closely to the chest wall that no leakage occurred. The patient was treated by hydrostatic dilatation and he immediately began to gain weight. Later on it was found necessary to do a gastrostomy.

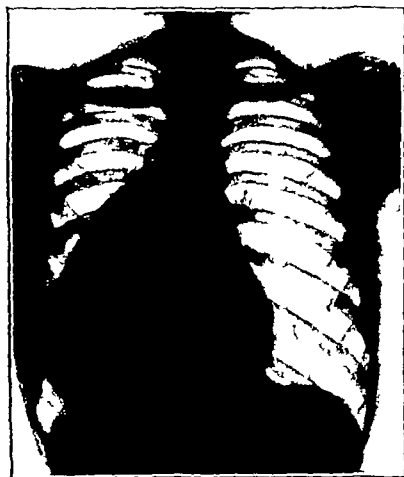


Fig 1—Anteroposterior view of chest showing enormously dilated esophagus full of fluid. It was into this sac that the puncture was made.



Fig 2—The same after ingestion of barium.

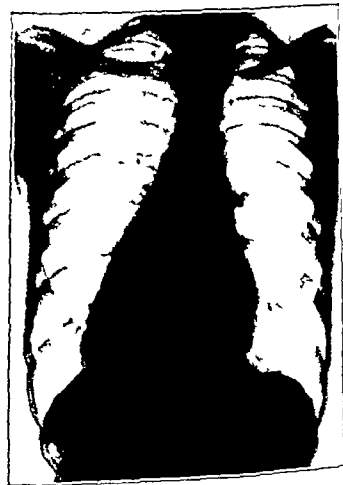


Fig 3—The same after a large amount of fluid had been aspirated from the esophagus.

Since that time he had gradually increased his weight up to his usual normal. A prognosis for complete restoration of the esophageal function is not good, for he is having considerable difficulty at the present time in swallowing his food and it is still necessary to feed him through the gastric stoma.

Medical Arts Building

BILATERAL NECROSIS OF THE CORNEA FOLLOWING THE USE OF HAIR DYE ON THE EYEBROWS AND LASHES

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There have recently been a number of case reports demonstrating the harmful results following the use of hair dye on the eyebrows and lashes. I am presenting this case not to advocate any type of treatment but merely to add one more case to the already fast growing list and to impress the importance of determining whether or not a person is sensitive to a particular dye before using this harmful procedure.

This case report concerns a woman aged 66, who has had her eyebrows and lashes dyed many times. On April 15, 1933, she used a new preparation known as the Godefroy French Hair Coloring (L'arouse) which contains paraphenylenediamine. Immediately afterward her eyes began to itch. She consulted me three days later at which time she had a conjunctivitis. I prescribed for her and did not see her again for two days.

During this time the itching became more intense, both eyes became swollen shut, and her face became red and edematous from the hair line down to the chin. At first glance it looked similar to a facial erysipelas. It was very difficult to see the corners, owing to the large amount of palpebral and bulbar chemosis and photophobia, but they apparently were clear.

A dermatologist was called in consultation and he prescribed for the skin condition. A dermal test with the dye resulted in a four plus reaction. The swelling continued, and one week later a small corneal ulcer appeared at the limbus of the right eye at 6 on the clock dial. The pupils were dilated with difficulty by means of homatropine and then 1 per cent atropine. The ulcer was first cauterized with phenol and alcohol and it did not improve. Two days later a hypopyon appeared. The patient was then hospitalized and the ulcer cauterized with the actual cautery. In spite of all types of treatment, including foreign protein therapy and typhoid vaccine intravenously, the ulcer progressed and perforated.

All this time a careful watch was kept on the left eye. The following day, after the perforation of the right cornea, during the afternoon while the special nurse was away, an intense itching of the left eye suddenly occurred and the patient rubbed her eyes severely. Her forehead and lids at this time were somewhat improved, which I believe was due to shaving the

brows and clipping the lashes. That evening an ulcer developed on the left eye and the whole corneal epithelium was denuded by the next morning. The margins were cauterized with the actual cautery and a Kuntz conjunctival flap was pulled over the corner. Typhoid vaccine was again administered.

The progress was slow, the flap came off in four or five days and the ulcer was beginning to heal from the periphery. The margins were cauterized a number of times. In two or three weeks the ulcer was very small. July 4, after two weeks at home, the patient went about feeling better. Atropine had been discontinued for some time, because of atropine poisoning. Intense pain suddenly developed in the left eye. The tension was increased to digital palpation (I was unable to use a tonometer because of the corneal ulcer) and could not be reduced with physostigmine so an iridectomy was done, which has controlled the tension to date.

I last saw the patient November 1. She could see fairly well and could walk about the room. Her vision had improved rapidly in the past month, it being 10/200. I feel that this will increase as time goes on. She is using ethylmorphine hydrochloride, 5 per cent, three times a day.

COMMENT

1 The patient was particularly sensitive to paraphenylenediamine, as a scratch test was done on the arm, which produced a large erythematous area.

2 The ulcer on the right eye was very malignant and resisted all types of treatment.

- 3 I believe that the removal of the lashes and brows did more to alleviate the dermatitis than any other type of therapy
 - 4 The application of the conjunctival flap was a great factor in saving the left eye
 - 5 If the patient had been tested before the application of the dye, this pathetic condition could have been avoided
- 114 West Fifth Avenue

Special Article

CLINICAL CONTROL OF CHRONIC HEMORRHAGIC STATES IN CHILDHOOD

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NEW YORK

(Concluded from page 210)

VASCULAR HEMORRHAGIC DISEASES

Hemorrhagic symptoms abound in disturbances of the vascular channels. Their integrity may be altered structurally or functionally with consequent escape of normal blood. Vascular structure may be affected externally by trauma and internally by increased pressure, by lack of nutritional elements, by bacterial invasion, by chemical injury and by lymphatic infiltration. Occasionally an infant is born with defective vascular structure in one part of the body or another. Again, vascular function may be influenced by internal secretions, by allergic substances and by infectious agents. Although structural changes necessarily disturb vascular function, the one group of hemorrhagic disturbances may be differentiated from the blood etiologically on the basis of extravasation of blood on

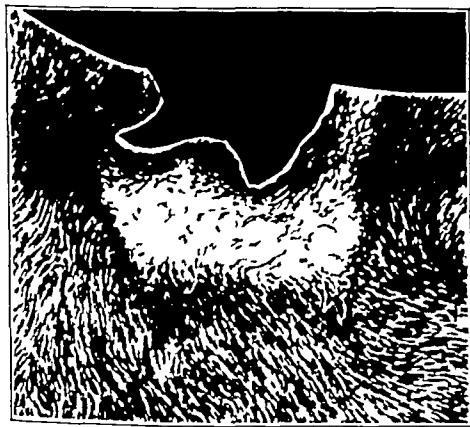


Fig 8—Proliferation of intima and separation of elastic interna in scurvy

the one hand and blood combined with exudate inflammatory changes on the other. Such clinical differentiation offers direct therapy on the basis of the etiologic factor interfering with vascular integrity.

The methods of studying the status of the child's vascular endothelium are as yet very crude but clinically accurate. Diminished capillary resistance may be determined by the tourniquet test yielding petechiae or hemorrhages, or it may be gleaned from the diminished urinary output in the erect posture in the presence of pathologic changes of the capillary system. It may be observed microscopically from capillary nail beds revealing structural changes. My determination of the

presence of vascular pathologic changes, however, is made indirectly when blood studies show normal content of clotting constituents. Thus are the vascular problems, strictly speaking, nonhemorrhagic diseases.

1 Hemorrhagic Avitaminosis—R N, an infant girl, aged 4 months, was admitted for treatment of nutritional atrophy. Born at full term of an emaciated mother, the baby was maintained on very dilute boiled milk mixtures at irregular intervals with indiscriminate care. After gradual adjustment of concentrated feedings, the baby nevertheless failed to thrive. There were no evidences of enteral or parenteral infection. The blood Wassermann reaction and roentgenograms of the long bones were negative. Petechiae, first observed in the mucous membranes, spread until purpuric spots covered the body. The blood picture before transfusion showed hemoglobin 70 per cent, red blood cells, 3,800,000, white blood cells, 14,000, lymphocytes, 55 per cent, platelets 180,000, tourniquet test, positive, clotting index, 0.45. The purpura was unaffected by transfusion but cleared gradually with vitamins A, B, C and D reinforcing the feeding regimen. Vitamin deficiency produces capillary degeneration. In this case nutritional deficiency preceded birth and was particularly striking in the paucity of these vitamin factors in both the mother's and the baby's food. The blood showed no evidence of hemorrhagic disease but the purpura was a result of vascular injury resulting from vitamin deficiency.

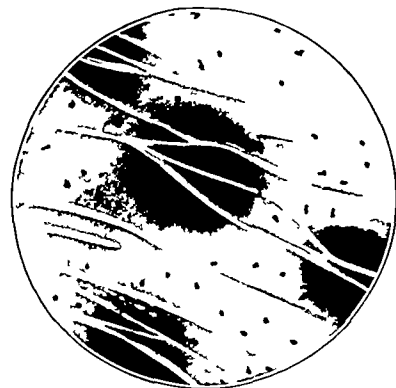


Fig 9—Microscopic section of a capillary bed in allergic purpura

Scurvy is a classic example of the specific relation of vitamin C to hemorrhage. The primary disturbance is a separation of the cement substances binding the vascular endothelium cells. It is only in severe cases that bone marrow atrophy is produced with subsequent diminution in platelet formation. In children, the external vascular phenomena bespeak the typical clinical picture. And their manifestations are latent and elusive early in the deprivation of vitamin C in the dietary. So much emphasis has been placed on the rôle of vitamin C in the vascular hemorrhage that others have been neglected. Fanconi demonstrated that hemorrhagic symptoms in children with Herter's infantilism are a consequence of vitamin deprivation. Others have observed similar phenomena in the course of marasmus. Apparently, the nutrition of the vascular endothelium depends largely on the vitamin adequacy of the dietary.

2 Allergic Purpura—A L, a boy, aged 5 years, had recurrent attacks of colic since infancy. They usually occurred during the spring with pain in the abdomen and musculature followed by tarry stools with mucus. All treatment was refractory each episode being self limited. At the fourth year the attack was so severe that the appendix was removed. When he came under my observation during an attack, the boy showed infected tonsils, carious teeth and intense dermatographia. The blood picture showed a hemoglobin of 80 per cent, red blood cells 3,800,000, white blood cells 17,000, platelets, 270,000, clotting time five minutes, bleeding time, four minutes, tourniquet test, positive, polymorphonuclears, 74 per cent, eosinophils, 5 per cent. The urine showed albumin, casts and red blood cells. The parents were both allergic. The removal of carious teeth, tonsillectomy and gradual desensitization with a nonhemolytic streptococcus obtained from a culture of the tonsils prevented these attacks thus far for two years.

Systemic hemorrhagic attacks recurring in allergic children are well defined syndromes. The tissues affected by hemorrhage have previously been differentiated as separate syndromes, gastro-intestinal hemorrhages as Henoch's purpura, joint involvement as Schoenlein's purpura, and cutaneous eruptions as erythema multiforme, but the advent of the allergic mechanism has unified these syndromes into a single group of allergic purpura. They are usually the result of bacterial, food or drug allergy in children of allergic



Fig. 10—Section showing destructive inflammatory lesion in a vein in syphilis; cluster destroyed lumen of vessel occupied by new formed vessels, giant cells, endothelioid cells and plasma cells.

constitution and parentage. The purpuric eruptions usually follow generalized symptoms which together constitute the recurring pattern for the particular child. The blood-clotting function is normal, but the capillary resistance is varied in the same patient. Once the diagnosis is determined, recovery is spontaneous and prognosis is always favorable.

Prevention of recurrent allergic purpura requires the discovery of the specific allergic offense. In the case of Henoch's purpura cited, the elimination of the oral foci of infection cleared the condition. In another case, that of a girl, aged 5 years, purpuric spots appeared over the legs with each attack of tonsillitis. Tonsillectomy was performed on the basis of a supposedly rheumatic fever and postoperatively petechiae and joint pains recurred. When the child was first presented a diagnosis of Schoenlein's purpura was made. The persistence of a hemolytic streptococcus in the sinuses was the focus responsible for the exacerbations. Desensitization with a specific vaccine eliminated the allergic purpura. Another girl, aged 8 years, showed for two years recurrent attacks of abdominal cramps, joint pains and purpuric spots over the legs. Since there were no foci of infection, skin tests were made. On that basis wheat, egg yolk and pork were eliminated, with complete disappearance of symptoms except for the purpuric eruptions. The accidental inclusion of an egg-containing food precipitated allergic symptoms. Clinical variations of allergic purpura are innumerable. Patients with recurrent attacks are treated for indigestion, rheumatic fever, purpura and sepsis and are operated on for appendicitis, intussusception or gastric ulcer before the actual diagnosis is established. But the attacks continue until the allergic offense is eliminated.

3 Hemorrhagic Infections—H. R., a boy, aged 4 years, was admitted to the hospital with a history of convulsions associated with a severe infection of the upper respiratory tract. Hemorrhage appeared in the orbit and marked purpuric extravasations over the trunk and upper extremities. Facial weakness and complete right hemiplegia followed. Examination of the blood showed clotting and bleeding time, normal, tourniquet test, positive, platelets, 310,000, platelet lysis, 35 per cent, and blood clotting function normal. An encephalitic infection was the cause of the purpura.

Hemorrhagic symptoms predominate in infectious invasion. Vascular injury usually exceeds the disturbances in myeloid function, but the relative changes in each depend on the severity of the infection. I have observed as confirmation of the vascular injury petechiae containing the organisms of meningococcemia, embolic abscesses with visceral hemorrhages in pneumococcemia, nosebleeds and even hemorrhagic sputum in epidemic influenza, thrombotic petechiae consisting of tuberculi, punctate hemorrhages in scarlet fever, bleeding of the mucous membranes in diphtheria, hemorrhages from the mucous membranes in congenital syphilis and purpura associated with the presence of endothelial cells in the circulating blood of subacute bacterial endocarditis.

Capillary hemorrhages are not infrequent as consequences of vascular congestion in the course of chronic infections. Rheumatic heart disease induces epistaxis or congestion hemorrhages in the edematous lower extremities. Pertussis precipitates hemorrhages into the conjunctivae and eyelids as well as from the nose and bronchi. Uremia occasionally reveals terminal cerebral, retinal and intestinal hemorrhages rather than petechiae. The hemorrhagic symptoms in uremia parallel the severity of capillary damage from infection and not the degree of nitrogenous retention. Increased venous pressure in normal circulatory systems is not a determining factor in these bleeding manifestations.

Arrest of bleeding in the course of infectious invasion may be brought about by therapeutic measures for decreasing capillary permeability. Elimination of infec-



Fig. 11—Proliferative phlebitis of a large vein in peritonsillar tissues in scarlet fever.

tion is of course, the primary concern, but the self-limited nature of infectious disease necessarily requires vascular medicaments. Clinically, calcium salts have been used in most hemorrhagic diseases for centuries with favorable effects but based on erroneous interpretations. The calcium required in the clotting mechanism is rarely found wanting in amounts necessary for this process. Even the striking clinical entities involving hypocalcemia never show bleeding symptoms. Calcium therapy is indicated in abnormal bleeding resulting from vascular dysfunction. Its effect is spe-

cific in decreasing capillary permeability. The calcium salts administered have no bearing whatever on elevating the well buffered calcium content of the blood. Calcium therapy is best administered intravenously in a 10 per cent solution of calcium gluconate or calcium chloride from 10 to 25 cc injected very slowly. Oral administration is of course slower in its effect but may well be supplemented in from 5 to 10 gram (0.33 to 0.65 Gm.) doses offered between feedings to prevent its precipitation into the intestinal tract and subsequent loss in the stools.

The administration of gelatin arrests bleeding by condensing platelets on the vascular bed. From 20 to 40 cc may be injected intravenously in 10 per cent solution, or it may be fed in 10 per cent solution, either directly sweetened and flavored with vanilla and mixed with milk, or as a jelly, which may be kept on ice for two days.

Solution of pituitary is an effective vasoconstrictor in arresting bleeding. This mechanism is operative in vascular beds other than those of the female genital organs. The injection of 0.5 cc of solution of pituitary frequently suffices to arrest capillary oozing when due to vascular injury. The action is more prolonged than that of epinephrine hydrochloride. It is the vasopressor fraction of the posterior lobe that affects the vascular endothelium in the direction of increased blood coagulation.

HEREDITARY HEMORRHAGIC DISEASES

Hemorrhagic tendencies may be truly inborn. They are the consequence of hereditary defectiveness rather than symptoms of disease. In no other ailment is the medical history of previous generations as significant as in the transmission of hemorrhagic defectiveness. And its manifestations are so dramatic as never to be forgotten by any family. Teleologically there exist genotypes with transmitted defects in the formation of each of the clotting factors, sex-linked defectiveness in platelets in hemophilia, familial abnormalities in platelets in thrombasthenia, congenital derangement in fibrogen formation in fibropenia, familial defectiveness in vascular channels in telangiectasis. Thus may each of the factors involved in the clotting mechanism be formed defectively throughout life as a family failing. But these constitutional familial hereditary diseases are not always clear cut, for nature's defects are never

in the bone marrow, spleen, liver and capillaries. Therefore all the more caution is necessary in the diagnostic finality of hereditary hemorrhagic tendencies.

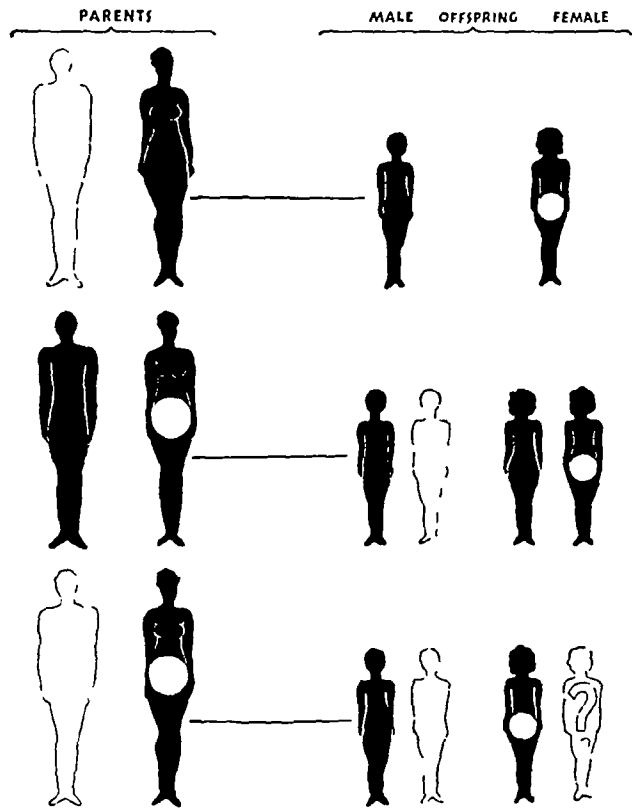


Fig. 12—Transmission of hemophilia

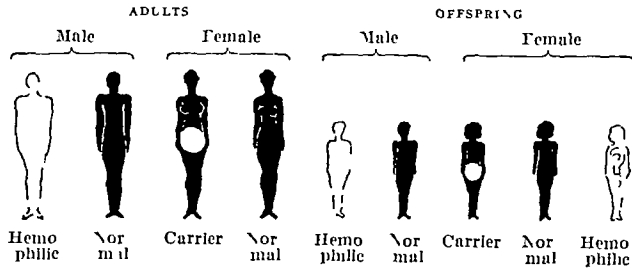


TABLE 4—Hereditary Hemorrhagic Diseases

	Hereditary Transmission Through	Sex	Site of Bleeding	Blood Picture	Clinical Control
Hereditary hemophilia	Mother	Male	Mucous membranes skin joints	Platelets stable clotting time prolonged	Locally Raw meat fresh blood Intradermally Goat serum Intramuscularly Ovarian extract anterior pituitary Intravenously Transfusion
Familial thrombocytopenic purpura	Parents	Male female	Mucous membranes skin	Platelets diminished bleeding time prolonged clotting retraction delayed tourniquet test positive	Orally Clotting diet calcium salts Locally Fresh blood Bodily Ultraviolet irradiation Intram Blood calcium gluconate Intravenously Transfusion Surgically Splenectomy
Hereditary thrombasthenic purpura	Mother	Male female	Mucous membranes	Platelets stable bleeding time prolonged clotting retraction delayed tourniquet test positive	Locally Fresh blood Intravenously 10% calcium salts 10% gelatin transfusion Intramuscularly Ovarian extract Local Cauterization defective vessel Intravenously Transfusion
Hereditary hemorrhagic telangiectasis	Parents	Male female	Mucous membranes defective nasal buccal gastric uterine rectal	Normal	

selective. Obviously combinations of hemorrhagic defectiveness exist as phenotypes of the well defined hereditary diseases. Clinically, even hereditary diseases are the result of disturbances existing simultaneously

1 Hereditary Hemophilia—A H a boy aged 8 years bled from infancy with every disturbance. The mother's oldest brother was a bleeder. Continuous bruising followed slight trauma since walking. A large hematoma of the leg followed

an insect bite. An abrasion of the lip oozed for ten days. A slight laceration of the hand from cut glass on falling bled for days in spite of the administration of tetanus antitoxin. But a transfusion from the mother promptly arrested the bleeding. Hemorrhagic effusions into the left knee joint recurred until whole blood was administered from the mother at her menstrual period. Bruises continued following trauma but bleeding ceased after fortnightly injections of ovarian extract intramuscularly and goat's serum intradermally.

Hemophilic bleeding can be controlled but not cured. Mild bleeding may be stopped locally by application of fresh raw meat, fresh blood or cephalin after the removal of useless clots; pressure alone is contraindicated. All other hemostatics locally applied are ineffective. Severe bleeding may be checked for four days by the transfusion of whole blood from a suitable donor. Even an ounce of injected blood arrests hemorrhage, but the degree of subsequent improvement depends on the amount of blood given. Stored serum is ineffective in inhibiting clotting, but an ounce of fresh serum arrests bleeding within a day.

Hemophilia is as characteristic clinically as it is hematologically. It occurs in the male with a typical familial bleeding pattern. It is transmitted by the female, although the mother's blood shows a normal blood-clotting function. Bleeding is protracted, the clotting time prolonged and, paradoxically, the bleeding time normal. Hemophilic blood shows the lowest index of blood-clotting function and a normal or increased number of platelets, physiologically defective because of their striking stability. Capillary resistance tests reveal no impaired function.

Bleeding from superficial injuries may be diminished by passive sensitization. The maintenance of an allergic state by repeated serum therapy increases the prothrombin sufficiently to be protected by capillary hemorrhage following trauma. In fact, the clotting time of capillary blood is diminished within two hours of the injection of serum. But the change produced in the blood is inadequate against injuries involving the larger vessels and joints. The child is sensitized preferably to goat's serum by the subcutaneous injection of 3 cc. At the end of a fortnight, the child is given from 2 to 3 minims (0.12 to 0.18 cc.) of the serum intradermally. The appearance of a wheal at the site of injection indicates passive sensitization. The intradermal injection of the same serum should be repeated every two weeks for the maintenance of the allergic state. Another procedure effective in arresting hemorrhage in emergency is a transfusion of blood from a donor sensitized to goat's serum. The intradermal injection is repeated every fourteen days to continue sensitivity in the hemophilia.

Bleeding into the joints may be controlled by ovarian hormone therapy. Most hemophilic patients bleed from the mucous membrane of the nose, mouth and gums

and into the joints. Other sites of hemorrhage are relatively infrequent in comparison. And no form of therapy thus far advanced has been as effective as the injection of female sex hormone. Its absence in the blood of tissues of hemophilic boys is a hereditary sex-link deficiency factor. Its administration weekly produces no changes in the concentration of clotting substances but rather decreases capillary permeability. Injection of active ovarian extract is indicated for interim treatment of the hemophilic state rather than for control of acute hemorrhages. Repeated intramuscular injections decrease the bleeding tendency without affecting the easy bruising. Acute joint lesions require splinting and even immobile plaster of Paris

TABLE 5—Therapeutic Measures for the Arrest of Bleeding

Procedure	Platelet Deficiency	Fibrinogen and Thromboplastin Diminution	Vascular Disturbance
Local	Extract of blood platelets; ultra violet irradiation	Thromboplastin; meat juice	Shepherd's pure
Oral	Mosterol	Cephalin; fibrinogen	Calcium salts
Nutritional	Dietary fat (unsaturated lipids)	Dietary protein (gelatin viscera)	Ba e-forming foods
Intramuscular	Forelin protein	Blood serum	Pituitary, parathyroid extract
Intravenous	Transfusion	Transfusion	10% calcium salt; 10% gelatin

bandages until pain disappears and the hemorrhage is absorbed. Aspirations are contraindicated. Chronic hemophilic arthritis requires correction of deformities. Traction or wedging plasters or mechanical appliances stretch the contracted tissue and strengthen the joint. When the limb is kept in the corrected position by an elastic bandage

The prevention of hemophilia is a problem for eugenics. The course of the disease can be altered. Nature spares hemophilic new-born infants from the effects of birth trauma by the transmission of an abundance of female sex hormone into the infant's circulation. Thus it is that the disease does not become manifest until late in infancy unless surgical intervention precipitates bleeding. The disease tends to ameliorate with growth, particularly after the endocrine adjustment of puberty. The avoidance of trauma by limitation of activity requires compensatory physical therapy to improve muscle tone. The maintenance of bodily warmth and vacations in warm climates appear, in addition, to alter favorably the course of the disease. The clotting dietary has produced no appreciable effect on the hemorrhagic status of hemophilic persons. Infection has been found to precipitate bleeding, particularly into the skin and joints. Operative emergencies are safely



Fig. 14—Vascular varicosities with hemorrhage in hereditary telangiectasis

carried out after preliminary transfusion

2 *Familial Thrombocytopenic Purpura*—J C, a boy, aged 14 years, had suffered severe nosebleeds since infancy. His mother's maternal uncle and grandfather and two sisters were similarly affected. No other form of bleeding occurred, but the epistaxis recurred regularly during the winter months. During the period of an infection of the upper respiratory tract, nosebleeds became more persistent, not infrequently being associated with petechiae in the conjunctiva and palate. There was no evidence of telangiectasis in the upper respiratory tract. The nail fold capillaries were tortuous. The spleen was never felt. The blood picture was normal, the platelets fluctuating around 110,000, bleeding time was twelve minutes and clotting time four minutes, clot retraction was delayed, the tourniquet test varied. The boy was maintained on a high fat and protein dietary with some benefit. Early treatment of infectious invasion minimized several attacks of epistaxis. Irradiation by ultraviolet light reinforced by 10 D cod liver oil and calcium salts during the winter months contributed toward the elimination of these attacks. A donor for intramuscular and intravenous therapy was available but not used.

Essential thrombocytopenic purpura may be a constitutional disturbance characterizing certain families. Cases have been reported in infants of both sexes born of mothers with this disease. In fact, some of the infants have shown multiple malformations in other tissues of the body and some have shown striking deficiencies in megakaryocyte formation. Intravenous transfusion is effective if repeated, but intramuscular blood is of little avail. Splenectomy is a surgical risk in new-born infants. Of those that survive, recurrent bleeding persists more or less throughout life. There is always a hereditary history, its transmission being a dominant characteristic, and the pattern of bleeding simulates the affected members of the family. The basis of the bleeding is thrombocytopenic and, unless medical supervision minimizes bleeding, splenectomy is indicated.

3 *Hereditary Thrombasthenic Purpura*—B W, a girl aged 10 years, had spontaneous hemorrhages since infancy. Her mother had had recurrent epistaxis and mild purpura throughout her life, but none of the older children were affected. The child would suddenly develop severe nosebleeds or ecchymosis over the head, neck and extremities without any apparent exciting cause. At 7 years, a loosened tooth followed bleeding of the gums for two weeks. At 8, a vaginal hemorrhage stimulated menstruation. She was variously treated for purpura and hemophilia. The hemoglobin was 55 per cent, red blood cells 3,100,000, white blood cells 7,800 polymorphonuclears, 71 per cent, monocytes, 15 per cent, lymphocytes, 12 per cent, platelets, 395,000, clotting time, six minutes, clot retraction, delayed. Bleeding time from the right ear lobe was ten minutes, left ear lobe, thirty-two minutes, the tourniquet test was positive. Bleeding was arrested locally by means of tampons saturated with fresh blood obtained from the father. Only repeated intravenous transfusions were effective in aborting the duration of spontaneous hemorrhages.

Children may be born with hemorrhagic purpura without thrombocytopenia. It is transmitted by the mother to both sexes. Recurrent bleeding may be spontaneous or traumatic. The blood picture is normal, excepting for the changes incident to the simple loss of blood, but the platelets are always normal in quantity but defective in quality. They show abnormalities in size, shape and staining qualities with consequent failure of agglutination. Therefore the bleeding time is prolonged, clot retraction is retarded or absent and the tourniquet test is positive. Therapy is based on procedures for supplying normal platelets only possible by intravenous transfusions. All other platelet therapy is ineffective and splenectomy is useless. Recently I have

found the administration of theelin particularly effective in accelerating platelet agglutination.

I have witnessed death following splenectomy in a 10 year old girl with this condition. Like her mother, she had had recurrent epistaxis and purpura since birth. Her blood picture was characteristic of thrombocytopenic purpura, but a neglected hemorrhage became uncontrollable when splenectomy was performed. I followed the course of this disease in two brothers whose mother experienced milder purpuric bleeding. One boy had hemorrhagic measles. Both boys responded well to protection from trauma, prevention from infectious foci, early arrest of purpuric symptoms and repeated transfusions before bleeding became uncontrollable.

4 *Hereditary Hemorrhagic Telangiectasis*—J G, a girl, aged 13 years a twin, developed repeated nosebleeds. The other twin was normal, but the grandmother, paternal uncle and nephew had similar attacks. Examination of the blood showed hemoglobin, 60 per cent, red blood cells, 4,000,000, white blood cells, 8,500, polymorphonuclears, 65 per cent, platelets 280,000, clotting time, three minutes, bleeding time, five minutes, clot retraction, three hours, tourniquet test, negative. Examination of the nasal and mucous membranes showed multiple angiomata as the local cause for bleeding.

Puberty first precipitates bleeding varicosities which characterize this developmental effect. It is transmitted by both sexes and affects both. Inherited defects in the venous channels are usual in the nasal and buccal mucous membranes but hemoptysis, gastric hemorrhage, uterine bleeding, hematuria and even rectal bleeding may result from such telangiectases. The blood picture is normal and so there is no excessive bleeding or bruising from other sites of the body excepting from the dilated vessels. The treatment is local and as yet not specific.

5 *Transitional Hereditary Hemorrhagic Diseases*—H C, a boy, aged 14 years, gave an unusual hemorrhagic picture. The family was free from hemorrhagic heredity. Recurrent nosebleeds from infancy alternated with purpuric eruptions, joint lesions and hematuria. On examination, the boy showed petechiae of the mucous membranes, ecchymosis over the extremities and acute hemarthrosis. Examination of the blood showed hemoglobin, 70 per cent, red blood cells, 4,000,000, white blood cells, 5,900, polymorphonuclears, 70 per cent, lymphocytes, 20 per cent, platelets, 450,000, clotting time, eighteen minutes, bleeding time, forty minutes, clotting retraction, positive, tourniquet test, positive.

Such is the blood picture of an atypical hemorrhagic problem. It conforms both to hemophilia and to thrombocytopenic purpura. It demonstrates the futility of following pattern pictures for diagnostic nomenclature. Hemorrhagic patients respond to proper measures corrective of their disturbance rather than to those traditional treatments accorded to the disease label. In no other disease mechanism is individualization of diagnosis and treatment essential. Among the chronic hemorrhagic disturbances exist entities intermediate between the so-called primary hemorrhagic diseases. Hemophilia is etiologically an endogenous disease of certain mesenchymal structures, as are the purpuras, thrombocytopenic and thrombasthenic. Hence, combinations of such defectiveness exist simultaneously in these tissues, giving rise to chronic transitional disturbances. Observation of such cases has contributed as much to a clinical conception of hereditary heterogeneity as to the creation of corrective measures in their behalf.

1060 Park Avenue.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONTRIBUTING TO THE FULFILLMENT OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS, D. D., Secretary

ANTIRABIC VACCINE (See New and Nonofficial Remedies 1933 p 571)

The National Drug Co. Philadelphia

Rabies Vaccine Human (Simple Method) (See New and Nonofficial Remedies 1933 p 373) — Also marketed in set of two packages the first containing four 2 cc vials and the second containing ten 2 cc vials.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies 1933 p 384)

The National Drug Company, Philadelphia

Diphtheria Toxoid (See New and Nonofficial Remedies 1933 p 384) — Also marketed in packages of ten immunization treatment consisting of twenty 1 cc vials each containing one human dose.

ANTIMENINGOCOCCUS SERUM (See New and Nonofficial Remedies 1933 p 367)

The National Drug Company, Philadelphia

Antimeningococcus Serum — Marked in packages of two 15 cc double end vials with apparatus for intrajugal injection, in packages of one 15 cc cylinder with intrajugal needle and in packages of one 30 cc double end vial with special intravenous and intraspinal needles and gravity outfit.

Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS

RAYMOND HERTWIG, Secretary

NOT RECEIVED

WELCH'S CERTIFIED PURE PASTEURIZED GRAPE JUICE

The Welch Grape Juice Company of Westfield, N. Y., submitted to the Committee on Foods a bottled pasteurized grape juice, slightly sweetened with sucrose called Welch's Certified Pure Pasteurized Grape Juice.

Preparation — The grapes are washed, crushed, stemmed, heated to 57° C and pressed, the juice slightly sweetened with added sucrose is heated to 88° C and filled into 5 gallon carboys which are sealed and stored for three months during which considerable cream of tartar settles out along with some organic matter. The supernatant juice is siphoned out, heated, filled into bottles and pasteurized.

Analysis (submitted by manufacturer) —

	per cent
Moisture	82.3
Total solids	17.7
Ash	0.3
Fat	0.0
Protein (N x 6.25)	0.5
Reducing sugars as invert sugar	15.1
Nonsugar solids	2.6
Total acids as tartaric	1.0
Pigment and coloring matter	0.5
Potassium bitartrate (cream of tartar)	0.4

Calories — 0.6 per gram 17 per ounce

Discussion of Ad Claims — Recent advertising announced this grape juice as a discovery of modern science for weight reduction and the burning up of fat. The following examples illustrate the type of claims used.

Modern science discovers Welch Grape Juice burns up fat. Get thin the new way. Drink Welch's and keep your gushy figure. Welch's simple grape sugars are quickly absorbed and used and hence not stored as fat. Its non-fattening grape sugar forces the body to burn up its fat. Strive slender drinking Welch's. Famous food authority says Welch's should be on every reducing diet to insure healthful reduction. This new method takes advantage of the amazing health properties in Welch's Grape

Juice. For years the grape cure has been prescribed by the most eminent European doctors as the ideal method of healthful weight reduction. It has now been shown that Welch's Grape Juice contains all the elements of the grape useful for weight control. In order for fat to burn there must be available to the tissue easily burnable predigested non-fattening grape sugar in Welch's Grape Juice. Taken with proper diet fat disappears. You're going to take the Grape Cure, the accepted weight control formula. Its natural potassium removes unnecessary water from the body's tissue. Welch's contains more of the essential energizing elements than any other popular fruit juice.

The claims would falsely lead the reader to believe that Welch Grape Juice has specific properties for reducing weight. This grape juice is no more effective for reducing weight than are many other common foods. It does not 'burn up fat' and its sugar chemically plays the same part in fat metabolism as does any other available carbohydrate. The advertising naïvely makes it appear that it is the grape juice in reduction diets which brings about weight reduction and not the controlled diet as a whole. The sugars of grape juice may be stored as fat under proper conditions as are any sugars or other carbohydrates. Its sugar in no sense 'forces the body to burn up its fat.' The much ado about the grape sugar being predigested has no significance.

Drinking Welch's Grape Juice does not assure slenderness as stated or implied, but may increase weight. One glass furnishes 143 calories. No 'famous food authority' can truthfully or authoritatively say that 'Welch's should be on every reducing diet to insure healthful reduction.' This grape juice will not keep [one] healthy nor will its 'natural potassium' remove unnecessary water from the body's tissue. Healthy tissues do not contain unnecessary water. The product has no amazing health properties or any specific 'health properties' at all. Its nutritional values are limited. A reducing diet containing grape juice is no 'grape cure.' Welch's Grape Juice is not significantly different from any other good grape juice.

The advertising claimed that this grape juice has special blood building power. It appealed

to mothers of run-down children (who are) thin as a rail (who) suffer dreadfully from indigestion (are) who is a sheet (who's) teeth are soft. It stated that Welch worked wonder with June. It contains more vitamin B than orange juice. It is superior to it as a hemoglobin or red corpuscle restorative. In countless homes Welch's is helping run-down children build muscle and bone, make rosy cheeks and buoyant energy. If your children just pick at their food refuse to eat, don't wait, buy a bottle of Welch's. Start them with a glass for breakfast then once or twice during the day and again before bedtime. In a very short time you will see wonderful results. Be sure to insist on Welch. It is the Welch process that retains in the juice the healthful properties of grape so essential to the system. A noted food authority has shown that Welch compares favorably with mother milk in protein content (body building material) and also iron, calcium, phosphate and magnesium, so essential for growing children. Because of the properties physicians recommend Welch's Grape Juice as the key element in the build-up diet of the child. It contains two elements which are essential to the health of your child: sugar, protein and calcium and phosphorus. As a Regulator Welch's Grape Juice contains minerals, water and vitamins natural to the grape which facilitate the elimination of waste products from the intestinal tract, aiding digestion, absorption, elimination and also reducing food putrefaction and holding them [foods] in solution in the blood and carrying waste products from the tissues to be eliminated by the lungs, kidneys, skin and intestines. Welch contains vitamin B necessary to normal appetite to vigor. The absence of vitamin B from the diet is a cause of neuritis or nerve disintegration, dyspepsia, constipation and other intestinal troubles. The advertising questions: Is this not true of other grape juices also? To this question we must answer: Perhaps. But perhaps has no place in the diet of children. It entices [children] into taking sufficient water, seriously lacking in the diet of so many children and the unsuspected cause of countless disorders and deficiencies. It assists metabolism or assimilation of other foods. Women at those periods when they are troubled with nausea expectant and nursing mothers who need an additional mineral supply find Welch's invaluable. It contains no water and above all no tartaric acid. For many years specialists have recognized the value of Welch's Grape Juice as an aid to quick recovery from wasting illness. Hospitals and medical specialists have long valued Welch's in treating intestinal troubles. Especially is it valued in stomach and nervous disorders whenever the digestive system cannot or will not handle other foods. It is difficult to write of Welch's without dwelling long on its wonderful medicinal and dietetic values.

The claims are either flagrantly incorrect or misleading. Many commonplace foods of the table are so far greater importance for improving run-down children. Grape juice has no

value for building muscle or bone. Welch's will not revive lost appetites nor is it important for contributing vitamin B for normal appetite. Welch's has no value as implied for preventing the stated disastrous results of a vitamin B free diet nor has it any wonderful medicinal and dietetic values. It is not different from any good grape juice. No rational noted food authority would in any manner compare Welch's with mother's milk for popular advertising purposes. These two foods are as utterly unlike in nutritional values as in appearance and flavor. Welch's is anything but the key element in the "build up" diet of the child. It is essentially a pleasingly flavored sugar solution, ranking with *cater* for "facilitating elimination of waste products, aiding digestion absorption, and reducing food putrefaction." Children normally drink enough water to avoid safely unsuspected "countless disorders and deficiencies due to possible lack of water. Expectant and nursing mothers cannot derive their needed additional mineral supply from Welch's.

Many other types of crudely ludicrous and misleading claims of the advertising are not listed here because of space limitations.

This advertising is manifestly an artfully designed piece of deception to entmesh the credulous and those uninformed in nutrition and physiology. It is a hodgepodge of nutritional and physiologic chicanery, falsities, vagaries, juggled and distorted facts, misrepresentations and claptrap claims. It is a revival of the blatant "patent medicine and nostrum blarbs of the past. The advertising treats an ordinary food as a therapeutic and weight-reducing agent, which it is not.

Perversions of advertising of this character bring good advertising into disgrace and disrepute and unfortunately harm the majority of the food trade that conscientiously attempts to deal fairly.

The company, when informed of the Committee's opinion, has not expressed willingness to change the advertising. This brand of grape juice, therefore cannot be listed among the Committee's accepted foods.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary

BEECH-NUT BRAND STRAINED BABY SOUP (Slightly seasoned with salt)

Manufacturer—Beech-Nut Packing Company, Canajoharie, N. Y.

Description—Strained vegetable soup prepared from tomatoes, carrots, celery, cabbage, barley, rice, salt and a small amount of onion retaining in high degree the natural vitamin and mineral values.

Manufacture—Carrots, celery, cabbage and onions are washed by hand and the carrots scraped. All are cut fine. Definite proportions of rice and barley are cooked for one half hour. The vegetables, salt and a little water are added. The cooking is in a glass lined kettle in an atmosphere of steam. The material is strained, canned, sieved tomatoes are added and the composite is vacuumized and standardized for consistency. The subsequent treatment and processing are the same as for Beech-Nut Strained Carrots (THE JOURNAL Nov. 11 1933 p. 1562).

Analysis (submitted by manufacturer) —

	per cent
Moisture	88.9
Total solids	11.1
Ash	1.0
Sodium chloride	0.5
Fat (ether extract)	0.0
Protein (N X 6.25)	1.0
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	8.0

Calories—0.4 per gram, 11 per ounce

Claims of Manufacturer—See Beech-Nut Strained Carrots (THE JOURNAL Nov. 11 1933 p. 1562)

ROSE BRAND UNSWEETENED EVAPORATED MILK

Manufacturer—The Borden Sales Company, Inc., New York

Description—Canned, unsweetened sterilized evaporated milk, the same as the accepted Borden's Unsweetened Evaporated Milk (THE JOURNAL, Feb. 15, 1930, p. 485)

HUBINGER CRYSTAL WHITE SYRUP

(CORN SYRUP AND GRANULATED SUGAR SYRUP)

Manufacturer—The Hubinger Company, Keokuk, Iowa

Description—Table syrup, corn syrup flavored with sucrose syrup and vanilla extract

Manufacture—Corn syrup, prepared by the usual method of acid hydrolysis of corn starch (see Penick Golden Syrup, THE JOURNAL, April 2, 1932, p. 1159), is blended with sucrose syrup and flavored with vanilla extract. The mixture is heated to 77°C and automatically packed in cans at 74°C.

Analysis (submitted by manufacturer) —

	per cent
Moisture	24.9
Ash	0.2
Fat (ether extract)	0.0
Protein (N X 6.25)	0.0
Reducing sugars as dextrose	30.9
Sucrose (copper reduction method)	8.7
Dextrins (by difference)	35.3

No methods are available for accurately determining the composition of syrups of this nature. Therefore the foregoing analysis is roughly approximate.

Calories—30 per gram, 85 per ounce

Claims of Manufacturer—For cooking, baking and table use or as a carbohydrate supplement for milk modification for infant feeding.

MCCAHAN'S SUNNY CANE SUGAR

GOLDEN YELLOW

OLD TIME BROWN

Manufacturer—The W. J. McCahan Sugar Refining and Molasses Co., Philadelphia

Description—Respectively light yellow and brown grades of refined cane sugar.

Manufacture—Syrup obtained from washing imported unrefined cane sugar crystals in the centrifugal machines (See McCahan's Sunny Cane Sugar—Extra Fine Granulated THE JOURNAL, Jan. 20 1934, p. 212) is filtered through bone black and concentrated in "vacuum" until the magma formed has the desired "grain". The crystals are centrifugated to remove excess syrup. The moist soft sugar containing varying amounts of the original syrup is cooled and graded according to the degree of color of the finished product. Darker syrups contain less sucrose and correspondingly greater amounts of invert sugar and mineral salts. Dark syrup is used to produce the "Old Time Brown" sugar and light syrup for "Golden Yellow" sugar.

Analysis (submitted by manufacturer) —

	(light)	(dark)
Moisture	per cent 4.3	per cent 4.7
Ash	0.5	1.5
Fat	Absent	Trace
Protein (N X 6.25)	0.1	0.4
Reducing sugars as invert	2.5	8.2
Sucrose (polarimetric method)	92.1	84.9

Calories—From 3.8 to 3.7 per gram from 108 to 105 per ounce

Claims of Manufacturer—These refined sugars possess a molasses-like flavor and a yellowish or brownish color, contain slight amounts of fructose (fruit sugar), dextrose (corn sugar) and mineral salts naturally found in the original cane juices.

FORESCO BRAND STERILIZED UNSWEETENED EVAPORATED MILK

Distributor—Forest City Wholesale Grocery Co., Inc., Rockford, Ill.

Packer—Dean Milk Company, Chicago

Description—Canned, unsweetened sterilized evaporated milk, the same as Dean's Quality Evaporated Milk (THE JOURNAL, Aug. 6 1932, p. 477)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 27, 1934

FAT AND THE DIABETIC PATIENT

Conventionally, diabetes is considered a disease involving, primarily, carbohydrate metabolism. The striking effect of insulin on the concentration of blood sugar has served to confirm the association. Nevertheless, the disturbance of fat metabolism plays no small part in the pathogenesis of this disease. In a recent review Joslin¹ has summarized various aspects of the significance of fat to the diabetic patient. He repeatedly points out the great change brought about in the outlook for the diabetic child by the introduction of insulin. Among the results of the prolongation of life of this younger group of patients is the realization not only that heredity plays an important part in the predisposition to the disease but also that obesity alone is probably a less significant factor than was formerly believed, it merits special attention when there is a hereditary tendency. Although the obese person may show a decreased pancreatic efficiency, the presence of excess body fat is really a sign of overeating in general with concomitant taxing of the insular function. The rapid deposition of fat is likely to burden the pancreas to a greater extent than is a more gradual accumulation. Exercise is therefore of particular importance as a prophylactic against diabetes. On the basis of statistics as to causes of death among physicians since 1902, Joslin points out that "the doctors have profited no more from their knowledge of obesity as a cause of diabetes than the laity."

A study of the cholesterol of the blood of groups of patients with diabetes has shown a tendency to decrease in concentration during recent years from an average of 424 mg per hundred cubic centimeters of blood in 1916 to 212 mg in 1932. Similarly in the same interval there was a definite decrease in the number of clinically "severe" cases. These changes are correlated with changes in treatment which, in turn, permitted a change in the proportion of carbohydrate to fat in the diet, thus decreasing the total blood fat. Accompanying the lowered fat in the blood is a smaller incidence of coma,

one of the principal complications of diabetes. It is stated that, in general, a high blood cholesterol is reliable evidence that the diabetes is not under control, values greater than 230 mg per hundred cubic centimeters of blood should be looked on with suspicion.

With the advent of insulin, removal of all restriction on the diet has at times been urged. Joslin reviews the experience with the high fat diets during the first decade of this century, then the period when total energy intake was severely restricted but with the relative proportion of fat calories still high, and finally the modern era when the criteria for proper treatment are "health, happiness and chemical assurance in blood and urine that the disease is controlled." He prefers moderate restriction of carbohydrate with fats providing somewhat more of the total calories than usual among normal individuals but suggests that every advantage be taken of a proved increase in tolerance for carbohydrates. The current tenets of this careful student of diabetes can well be summarized by his own phrase "diet, exercise and insulin."

THE BUREAU OF MEDICAL ECONOMICS

Since the establishment of the Bureau of Medical Economics of the American Medical Association, a vast amount of data in the field of medical economics has been collected and made available to the medical profession in various forms. In fact, it is safe to say that the publications issued by this bureau, largely as a result of its own researches, are unique. The work duplicates that done elsewhere only when the bureau has repeated investigations by other agencies in order to check and confirm them.

Many of the reports have been published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and have thus been made available to physicians generally. Others, however, have been of such scope and detail that it has been found necessary to print them as separate pamphlets.¹ This has been particularly required because physicians frequently seem to overlook some of this technical material in the vast amount of scientific, editorial and journalistic material published in THE JOURNAL. In view of the importance of the Bureau of Medical Economics, it has even been suggested that these articles be printed on paper of a different color or that the items be inserted in some special part of THE JOURNAL. One physician facetiously suggested that this be among the obituary notices or the Tonics and Sedatives in order that they may be read by every physician. It is apparent that practically every doctor reads these two sections every week.

¹ The bulletins here referred to are available through the American Medical Association at the prices indicated: An Introduction to Medical Economics 15 cents, Contract Practice 10 cents, Income from Medical Practice 15 cents, Group Practice 15 cents, The Costs of Medical Education 10 cents, Collecting Medical Fees 10 cents, Medical Relationships Under Workmen's Compensation 75 cents.

The staff of the Bureau of Medical Economics has not depended for its information on data available in medical periodicals or bulletins issued by various agencies. It has not even depended largely on the questionnaire method—a method, by the way, largely followed by other research organizations and one susceptible of considerable doubt because of the psychologic factors naturally involved. During the few years since its establishment, representatives of the bureau have been in practically every state of the Union. They have studied conditions in Cuba at first hand and they are aware through direct contacts of the sociomedical situations in most foreign countries.

How many physicians realize that this bureau has now made available an "Introduction to Medical Economics," which traces the position of medical economics in relationship to economics generally, which analyzes the question of payment for medical service and the field available for the sale of such service, which considers medical care and the distribution of wealth, and which traces some of the changes in medical institutions that have occurred in recent years? The bulletins on contract practice, on the income from medical practice, on group practice and on the costs of medical education, as well as the pamphlets on prepayment plans for hospital care and on the collection of medical fees, represent studies directly related to difficult situations in the medical profession today. All sorts of hospital insurance schemes, corporation practices and similar mechanizations of medical practice have been studied in different parts of the country. The book entitled *Medical Relations Under Workmen's Compensation* is one of the most comprehensive and authoritative studies available in this field. It is more than 150 pages in scope, well organized and adequately indexed. A book on medical organization for practice in Cuba and one on compulsory health insurance schemes abroad are in process of publication.

In view of the nature and the amount of the material thus developed and made available, it is unfortunate that the vast majority of the medical profession does not take a greater interest in following the trends of medical practice. Occasionally meetings devoted to medical economics in large medical centers are largely attended, but only a few men concern themselves with committee meetings and with the details of local problems in such places. *THE JOURNAL* as a medium devoted largely to the interests of general practitioners, recognizes that many members of the medical profession may not be interested in the details of bronchoscopy, brain surgery or even the specificity of nonspecific proteins. Medical economics, however, should be the interest of every physician, particularly in these times of changing points of view and opinions swayed by propaganda. A man well informed is doubly armed against the nonmedical exploiter of medical practice and the fanatic exponents of half-baked schemes for social change.

THE HUMAN CAPILLARIES

The physician of today has become accustomed to specialization of the most specific types. Each year more specialized novelties enter the practice of medicine. Presently they become established parts of diagnostic or therapeutic routine. The x-ray laboratory and the allergy clinic represent pertinent illustrations. Among innovations in this respect is the capillary laboratory. Until lately the descriptions of the capillaries and their functions could be expressed in a few words. It sufficed to refer to them as a network of minute tubules connecting the terminations of the smallest arteries to the commencement of the smallest veins. In structure they were thought of as a single layer of elongated flattened and nucleated epithelium cells. The latter were much more difficult to observe in life than the blood cells traversing the capillaries, often in single file. The normal thickness of the walls of these vessels appears to be somewhat less than 1 micron. Little wonder that they have been described as a most essential unit of the circulatory system, the part about which least is known.

As has happened so often in other fields of study, progress in the understanding of the capillaries has been greatly promoted by the development of new methods of observation. Direct inspection as well as photography is being applied for this purpose in man as well as in experimental animals.¹ One consequence is the conclusion that somehow the capillaries are subject to changes in caliber. This has helped greatly to explain the great variations in the blood supply and consequent exchange of components between the circulating blood and its immediate environment. Hence more than a decade ago the conclusion seemed warranted that the capillary bed had the ability to respond to the local needs of the tissue by dilatation when the conditions of the tissue tend toward asphyxiation and by constriction when the local needs have been satisfied.²

How are such changes in caliber brought about? It has long been debated whether the capillaries really have the ability to contract independently or to produce peristaltic movements.³ The work of Sir Thomas Lewis and his co-workers at University College in London indicates that the capillaries and the venules are capable of active contraction. These vessels can exert a force when fully contracted which resists the full entry of blood into them up to a pressure of from 90 to 100 mm of mercury. When dilated they are able, by contracting, to expel their contents against internal pressures of at least 50 or 60 mm of mercury. This means that these vessels must be of almost as great import as the arterioles in influencing circulatory events. Wright

1 Duryee A. W. and Wright I. S. *Modern Methods for the Study of Human Capillaries*. *Am. J. M. Sc.* 5: 664 (May) 1933.

2 Hooker D. R. *Evidence of Functional Activity on the Part of the Capillaries and Venules*. *Physiol. Rev.* 1: 112 (Jan.) 1921.

3 A discussion of this and related subjects is presented in detail by Wright I. S. and Duryee A. W. *Human Capillaries in Health and in Disease*. *Arch. Int. Med.* 52: 545 (Oct.) 1933 from which many of the statements made above have been taken.

and Durvee believe that the capillary bed is responsive to chemical influences by local reactions, usually by dilatation (only in special or pathologic cases by general reactions), and to nervous stimulation usually by constriction, over the body as a whole. It is therefore likely that beyond the arterioles the capillaries and venules function actively thereby participating directly in vascular reactions. These however are views that need to be more firmly established before they can finally be classed as scientific facts.

These studies have served also to give a better understanding of capillary pressure. Although the estimation of this factor has long been the subject of experimental investigation opinions as to the values derived have varied greatly. Out of the welter of conjectures it may be tentatively concluded that the average figures for capillary pressure in man may be placed between 19 and 26 mm. of mercury. It seems possible now to allege with some conviction that the permeability of the capillary walls is subject to the laws of filtration diffusion and osmosis and is also affected by the ionic concentration at the cell membranes in the blood, the state of the endocrine system and especially the state of the visceral nervous system. In any event the time has apparently arrived for the detailed investigation of the capillaries in disease, with the expectation that the outcome will provide useful information.

CHANGES IN STATE MEDICAL PERIODICALS

The *Wisconsin Medical Journal* began 1934 with some modifications in its editorial policies. Hereafter all manuscripts read at the annual meeting of the state medical society will be considered by an editorial board with the understanding that only such papers will be published as are considered suitable by the board. Heretofore, practically all papers read at meetings of the society have been accepted. This has prevented the devotion of space to miscellaneous and volunteered contributions. The *Wisconsin Medical Journal* has also adopted a new cover without advertising and handsomely printed on an unusually fine quality of paper.

The *New York State Journal of Medicine* announces with the first issue of 1934 that it proposes henceforth to carry only clean advertising and to be free from announcements of questionable products. A new editorial board has been established. The periodical appears in a new size and with a new type face. The editorials of which there are many, are signed by individual writers and apparently were prepared especially for the *New York State Journal of Medicine*. The addition of this periodical to those which follow established standards of advertising leaves but one of the state medical journals outside the pale.

The trend toward higher standards in state medical journalism has been consistently maintained for more

than a quarter of a century. The progress here recorded is significant not only for the members of medical organizations in the states concerned but for all of American medicine. Perhaps the day may yet come when all medical periodicals, including the bulletins of county medical societies, will realize the importance of setting the highest possible ethical requirements, particularly in the advertising of foods and drugs, which come so intimately into relationship with the practice of medicine and also in the announcements of medical institutions and other accessories to medical practice.

Current Comment

AMERICAN MEDICAL ASSOCIATION BROADENS RADIO PUBLIC HEALTH EDUCATION

In cooperation with the National Broadcasting Company the American Medical Association has been for some time undertaking a considerable amount of education of the public in health by means of the radio. Under the heading "Association News" in this week's issue of *THE JOURNAL* we are privileged to present a new list of stations, forty in number, which now carry the American Medical Association broadcast every Monday afternoon from 5 to 5:15 Eastern standard time, 4 to 4:15 Central standard time, and correspondingly for Western stations. These outlets extend from Canada to the Gulf and from the Atlantic to the Pacific Ocean. The broadcasts are for the most part being made by Dr. W. W. Bauer, director of the Bureau of Health and Public Instruction of the American Medical Association, and Dr. Morris Fishbein, editor of *THE JOURNAL* and of *Hygiene*. From time to time other officers and heads of departments of the Association will explain the functions and services of the Association to the public by this medium. Such an opportunity for reaching tremendous numbers of people with dependable material in the field of medicine has never been equaled. The Association owes a debt of gratitude to the National Broadcasting Company for making these facilities available without cost and for the public good.

A DIETARY INGENUITY

The instinctive ingenuity of man in securing an adequate diet, despite the great diversity of natural food products throughout the world and the limitations that are placed on the exercise of free choice, is to scientific observers a puzzle as well as a surprising phenomenon. Somehow, in the selection of his daily regimen, man seems to "muddle through." An interesting illustration of what this may mean is afforded in some of the eating habits of the Far East. The West has become accustomed to regard milk almost as a *sine qua non* in supplying adequate amounts of calcium for human needs, at any rate the mammary secretion is *facile princeps* in the preferred sources of supply of an element that looms large in its significance for bodily well being. Among many Orientals, milk and milk products are not customarily in use yet there can be

no doubt that their diet is as a rule adequate in calories, protein and calcium. In explanation of this, many Chinese, for instance, are said to eat anything that tastes and looks good, such as butterfly wings, rose petals and shark's fins and they have a great many varieties of food in their diet even though they do not use milk or milk products. Soy beans, boiled or baked, and soy bean sprouts or soy bean curd are used extensively and are inexpensive.¹ An interesting custom in the diet of certain lactating mothers is related by a trained observer. It is considered a great honor to present to a pregnant woman a pair of pig's feet. These are chopped fine, covered with rice vinegar (made by fermenting rice), stewed ten or twelve hours, and sealed in jars. Each mother hopes to have at least twelve pairs of pig's feet prepared and set away before the baby arrives. After the baby comes, the pig's feet are served to the lactating mother four or five times a day. From recent analyses of comparable food materials it appears that considerable calcium may become available by the described culinary process. Indeed, as Frances Clinton has pointed out, it is possible that this peculiar method of cookery used extensively by the Chinese may be of particular value in providing adequate amounts of calcium.

SESQUICENTENNIAL OF THE NEW HAVEN
COUNTY MEDICAL ASSOCIATION

The history of medicine in the United States is still comparatively brief and noteworthy events are sufficiently limited in number to endow their passing anniversaries with more than indifferent significance. Only a few weeks ago there were celebrations, in many parts of the country, of the one hundredth anniversary of the publication in 1833 of Dr. William Beaumont's classic book called *Experiments and Observations on the Gastric Juice, and the Physiology of Digestion*. Before his time, as a recent writer has remarked, knowledge of the functions of the human stomach was vague and doubtful. Beaumont ushered in a new period based on his direct observations of the stomach at work. The medical profession in Connecticut, January 5, joined in the sesquicentennial of the New Haven County Medical Association. The event is of more than local interest because this association, starting in 1784, was the second to be organized in all America, the first having been the Massachusetts society of 1781. Special importance attaches to the New Haven County Association because it published the first volume of medical transactions—papers reporting cases from American medical practice. In the early days the association exercised the right to confer the degree of doctor of medicine. This prerogative was resumed for the first time in more than a century when during the sesquicentennial exercises, the degree of M.D. in honoris causa was bestowed on the dean of American physiologic chemists, Prof. Russell H. Chittenden who, as noted by the orator of the occasion, "both directly and through his pupils has influenced medical progress along chemical lines to an extent that can neither be estimated nor overestimated."

¹ These and other details have been garnered from Notes on Chinese Diets by Clinton Frances J. *Home Economics* 25: 971 (Dec.) 1933

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, LICENSURE AND HOSPITALS

Program of Meetings to Be Held in Chicago,
February 12 and 13

The thirtieth Annual Congress of the Council on Medical Education and Hospitals of the American Medical Association will be held in the Palmer House, Chicago, Feb. 12 and 13, 1934. The Federation of State Medical Boards of the United States and the American Conference on Hospital Service will participate in the congress. The program follows:

MONDAY, FEBRUARY 12, 10 A. M.

RAY LYMAN WILBUR, M.D., Presiding

Review of the Accomplishments of the Council on Medical Education and Hospitals

Ray Lyman Wilbur, M.D., Chairman, Stanford University, Calif.

Philosophy of Professional Licensure

Justin Miller, J.D., Dean, Duke University School of Law, Durham, N.C.

Discussion Alphonse M. Schwaitalla, S.J., Ph.D., St. Louis

Medical Education and Its Relationship to Society as a Whole

Robert G. Sproul, LL.D., President, University of California, Berkeley

Discussion E. P. Lyon, M.D., Minneapolis

The Restoration of the General Practitioner

Dean Lewis, M.D., President, American Medical Association, Baltimore

Discussion James B. Herrick, M.D., Chicago; J. H. Musser, M.D., New Orleans

Red Lacquer Room

MONDAY, FEBRUARY 12, 2 P. M.

JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE AMERICAN CONFERENCE ON HOSPITAL SERVICE

MERRITTE W. IRELAND, M.D., Presiding

Responsibility of the Hospital Trustee and the Relationship Between the Trustees and the Staff

Howard S. Cullman, President, Beekman Street Hospital, New York

Discussion Nathaniel W. Taxon, M.D., Rochester, N.Y.

Symposium: Size and Scope of a University Clinic

Henry Houghton, M.D., Director, University of Chicago Clinics

Nathan B. Van Etten, M.D., Vice-Speaker, House of Delegates

American Medical Association, New York

John H. J. Upham, M.D., Dean, Ohio State University College of Medicine, Columbus

Discussion William D. Haggard, M.D., Nashville, Tenn.; John Wickoff, M.D., New York; Austin A. Hayden, M.D., Chicago

Red Lacquer Room

TUESDAY, FEBRUARY 13, 9 A. M.

JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

G. M. WILLIAMSON, M.D., Presiding

The Privilege of Recrimination in Professional Licensure

Bernard C. Gavit, J.D., Dean, Indiana University School of Law, Bloomington

Discussion G. M. Williamson, M.D., Grand Forks, N.D.

Resumé of the History and Present Application of Medical Licensure in the States

J. N. Baker, M.D., Secretary, Alabama Board of Medical Examiners, Montgomery

Discussion A. T. McCormack, M.D., Louisville

Reciprocity Agreements

J. R. Neal, M.D., Secretary, Professional Committee for Medicine, Illinois Department of Registration and Education, Springfield

Discussion Harold Rypins, M.D., Albany, N.Y.

Medical Licensure in South America—Preliminary Survey

William D. Cutter, M.D., Secretary, Council on Medical Education and Hospitals, Chicago

Discussion Frederic W. Schlutz, M.D., Chicago

Red Lacquer Room

TUESDAY, FEBRUARY 13, 2 P. M.

REGINALD FITZ, M.D., Presiding

The Importance of Introducing Psychiatry into the General Internship

Franklin C. Ebaugh, M.D., Director, Division of Psychiatric Education, National Committee for Mental Hygiene, Denver

Discussion C. C. Burlingame, M.D., Hartford, Conn.

The Incorporation of the Principles of Preventive Medicine in Clinical Teaching

Wilson G. Smilie, M.D., Professor of Public Health Administration, Harvard University, Boston

Discussion C. Sidney Burwell, M.D., Nashville

The Teaching of Industrial Hygiene

I. Everett D. Bristol, M.D., Health Director, American Telephone and Telegraph Company, New York

Discussion Edward C. Holmblad, M.D., Chicago

The Function of the Physician in Public Health Education

W. W. Bauer, M.D., Director, Bureau of Health and Public Instruction, American Medical Association, Chicago

Discussion H. S. Cumming, M.D., Washington, D.C.

Red Lacquer Room

TUESDAY, FEBRUARY 13, 2 P. M.

THE FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES
G. M. WILLIAMSON, M.D., Presiding*Traffic in Narcotics by Licensed Physicians*

H. J. Anslinger, United States Commissioner of Narcotics, Washington, D. C.

Discussion W. L. Treadway, M.D., Washington, D. C.*The Use of the Injunction Procedure in Enforcing Medical Practice Acts*
F. Manley Brist, II, B. Attorney, Minnesota Board of Medical Examiners, St. Paul*Discussion* H. M. Platter, M.D., Columbus, Ohio

Room 14

Federation Dinner Monday, 6:30, Palmer House. The Federation of State Medical Boards of the United States. Address: Relation of Education to Licensure, Walter A. Jessup, Ph.D., President, State University of Iowa, Iowa City. Presidential Address of G. M. Williamson, M.D., Informal round table discussion.*Evening Meeting* Monday, 8:15, Red Lacquer Room, Palmer House. American Conference on Hospital Service. Address: The Old and the New in Medicine, Dean Lewis, M.D., President, American Medical Association, Baltimore.*Luncheon* Tuesday, 12:30, Grand Ball Room, Palmer House. Central Council for Nursing Education. Address: What Is the Future of Nursing? Hugh Cabot, M.D., Professor of Surgery, University of Minnesota Graduate School of Medicine, Minneapolis.

MEDICAL BROADCAST FOR THE WEEK

Talks over Network of the National
Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15, central standard time (5 o'clock, Eastern standard time, 3 o'clock Mountain standard time, and 2 o'clock, Pacific standard time). The subject for Monday, January 29, is Warm Water Healing. The speaker will be Dr. W. W. Bauer, director, Bureau of Health and Public Instruction of the American Medical Association. The program is now being broadcast by the following stations:

New England States	South Atlantic States
WBZ Boston	WBAL Baltimore
WBZA Springfield, Mass.	WMAI Washington
Middle Atlantic States	WJAX Jacksonville
WJZ New York	WIOD Miami
WSR Syracuse	WTIA Tampa
WHAM Rochester	WSB Atlanta
KDKA Pittsburgh	East South Central States
East North Central States	WSM Nashville
WGAR Cleveland	WMC Memphis
WCKY Cincinnati	WJDX Jackson, Miss.
WENR Chicago	West South Central States
WJR Detroit	WSMB New Orleans
WIBA Madison, Wis.	KVOO Tulsa
West North Central States	WFAA Dallas
KSTP St. Paul	KPRC Houston
WEBC Duluth	KTBS Shreveport
WDAY Fargo	KTIS Hot Springs
KFYR Bismarck	WOAI San Antonio
KOIL Omaha	Mountain States
KWCR Cedar Rapids, Iowa	KOA Denver
WREN Kansas City, Mo.	KDYL Salt Lake City
Pacific States	
KGO San Francisco	
KFI Los Angeles	
KHQ Spokane	
KFSD San Diego	

Radio Talks from Station WBBM

The American Medical Association broadcasts on Tuesday and Thursday mornings from 8:55 to 9 o'clock, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

January 30 New Findings in Oral Hygiene
February 1 The Health Examination

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 8:55 to 9:10 over Station WBBM.

The subject for the week is as follows:

February 3 Medicine and Superstition

THE CLEVELAND SESSION
Demonstrations on Fresh Pathology in the
Scientific Exhibit

The special exhibit on fresh pathology will be shown again in the Scientific Exhibit at the Cleveland Session, June 11-13. Dr. B. S. Kline of Cleveland will be in charge of the exhibit and will be assisted by leading pathologists, who will give practical talks and personal demonstrations continuously throughout the week.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Outbreak of Spinal Meningitis—Six deaths were reported in a recent outbreak of spinal meningitis at the Tucker Prison Farm. It was reported January 5. At that time the camp were placed under quarantine and local health officials had requested federal authorities for assistance in curbing the outbreak. Plans were going forward to examine every person at the prison farm, including officials, to determine whether the disease was being transmitted by a carrier.**New Medical School Building**—Funds totaling \$500,000, provided through a loan and a grant by the Public Works Administration, make possible the construction of a new building at the University of Arkansas School of Medicine, Little Rock, newspapers announce. The building will be erected on a site facing the city park, and it is expected to be ready for opening next fall. The building will be five stories high and offer accommodations for 300 students. It will house all departments of the medical school. Under present arrangements the first two years work has been conducted at the War Memorial Building and the last two at various hospitals. Construction of a new building was authorized by the legislature in 1931 through the sale of bonds but was never carried out. Plans for the building were completed eighteen months ago.

COLORADO

Society News—At a meeting of the Crowley County Medical Society in Ordway, December 14, Drs. George B. W. Baker, Rocky Ford, and William S. Bartholomew, Manzanola, discussed Huntington's disease and normal digestion, respectively. A symposium on cancer was presented before the Fremont County Medical Society, December 18, at Florence by Drs. George W. Bancroft, Colorado Springs, and Josephine N. Dunlop and George A. Unfug of Pueblo. Dr. John E. Ford, Grand Junction, spoke on epilepsy before the Mesa County Medical Society, November 21. At a meeting of the North Creek Colorado Medical Society in Sterling, December 14, Dr. Kemp G. Cooper, Denver, gave a lantern slide presentation of 'Intestinal Obstruction and Tumors of the Sinuses.'

CONNECTICUT

Personal—Dr. George T. Pack, New York, has been appointed assistant clinical professor of surgery at Yale University School of Medicine, New Haven, on a part time basis.—Dr. Stanley Harcourt Peppard, formerly director, bureau of mental hygiene, Connecticut State Health Department, has been appointed medical director at "Blythewood" Greenwich.—Dr. Israel S. Otis recently submitted his resignation as city physician of Meriden.—Dr. Alphonse Fontaine has been appointed health officer of the borough of Danielson.—Dr. Ettore F. Carniglia has been named health officer of Windsor Locks, succeeding the late Dr. Joseph A. Coogan.

ILLINOIS

Personal—Dr. Wilnot L. Ransom, Rockford, was made an honorary member of the Winnebago County Medical Society at its meeting January 9. Dr. Ransom has practiced in the county for sixty years.—Dr. John G. Young has been named physician for the state reformatory at Pontiac, succeeding Dr. James A. Marshall.—Dr. Robert C. Hitchings, Donovan, was guest of honor at a banquet November 26 on the occa-

sion of his sixty-seventh birthday —Dr Robert R Smith, Mount Vernon, has been appointed managing officer of the Kankakee State Hospital

Chicago

Study of Maternal and Fetal Mortality —The Chicago Gynecological Society recently organized a maternal welfare committee to make a study of maternal and fetal mortality in Chicago. The obstetric mortality and morbidity of mothers and babies will be considered with a view to studying controllable factors

Society News —Dr Otto H Schwarz, St Louis, addressed the Chicago Gynecological Society, January 19, on 'Treatment of the Late Toxemias of Pregnancy'. —The Chicago Society of Allergy was addressed, January 15, by Dr Ludvig Hektoen and William H Welker, PhD on 'Methods of Immunization' and 'Autogenicity of Proteins,' respectively. —Dr Roderic P O'Connor, San Francisco, spoke before the Chicago Ophthalmological Society, January 15 on 'Cataract Extraction by the Undetached Conjunctival Bridge Method After Preliminary Iridectomy'. —At a meeting of the Chicago Neurological Society, January 18 the speakers included Ralph W Barris on 'Optic Connections of Midbrain and Thalamus'. —Dr Kamil Schullhof addressed the McDonagh Society for Clinical Research January 19, on 'Significance of Electric Charges for the Transport of Substances in the Tissues'. —Speakers before the Chicago Orthopedic Club, January 19 were Drs Peter A Bendixen, Davenport Iowa on 'Fractures of the Elbow,' and Claud R G Forrester, Reduction of Fractures Under Local Anesthesia Together with Ambulatory Treatment'. —Among others Dr Jerome R Head discussed 'Clinical Observations on the Intrapleural Pressure' before the Chicago Society of Internal Medicine, January 22

INDIANA

Portrait of Dr Henry —Memorial services in honor of the late Dr Alfred Henry in the Indianapolis City Hospital December 12, marked the first anniversary of his death. His portrait was presented to the tuberculosis clinic of the hospital by the Marion County Tuberculosis Association, of which he was at one time president. Dr Edward M Amos, president of the association, made the presentation to Dr Charles W Myers, superintendent of the hospital. Among other offices he held Dr Henry served as president of the National Tuberculosis Association and the Mississippi Valley Conference on Tuberculosis

Immunization Campaign —The plan to immunize every child in the state against diphtheria and smallpox has been placed in operation. However, no child will be immunized whose parents do not specifically request it. Material for the immunization of 75,000 children was provided through funds made available in the state division of public health. Children of parents unable to pay will be given treatments without charge by family physicians, who will procure their materials free from the state division of public health. It is expected that the costs of immunizing materials for the indigent children of the state will not exceed \$15,000. The program was initiated by the Indiana Advisory Public Health Council, which includes representatives of medical and lay organizations interested in child welfare

Session on Maternal Health —A program on maternal health was presented before the Carroll County Medical Society in Delphi December 8, by the department of obstetrics of Indiana University School of Medicine and the state board of health. In the afternoon, clinics were conducted by Drs Arthur M Mendenhall on the thyroid and pregnancy, John F Kelly, toxemias of pregnancy, and Arthur J Micheli edema and varicosities. Addresses were given by Dr Mendenhall, on hemorrhages in obstetrics, Micheli, on prenatal care in general practice, and Kelly, on home obstetrics. Dr James W Jackson of the state board of health also spoke. An evening session for both physicians and laymen was addressed by Drs Mendenhall on importance of obstetrics, and Ernest O Asher, better obstetrics

Society News —Dr Richard H Miller, Boston, spoke before the Indianapolis Medical Society, January 16 on 'Ulcer and Cancer of the Stomach'. —The Grant County Medical Society was addressed in Marion, December 27 by Dr Charles P Emerson, Indianapolis, on 'Medicine in the Orient'. —At a meeting of the Hancock County Medical Society in Greenfield December 11, it was decided to admit dentists to membership on their payment of the dues of \$1. With the admission of two new members the society now has a 100 per cent mem-

bership of physicians of the county. Speakers were Paul A Allen and Dr Edgar A Hawk, New Palestine, on 'Dental Practice During Pregnancy' and 'Cesarean Section and Its Sequelae,' respectively. —Dr Stanley Milton Goldhamer, Ann Arbor, Mich. addressed the Northeastern Indiana Academy of Medicine in Kendallville, December 21, on pernicious anemia

KANSAS

Society News —The Anderson County Medical Society was addressed, November 15, by Dr James R Nevitt, Kincaid, on undulant fever. Dr Louie F Barney, Kansas City, spoke before the society December 27, on 'Medicine, Past and Present'. —The Washington County Medical Association was recently organized with Dr Fred H Rhoades, Hanover, as president

KENTUCKY

Bill Introduced —H 13, to amend the workmen's compensation act, proposes to make compensable 'injuries or death due to the inhalation of any kind of gas and the inhalation of silica dust'

Health Commissioners Appointed —Dr Hugh Rodman Leavell has been named health commissioner of Louisville and Dr John D Trawick of Jefferson County. They plan to coordinate the city and county services to avoid duplication, it was announced. Dr Trawick has practiced in Louisville for many years but will not continue private practice during his term as health officer. Dr Leavell is a native of Louisville and a graduate of Harvard University Medical School, class of 1926. He has been in charge of the student health center of the University of Louisville for several years

MASSACHUSETTS

Dr Mallory Honored —A special issue of the *American Journal of Pathology* has been dedicated to Dr Frank Burr Mallory, since 1928 professor of pathology, Harvard Medical School Boston, in commemoration of his seventieth birthday and of the opening of the Mallory Institute of Pathology of the Boston City Hospital. Graduating from Harvard in 1890 Dr Mallory became associated with the medical school in 1891. Since then he has held several teaching positions, becoming professor of pathology in 1928. He had been pathologist to the hospital since 1908. He retired from these positions last year when he reached his seventieth birthday, becoming consulting pathologist to the hospital. A member of several societies Dr Mallory was made editor-in-chief of the *Journal of Medical Research* in 1923 continuing in that capacity when its name was changed, in 1925, to the *American Journal of Pathology*. At a dinner in his honor, December 13, speeches were made by Mr F C Hood representing Dr Mallory's class at Harvard College, Dr Elliott C Cutler, representing the surgical profession, Dr Hans Zinsser, representing bacteriologists, and Dr James Ewing New York, representing pathologists. Dr Simeon Burt Wolbach was toastmaster. Dr Mallory was presented with a complete moving picture outfit and a silver pitcher as tokens of the esteem of his former pupils and his friends on the occasion of his retirement and the dedication of the building

Bills Introduced —S 63 proposes that any physician selected by an employee injured in the course of his employment or by any person injured as the result of the operation of a motor vehicle shall be paid directly, respectively, by the insurer of the employer or by the insurer of the person whose motor vehicle caused the injury. H 192 proposes to prohibit physicians from dispensing prescriptions 'except in an emergency at the bedside, under the same conditions as pertain to the administration of narcotics, and in towns and villages in which there is no store with a registered pharmacist in attendance'. H 393 to supplement the dental practice act, proposes to provide the following grounds for which a license may be revoked: (1) conviction of a crime involving moral turpitude, (2) incompetence to continue practice because of persistent inebriety or addiction to drugs, (3) affliction with one or more of the 'specific' infections, (4) dishonorable or grossly unprofessional conduct, or (5) the use of fraudulent or misleading advertisements. H 509, to amend the medical practice act, proposes that 'the practice of medicine shall include the administering to human beings of ether, chloroform, nitrous oxide gas or other substance or gas producing unconsciousness except when administered by a registered dentist'. H 511 proposes to establish a board of registration of hairdressers and to regulate the occupation of hairdressing. Licentiatees are to be prohibited from removing 'superfluous hair or skin blemishes by direct application of an electric current'

MICHIGAN

Personal—Dr William C Huyser Kalamazoo was elected president of the Kalamazoo Academy of Medicine December 19.—Dr Edwin R VanderSlice has been appointed health officer of Lansing, succeeding the late Dr S Rowland Hill

To Study European Health Insurance—Nathan Sinar, Dr P H, professor of public health, University of Michigan School of Medicine Ann Arbor and Dr Henry A Luce, Detroit, past president of the Wayne County Medical Society, recently sailed for Europe to make a study of health insurance plans, newspapers report. The Michigan State Medical Society is sponsoring this trip as a part of its survey of health insurance

MINNESOTA

Anniversary Dinner—Dr Lester R Dragstedt professor of surgery University of Chicago, will be the guest speaker at the twelfth annual anniversary dinner of the Minneapolis Surgical Society at the Minneapolis Club February 1. His subject will be "The Etiology of Gastric Ulcer"

"Medical Service Company" to Be Dissolved—The attorney general of the state December 2, instituted quo warranto proceedings against the Medical Service Company, a Minnesota corporation which had been shown to be practicing medicine. The object of the proceedings was to have the corporate charter of the Medical Service Company forfeited to the state and to restrain the corporation from practicing medicine. The corporation agreed, however, to suspend activities and to surrender its charter on or before February 20

Dr Lewis to Give the First Judd Lecture—Dr Dean Lewis, President, American Medical Association and professor of surgery, Johns Hopkins University School of Medicine, Baltimore, will deliver the first Judd lecture at the University of Minnesota, February 13, on "The Hypophysis, the Master Gland. The History, Physiology, and the Clinical Symptoms Associated with Its Lesions". This lectureship in surgery, to be given annually, was endowed by Dr Edward Starr Judd, professor of surgery in the Mayo Foundation, Rochester, and a former president of the American Medical Association

Parrakeets Barred from State—A resolution was adopted by the Minnesota State Board of Health at a recent special meeting, prohibiting the shipment of parrakeets into the state until such time as it can be demonstrated that the varieties from which they are shipped are free from infection. The resolution refers to the appearance of psittacosis in other states which have been traced to infected varieties in California. Since it is practically impossible to exclude carriers of the infection from infected areas and because infected birds are continually reported to be coming from California and foreign ports, the board feels that the ban is necessary

MISSISSIPPI

Bill Passed—H 95 has passed the House, proposing to amend the law forbidding the sale, barter or giving away of commodities intended for smoking, containing cannabis indica so as to forbid also the keeping or possessing of such commodities

Bills Introduced—S 108 proposes that the South Mississippi Charity Hospital, the Matty Hersee Hospital, the Jackson Charity Hospital, the Vicksburg Charity Hospital and the Natchez Charity Hospital be abolished as public charity hospitals and that the boards of trustees of those hospitals be authorized to dispose of all of the real and personal property of those hospitals. H 155, to amend the pharmacy practice act, proposes, among other things, that (1) the provisions of the act shall not be held to prevent physicians from compounding their own prescriptions, instead of exempting physicians from the provisions of the act, as the present act does and (2) applicants for licensure as registered pharmacists must be graduates of recognized schools of pharmacy and, in addition must have had one year of practical experience in a drug store where physicians' prescriptions are compounded

MISSOURI

Meeting in Honor of Dr Starkloff—The St Louis Medical Society will offer its program, January 30 in appreciation of the years of service of Dr Max Starkloff formerly health commissioner of St Louis. Speakers will include Dr Elsworth S Smith who will review Dr Starkloff's career and Dr Arthur T McCormack, state health officer of Kentucky

"Medical School" Discontinued—The Bulletin of the Kansas City University of Physicians and Surgeons Vol 22

No 1, January, 1934 announces that in September 1933 the Kansas City University of Physicians and Surgeons was returned to the original management of the Central College of Osteopathy, also that "it is now deemed advisable to discontinue the Medical school and operate only Central College offering a complete course of study embodying all the courses of modern Osteopathy". The degree of doctor of medicine will not be conferred

Dr Elschning Conducts Course in Ophthalmology—Dr Anton Elschning, professor and head of the department German University Eye Clinic, Prague, Czechoslovakia will give a course in ophthalmology in St Louis, February 13-17 under the auspices of the ophthalmic section of the St Louis Medical Society and the St Louis Ophthalmic Society. Lectures will begin at 3:30 p m, except on Saturday, when there will be an operative demonstration from 2 to 5 p m. The fee is \$15. Registration may be made with Dr Lawrence T Post, McMillan Hospital 517 South Euclid Avenue, St Louis

NEW YORK

Bill Introduced—S 103 proposes to create a board of barber examiners and to regulate the practice of barbering

Society News—Speakers before the Onondaga County Medical Society, Syracuse January 2, were Drs Catherine M Knowlton who reported a clinical and experimental study of serum sickness and Drs Orren D Chapman and Joseph R Wiseman who presented papers on "Hypersensitiveness in Animals and Man" and "Clinical Interpretation of Allergic Conditions" respectively. Dr Edward M Livingston, New York, addressed the society, December 5, on "Abnormalities of the Superficial Veins as an Aid to Abdominal Diagnosis". Dr James Alexander Miller, New York addressed the Medical Society of the County of Westchester, White Plains January 16 on "Diseases of the Lungs Following Upper Respiratory Infections". The exhibit of the American Society for the Control of Cancer which was shown at the Century of Progress Exposition in Chicago in 1933 was shown at this meeting

New York City

Hospital News—Dr I Newton Kugelmass delivered an afternoon lecture at the New York Polyclinic Medical School and Hospital December 19 on "Hemorrhagic Diseases in Infancy and Childhood".—Dr Arthur A Landsman delivered a lecture on "Horseshoe Fistula" at the Jewish Memorial Hospital, January 9

The Salmon Lectures—Dr Charles Macfie Campbell professor of psychiatry, Harvard University Medical School Boston will deliver the Thomas W Salmon Memorial Lectures for 1934. His subject will be "Trends in Psychiatry" and the dates April 13, 20 and 27. Dr Campbell is also director of the Boston Psychopathic Hospital and is a former president of the Massachusetts Society for Mental Hygiene. The Salmon Fund was established in January 1931 as a memorial to the late Dr Salmon, who died suddenly, Aug 13, 1927. In addition to the annual lectures, the fund provides grants for financial assistance to research projects. It is administered by the New York Academy of Medicine

Committee Charges Abuse of Hospital Charity—A committee of the Bronx County Medical Society, headed by Dr Nathan B Van Etten, announced, January 13, the results of an investigation of the financial condition of 1,000 charity patients of Morrisania City Hospital. Cases were classified as follows: 583 were unable to pay, 118 were able to pay without question, 107 were able to pay with help from parents or relatives, 85 gave false addresses, 107 could possibly have paid a physician, obtained credit or paid minimum rates at a semi-private institution. Among the "charity patients" were found many "city employees, some drawing large salaries, and members of their families, receiving free treatment and free operations," the report said. As the cost to the city for patients is \$4.12 per day and each patient stays an average of eleven days in the hospital, it was estimated that if 10 per cent of the 16,000 patients cared for at Morrisania were able to pay, the city was defrauded of \$72,512. The same rate for the three general hospitals in the Bronx would bring the loss to more than \$200,000. Adding those in the doubtful classes, the committee estimated the total loss at about \$600,000. The report recommended the establishment of a credit agency in every city hospital to determine the financial responsibility of all applicants and a central bureau to coordinate all the agencies. Dr Van Etten is medical director of Morrisania Hospital

OHIO

State Society in New Quarters—The Ohio State Medical Association has moved into new offices in the Hartman Building, 79 East State Street Columbus

Society News—Drs William B Morrison and Roy I Krigbaum addressed the Columbus Academy of Medicine December 11, on progress in surgery and obstetrics respectively—Dr Arthur G Davis, Erie Pa addressed the Ashland County Medical Society Committee on Treatment of Fractures of the Vertebrae and Various Open Reduction Operations Involving the Humerus Tibia and Hip—Dr Myron Metzenbaum Cleveland addressed the Dayton Otolaryngological and Ophthalmological Society December 12 on "Reconstructive Surgery of the Eyelids Cleft Palate and Nasal Surgery"—The Union Medical Association of the Sixth Council District met, January 10 at Massillon State Hospital, Massillon Among the speakers were Drs Arthur C Gillam of the hospital staff, on "Hallucinations and Diaphoresis", John D O'Brien Canton, Treatment of Neurosyphilis and Arthur G Hyde, superintendent of the hospital "Nine Years Experience with Malaria in the Treatment of General Paralysis" Dr Clyde L Cummer, Cleveland president of the state medical association also made an address—Dr George M Curtis, Columbus, addressed the Cincinnati Academy of Medicine, January 8, on "Iodine Metabolism in Toxic Goiter" and Dr John A Kolmer Philadelphia, January 15, on "Criteria for Evaluating Compounds Employed in the Treatment of Syphilis and the Amount of Treatment to Be Given"—Dr Norman F Miller Ann Arbor Mich addressed the Academy of Medicine of Toledo and Lucas County December 1 on pelvic infections

PENNSYLVANIA

Personal—Dr Ray P Moyer has been appointed health officer of Pittsburgh succeeding Dr William W McFarland—Dr Fred W Heyer Nanticoke has been appointed chief surgeon at the Nanticoke State Hospital to succeed his brother the late Dr Edward G Heyer

Society News—Speakers at the meeting of the Allegheny County Medical Society, Pittsburgh, January 16 were Drs Harry Leonard Baer, on tularemia George J Wright pernicious anemia, with special consideration of neurologic aspects and Edwin P Buchanan, carcinoma of the breast The Pittsburgh Medical Center presented a scientific exhibit

Philadelphia

Personal—Dr Pascal F Lucchesi has been appointed superintendent of the Philadelphia Hospital for Contagious Diseases he has been acting in this capacity since the death of Dr Samuel S Woody Dec 28 1931—Dr Thomas A Shallow, professor of surgery Jefferson Medical College has been named a member of the Board of City Trusts

Society News—The Philadelphia County Medical Society devoted its meeting January 17 to Diabetes—the Problem of the Practicing Physician Speakers were Drs Howard W Schaffer on diagnosis and laboratory control Joseph T Beardwood Jr standardization of diabetic patients with diet and insulin Reuben Davis Jr prevention and control of common complications and Edward S Dillon diabetes as a public health problem

RHODE ISLAND

Bill Introduced—H 521 proposes to make it a misdemeanor for any authorized officer or investigator to interrogate any person injured in an accident as to the cause or nature of the accident or injury until the injured person has received first aid or other necessary treatment

VIRGINIA

Dr Leigh Honored—The Norfolk County Medical Society recently conferred on Dr Southgate Leigh Norfolk the title of honorary member Dr Leigh is a former president of the county society and also of the Medical Society of Virginia the Seaboard Medical Association the Tri-State Medical Association and various special societies In 1929 he was awarded the Norfolk Distinguished Service Medal in recognition of his interest in the city's welfare Dr Leigh has also been a member of the House of Delegates of the American Medical Association for a number of years

Society News—Dr Richard W Garnett Danville among others addressed the South Piedmont Medical Society at a meeting in Danville November 28 on eugenics and birth control—Drs John Lewis Rawls Suffolk and Frank I Steele

Windsor were speakers before the Second District Medical Society at Smithfield November 22, on hematuria and undulant fever respectively—Drs William H Toulson, Baltimore and Kenneth F Macey University, addressed the Medical Society of Northern Virginia at Front Royal, November 20 on Kidney Infections and "Undulant Fever in Virginia" respectively—Dr William W S Butler, Jr addressed the Roanoke Academy of Medicine October 2, on "Roentgen-Ray Aids in Management of Prostatic Enlargement"—Dr Robert V Funsten University, addressed the Rockingham County Medical Society Harrisonburg December 12, on Fractures About the Shoulder and Hip—Sidney S Negus Ph D Richmond among others addressed the quarterly meeting of the Southside Virginia Medical Association at Petersburg December 12 on the new federal Food and Drugs Act

WISCONSIN

Graduate Lectures in Physiology—Eight lectures in physiology will be presented at Marquette University Medical School during February and March by the educational committee of the Medical Society of Milwaukee County Speakers and subjects will be

February 5 Dr Raphael Isaac Ann Arbor Mich Physiology of the Blood
February 12 Walter J Meek Ph D Madison Physiology of Circulation
February 19 Dr John A F Foster Madison Cardiac Output in Health and Disease
February 26 Raymond C Herrin Ph D Madison Physiology of Respiration
March 3 Dr Walter C Alvarez Rochester Minn Anatomy and Physiology of the Gastrointestinal Tract and the Liver
March 12 Dr Andrew C Ivy Chicago The Sympathetic Nervous System
March 19 Dr Arno B Luckhardt Chicago Endocrinology
March 26 Dr Harry A Beckman Milwaukee Water Balance

GENERAL

Health Agencies Move—The National Tuberculosis Association announces its removal, along with other members of the National Health Council, from 450 Seventh Avenue to 50 West Fiftieth Street, New York

Meeting of Bacteriologists—Dr Milton J Rosenau, Boston, was elected president of the Society of American Bacteriologists at the annual session in Philadelphia December 28 Karl F Meyer, Ph D, San Francisco was named vice president and James M Sherman, Ph D Ithaca N Y reelected secretary Dr Ludvig Hektoen retired head of the department of pathology Division of Biological Sciences University of Chicago was elected an honorary member said to be the first so chosen since 1917

Change of Status in Licensure—The California State Board of Medical Examiners has reported the following

Dr Louis A Trury Los Gatos placed on probation for five years during which time he shall not apply for or possess a narcotic permit or have narcotics in his possession

Dr James A Hadley Arcata license revoked October 19 for narcotic violation

Dr Matthew J Marmillion Los Angeles license revoked October 19 for alleged illegal operation now serving a sentence of from ten years to life in San Quentin Prison

Dr Roy F Ruth Los Angeles license revoked October 19 for narcotic conviction

Dr Daniel B van Wagenen Ocean Beach license revoked October 19 for alleged illegal operation

Dr Isidor A Wallach Los Angeles placed on probation for five years having been found guilty of aiding and abetting two so-called beauty specialists October 19

Dr Clayton E Wheeler San Francisco placed on probation for five years with certain restrictions for alleged deceptive advertising

Dr Clark S Smith Oakland license restored October 16 and placed on five years probation without narcotic privileges

Dr Joseph T Wrenn San Francisco license restored October 16 and placed on five years probation

Dr Simon R Zacharich San Francisco license restored October 16 and placed on five years probation without narcotic privileges

The Department of Health of West Virginia reports

The license of Dr Elmer Groves Kesler Williamsburg revoked in March 1932 was restored November 17

The New York State Board of Medical Examiners reports the following action taken November 23

License of Dr Samuel H Kauffman Rochester revoked following his conviction of grand larceny he is serving a sentence in Auburn prison

Society News—The American Association for the Study and Control of Rheumatic Diseases will convene in Cleveland June 11 Dr Ernest E Irons Chicago is president of the association which was organized in Milwaukee in June 1933 It is an outgrowth of the American Committee for the Control of Rheumatism which continues to function as its advisory council—Dr Frank D Dickson Kansas City was chosen president-elect of the American Academy of Orthopedic Surgeons at its annual meeting in Chicago January 8-10 and

Dr. Philip D. Wilson, Boston, was installed as president. Other officers of the academy are Drs. Ernest W. Clark, San Francisco, vice president, Eugene Bishop Mumford, Indianapolis, treasurer, and Philip Lewin, Chicago, secretary. The third annual meeting of the academy will be held in New York, Jan. 14-16, 1935.—At a recent meeting in Philadelphia of the board of governors of the Association of Physicians' Square Clubs of America, consisting of Masonic physicians, a program was adopted. Masonic physicians who are interested are advised to write to the committee chairman, Dr. Joseph B. Wolff, 1829 Pine Street, Philadelphia.

Medical Bills in Congress—Hearings. The House Committee on the Judiciary held hearings January 19 on H. R. 5978, a bill proposing to liberalize existing law relative to the dissemination of information relating to the prevention of conception and articles, instruments, substances, drugs and medicines designed adapted or intended for the prevention of conception. **Bills Introduced.** S. 2101 introduced by Senator Hayden, Arizona, proposes to prohibit the sending of unsolicited merchandise through the mails. S. 2119, introduced by Senator George, Georgia, provides for the further development of vocational education in the several states and territories. S. 2115 introduced by Senator Reed, Pennsylvania, proposes to provide additional benefits for veterans. Among other benefits it provides that any World War veteran employed in the active military or naval service between April 6, 1917 and Nov. 11, 1918 in need of hospitalization or domiciliary care who is unable to defray the necessary expenses therefor is to be furnished such necessary hospitalization or domiciliary care in any Veterans Administration facility irrespective of whether the disease, disability or defect was due to service. A statement by the veteran that he is unable to defray the necessary expenses must be accepted by the Administrator of Veterans Affairs as sufficient evidence of that fact. The following bills provide benefits for veterans similar to the benefits provided by S. 2115, the bill just discussed: S. 2120 and S. 2374 introduced by Senator George, Georgia; H. R. 6193 introduced by Representative Kelly, Pennsylvania; H. R. 6543 introduced by Representative Maloney, Connecticut; H. R. 6547 introduced by Representative Carter, Wyoming; H. R. 6608 introduced by Representative Edmonds, Pennsylvania; H. R. 6665 introduced by Representative Cartwright, Oklahoma; H. R. 6666, introduced by Representative McFarlane, Texas; H. R. 6667, introduced by Representative Marland, Oklahoma; H. R. 6668 introduced by Representative Cochran, Pennsylvania, and H. R. 6671 introduced by Representative Hickenloper, Oklahoma. S. 2121, introduced by Senator George (by request), Georgia, and H. R. 6150 introduced by Representative Rankin (by request), Mississippi, propose to repeal all public laws granting medical or hospital treatment, domiciliary care, pensions and other benefits to veterans and their dependents, for injury or disease incurred or aggravated in line of duty in the military or naval service and to reenact certain sections of the World War Veterans Act, 1924, as amended relating to the granting of compensation and other allowances, and medical or hospital treatment for service-connected disability or death. S. 2355, introduced by Senator Stephens (by request), Mississippi, proposes to prevent the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, cosmetics and liquors, and for regulating traffic therein. The foregoing bill is similar to H. R. 6376, introduced by Representative Black, New York; H. R. 6555 introduced by Representative McSwain (by request), South Carolina, provides that for the purpose of promotion, longevity pay and retirement there shall be credited to officers of the Medical Corps all active service as officers of the Medical Reserve Corps rendered by them between April 23, 1908, and April 6, 1917.

FOREIGN

General Conference of Chinese Medical Association.—The second general conference of the Chinese Medical Association will be held in Nanking, March 31-April 7. Complete information may be had from Dr. H. P. Chu, general secretary, Chinese Medical Association, 41 Tzepang Road, Shanghai.

International Radiologic Congress in Switzerland.—The fourth International Congress of Radiology will be held in Zurich, July 24-31, 1934. The program of the general meetings includes addresses on radiation treatment of various types of cancer, mitogenetic radiation, radiation genetics, short wave therapy, measurement of the dosage in x-ray and radium treatment, structure analysis and physical aspects of x-rays. Among American radiologists listed on the program are Drs. Joseph C. Bloodgood, Baltimore, Henry Schmitz, Chicago, George

E. Pfahler, Philadelphia, Douglas Quick, New York, Hermann J. Muller, Ph.D., Austin, Texas, and Giacomino Failla, Ph.D., and Edith Qumby, both of New York. Dr. Hans P. Schmitz is president of the congress and Dr. Hans E. Walther, Zurich, Gloriarstrasse 14, is secretary.

Government Services

Annual Report of the Veterans' Administration

The Administrator of Veterans Affairs, Frank T. Hines, submitted to the Congress of the United States, January 3, the Annual Report of the Veterans Administration for the fiscal year ended June 30, 1933. The hospital load of the Veterans Administration on that date was 33,790, a decrease of 10,046 or about 23 per cent in the number on the last day of the previous fiscal year. Of the total load, 16,290 were World War veterans receiving treatment for disability not the result of service; 2,787 were veterans of wars prior to the World War, and 201 were employees of the Civilian Conservation Corps. Sixteen per cent of the patients then present in hospitals had tuberculosis, 60 per cent neuropsychiatric diseases and 24 per cent general medical and surgical conditions. This is a marked change since June 1923 when 41 per cent of the veterans were under treatment for tuberculosis, 39 per cent for neuropsychiatric diseases and 20 per cent for general conditions.

Since March 3, 1919, there have been 1,277,624 admissions to hospitals, of which 136,626 were made during the last fiscal year. Since June 7, 1924, when hospitalization was first authorized for the veterans of all wars without regard to the origin of their disabilities, 531,715 or 62 per cent of all admissions had been for the treatment of non service-connected disabilities. About three fourths of the admissions in the last fiscal year were for non service-connected disabilities. During this year 71,139 or 52.07 per cent of the total were first admissions while 62,112 or 45.46 per cent were readmissions.

About 179,400 patients were under hospitalization during the year of whom 145,937 were discharged after an average of 96.5 inpatient days. 86 per cent of these remained until the completion of the hospitalization episode. During the year 7,375 patients died in hospitals and 60 per cent were among patients under treatment for general diseases, 28 per cent for pulmonary tuberculosis and 12 per cent for neuropsychiatric diseases. Eleven per cent of the pulmonary tuberculosis cases resulted in death, 4 per cent of the general and 2 per cent of the neuropsychiatric. This decrease was the direct result of the act of Congress approved March 20, 1933, which denied the benefit of hospitalization to many veterans who had been eligible under prior laws. This law also resulted in a decrease of 8 per cent in the number of admissions to hospitals over the number admitted in the previous fiscal year.

The Veterans Administration was operating June 30, 1933, hospital facilities at seventy-one locations in forty-three states and the District of Columbia, providing a total of 40,213 beds, or an increase of 3,641 beds over those available at the end of the previous year, practically all of which increase was for the care of psychotic and general medical and surgical patients. Seven newly constructed hospitals were opened during the year: March, at Tusculoosa, Ala.; Albuquerque, N. M.; Curandigua, N. Y.; Columbia, S. C.; Salt Lake City, Utah; Huntington, W. Va.; and St. Petersburg, Fla. Additional hospital beds were acquired through new construction or alterations at a number of other locations. Three new facilities were completed this year but were not opened: namely, at Wichita, Kan. (162 beds), Cheyenne, Wyo. (108 beds), and Roseburg, Ore. (191 hospital and 350 barrack beds). During the year three facilities were closed: namely, at Philadelphia (416 beds), Kansas City, Mo. (200 beds), and Dwight III (225 beds). With the closing at Kansas City, all facilities controlled by the Veterans Administration are government owned. The Congress of the United States has appropriated since February, 1919, the sum of \$119,952,000 for new hospitals, domiciliary and outpatient dispensary facilities, and in addition there has been expended since 1923 over \$16,800,000 from regular fiscal funds for improvements and extensions to veterans facilities. At the close of the fiscal year there were under construction the following major projects: (a) 275 new hospital beds at Augusta, Maine, (b) a 297-bed hospital at Batavia, N. Y., (c) a 518-bed home at Biloxi, Miss., (d) 188 additional hospital beds at Coatesville, Pa., (e) a 300-bed hospital at Des Moines, Iowa, (f) a 258-bed hospital at Fayetteville, Ark., (g) 199 additional hospital beds at Fort Lyon, Colorado, (h)

748 new hospital beds at Leavenworth, Kan., (i) 56 additional hospital beds at Rutland Heights, Miss., (j) a 334 bed hospital at San Francisco, (k) 104 new hospital beds at Tuscaloosa, Ala. The construction under way at Leavenworth, Kan., will result in a net increase of 383 beds, and at Tuscaloosa, Ala., 77 beds. The daily cost of operation per patient for hospitals used principally for the treatment of tuberculosis is \$4.61 (a reduction of 22 cents over last year), for hospitals for the treatment of neuropsychiatric diseases, \$2.12 (a decrease of 33 cents) for all general hospitals, \$3.48, and for all types of hospitals, \$2.99.

The field facilities of the Veterans' Administration made 1,350,452 physical examinations during the year for outpatient purposes, a decrease of 707,260 of the number made during the previous year. Of this number, 28,291 were dental examinations. About 94 per cent of the medical examinations and 81 per cent of the dental examinations were made by physicians on a salary basis. The medical and dental treatments rendered by physicians on a salary basis were 75.3 per cent and 71.3 per cent, respectively, of the total treatments. At the end of the fiscal year there were 5,739 beneficiaries under the supervision of follow-up nurses. General Hines states that the material decrease of the number of examinations made for outpatient purposes was due largely to the act of Congress approved March 20, 1933, and the regulations issued thereunder, which prescribed new eligibility requirements for entitlement to certain benefits.

Dental services rendered in Veterans Administration clinics during the year, if computed on a fee basis would have cost \$1,700,910, whereas the actual cost of furnishing this relief was \$869,708.52 thereby resulting, it is said in a saving of almost 50 per cent. The number of beneficiaries that received dental treatment during the year was 57,018, an increase of 20,232 over the previous year, due largely to including for the first time dental work furnished by clinics at Veterans' Administration homes. At the close of the year there were 158 full time and 3 part time dental officers on duty with the Veterans Administration.

Although 118 years have elapsed since the close of the War of 1812, there are yet seven persons receiving pensions on account of services rendered by soldiers in that war and there were still 415 widows of Mexican War veterans on the pension roll. At the close of the year, pensions were being paid to 23,863 veterans of the Civil War, representing a reduction of 7,209 since the close of the previous year. There were also on the pension rolls 125,638 widows and minor or helpless children of veterans of the Civil War, a decrease of 14,286. The grand total disbursements for pensions on account of the Civil War to June 30, 1933, was \$7,698,594,101.77. The estimated amount paid to pensioners of all wars and the regular establishment from the year 1790 to June 30, 1933, is \$8,871,483,951.58. The total number of pensioners on the roll at the end of this year was 416,840, a decrease of 21,101 over the previous year, of the total, 174,121 were widows and dependents of veterans and 566 were army nurses.

The seventy-third Congress of the United States in an act approved March 20, 1933, repealed all laws granting compensation to veterans of the World War for disabilities incurred in service and in place thereof provided for the payment of pensions effective July 1, 1933. General Hines summarizes the eligibility requirements and the rates established for pensions. Compensation was being paid, June 30, 1933, to 336,710 veterans for disabilities directly or presumptively resulting from service in the World War, an increase of 8,052 over the previous year, and the disbursement for this purpose during the year was \$184,824,665.79, a decrease of about four and three-fourth millions of dollars. The average monthly value of all compensation awards at the end of the year was \$43.70, a decrease of 42 cents over the corresponding date of last year. The major disabilities for which veterans are receiving compensation are neuropsychiatric diseases (21 per cent), tuberculosis (19 per cent), and general medical and surgical conditions (60 per cent). There were 2,966 women veterans receiving compensation June 30, 1933, an increase of 62 over a year ago, of these women, 2,424 were army nurses and 122 navy nurses. June 30, 1933 compensation was being paid to the beneficiaries of 98,628 veterans who died in service or as a result of disabilities or injuries incurred in service during the World War, an increase of 1,180 cases over the previous years. Death claims have been paid to date to the beneficiaries of 128,818 deceased veterans. The principal causes of death of veterans who died as a result of service and whose dependents now receive benefits was tuberculosis 30 per cent, injuries 28 per cent, and diseases of the respiratory system 25 per cent (largely influenza contracted during the 1918 epi-

demic). Regular monthly payments were being made, June 30, 1933, to 6,007 emergency officers who incurred disabilities of 30 per cent or more in the World War, a decrease of 408 over the previous year, which decrease was due, it is said, to an act of Congress approved June 30, 1932. There were 616,069 government life converted insurance policies in force at the close of this fiscal year.

The Veterans' Administration, June 12, 1933, began a selection of veterans to compose the veterans' contingent for emergency conservation work. Later the authority for enrolling veterans in this work was extended and 26,838 selected veterans were in work and conditioning camps, July 31, 1933. The hospital facilities controlled by the Veterans' Administration were made available for the treatment of employees of the Civilian Conservation Corps, and on June 30, 1933, there were 201 of these men under treatment in these facilities.

The number of employees on the rolls of the Veterans' Administration, June 30, 1933, was 35,467, whose annual aggregate gross salaries totaled about fifty-eight and a half million dollars, including allowances but excluding compensation paid per diem and per hour employees. This was a decrease of 1,351 employees at the close of the previous fiscal year. The personnel in the central office of the Veterans' Administration decreased from 5,372 to 5,052 during the year, and the personnel on duty at field stations decreased from 31,446 to 30,415, a reduction of 1,031 employees. The actual net disbursements of the Veterans' Administration for all purposes for the activities under its jurisdiction during the fiscal year totaled \$868,688,479.42, of which amount \$13,517,369.43 was for new hospitals and domiciliary facilities.

General Hines summarizes regulations that grew out of the act of Congress of March 20, 1933, tending toward the administration's broad economy program. On June 16, 1933, Congress further liberalized the act of March 20, 1933, and the regulations issued to that time. This act extended protection within defined limits in the several classes of pensions previously awarded to veterans and their dependents of the World War and the Spanish-American War and set up boards of review throughout the country for the final determination, subject to appeal, of veterans' claims, in which presumptive service connection had hitherto been granted under the World War veterans' act of 1924 as amended. Congress in this act appropriated \$531,988,000 for the administration of veterans relief (exclusive of the appropriation for the adjusted service certificate fund) for the fiscal year 1934 which was a reduction of some \$338,000,000 in the 1934 appropriation previously sought for the same purpose.

Included in the report is a tabulated survey of all government hospitals showing, among other things, their locations and the locations of the nearest government hospital, the capital investment in each hospital, the number and age of the patient buildings, the beds available, and the general nature of the medical work.

Veterans' Relief Regulations Modified

President Roosevelt announced, January 19, it is reported, certain modifications of the regulations providing for veterans' relief. The changes affect 228,000 veterans and add \$21,092,000 to the cost of the Veterans' Administration bringing the total for the present fiscal year to \$510,000,000. The several amendments to the regulations affecting the veterans provide for:

1. Increase from \$90 to \$100 in pensions for veterans suffering total service connected disability, and proportionate increases for those suffering less than total service connected disability.

2. Liberalized provision for hospitalization of veterans in non-service-connected emergency cases in which patient cannot pay.

3. Granting of \$15 monthly pensions to Spanish-American War veterans in service ninety days, discharged for disability incurred in less than ninety days, or who are now 50 per cent disabled regardless of service connection or age.

4. Increase from \$15 to \$100 in funeral allowance for deceased war veterans.

5. Elimination of provision requiring veterans suffering non-service-connected disability, not due to their own misconduct to prove minimum of ninety day service before granting of \$30 monthly pension.

6. Restoration of former pension rates to widows of regular army officers and enlisted men who died of disabilities incurred in line of duty.

7. Modification of rule prohibiting payment of pension of federal employees receiving salaries more than \$50 a month and granting pension to single employees paid not over \$1,000 a year or married employees not over \$2,500 a year.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec 30, 1933

The Relation of Brain and Mental Ability

Dr H L Gordon visiting physician to the Nairobi Mental Hospital, Nairobi Kenya Colony, determined the cranial capacity of 3444 unselected natives representing the average of the Kenya population. The average cubic capacity was 1316 cc against the European 1481. He also found that from the ages 10 to 20 years the average yearly growth of the native brain was 8.5 cc against the European 17.7. Further after puberty the curve of growth of the European brain rises steeply but that of the native scarcely at all. The measurements and statistical data were submitted to Mr Walter, statistician to the conference of East African governors. Dr Gordon carried his observations into the laboratory with the expert help of Dr F W Vint pathologist to the Kenya government. He found that the brains of 100 normal males averaged 150 Gm less than Europeans. Dr Vint's results (to be published in the *Journal of Anatomy*) showed that the cortex of the native brain was 15 per cent less than of the European and that its cells were smaller, less well formed and less well arranged than those of the European. Further, although there was no reduction in the number of cells in any given area the native cortex showed predominance of undifferentiated cells. Finally, Dr Gordon found that, while dementia precox is unknown among natives living their own life every native in which it occurred had received some European education. In view of the rapid introduction of European civilization into Africa, these observations are important. Dr Gordon holds that the hand of science with all its power has not yet been held out to enable the native to rise.

Dr Cyril Burt, professor of psychology at University College, London, disagrees with the conclusion that efforts to educate the natives may induce insanity because it is contrary to current theories and current practice. The notion that mental ability can be graded by measuring the skull has been abandoned. The correlation between skull capacity and inborn intelligence is certainly positive but far too small to be of diagnostic value. The skull capacity varies far more closely with physical characteristics—height weight age sex, race—than with mental characteristics. The greater part of the brain is concerned with physical and not intellectual activities. Dr Vint's observations on the cells of the cortex are more suggestive but he is far more cautious in drawing psychologic inferences than Dr Gordon and says that 'the functions of the human brain are still wrapped in mystery'. It is commonplace among psychologists today that mental characteristics should be judged by mental symptoms, not by physical. Professor Burt quotes from Dr Oliver, who has recently described in the *East African Medical Journal* tests performed in two large schools in Kenya, one native and the other European. He found that the average native intelligence was only about 85 per cent of the European, nevertheless 14 per cent of the natives actually surpassed the European average. Moreover the fathers of the European children were largely government official and professional men which should give a somewhat high European standard.

Prof Julian Huxley points out that brain weights of individuals or types are to be compared only in terms of relative brain size. Lapique showed that for different types of mammals or for the sexes the brain varies as the body weight raised to the power 0.56. When men and women are so compared their "coefficient of brains" or relative brain size is identical,

though woman's brain is distinctly the smaller. The average size of the natives measured by Dr Gordon appears to have been much less than that of Europeans, which to some extent would account for smaller brains. Professor Huxley thinks that the abler natives are perfectly capable of profiting by the best education that can be given them. Prof J B S Haldane satirizes Dr Gordon's conclusion. He points out that Martin found that the average capacity of the Eskimo brain is 1,563 cc, and thus exceeds the European. If the Kenya natives are to be protected from European education Europe should also be protected against the disintegrating effects of Eskimo culture!

The Persecution of German Scientists

At a meeting of the council of the Association of University Teachers, held at the Imperial College of Science and Technology, Prof Frank Smith of the University of Leeds said in his presidential address that freedom to teach, to learn and to investigate was the primary requirement of intellectual life. Recently in Germany race and political partisanship had been exalted above the ideal of universal learning. Germany could boast a great educational tradition, but now in an orgy of ferocious and narrow nationalism scholars, some of them among the most distinguished in the world were dismissed because they did not satisfy standards of race religion or political faith.

Dr Erwin Schrodinger professor of theoretical physics at the Friedrich Wilhelm University Berlin had to leave Germany but had found hospitality at Magdalen College, Oxford where he was elected to a supernumerary fellowship. The idea that an electron is in some way connected with a wave motion of definite frequency depending on its speed, was brought forward in 1925 by Louis de Broglie. Schrodinger found out the 'wave equation' for these waves. He has been awarded the Nobel prize in physics for furthering a new development of the atom theory. The latest estimate gives the number of refugees from Germany to other countries as 60,000 of whom 51,000 are Jews. Nearly all the medical refugees are Jews but only about half of the scientific refugees. These figures show the political nature of the persecution which is directed against all persons of pacifist or liberal views.

The Campaign Against Noise

As stated in previous letters the evil of the great increase of noise in recent years has led to organized effort to reduce it. Two societies were formed—the Anti Noise League and the Noise Abatement Association. They have been working in close alliance and have now decided to amalgamate. The Anti-Noise League which came into existence scarcely three months ago now has a membership of over 2,000 which includes Lord Horder and many other well known people. People in all walks of life gave ready support and a donation has just been received from the Clothworkers Company, one of the ancient City Livery companies.

Preventive Medicine in East Africa

The great work of building a bridge across the Zambesi in East Africa which, with its approaches measures 2½ miles and adapting the railway line accordingly is now in progress. Elaborate precautions were taken to protect the health of the workers in this malarious district. Before starting, the railway authorities sought the advice of the Ross Institute of Tropical Hygiene with reference to the sites for stations on the extension of the railway to Domira its terminus on Lake Nyasa. At the sea terminus the Portuguese government asked advice on the control of malaria in the port of Beira. When the construction camp, now like a small town was being laid out it was realized that unless special precautions were taken the climate and its fevers would take a heavy toll. Under the guidance of Mr C R Harrison, an expert with much successful work to his credit in Malaya and the copper mines in

Rhodesia, a complete system of antimalarial drains was constructed, every precaution was taken to prevent mosquitoes breeding in the vicinity of the camp, and there has been only one case of malaria among the Europeans. Hospitals have been built. The health of the native workmen has been so good that only a small percentage of admissions to the hospital have been due to illness, the rest being largely accident cases.

Automobile Fatalities

Sir Henry Dickens, son of the great novelist, who was a retired judge and 84 years of age, was knocked down by a motorcycle while crossing the Chelsea embankment, sustaining fractures and other injuries. He died in a hospital. A curious fact is that when asked by a policeman for his address he gave an address where he had not lived for ten years. At the inquest the coroner said that he often found that an injured person after an accident gave an address where he had previously lived. This seems to be an example of loss of memory for recent events. The coroner also stated that he had had in his own district of the metropolis no fewer than thirteen deaths from automobile accidents in the last few days.

The Birth Rate Is Still Falling

The Registrar-Generals' Statistical Review for 1932, which has just been issued, shows that the birth rate for England and Wales was 15.3 per thousand, which was 0.5 below that for 1931, the lowest previously recorded, and therefore was a new low record. The death rate was 12 per thousand, 0.3 below the rate for 1931 but 0.6 above that for 1930, but the 1930 rate was the lowest ever recorded and was largely due to an exceptionally mild winter. The death rate of infants under 1 year was 65 per thousand births, as compared with 66 in 1931 and 60 in 1930. Traffic accidents due to mechanical vehicles were responsible for 5,671 deaths, against 4,452, 5,196, 5,792, 6,342 and 5,892 in the preceding five years. The death rate from cancer was 1,510 per million living against 1,484 in 1931. If allowance is made for the higher age constitution of the population, the increase becomes much smaller. Tuberculosis again furnished a new low record, 837 per million. Puerperal sepsis was the cause of 155 deaths per thousand labors, and other "accidents of pregnancy and childbirth" gave a rate of 2.49. The deaths from influenza numbered 13,156, against 14,409 in 1931, 5,019 in 1930 and 29,074 in 1929.

Control of Medical Service and Child Marriage in India

In a debate in the house of commons on the appointment of a committee to consider the future government of India the Duchess of Athol pointed out that, since the transference of certain public health matters to Indian management grave deterioration had occurred. An ex-principal of the medical college at Lahore told a similar committee, at the last session, that professors were appointed who had no claim to such posts. The present professor of physiology was selected in spite of the principal's opinion in writing that he was unfit for the post. He had never acted as a demonstrator and had no qualifications to teach the subject. He informed the principal that all that he knew of physiology was what he had learned many years ago in his ordinary medical course and would have to start to read up on it. Another man was sent to officiate for twelve months as professor of midwifery and gynecology. The gynecological operations performed in the Lahore College hospitals are mainly abdominal. This man had no knowledge of the technique of abdominal surgery. He had never done an important abdominal operation. He had to leave most of the operations to his house surgeon and when he did operate the house surgeon had to supervise. Yet his appointment meant that he was the specialist for the province.

Another speaker, Miss Rathbone, a philanthropist said that the Indian census report for 1931, which had lately reached England showed that the disparity between females and males in India had steadily increased during the last thirty years. This was attributed in the report to the unsatisfactory conditions of life of young girls. Child marriage was the great evil. The government made three attempts to deal with the problem of early consummation but its efforts were nullified by Indian opposition. The Sarda act to prevent this scandal was so weakened to placate the opposition that it proved almost unworkable. In the six months following its passage 4,000,000 girls were hurried into matrimony. The number of wives under 14 in India had risen from 8,500,000 in the census of 1921 to 13,500,000 in the recent census. The number of child widows under 5 years of age had increased from 15,000 to 30,000. These shocking conditions resulted, according to the recent census, in 200,000 deaths in childbirth every year.

Code of Signals for Medical Aid at Sea

The merchant shipping act requires that every ship shall carry a medicine chest containing certain quantities of specified drugs and medical appliances, as well as an official publication, the 'Ship Captain's Medical Guide'. Every ship engaged in foreign trade carrying more than 100 men, whether as passengers or crew, must carry a doctor. This means that the vast majority of ships have none. Since the introduction of radio broadcasting ship masters when confronted by serious illness have sought medical advice from other ships which may be within range. But it often happens that they cannot give the details necessary for the doctor to make a diagnosis, especially between ships of different nationality. The new "International Code of Signals," in force with the coming of the new year, contains a 'case stating system' designed to deal with the difficulty. There are about 1,000 signals to be made by five-letter groups. Instructions are given to assist the ship's master in framing his message and the doctor in replying. The master will consult sections 1 to 20 and after he examines the patient, will frame his message in the sequence of the code. The master is advised not to give anything about which he is doubtful. Doctors are advised to confine their treatment as nearly as possible to the limits of the 'medical guides'. The code has been compiled by a committee consisting of representatives of England, France, Germany, Italy, Japan, Norway, Spain and Sweden.

PARIS

(From Our Regular Correspondent)

Dec 13, 1933

The Abuse of Hospital Privileges by the Wealthy Class

The surgeons are protesting against the abuses that have arisen in the admission of well-to-do patients to the public hospitals whereby their private interests are greatly injured. In France, the public hospitals are reserved for the indigent. The expenses of the hospitals have increased enormously, during recent years by reason of the higher wages paid the nursing personnel, and the application of the new social laws more particularly social insurance, which is a very costly system and the eight-hour day law which has made it necessary to double the nursing personnel. The municipal councils pay the cost of hospital treatment for indigent patients, and furthermore, the budget of the city of Paris grants to the administration de l'assistance publique parisienne an annual appropriation exceeding 40,000,000 francs (\$2,400,000) and yet the Assistance publique has a deficit. Many of the poorer communes are in arrears in paying the hospital charges for their respective patients. The well-to-do class is not as reluctant as formerly about being cared for in the public hospitals, since for a small supplementary charge a private room can be

secured. It pays the fixed charges to the hospital which is quite content to enter to this prompt paying clientele. The sums received as surgeon fees are clear profit since the surgeon is paid a fixed annual salary by the administration and he is prohibited from accepting fees from patients. The surgeons of Paris thus find their incomes diminished. They demand energetically that the public hospitals be reserved as formerly for the indigent that is to say for persons listed at the Bureau of Charities or who furnish proof that they pay only a minimal house rent. The scandalous spectacle of rich patients coming to the hospital in a luxurious car to consult a specialist for the sum of sixty cents, the fee established for the poor or undergoing an operation for appendicitis or fibroma at the hospital free of charge by the same surgeon that they consulted at home, must cease.

Radium Treatment of Inoperable Gastric Cancers

Professor Gosset in collaboration with Messrs. Monod and Regnaud reported to the Academy the results of using radium *a distance* in thirty one cases of inoperable gastric cancer. The results were not brilliant. The chief interest of the report lies in the fact that the high reputation of Mr. Gosset justifies the conclusion that others are not likely to succeed better in this field. Mr. Regnaud had applied a relatively large quantity of radium (4 Gm.), which was distributed over a rectangular plate with an area of from 125 to 160 square centimeters and applied at a distance of 10 cm. from the skin. The rays penetrated through multiple cutaneous surfaces epigastric dorsal and laterotransversal. The sittings for irradiation with a duration of two hours each were distributed according to series over a total period decided on tentatively in advance but variable in keeping with the tolerance of the patient. In seven cases (54 per cent) no improvement was secured. In seven cases the treatment gave some relief but without prolonging life. In seven cases (22 per cent) there was considerable improvement and life was prolonged varying periods of time. Two of these patients are still living, one appears to be cured after a space of six and a half years. The other patient has survived four years and nine months. Two factors influenced unfavorably the results: (1) the bad general condition of the patients, who could not endure the dose necessary to bring about a notable retrogression of the cancer; (2) the resistance to radium displayed by the cancerous tissue. The resistance varying greatly in different cancers, it is as yet impossible to determine in advance what the resistance will be on the basis of the histologic type of the tumor as there is a lack of documentation in such cases. For the histologic examination to have full value, the tissues must be taken from the tumor itself and not from the perigastric glands, which are often enlarged although not invaded by the cancer. Since the resection from removal of a fragment of tumor may be dangerous, the most interesting cases to study are the recurrences after gastrectomy, when the portion removed by operation has been carefully examined. Surgical exploration will be supplemented by gastro-enterostomy if need be, and by fixation of the stomach to the anterior wall of the abdomen to permit bench marking of the tumor with reference to a future incision. If a cancer is operable by gastrectomy or pylorotomy, excision is preferable to radium therapy the latter method being reserved for cancers that are actually inextirpable.

Strychnine in the Treatment of Barbitol Poisoning

The Society of the Physicians of the Hospitals of Paris devoted recently a long discussion to poisonings due to barbitol compounds which have become exceedingly numerous. Several cases occur every week in Paris, where these products may be secured in pharmacies (in spite of regulations to the contrary) without a prescription. The antagonism of strychnine and bar-

bitol compounds is well known. Professor Ide has gone so far as to say that death should no longer result from barbitol or phenobarbitol if strychnine is properly employed to combat it. Lienne Bernard and Leroux Robert administered without success 0.38 Gm. of strychnine, over a period of thirty hours to a patient poisoned by a heavy dose of phenobarbitol. D. Oebnitz, Balestre Brugiere and Raibauch (of Nice) administered 0.44 Gm. of strychnine, within fifty-seven hours, to a man aged 60 who had ingested 10 Gm. of barbitol and who succumbed whereas a woman aged 47, who had taken 15 Gm. recovered following a dose of 0.06 Gm. of strychnine given within twenty hours. Louis Ramond and Jean Delhy reported a case in which a person poisoned by barbitol died in spite of the enormous amount of strychnine (0.62 Gm.) administered within three days. Flandin and Jean Bernard attended a peculiar case. A woman having ingested 15 Gm. of phenobarbitol was brought to the hospital in coma. She was given intravenously 0.20 Gm. of strychnine during the first three hours and the medication was continued up to 0.53 Gm. in thirteen hours and 1.30 Gm. in sixty-seven hours until an alarming convulsive crisis appeared while the coma continued. She succumbed the sixth day in coma. It was apparent from this discussion that barbitol poisonings present variable degrees of gravity. Prolonged hyperthermia is always a bad prognosis. In one case the temperature continued to rise up to 42° C (107.6° F), which was reached two hours after death. Prompt treatment and the immediate use of large doses are very important. But the dose is difficult to determine *a priori*; then too, it is not always known when a patient arrives in a state of coma just what amount of barbitol has been ingested. Paraf Delhy and Macrez in the case of a woman who had ingested 10 Gm. of barbitol and 0.10 Gm. of phenobarbitol and had lapsed into coma reported that a simple dose of 0.01 Gm. of strychnine precipitated convulsions. It appears, therefore, that there is no mathematical relation between the amount of barbitol ingested and the dose of strychnine capable of neutralizing it. There is a wide range of individual receptivity, which upsets attempts to make a prognosis. The toxic dose of barbitol is 3 Gm. for some persons, and in other cases reaches 10 Gm.

Vaccination Against Tuberculosis in the Navy

The minister of the marine has created vaccination services for the application of the BCG vaccine in all the ports, and in all the cantonments of the navy, in collaboration with the local authorities. This measure will be confined for the present to children of families connected with the naval forces and to certain classes of personnel more particularly exposed to contagion.

Discussion of Roentgenologist's Cancer

Mr. Beclere addressed recently the Academy of Medicine on roentgenologist's cancer. Thirty years ago he was the first to equip his department, in the Hôpital St. Antoine with a radiologic apparatus, thus far, he has contracted only a chronic restricted radiodermatitis, without cancerization. Mr. Beclere has abandoned the conception of the irritative origin of cancer as upheld by Menetrier. He does not regard cancer as the almost inevitable result of inflammatory and hypertrophic lesions of increasing intensity. Beclere thinks that cancer is an accident associated with various nonspecific lesions, a complication that implies the development of a new factor. The roentgenologists who become affected with cancer are much in the minority, as compared with those who have manifest changes of the skin of the hands. There is no parallelism between the degree of cutaneous lesions and the presence or absence of cancer. Many roentgenologists affected with cancer have never had the slightest sign of acute radiodermatitis and presented only insidious skin changes, very slowly progressive. The term

hronic dermatitis" does not appear to fit their condition for most cases they present none of the clinical characters of inflammation. Their lesions correspond rather to those that develop following nerve injuries. They have the character of trophic disorder and reveal rather the destructive action of roentgen rays than the excitatory and irritative action. The labrous appearance and the extreme dryness of the thin skin furnish evidence of the atrophy of the hair follicles, the sebaceous glands and the sweat glands. These observations appear to support the hypothesis that cancer like tuberculosis is a disease of external origin, in spite of the fact that the microscope does not reveal the causative agent.

Professor Regaud, director of the Curie Institute, supported his conception of Mr. Becquerel with the weight of his authority. He does not, however, assume distinctly the action of an external specific agent in the genesis of cancer. He expressed the view that the roentgen rays destroy the cells but do not create inflammatory states. The cancerous lesion of the skin is an accident—an explosion, so to speak, of abnormal cellular activity, which develops at one or more points in a vast surface sometimes following a chronic inflammation but at other times in the absence of all inflammation. Regaud is opposed to the theory of a "general cancer disease." He does not believe that hereditary influences or blood changes are the chief causative factors. Evidence of this is the complete recovery that is effected by a local operation performed in time. Cancer comprises as many distinct diseases as there are tissues and organs. These are essentially local diseases although the onset may be facilitated by general causes.

PRAGUE

(From Our Regular Correspondent)

Dec 27, 1933

A Smaller Public Health Budget

The Czechoslovakian parliament has just approved of the budget for 1934. The whole budget was made up under the pressure of the strictest economy in public finances. A reduction of expenditures for public health was to be anticipated. From the highest figure of 157,000,000 crowns for the ministry of health in 1931 the appropriation was cut to 140,000,000 for 1934. While the total reduction of state expenses in comparing the year 1931 with 1934 is more than 20 per cent, public health came out with a reduction of slightly more than 10 per cent. In comparison with other branches of public administration, public health was given some preference. Only general administration, schools and justice have had a smaller reduction in the budget. All other public services, including national defense, suffered much deeper reductions of their appropriations. No material reductions in the public health personnel have been effected through the budget. As the health officers are civil service employees their salaries have been reduced on the same scale as the remuneration of other public officials. The finance administration insists only on a reduction of 10 per cent in the number of public health posts throughout the country in such a way that vacancies from death or retirement cannot be filled up to that limit. Private public health work which is subsidized in Czechoslovakia from public funds has suffered mostly from the uncertainty of future support rather than from actual lack of funds. While the state subsidies have been reduced, substantial aid to institutions supported by private associations has come from the central insurance fund which administers the sickness insurance for the whole working population of the country. This fund stepped in at this moment to preserve the voluntary public health machinery from actual collapse. On the whole the public health machinery of Czechoslovakia which has never been built up to abnormal proportions has stood up well under the attacks of hard times and consequently has proved its solid foundation.

Conference on Child Welfare

The fourth Conference on Child Welfare was held in Brno, October 28-31. These conferences were founded by Prof. E. Brubek of Brno in 1922 to promote research in child welfare by teachers, psychologists, anthropologists and physicians. The congress was a great success. The number of participants was more than 1,200. Foreign delegates came from Russia, Poland and Yugoslavia. The first section dealt with the preschool child, the second section with adolescence. The resolutions adopted dealt chiefly with public health, stressing the importance of school medical inspection, dental care, nutrition and defects of speech. A warning was formulated for teachers especially with regard to athletics, in which overstrain in children may be just as detrimental to health as too little physical culture. A striking feature of the congress was the perfect cooperation between teachers and physicians. A permanent committee will attempt to organize the next congress in two years on an even broader basis, inviting in larger numbers participants from other Slavic nations.

Professor Petřivalský's Birthday

The chief of the surgical clinic of the Brno Medical Faculty, Dr. Julius Petřivalský, has celebrated his sixtieth birthday. He is one of the few surviving pupils of the Prague school of surgeons educated by Professor Maydl. Born in Moravia, he was given the task of building up the surgical clinic when the new faculty of medicine was founded in the capital of Moravia in 1919. After graduating in Prague in 1898, he took up surgery and later studied in Germany, Switzerland, France and Belgium. He began lecturing on surgery at the Prague Faculty of Medicine in 1909 and became the chief of an independent surgical institute when the new university was founded in Brno. He formed a surgical school of his own, and his pupils occupy important university posts and leading positions in provincial hospitals. His research was devoted chiefly to cancer and to the improvement of surgical technique. Over fifty papers of his have been published, also three manuals of surgery. He is a member of many Czechoslovakian and international scientific bodies.

Industrial Diseases and the Compensation Law

A section for the study of industrial hygiene was organized recently within the Association of Czech Physicians. The impetus came from the need in medical practice resulting from the law on compensation for industrial diseases. When the law became effective in 1933, a list of twenty-five occupational diseases was made up that come under the workmen's compensation act. The sickness insurance bodies notify cases of these diseases when they last longer than twenty-six weeks, and if the claimant is disabled a pension is given in proportion to his reduced working capacity. Since this measure affects the financial interest of sickness insurance bodies, they search among their patients for cases that can be proposed for a pension. Up to the present the occupational side of the etiology of diseases has been somewhat neglected. The new law makes necessary the definition of clinical symptoms that make up a compensable case of industrial disease. The first session which was recently held heard papers on lead poisoning, the organization of first aid in large factories, and the relation of silicosis to tuberculosis. The group represents not only the Prague Faculty of Medicine but also leading physicians of provincial hospitals and medical departments of important industrial corporations.

"Patent Medicines" Unknown in Czechoslovakia

The economical control of pharmaceutical products is becoming a serious problem in Czechoslovakia. After the war an increased demand for medicines was met largely by importa-

tion from foreign countries but of late the local chemical industry has begun the production of all kinds of medicines 'Patent medicines' in the American meaning of the word are unknown in Czechoslovakia because the sale of only such medical preparations is allowed as those of which the contents have been made public. The so-called medical specialties which are related to patent medicines are only a combination of known ingredients which can be protected from competition by special authorization from public authorities. As the bureaucratic procedure to obtain this authorization is long drawn out the firms place their preparations on the market when they apply for authorization. So a number of medical specialties are on sale without authorization of the authorities. The chief hindrance to the proper regulation of this matter is the lack of endowment of public laboratories that are entrusted with the control and analysis of such preparations. A private corporation was recently formed by well known university teachers including pharmacologists, clinicians and biologists who offer their services for the control of medical specialties. This nonprofit institution will give its approval of medical specialties only in case the claims of the preparation are justified by scientific facts. Such preparations will be included in the list of medicinal eminences which the corporation will publish periodically. The cost connected with the examination of these preparations will be borne by the respective producers. The names behind the new institution guarantee impartial and authoritative work.

New Centers for the Study of Cancer

In 1932 the number of deaths due to cancer exceeded the number of deaths due to tuberculosis. A private association to combat cancer which has existed in Prague for twenty years, succeeded recently in collecting funds for the erection of a research institute. This institution is only partly subsidized by public authorities. Another cancer center is being organized in Brno where an analogous institution is approaching the completion of its own building. An association for the study of cancer has been organized also in Brno.

BERLIN

(From Our Regular Correspondent)

Dec. 11, 1934

A Survey of Left-Handed Students

Professor Bethe, physiologist, of Frankfurt, has completed some research on the question as to whether there exists a superiority of one hemisphere of the brain and as to whether the left hemisphere is superior to the right. He was led to make this study by the observation that persons whose right arm was amputated during the World War adapted themselves rapidly to the use of the left arm. Experimenting on himself he became accustomed to use his left hand but only after a lapse of several years. In contrast, he saw that when a person is suddenly deprived of an arm, the ability to use the other arm develops rapidly. The alleged predominance of one hemisphere of the brain over the other hemisphere cannot be harmonized with this fact. Left-handedness is more common than is generally supposed. Among 266,000 soldiers, 10,300 were left-handed, or 3.9 per cent. The proportion of left-handed and of right-handed young children is identical, ranging around 17 per cent, the remainder are ambidextrous. With increasing age, the proportion shifts toward the side of right handedness. Another series of statistics lists 25 per cent of a group of children as left-handed. Bethe instituted experiments on a large scale on students and reached the conclusion that there is absolutely no predominance of the right side in the use of the limbs. His investigations showed the proportion of genuine right-handed and left-handed subjects to be as 20 to 25 per

cent. The next thing to be decided is whether the dominance of one side is of a primary or an acquired character. A frequently observed fact is that in aphasic plegia or a left-handed child in whom the speech center would be assumed to be in the right hemisphere the paralysis does not affect the left side. Experiments have established that in the frog and in the turtle after removal of a labyrinth, a lateral diversion of the leg or fin respectively, develop, which after extirpation of the second labyrinth continues unchanged as a pronounced acquired modification of behavior. Similar observations have been made on the dog which after removal of one cerebellar hemisphere develops the staggers and retain the disorder following removal of the other hemisphere. Therefore it may be concluded that central manifestations occur as a result of acquired functional procedure. Other experiments point to the same conclusion. The view that left-handed persons are exposed to suffer from physical deformities, mental backwardness, epilepsy, criminal tendency, strabismus, deaf-mutism, stuttering, and the like is discredited by the fact that many distinguished men (for example Leonardo da Vinci and the surgeon Ludwig Rehn) were left-handed. Bethe addressed a questionnaire to four universities among the members of the faculty of which 20 per cent were left-handed. This is a far greater percentage than is commonly supposed to exist. Furthermore the left-handed persons, as a survey showed were better in the examinations, on the average than were the other cases. These observations serve to show that there is no evidence for an unequivocal superiority of one hemisphere of the brain over the other.

Birth Rates and Illegitimate Births

In 1932, Germany, Italy and Poland had a marked decline in the birth rate. In the German Reich the number of live births receded by 53,600. In Italy the number of living births was 34,150 fewer than in 1931 so that in 1932 the birth rate for Italy was only 23.8 per thousand as compared with 24.9 births the previous year and 26.7 births in 1930. In Poland in 1931 50,000 fewer births were recorded and in 1932 there was a further decline of nearly 34,000 so that the birth rate of Poland dropped over the two year period from 32.3 (1930) to 28.7 per thousand of population. In the remaining countries of western, central and northern Europe the decline in the birth rate ranged from 0.2 to 0.7 per thousand. France had a decline in its birth rate of only 0.2 per thousand. In Sweden and Hungary the birth rate was only 0.2 and 0.3 per thousand of population respectively, lower than in 1931, whereas Great Britain and Czechoslovakia showed a decline of 0.5 per thousand and Austria a drop of 0.7 per thousand. Unchanged birth rates were recorded in the Netherlands and in Switzerland. The countries of lowest birth rates at present are the German Reich, Austria, Sweden and Great Britain with birth rates ranging from 14.5 to 15.8 per thousand. France (with a birth rate of 17.2), Belgium (18.1) and Switzerland (16.7) have in recent years passed out of the group of nations with the lowest birth rates. The birth rates in Norway (16.7), Denmark (18.0) and Finland (19.5) together with Lithuania and Estonia range around that of France and in some cases exceed it. In countries bordering on this area limitation of births is making further progress particularly in Czechoslovakia, Hungary and Italy, which countries report in contrast with former high rates, birth rates of from 21 to 24 per thousand, which are lower than the birth rate of the German Reich in 1923 (26.9). The birth rates in the countries of the Iberian peninsula (28.3 and 30.7) and in eastern and southeastern Europe are still high. There appears to be evidence, however, that the demographic pressure of the Slavic races of the East will in the near future lose considerable of its force. It may be added that in 1932 the population of Japan increased by 1,007,848 (in 1931 by 861,534).

The percentage of illegitimate births in Germany (12.1) isceeded by that of only one European country (Sweden with percentage of 16.1). The corresponding percentage in Greece 14, Bulgaria 40, Great Britain, 46, Italy 49, Norway, 1, France, 84, and Denmark and Czechoslovakia 107.

Requirements to Practice in Health Insurance Societies

The regulations of the new government concerning the admission of non-Aryan physicians to practice in the *Krankenkassen* have undergone several changes. It will be recalled that of physicians of Jewish extraction only those have been admitted late who were in practice before the outbreak of the war together with those who fought at the front in the German army. Under date of November 20, the federal minister of labor decreed that non-Aryan women physicians whose husbands died in the World War and whose admission was prevented solely on account of their non-Aryan descent shall be readmitted to panel practice. It has been further decreed that in cities with more than 100,000 inhabitants, non-Aryan physicians and Aryan physicians and women physicians who have a non-Aryan spouse shall not be admitted until further notice. In these cities, non-Aryan physicians who within the meaning of the provisions, are to be regarded as front line combatants cannot be admitted since the promulgation of the decree of Nov. 20, 1933. The purpose of this provision is to relieve the unbalanced conditions that exist, primarily in the metropolitan cities, between the number of non-Aryan and Aryan physicians. Dr. Wagner, federal leader of the physicians, asked recently for cooperation in the settlement of the difficult Berlin problems, and particularly for the abolition of the unendurable condition in the federal capital today, where there are still more than 60 per cent of the physicians engaged in panel practice who are non-Aryans.

An Investigation of Honorary Titles

In the past fourteen years, an unusually large number of honorary doctor titles have been granted by German universities. The ministers of public instruction in Prussia, Bavaria and Baden have decided to institute an inquiry, for it has been said that honorary titles have been conferred frequently for political reasons rather than for scientific attainments. It was further decreed that a supplementary order be appended to the regulations for the conferring of titles which shall provide for the cancelation of the doctor title under given conditions. This order is aimed at persons whose activities in foreign countries are detrimental to Germany's welfare and makes it possible to deprive such persons of their German citizenship.

The Medical Press of Germany

It was previously mentioned (*THE JOURNAL*, Sept. 2, 1933, p. 792) that an endeavor was to be made by the government to bring about greater uniformity in the medical press of the provinces. Dr. Wagner, the federally appointed leader of the German medical profession, has now ordered that from Jan. 1, 1934 in addition to the official organ of the federally controlled leagues of German physicians, the *Deutsches Arzteblatt* and the journal of the national-socialist medical league *Ziel und Weg*, only thirteen provincial journals will be published, in place of the previous thirty-two. All these journals will bear the title *Arzteblatt*, with a statement as to what section of the country they are designed to serve. For example one will serve all of Bavaria, and another will serve Wurttemberg and Baden in common. The contracts will be made with the publishing houses by the federations of the panel physicians who serve the *Krankenkassen*. All contracts for the whole reich to be on the same financial basis so that underbidding or overcharging on the part of the various publishing houses will be impossible.

MOSCOW

(From Our Regular Correspondent)

Nov. 19, 1933

Anniversary of the Institute of Experimental Medicine

The All-Union Institute of Experimental Medicine was established Oct. 15, 1932, by a special decree of the council of the People's Commissars of the Soviet Union. The institute has already developed a large scientific and practical program. In the clinic of the institute, I. P. Pavlov has studied the function of the nervous system of sane people by the method of conditional reflexes. Prof. A. G. Gourvitch conducted a study on the early diagnosis and treatment of cancer, which he reported at the International Congress of Cancer in Madrid. Prof. P. I. Zdrovovsky studied experimental meningitis on rabbits, also the development of arteriosclerosis, its prophylaxis and treatment.

The institute has organized a museum. In order to study the history of the biologic sciences, a commission of professors has been organized. New buildings will be erected for pediatric and mental clinics.

Physicians Visit Poland

A delegation of Soviet physicians was present at the Polish Congress of Physicians at Posen, September 12-15. The members of the delegation were Profs. A. S. Abrikosov, B. I. Lavrentiev and I. A. Mendeleyeva and Dozent A. A. Bagdasarov. After the congress was closed the delegation visited Warsaw. In honor of the delegation the Polish minister of labor gave a banquet.

This trip was the first of its kind since the October revolution.

Professors Honored

At a November meeting, the Central Executive Committee of the Russian Soviet Republic awarded the title "Honorable Science Workers" to Profs. M. A. Averbach and A. A. Kisel of the Second Moscow Medical Institute and to Prof. V. P. Osipov, director of the institute for the study of the brain. Professor Averbach is a prominent ophthalmologist. He founded a school of ophthalmology, organized a large hospital for eye diseases, and is the permanent president of the Moscow Ophthalmologic Society. Professor Averbach's scientific work is known throughout the world. Professor Alexander A. Kisel organized the children's clinic of the Second Moscow Medical Institute, where he worked about twenty years. He has written many scientific works and is the permanent president of the All-Union and Moscow district societies of pediatricians. Prof. Victor P. Osipov is well known in the fields of psychiatry. Since 1929 he has been the director of the State Institute for the Study of the Brain at Leningrad.

Marriages

WILLIAM WARRINER WOODRUFF, Saranac Lake, N. Y., to Miss Gertrude Strathbucker of Milwaukee at Detroit, Oct. 31, 1933.

ARTHUR ALLEN CANTWELL, Shawano, Wis., to Miss Alice Davis of Bozeman, Mont., in Wilmette, Ill., Dec. 23, 1933.

JOHN HENRY BLEKKEING to Miss Dina Theodora Arentsen, both of Oostburg, Wis., Nov. 14, 1933.

PHILIP R. McGRATH to Miss Margaret Mary Watson, both of Peoria, Ill., Oct. 19, 1933.

FRANK T. BOWER, Hattiesburg, Miss., to Miss Hazel Draughn, Nov. 23, 1933.

SAMUEL FOX, Lawrence, Mass., to Miss Esther Goose of Chelsea, recently.

EDWARD JACOBS to Miss Anne Seeman, both of New York, Dec. 23, 1933.

Deaths

William West Grant, Denver, Long Island College Hospital, Brooklyn, 1868, Trustee of the American Medical Association 1901-1916, member and past president of the Colorado State Medical Society, Western Surgical Association and the Denver City and County Medical Society, chairman of the state committee on medical defense, fellow and one of the founders of the American College of Surgeons, served during the Civil and World wars, at one time lecturer on clinical and surgical gynecology, University of Colorado School of Medicine, surgeon to St. Luke's Hospital, aged 87, died, January 8.

Charles Franklin Eikenbary ♂ Seattle, Rush Medical College, Chicago, 1903, in 1926 Member of the House of Delegates of the American Medical Association, past president and secretary of the Spokane County Medical Society, member of the American Orthopedic Association and fellow of the American College of Surgeons, served during the World War, chief of staff of Children's Orthopedic Hospital and on the staff of the Swedish Hospital, formerly orthopedic surgeon to St. Luke's, Sacred Heart and the Deaconess hospitals, Spokane, aged 56, died, Dec. 31, 1933, of pneumonia.

Delbert Linscott Jackson ♂ Boston, Harvard University Medical School, Boston, 1908, member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, and fellow of the American College of Surgeons, formerly assistant in obstetrics at his alma mater, on the staffs of the Boston Lying-in Hospital, Massachusetts Women's and New England Baptist hospitals, Chelsea (Mass.) Memorial Hospital, Chote Memorial Hospital, Woburn, Jordan Hospital, Plymouth and the Frammingham Union Hospital, Frammingham, aged 52, died, January 1, of heart disease.

Dennis Edward Sullivan ♂ Concord, N. H., Bellevue Hospital Medical College, New York, 1885, Member of the House of Delegates of the American Medical Association, 1914-1915, 1920-1922, 1924-1928, 1930-1933, since 1906 secretary of the New Hampshire Medical Society, member of the state board of health since 1913, member of the board of education 1908-1917, served during the World War, on the staffs of the New Hampshire Memorial Hospital for Women and Children and the Margaret Pillsbury General Hospital, aged 70, died suddenly, January 19.

Herbert Vergil Scarborough, Lyons, Kan., College of Physicians and Surgeons, Keokuk, Iowa, 1902, member of the Kansas Medical Society and the Indiana State Medical Association, director of the Henrietta Brown Memorial Foundation, formerly superintendent of the State Sanatorium for Tuberculosis, Oakdale, Iowa, and the Sunnyside Sanatorium at Oaklandon, Ind., aged 57, died, January 1, at Norton of heart disease.

Irving Howard Cameron, Toronto, Ont., Canada, University of Toronto Faculty of Medicine, 1874, emeritus professor of surgery and clinical surgery at his alma mater, served with the Canadian Army during the World War, fellow of the American College of Surgeons, surgeon to St. John's Hospital and consulting surgeon to the Toronto General Hospital and the Hospital for Sick Children, aged 78, died Dec. 15, 1933.

Edmund Michael Baehr, Cincinnati, Medical College of Ohio, Cincinnati, 1901, associate professor of physiology, University of Cincinnati College of Medicine, member of the American Psychiatric Association, served during the World War, formerly member of the state bureau of juvenile research and the state welfare board, aged 55, was found dead, January 2, of heart disease.

Charles Bartles Smith ♂ Washington, N. J., College of Physicians and Surgeons, Baltimore, 1891, formerly mayor of Washington and member of the board of education, past president of the Warren County Medical Society, aged 66, died Dec. 19, 1933, of chronic nephritis, myocarditis, chronic cholecystitis, cerebral embolism and bronchopneumonia.

Benjamin Franklin Bond, Savannah, Ga., Atlanta College of Physicians and Surgeons, 1900, acting assistant surgeon, U. S. Public Health Service, served during the World War, for many years on the staff of the U. S. Marine Hospital, aged 56, died suddenly, Dec. 9, 1933, of angina pectoris, arteriosclerosis and diabetes mellitus.

William Ben Boyce, Escanaba, Mich., Medical Faculty of Trinity University, Toronto, 1902, member of the Michigan State Medical Society and the American Academy of Ophthal-

mology and Otolaryngology, past president of the Delta County Medical Society, on the staff of St. Francis Hospital, aged 59, died, Dec. 31, 1933, of cerebral hemorrhage.

Leon Ashley Peek ♂ West Palm Beach, Fla., College of Physicians and Surgeons, Baltimore, 1897, fellow of the American College of Surgeons, past president of the Palm Beach County Medical Society, served during the World War, on the staff of the Good Samaritan Hospital, aged 58, died, January 5, of cardiorenal disease.

Louis Henry Braafadt, Sacramento, Calif., Rush Medical College, Chicago, 1916, member of the California Medical Association and the American Association of Pathologists and Bacteriologists, formerly a medical missionary, aged 48, died Nov. 10, 1933, in the Sutter Hospital, of septicemia, following furuncle of the nose.

Frank Chambliss Johnson ♂ New Brunswick, N. J., Columbia University College of Physicians and Surgeons, New York, 1920, fellow of the American College of Physicians, on the staff of the Middlesex General Hospital, aged 39, was found dead, January 1, as the result of a fall from a precipice.

William Stockton Blue, Ottawa, Ill., Indiana Medical College School of Medicine of Purdue University, Indianapolis, 1906, veteran of the Spanish-American War, aged 55, died Dec. 24, 1933, in the Edward Hines, Jr., Hospital, Hines, Ill., of chronic myocarditis and coronary occlusion.

George Ray Hare ♂ New York, Bellevue Hospital Medical College, New York, 1898, fellow of the American College of Surgeons, surgeon to the Manhattan Eye, Ear and Throat Hospital, New York, and the Nassau Hospital, Mineola, N. Y., aged 68, died Dec. 24, 1933, of pneumonia.

Charles Penny McCabe ♂ Braintree, Mass., McGill University Faculty of Medicine, Montreal, Que., Canada, 1919, aged 39, died Dec. 15, 1933, in the Deaconess Hospital, Boston, of carcinoma of the stomach with metastases to the liver, peritoneum and left clavicle.

William Thomas Dawe ♂ Gonzales, Texas, University of Texas School of Medicine, Galveston, 1905, secretary of the Gonzales County Medical Society, served during the World War, city and county health officer, aged 59, died, Nov. 27, 1933, of sarcoma of the liver.

Herbert Battles Tanner, Eastland, Texas, Indiana Medical College, Indianapolis, 1876, member of the State Medical Association of Texas, formerly mayor and member of the school board of Kaukauna, Wis., aged 74, died Dec. 4, 1933, of tuberculous pleurisy.

Albert Levesque, St. Vincent de Paul, Que., Canada, School of Medicine and Surgery of Montreal, 1916, served during the World War, medical officer of St. Vincent de Paul penitentiary, aged 41, died, Oct. 27, 1933, of edema of the lungs.

John Hersey Fairfield, Great Falls, Mont., University of Pennsylvania School of Medicine, Philadelphia, 1880, county coroner, formerly mayor and secretary of the county and city board of health, aged 77, died, Dec. 5, 1933, of heart disease.

Charles Francis Chapman ♂ Mount Kisco, N. Y., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890, on the staff of the Northern Westchester Hospital, aged 65, died Dec. 26, 1933, of heart disease.

Daniel Benton Cain ♂ Evansville, Ind., Kentucky School of Medicine, Louisville, 1893, formerly county health officer on the staffs of St. Mary's and the Protestant Deaconess hospitals, aged 70, died Dec. 24, 1933, of heart disease.

Sydney Sheppard Kellam ♂ Belle Haven, Va., University of Virginia Department of Medicine, Charlottesville, 1898, past president of the Accomac County Medical Society, aged 59, died suddenly, Dec. 12, 1933, of angina pectoris.

Thomas David Gunter ♂ West Palm Beach, Fla., University of Georgia Medical Department, Augusta, 1906, on the staff of the Good Samaritan Hospital, aged 60, was found dead, Dec. 25, 1933, of a self-inflicted bullet wound.

Samuel Reed Eaton, Battle Creek, Mich., University of Michigan Medical School, Ann Arbor, 1900, member of the Michigan State Medical Society, aged 70, died Dec. 14, 1933, of chronic bilateral pyelonephritis and uremia.

Julie B. Frankenheimer ♂ San Francisco, Cooper Medical College, San Francisco, 1898, formerly instructor and lecturer in medicine at his alma mater, aged 60, died Dec. 14, 1933, of angina pectoris, nephritis and myocarditis.

Thomas Shelby Chapman, McAlester, Okla., Louisville Medical College, 1896, member of the Oklahoma State Medical Association, formerly mayor of McAlester, aged 64, died, Dec. 11, 1933, of chronic nephritis.

Charles Werden Holbrook, East Haven, Conn., Yale University School of Medicine New Haven, 1896, member of the Connecticut State Medical Society, formerly a minister aged 77, died, Dec 18 1933, of pneumonia

Gordon William Schneider, New York Baltimore Medical College, 1913 member of the Medical Society of the State of New York, aged 45, died Dec 13 1933, in the Sydenham Hospital, of uric acid and chronic nephritis

Henry Allan Beck, Ulrichsville, Ohio Jefferson Medical College of Philadelphia, 1912 served during the World War aged 43 died, Dec 5 1933 in the U S Veterans' Hospital Aspinwall, Pa., of pulmonary tuberculosis

Roy Dudley Moore, San Francisco Barnes Medical College, St Louis 1899, member of the board of review of the Veterans' Administration, aged 56 died, Nov 24, 1933, at Los Angeles, of pulmonary tuberculosis

Clifford Earle Steckbauer Chicago, University of Illinois College of Medicine, Chicago, 1927, on the staff of the Illinois Eye and Ear Infirmary aged 35, died, Dec 28, 1933 of a self inflicted bullet wound

Stanhope M Scott, Sr, Terra Alta W Va., University of Virginia Department of Medicine, Charlottesville, 1871, aged 83 died, Sept 4, 1933 in Fairmont, of fracture of the left femur received in a fall

Fred A Collins, Vega, Texas, Arkansas Industrial University Medical Department Little Rock 1893 aged 67 died, Dec 1, 1933 in a hospital at Amarillo of diabetes mellitus and myocarditis

George Lucas Harman, Savannah Ga., Baltimore University School of Medicine, 1897 member of the Medical Association of Georgia aged 62, died, Dec 2 1933 of myocarditis

Joseph Roosevelt Breitbart, Cleveland, Cornell University Medical College, New York, 1924 on the staff of the Mount Sinai Hospital, aged 33, died, Dec 18, 1933 in Bermuda

Addison Orr Boals, Hickory Valley, Tenn Vanderbilt University School of Medicine Nashville 1889, aged 81 died Dec 30 1933, in the Baptist Hospital, of myocarditis following diphtheria

Robert Lee Clayton, Celina Texas Atlanta Medical College 1881, Tulane University of Louisiana Medical Department New Orleans 1898, aged 70, died, Dec 1, 1933, of heart disease

S E Boggs, Washington C H Ohio Starling Medical College Columbus 1882, member of the Ohio State Medical Association aged 73, died Dec 13, 1933, of heart disease

Newell Hiram Hamilton, Santa Monica, Calif., Rush Medical College Chicago 1877, aged 81, died, Nov 7, 1933, of chronic interstitial nephritis and mitral insufficiency

T C McCloud, Graham, Texas (licensed Texas, under the Act of 1907) aged 48, was found dead Dec 21, 1933, of a skull fracture received in an automobile accident

Ida B Cameron, San Francisco Hahnemann Hospital College of San Francisco, 1895, aged 67 died, Nov 27, 1933 in the Children's Hospital, of cerebral hemorrhage

Charles Maurice Stanley, Portland Maine, College of Physicians and Surgeons, Boston, 1912 aged 67, died Dec 3 1933, as the result of an automobile accident

Richard Foster, Santa Ana, Calif., Howard University College of Medicine, Washington, D C 1892 aged 75, died Nov 8, 1933, of organic heart disease

John Bentley McMillan, Detroit Detroit College of Medicine 1889, aged 76, died, January 1 in the Henry Ford Hospital of ulcer of the pylorus

Samuel Ellis, Lees Summit Mo Medical College of Ohio Cincinnati 1866 aged 98 died Oct 31, 1933 of bronchopneumonia and arteriosclerosis

William Henry Maines Jeffs, Toronto Ont Canada, Trinity Medical College Toronto, 1888 aged 69 died Nov 14 1933 of heart disease

Oscar Jones, Indianapolis Central College of Physicians and Surgeons, Indianapolis 1901, aged 56, died Dec 23 1933 of cerebral hemorrhage

Lewis S Mershon, Alhambra, Calif University of the South Medical Department, Sewanee Tenn, 1895 aged 79 died Nov 6 1933

Edgar J Farlow, Long Beach, Calif (licensed Iowa, 1886) aged 82 died, Nov 25, 1933, of coronary sclerosis

Correspondence

ERGOT IN PURPURA

To the Editor —In a communication under the title "Use of Ergot to Contract Capillaries in Purpura" (THE JOURNAL, Dec 30, 1933, p 2137) J C Norris mentioned the use of this solution in drachm doses, and solution of pituitary, 05 cc., hypodermically

The use of ergot in purpura is an old time remedy In the *Journal of Cutaneous and Genito-Urinary Diseases* (9 241 [July] 1891) W L Munroe tells of a peculiar exanthem following an attack of epidemic influenza The eruption consisted of a hemorrhagic exanthem Part of the treatment given was as follows

Tr ferri chloridi
Lut ergotae fl

aa m xxx i d

Ergot was not an uncommon ingredient in prescriptions used in purpuric conditions of the skin at that time, but it fell into disrepute on account of the danger of producing ergotism

JOHN G DOWNING, M D, Boston

"SCHWEIGGER'S JOURNAL FÜR CHEMIE UND PHYSIK"

To the Editor —Walton states (Historical Aspects of Enzyme Investigations, THE JOURNAL, Dec 30, 1933, p 2137), in regard to Schweigger's *Journal für Chemie und Physik* that the only available set of this journal is in the New York Public Library, at least in America I wish to inform you that the Connecticut Agricultural Experiment Station possesses volumes 1 to 69 inclusive of this journal (1811-1833)

HARRY J FISHER, New Haven, Conn

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted on request

TREATMENT OF PNEUMONIA AT HOME

To the Editor —1 Kindly summarize the major steps in the treatment of pneumonia as it may be carried out in the home in the absence of expert nursing care 2 Can the assistance of a laboratory be dispensed with? 3 Please include a few remarks on the status of antiserums 4 Do you approve of the use of oxygen from small tanks with which it can be administered by the funnel method? 5 I believe that most of us in the country are still using largely expectant treatment and wish to know if we are justified Please omit name

M D Idaho

ANSWER —1 Patients suffering from pneumonia may be satisfactorily cared for in the home without trained nurses if the physician carefully directs the nursing and is alert in interpreting and treating symptoms To some extent the outcome will depend on the nursing When the diagnosis of pneumonia is made, the patient should be put to bed in a well ventilated room and spared any unnecessary exertion or annoyance He should not leave his bed for any purpose until the temperature and pulse are normal for a week No purgative should be used The bowels may be emptied with a mild laxative suppositories, or an enema in bed The diet should be nutritious, salty, and as generous as the patient desires

Excessive coughing should be calmed with codeine sulphate, 0.03 Gm (one-half grain) Pleuritic pain may be relieved by strapping with adhesive plaster, by codeine, 0.03 Gm, or by a small single dose of morphine sulphate, from 0.008 to 0.016 Gm (one-eighth to one-fourth grain), never more Headache should be treated with amidopyrine, 0.3 Gm (5 grains), and restlessness and insomnia by one of the rapidly destroyed barbiturates, such as dial-Ciba, 0.2 Gm (3 grains), or sodium amylal 0.2 Gm If ineffectual, the dose may be repeated in one hour

Other menacing symptoms such as cyanosis distention delirium and pulmonary edema occur most frequently in cases in

which there is a bacteremia or anoxemia, and usually late in the disease. For a bacteremia there is no available remedy other than type-specific serum. A much larger amount of serum is required to treat patients later in the disease, or those suffering from a bacteremia than if serum is given early and before the bacteremia develops.

Cyanosis can be met only by increasing the gradient between the alveolar and the blood oxygen by inhalation of oxygen with a nasal or tracheal catheter or well ventilated tent.

Intestinal or colonic distention is met either with enemata, a rectal tube turpentine stipes or doses of ampoules of pitresin 1 cc. every hour for three doses. Gastric distention may be relieved by cruminals as peppermint or by stomach tubing with a Levine tube.

Delirium requires large doses of the barbiturates with or without tribrom ethanol (by rectum) 60 mg. per kilogram, to induce sleep (Bullowa, J. G. M. *Internat. Clin. North America* 17:103 [July] 1933).

Pulmonary edema may be met by the intravenous injection of dextrose 50 per cent (100 cc.) and insulin (20 units) subcutaneously. This may be repeated in three hours.

The complications such as empyema must be promptly recognized and treated.

2. Pneumonia patients cannot be satisfactorily treated without some laboratory assistance. In many states this is provided by central laboratories to which sputum is sent. In almost every community a compound microscope is available and with it the laboratory can be improvised. Special rabbit typing serum for pneumococci of types I, II and III and for some of the other types is prepared in capillary tubes by at least two manufacturers—Lederle Laboratories and Parke Davis & Company. With these a Neufeld test (Sabín, A. B. *THE JOURNAL* May 20, 1933 p. 1584) may be done when there is sputum and the type specific serum available and the type determined directly thus. This may be done by the physician who has familiarized himself with the technique, or by a technician. If a laboratory is available, the Sabín technique (Sabín, A. B. *Proc. Soc. Exper. Biol. & Med.* 26:492, 1929) should be employed with the peritoneal exudate of a mouse injected with sputum and blood cultures taken. A failure to find pneumococci of types I, II or III in the sputum does not exclude the pneumococcus as the cause of the disease but finding a type is very strong presumptive evidence that it is responsible for the pneumonia. The report of type or group IV should not be accepted as evidence that the patient is not suffering from one of these types (I, II or III) or from some other specific type. The report usually means that the laboratory has not found a precipitation or agglutination reaction with serum for pneumococci of types I, II or III. Type I, II or III pneumococci may be present but not in sufficient numbers to give the test, or there may be inhibiting substances.

3. The favorable results of serum treatment in pneumonia due to pneumococci of types I and II have been amply shown by Cole (*THE JOURNAL* Sept. 7, 1929 p. 741), Park and Cooper (*THE JOURNAL*, April 28, 1928 p. 1349), Bullowa (*New York State J. Med.* 33:13 [Jan. 1] 1933), Cecil and Suthill (*THE JOURNAL* Dec. 22, 1928 p. 2035), Cecil and Plummer (*THE JOURNAL*, March 5, 1932 p. 779) and Heffron and Anderson (*THE JOURNAL* Oct. 21, 1933 p. 1286). In Bullowa's statistics in alternately treated cases at Harlem Hospital, the mortality in serum treated cases was reduced to 15 per cent of all cases of type I admitted to the service, as contrasted with 30 per cent in the controls. In the state-wide Massachusetts series, in which some of the cases were treated at home it was reduced more than half than in the controls, to 10.6 per cent. The treatment with type II serum is definitely helpful though the results are not as striking as with type I, it prevents invasion of the blood by pneumococci. It is even more important than with type I that the serum be given early and in large amounts. Bullowa has indicated the value of specific serum in type VII (Cooper) and type VIII (Cooper). Serum for types I and II and for type VII is commercially available. Several other types are being experimentally studied but reports of the results have not been published.

Since approximately 50 per cent of all cases of lobar pneumonia are due to pneumococci of type I and type II, duovalent serum for type I and type II may be administered in advance of typing (at least 20,000 units twice). In cases known to be due to pneumococcus type I the doses should be repeated until clinical improvement is manifest, as evidenced by a fall in the pulse rate. For type I about 100,000 units is required for moderately severe nonbacteremic cases and 200,000 units for bacteremic cases. This should be given in twenty-four hours. For type II much larger doses are required.

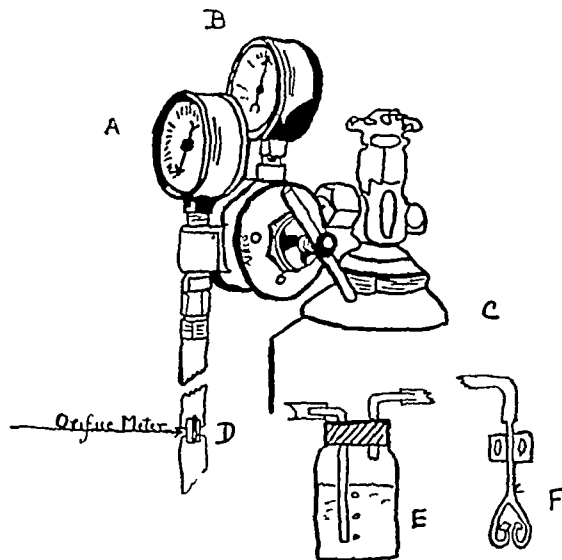
Though it is desirable that cases be treated before the fourth day, serum may be effective at any time, even late in the disease, and it should not be withheld because of the length of time the patient has been ill.

4. The administration of oxygen from small tanks with a funnel is not approved. The funnel must be held close to the face, which procedure interferes with escape of carbon dioxide and of moisture, or at such a distance as prevents an adequate increase of the concentration of oxygen in the air breathed. A preferred method is with an inhaler (Connel, Sanford or Bullowa) which delivers moistened oxygen just inside the nares, or with a catheter or catheters leading to the nasopharynx (Bullowa, J. G. M. *Internat. Clin.* 4:262 [Dec.] 1931).

The small tanks contain insufficient oxygen for continuous treatment. They contain either 11 cubic feet (100 gallons) or 17 cubic feet (130 gallons) of oxygen (7½ gallons = 1 cubic foot) and cost about half the price of large tanks containing 220 cubic feet (more than twenty times as much oxygen). The small tanks have the further disadvantage of usually having neither a gage to indicate the rate of flow nor one to show the cylinder pressure. The latter tell how much oxygen is in the tank. Large tanks of oxygen containing 220 cubic feet are available wherever there is a welder (which is in nearly every garage in almost any community).

There is absolutely no difference between industrial and 'medical' oxygen. Some salesmen attempt to make physicians believe there is.

With large tanks (220 cubic feet) at 2,200 pounds pressure a pressure regulator and a flow gage are necessary. The variable orifice meter or float gage, calibrated for liters per minute is the preferred form. In the absence of such a clinical regulator one may improvise with the welding equipment of the garage. The pressure regulators of welders are said to be



Improvised clinical regulator for use with industrial oxygen cylinder. A delivery gage and B cylinder gage on C industrial oxygen cylinder (220 cubic feet). D orifice in welding tip or brass slug. E wash bottle. F nasal inhaler (Bullowa type).

accurate to 3 per cent and they begin to register at 2 pounds pressure. The flow rates of gases at a given pressure through a given orifice are well known.

An orifice meter may be improvised suitable for clinical use, by placing a metal disk with a suitable drill hole in series with the welding regulator as shown in the accompanying diagram. The amount of gas passed in liters per minute is approximately half the number of cubic feet per hour for the given pressure. An Airco No. 1 welding tip may be used (No. 68 drill), or that of some other manufacturer with the same size opening.

The table gives the amount of gas, in cubic feet per hour, passing common drill sizes at the pounds pressure indicated. The figures divided by 2 give liters per minute.

The gas should be passed through a water bottle to prevent drying of the nasal mucous membrane. At 4 liters per minute, a large tank of oxygen provides enough oxygen for continuous inhalation for more than twenty-four hours, at a cost of little more than \$5 for oxygen.

Oxygen should be given continuously if indicated. It is good practice not to wait until there is marked cyanosis before

administering oxygen The oxygen gradient should be increased before the mechanism that prevents cyanosis is exhausted At Harlem Hospital, oxygen by nasal inhaler is given, in pneumonia, when the normal respiratory rate is doubled, or 36 per minute, or the pulse reaches 120 or if there is cyanosis of the nail beds (*Bullowa Internat Clin* 4 262 [Dec] 1931)

The intermittent administration of oxygen with a funnel was born of economizing with the gas in the days of small and expensive cylinders before liquefaction or electrolytic oxygen was made, and it has no place in the medicine of today Relatively inexpensive oxygen suitable for inhalation is in almost every repair garage, and the apparatus for increasing the concentration of the pharyngeal oxygen by at least 50 per cent can be improvised almost anywhere from the welder's equipment The physician or hospital may have a clinical regulator available for an emergency

Flow in Cubic Feet Per Hour

Pressure	Drill No 60	Drill No 65	Drill No 70
1	9.0	7.0	4.4
2	12.8	9.8	6.2
3	15.7	12.0	7.6
4	18.0	13.8	8.7
5	20.3	15.4	9.8
6	22.1	16.8	10.7
7	23.8	18.2	11.6
8	25.6	19.4	12.3
9	27.0	20.6	13.1
10	28.4	21.6	13.8

5 Unfortunately, the physician treating pneumonia must treat "expectantly" many patients suffering from pneumonias not due to pneumococci or due to pneumococci of types for which an effective specific curative serum is not available A physician is not justified in failing to treat aggressively with serum a disease (pneumonia due to pneumococcus type I) in which the serum has been shown by many observers, with ample controls to cut the death rate in half and thus save from ten to fifteen lives per hundred patients Prompt administration of type I serum shortens the illness and prevents bacteremia and other complications In this country, physicians are not justified if they fail to treat diphtheria with antitoxin The results from the use of serum in type I pneumonia if it is used early and in sufficient quantity, are almost as satisfactory as those with diphtheria antitoxin when used early in diphtheria

The aggressive treatment of many acute abdominal conditions has displaced the so called expectant, or laissez-faire, treatment even in the country The aggressive treatment of pneumonia with serum and oxygen requires skill and devotion A significant country-wide reduction in the mortality from pneumonia will appear when the physicians of the country employ efficiently, in the treatment of the pneumonias for which serum is or becomes available, the newer methods, especially serum and oxygen

RHINITIS AND SINUSITIS

To the Editor—A man aged 55 is suffering from a chronic catarrhal condition of the rhinopharyngeal region There is continuous hacking of the throat for the removal of a mucous discharge of a thick sticky quality There is a wheezing respiration with many coarse rales heard over the bronchi during any accentuation of the condition by an acute cold There were also at a considerable period at the beginning of treatment many rales in the right lower lobe The patient had a discharge from the ear from the age of 18 to 26 years at intervals which cleared up with the removal of the tonsils The chronic catarrhal condition together with a susceptibility to colds increased gradually in intensity from the age of 26 years Two years ago after examination in a clinic of high repute a nasal operation was done for removal of obstruction and establishment of drainage but without much benefit Beginning in March 1933 when the patient came under my care I have done sinus lavage administered some iodine intravenously and given a long series of injections of vaccine made up of a polyvalent entolysate of the rhinopharyngeal organisms All seems to have resulted in considerable benefit Please give suggestions as to the care of patient Please omit name and address

M D Wisconsin

ANSWER—Before the hacking and postnasal dropping are dismissed as manifestations of a catarrhal condition it is necessary to rule out by every means at one's disposal the presence of a suppurative accessory nasal sinusitis If and when it is definitely proved that the secretion in the pharynx does not come from the sinuses, one may diagnose a catarrhal rhinopharyngitis The chronic bronchitis present could be secondary to a suppurative sinusitis In this event improvement in the nasal condition might ameliorate the chest complaint In the absence of pus in the nose the bronchitis is in all likelihood a concomitant but unrelated disease

In addition to the local nose treatment already instituted one could consider removal of the patient for a time to a warm

dry climate such as is found in Arizona or New Mexico This would offer a good prognosis if the patient now dwells in an unfavorable locality as in a northern industrial city situated on a large body of water and with a variable temperature and a dust and smoke laden atmosphere

SEXUAL INFANTILISM—DYSTROPHIA ADIPOSEGENITALIS

To the Editor—Recently a case of hypopituitarism came under my care The patient a boy aged 15 years, weighs 168 pounds (76 kg) and has definite sexual infantilism The basal metabolic rate is -3 I should like to know the present status of glandular therapy in this disorder An outline of the regimen in such a case would be appreciated

O O BENSON, JR MD, March Field Calif

ANSWER—It may be assumed that the condition from which this boy suffers is a dystrophia adiposogenitalis This is a condition of obesity associated with sexual infantilism The opinion is divided as to whether the disorder is due to a pituitary deficiency or to some disturbance in the hypothalamic region of the brain

There is considerable difference of opinion as to the result of pituitary treatment Clinicians of considerable experience have not succeeded in remedying the condition with this line of treatment

On the other hand, more enthusiastic physicians maintain that larger doses of pituitary preparations, continued over a longer period, will cause improvement in these patients It is obvious that, if there is a tumor or pressure on the hypothalamus, glandular treatment will be of no avail

In THE JOURNAL October 14, Brosius and Schaffer reported the successful treatment of a case of complete aspermia with bilateral testicular atrophy by injections into the glutei of a preparation of anterior pituitary-like principle from pregnancy urine This report carries with it a suggestion of the future possibilities in the treatment of sexual infantilism

DERMATITIS FROM CAUSTIC SODA

To the Editor—One of my patients three or four years ago contracted eczema brought on by exposure to caustic soda and since then has been afflicted with it almost continuously The eruption has been generalized uncommonly severe and difficult to cure Could exposure on another occasion to the fumes of caustic soda be regarded as a causative factor in a further outbreak? The outbreak occurred on a very hot July day this year and was coincident or appeared shortly after the dumping of caustic soda into a sink Please omit name and address

M D Massachusetts

ANSWER—The action of various skin irritants appears to be such that a foreign protein is produced on or within the skin with the further result that the affected person becomes sensitized Thereafter even limited exposure to the same irritant may be followed by severe skin damage which is chiefly anaphylactic in character It cannot be said that the body is specifically sensitized to the offending chemical agent, but it is sensitized to the peculiar protein produced when that irritant is in contact with the skin It is believed that the dust of caustic soda—or the fumes originating from such caustic soda brought in contact with water—may either bring about a new chemical burn of the skin or provoke a dermatitis related to a previous outbreak from the same cause months or years earlier

CALCIUM IN BLOOD SERUM

To the Editor—The remark has been made that blood serum calcium determinations are valueless since quantitative calcium analysis of blood serum cannot be done accurately Is there any justification for this statement?

G D GUILBERT MD Tucson Ariz

ANSWER—The statement that blood serum calcium determinations are valueless is incorrect The quantitative determination of serum calcium, if properly carried out according to the instructions of Clark and Collip should reduce errors to 2 per cent or less The method of Clark and Collip is described in Kolmer and Boerner's Approved Laboratory Technic, New York D Appleton & Co, 1931

Blood calcium determinations are indicated as an aid to diagnosis when osteomalacia, polycystic bone disease, which is often associated with a tumor of the parathyroid, rickets, parathyroid disorders or infantile tetany is suspected It is especially important in following the results of treatment with parathyroid extract Excessive doses of viosterol may cause an increase in the calcium level of the blood

The normal blood serum calcium is about 9 to 12 mg in 100 cc of serum Osgood and Haskins place the normal figures for serum at 9 to 14 mg and for plasma at 10 to 15 mg

ENEMAS OF METAPHEN AND GLYCERIN IN COLITIS

To the Editor—A woman aged 47 married with five children weighing 115 pounds (52 kg.) white well educated of upper class society, energetic and not especially nervous presents a puzzling reaction to some medication I recently gave her. At 19 she had a nervous collapse (?) followed very soon by the syndrome of mucous colitis. Rest in bed cleared that condition for a time. Several years later some sort of ulcers developed in the rectum. During her pregnancies she seemed entirely well. Five years ago a diagnosis of visceroptosis was made and rest in bed and corseting seemed to correct the condition. There have been times when the ulcers became bothersome and she had them treated by cautery or some such method. I saw her first about six weeks ago when she complained of loose watery stools usually involuntary in the morning with the constant appearance of small amounts of bright red blood similar to ulcer symptoms. She maintains that the stools are a straw colored water and only occasionally contain any formed matter of size. Three weeks ago I prescribed metaphen 1 500 and glycerin equal parts. The patient had a slight nausea but the bleeding and water stools disappeared, and she had one or two perfectly formed normal stools each day with no involuntary tendency. Each time the metaphen was stopped constipation set in and in a day or two the water stools reappeared with blood. Laboratory examination gives essentially negative results and there does not seem to be any suggestion of malignancy. I am especially interested in the peculiar reaction to the metaphen and glycerin. Is the regulation of the bowels due to the glycerin and if so is there any contraindication to the indefinite continuance in the use of the mixture of glycerin alone? The symptoms reappear so promptly when she stops it that the patient does not feel like discontinuing it. I would be glad to have any other suggestions. Can tonic doses of ultra violet radiation be counted on to help this condition? Please omit name.

M D, Pennsylvania

ANSWER—Glycerin injected into the rectum is a reliable evacuant and if the mixture of metaphen solution and glycerin equal amounts was injected into the rectum, one would not hesitate to ascribe the result to the glycerin. Whether this is correct could be easily tested for by employing either of the ingredients alone. If the effect is due to the glycerin there is a possibility that in time regularity of bowel movement may be secured by progressive dilution of glycerin as glycerin enemas have a tendency to leave an irritability of the rectal mucosa as an after-effect. The patient's symptoms suggest a possibility of ulcerative colitis, the treatment of which demands thoroughgoing roentgen and bacteriologic study to determine the best course to pursue. Ultraviolet rays are not likely to be of much value in this condition.

SCOTOMA SCINTILLANS AND SYNCHESIS SCINTILLANS

To the Editor—I have a patient who has scotoma scintillans in both eyes to such an extent that it troubles her greatly. She is a teacher and it is unusually important that her vision remain good. In searching through the literature I find one reference in which scotoma scintillans occurred in an allergic individual who also was having other eye disturbances. I have found that scotoma scintillans depends on infection. I am wondering if you can help me out by any further data on the literature.

ORVILLE HARRY BROWN M D Phoenix Ariz

ANSWER—The question is probably misstated. If scotoma scintillans is meant there need be no fear for the ocular future for that symptom is merely one of the prodromals of an attack of migraine. But if synthesis scintillans is meant (and the question would seem to indicate that) a different condition is involved. For a complete digest of the literature the inquirer is referred to the Graefes-Saemisch Handbuch der gesamten Augenheilkunde ed 11, vol V chapter VIa by H. Lauber, p 107. This contains the literature up to 1922. From then to date, the inquirer is referred to the Kurzes Handbuch der Ophthalmologie, vol V, p 346, Synthesis Scintillans by A. Jess.

TREATMENT OF POTTS DISEASE

To the Editor—A man aged 29 has had Pott's disease since 1923. The Albee operation was performed on him in 1928 with good results until a few months ago when he began to feel pain and fatigue in the back. At inspection a marked kyphosis and right scoliosis were present. Roentgenograms showed complete destruction of the body of the eleventh thoracic vertebra while the bodies of the tenth and twelfth vertebrae were partly destroyed. The anterior picture revealed an old calcified abscess. A cure on the Bradford frame was recommended. I would like your appreciation of the method for this case. Can it be carried on in the patient's home? If so would you give me sufficient instructions regarding the structure of such a frame to enable me to have one made for my patient?

A R COTE M D Brownsburg Que

ANSWER—The roentgen examination must be checked with the results of former roentgen examinations in order to determine the progress or retrogression.

Home treatment may be successful up to a certain point. The Bradford frame treatment may be carried out at home if hospital nursing is carried out. This is comparatively simple and can be taught to any intelligent person.

The Bradford frame is a frame usually made of three eighths inch gaspipe bent into a rectangular form. An elbow is placed at each of the four angles. The width of the frame is the distance between the two scapulae at the point of the glenoid. The length should be about 8 inches longer than the height of the patient. The curve of the frame depends on the individual patient. After the frame is bent, it is covered with two or three sections of canvas. This canvas should have brass eyelets into which heavy lacings are passed, on the under surface of the frame, so that the patient is suspended on a canvas frame.

The roentgenograms should be checked and rechecked with the idea of determining whether another operation of the Albee or Hibbs type (or some combination of the two) should be prescribed either immediately or after a period of one or two months of Bradford frame treatment.

USE OF MENTHOL INTERNALLY

To the Editor—I noticed the following article in a small paper sent out by a drug company: Zur abortiven Grippebehandlung (Abortive Treatment of Grip) by Friederike Schnapek (Wien klin Wchnschr Sept 8 1933). Grip in uncomplicated cases may be aborted by the administration of 0.5 Gm of menthol within a space of two hours. This should be done at an early stage. In from eighteen to twenty-four hours the patient is fever free. Cough and nasal affections are avoided by this treatment and the physical equilibrium is restored. None of the late sequelae of grip follow. The menthol may be given in any shape or form with the same effect. I tried to make up a prescription containing 8 grains of menthol using alcohol to dissolve the menthol and added syrup to 1 ounce. About one-fourth teaspoonful of this nearly choked me the fumes coming out of my nose and eyes. How could 8 grains of menthol be prescribed for internal use other than in capsules?

DR VERA RITCHIE M D Harrisburg Pa

ANSWER—The author prescribed the menthol in a liberal quantity of olive oil and for patients who objected to drinking the oil he prescribed the menthol dissolved in a small quantity of oil in capsules. Such a prescription might be written as follows:

R Menthol	0.5 Gm
Olive oil	4.0 cc.
Divide into 12 capsules	
Label: One every ten minutes until all are taken	

It would hardly be desirable to make it more concentrated, as even this strength is rather fiery. Incorporating the menthol in a wax mass formed by beeswax 1 part castor oil 3 parts (as suggested by N. S. Davis) might make it possible to reduce the quantity of the diluent and the number of capsules. One would hardly want to inflict the powdered menthol on a patient's stomach. Of course there is no good evidence that menthol used in this way actually aborts a cold.

DEATH FROM FRIGHT

To the Editor—This question has been presented to me several times. Can a man die from fright? alone without any history of actual physical injury. I should like to know what available evidence there is in favor of and against together with references for this question. If this question is answered in THE JOURNAL please omit my name.

M D Chicago

ANSWER—The question was referred to an eminent authority in legal medicine. He says that in a large experience of over forty years of actual postmortem observation abroad and in this country he has not encountered a single case of death from fright in a person of sound physical condition. Persons afflicted with serious valvular lesions or with marked coronary sclerosis and interstitial myocarditis may die suddenly after fright especially if aged. Sudden death after plunging into cold water may be considered an example of death following fright with shock.

References on this subject may be found in any of the large textbooks on medicolegal medicine—Haberda and others.

ACROPARESTHESIA

To the Editor—Will you please tell me the treatment of acroparesthesia? I have a typical case and cannot find much in the literature on the subject. Phenobarbital 1½ grains (1 Gm.) has only slight effect on the pain and the patient is losing much sleep. Please omit name.

M D Kentucky

ANSWER—The term acroparesthesia merely implies paresthesia of distal parts. The latter occurs in a great many conditions notably combined cord degeneration, tabes, multiple neuritis and arteriosclerosis. The question no doubt relates to the ill defined vasomotor or trophic neurosis often referred to as acroparesthesia and paraded as a clinical entity, which

it is not. One type is described as occurring in young persons another and more common one at the menopause or later. The only observer who makes claims for a curative treatment is J. Borak (*Endocrinologic* 5:9 [Oct] 1929), who describes excellent results from roentgen treatment directed at the hypophysis. Vasodilators or vasoconstrictors are indicated when there is objective evidence of such indication. Ovarian hormones may be tried in menopause cases associated with other signs of menopausal neurosis. Quinine, strychnine, arsenic, iron, phosphorus and ergotone have been recommended as has the faradic brush according to Oppenheim it is well for such patients to keep their fingers out of water.

EARLY INVESTIGATIONS OF ANTRUM OF HIGHMORE

To the Editor—I wish to know the name of the physician who first described a suppurative antrum of Highmore and the date of the discovery. The following may facilitate the finding of the name. He was an English physician who suffered from a foul breath which caused him to lose his practice. He went to Egypt for his health where he observed the dripping of the ill smelling pus from his nose as he leaned over. Please omit name.

M D New York

ANSWER—According to Wright, it was Nathaniel Highmore who in 1651 described the sinus named after him. He gave anatomic data with illustrations and mentions a case of suppuration on an old woman who had bad teeth. In 1675 Velpeau quotes Molinetti, who entered the antrum of Highmore in a patient suffering from severe pain due to suppuration in this cavity, with a trephine through a crucial incision in the tissues of the cheek. Morgagni intimated that Jean Henry Meibomius prior to 1655 was the first to enter the maxillary sinus by way of the alveolar process. The credit is generally given to William Cowper, however, whose publication appeared in 1717. He used a suitable instrument, entering the antrum through a tooth socket from which the tooth had been extracted for this purpose. Following the entrance of the instrument into the antrum, irrigations were practiced by him. Following Cowper, there were others who suggested opening the sinus in a number of ways.

ANKYLOSIS OF KNEE

To the Editor—Will you give me the best treatment for ankylosis of the knee joint of about three months standing caused from a fracture below the knee and the cast being left on too long. I have not been able to find a book that gives anything on it. Please omit name.

M D Illinois

ANSWER—It is desirable to know whether the ankylosis is fibrous or osseous. One should know the exact nature of the fracture, stating whether it extended into the knee joint. It should state whether the knee is flexed or extended. A plaster cast should not be discredited or blamed for more than its share.

Joint irregularity and the integrity of the tibial plateau are important considerations. Roentgen reports should be given.

The various factors under treatment to be mentioned are wedged casts, leg traction below the knee, the use of the Zander apparatus, physical therapy including radiant heat, massage and gentle manipulation. If these measures are unsuccessful one would recommend very gentle manipulation under gas induction followed by ether. This manipulation may have to be repeated and should be followed by physical therapeutic measures.

EPILEPSY

To the Editor—An Irish American woman aged 33 single has had for the past nine months typical attacks of epilepsy at first every month at the beginning of her period and then every two weeks. The attacks appeared only at night and there were as many as three to four during one night. After four months of a ketogenic diet increasing from number 2 to number 4 the attacks now come only the night before the period appears and there is only one convulsion. Does it not appear that the pituitary is at fault and would not hypodermic pituitary medication of some kind help? Roentgenograms were taken of the patient's head and no old fracture or abnormality of the pituitary was noted. Please omit name.

M D Massachusetts

ANSWER—The first appearance of epileptic seizures at the age of 33 always suggests the possible presence of an organic brain lesion and indicates the necessity for a particularly careful neurologic examination. At the menstrual period there is normally a temporary alteration in the chemistry of the blood, a fact that may render the brain more liable to the explosive discharges of epileptic nature, provided a cause for the seizures is present. The suggestion of pituitary etiology from the facts given in this case would be mere speculation.

EFFECTS OF ACTIVE MATERIALS FROM LETTUCE

To the Editor—In popular articles I have repeatedly seen the statement that there is present in lettuce some sleep-producing alkaloid but I have not been able to find any reference to it in any scientific work. May I ask you whether there is any such alkaloid present in lettuce and if so what alkaloid it is? Is it ever found in sufficiently large quantities in lettuce to produce lethargy or sleep in those eating lettuce? Any references you can give me to scientific literature will also be most welcome. Kindly omit name.

M D California

ANSWER—There is no such alkaloid in lettuce. *Lactuca virosa* the wild lettuce contains a milk juice, which when inspissated is known as lactucarium. This has been called "lettuce opium" and credited with sedative effects. As it does not contain any alkaloid and is not narcotic the term lettuce "opium" is applicable only if the word is used in its etymologic sense, meaning "juice." Lactucarium was introduced by Dr. Cove of Philadelphia (*Tr. Am. Phil. Soc.* 4, 1799 cited in Lloyd's "Origin and History of Vegetable Drugs," 1921) but because of unreliability of its effects, its use has been abandoned.

FIRST CATHETERIZATION OF EUSTACHIAN TUBE

To the Editor—Would you be kind enough to advise me as to who was the first to introduce the eustachian catheter method of middle ear inflation?

BENJAMIN BRONSON M.D., Westfield Mass.

ANSWER—The histories are unanimous in assigning credit to Guyot as the first to catheterize and inflate the eustachian tube. His report was made in 1724 (*Histoire de l'Academie royale des sciences*, 1724 p. 37). Guyot successfully passed a catheter through the oral cavity, under the soft palate into the mouth of the eustachian tube. In 1741, Archibald Cleland, an English military surgeon first reported passing a catheter into the eustachian tube by way of the nose.

The subject is referred to by

Garrison *History of Medicine* 1929

Politzer *Geschichte der Ohrenheilkunde* Stuttgart 1907, vol. 1

GROWTH OF DIABETIC CHILD

To the Editor—A boy aged 16 weighing 116 pounds (52.6 Kg.) and 51 inches (129.5 cm.) tall has had diabetes since he was 5 years of age and has been on insulin for several years. His parents are apprehensive about his size. In your opinion would there be anything that might increase his growth? Please omit name.

M D Nebraska

ANSWER—Growth can continue even up to 26 years of age unless the epiphyses have closed. Control of the diabetes with sufficient insulin, exercise and a diet of carbohydrate 140-175 Gm., protein 90-100 Gm. and fat 90-110 Gm. will almost certainly produce growth. Thyroid 0.065 Gm. after each meal and pituitary whole gland, 0.13 Gm. three times a day, may help, but any patient receiving glandular treatment should be examined at least every three months.

MOTTLED ENAMEL

To the Editor—Several persons who have read the story about the mottled enamel situation in the West have written to inquire what is the objection to mottled enamel. Is there any objection to it aside from the fact that it is deleterious to appearance?

G EDWARD PENDRAI New York

ANSWER—There is apparently no other objection to mottled teeth than the one mentioned, though in many cases the discoloration is extremely conspicuous. Dental decay is certainly not more common in mottled teeth; indeed, both McKay and G. V. Black are of the opinion that individuals with this condition have relatively little decay (*J. A. Dental A.* 15:1429). No other abnormal changes of the mouth or teeth have been associated with this developmental fault.

USE OF ACIDOPHILUS CULTURES

To the Editor—I should like some information on the acidophilus treatment for constipation in which bacteria are believed to be the cause. Are the fresh cultures the only satisfactory method of using the preparation? If so where are they obtained and how prepared? Are there any proved vaccines on the market for this purpose? Please omit name.

M D Minnesota

ANSWER—*Bacillus acidophilus* is not actively laxative. Lactose taken in liberal quantities may become so through the action of *Bacillus acidophilus*. Buttermilk is a good and inexpensive method of lactic acid bacillus therapy. When this cannot be used for some reason or other, any one of the various cultures on the market, which must be relatively fresh, may be used. N. N. R. lists quite a number of them. Vaccines (for subcutaneous injection) are not employed.

INTRAVENOUS INJECTION OF DEXTROSE SOLUTION
To the Editor—Forty eight hours after operation a patient having lost considerable blood what amount of 5 per cent dextrose can be given intravenously with safety, the patient weighing 140 pounds (63.5 Kg)? What are the symptoms produced by too large an amount? Will a liter given rapidly produce untoward symptoms and what are they usually?
H D DIESSNER, M D Minneapolis

ANSWER—It is the rate of injection rather than the quantity that is of importance. The syndrome of too rapid injection, for which the term "speed shock" has been advocated, consists of a fall in blood pressure, respiratory irregularity and dyspnea, salivation, vomiting, diarrhea, muscle weakness, muscle spasm and impaired coagulability of the blood. Even death may result. A rate of from 2 to 3 cc per minute (intravenous drip) is considered safe.

EARLY SITTING AND STANDING OF INFANT
To the Editor—Is there any foundation for the common belief that early standing causes bow legs and that early sitting injures the infant back? My 5 months old infant likes nothing better than to sit unsupported on the bed remaining sitting from one to two minutes. She shows no signs of discomfort when she falls but immediately tries to raise her self up. She also seems to enjoy standing when supported. I believe she has no signs of rickets. Please omit name.
M D New York

ANSWER—There is foundation for the belief mentioned. If the infant can maintain good posture while sitting unsupported and standing with support, it should be encouraged frequently, but for short periods.

ADMINISTRATION OF IRON TO CHILDREN
To the Editor—Please advise me the best way of administering large doses of iron to children.
ABRAHAM TRUMPER M D, Montgomery Ala

ANSWER—Iron and ammonium citrate may be dissolved in syrup of orange flowers, as in the following:
If Iron and ammonium citrate 10 Gm
Syrup of orange flowers to make 120 cc
M Label Teaspoonful in water three times a day after meals

COCAINE AND ANTISEPTIC
To the Editor—Can you tell me the effect of cocaine in 5 per cent solution on micro-organisms? I have frequently thought in spraying the nasal mucosa preliminary to applying antiseptics for acute infections that the cocaine perhaps in itself was sufficient to destroy organisms. Please omit my name in your reply.
M D New York

ANSWER—Cocaine is not antiseptic. Indeed, its solutions require sterilization or preservation by means of bacteriostatic agents.

VENESECTION IN CEREBRAL HEMORRHAGE
To the Editor—What about bleeding as a treatment for cerebral hemorrhage?
R A HILLS, M D Russell Iowa

ANSWER—There is considerable difference of opinion just as there is concerning lumbar puncture in spontaneous and traumatic subarachnoid hemorrhage. Since there is often difficulty in distinguishing between cerebral hemorrhage and thrombosis, venesection should not be thought of unless a full pulse, red face and other signs point conclusively to hemorrhage. With the diagnosis virtually assured, such experienced clinicians as Oppenheim, Bing and Dana recommend venesection.

DIAGNOSIS OF MASTURBATION
To the Editor—Are there any infallible easily recognizable stigmas of the sex organs (both sexes) due to masturbation? I have read many descriptions of such marks and signs which I have known to be absent in chronic habitues. I am connected with two institutions in which this question often arises. Kindly give me your opinion. Please omit name.
M D Pennsylvania

ANSWER—There is absolutely no sign by which one can detect the presence of masturbation in a person. Many of these sufferers imagine that any one seeing them can immediately know that they practice masturbation, but this is not so.

DEAFNESS AFTER SKULL FRACTURE
To the Editor—Please tell me what length of time should elapse following a fracture of the skull involving the eighth nerve in which there is total deafness before one can assume that the deafness is total and irreparable.
T C KERNS M D Durham N C

ANSWER—A skull fracture producing total deafness has injured the eighth nerve, the cochlea or both these structures. The deafness as a rule is present at once, is usually complete and only rarely is there recovery.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Cleveland June Sec, Dr C Guy Lane 416 Marlboro St Boston
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Written (Group B Candidates) The examinations will be held in various cities of the United States and Canada April 7 Oral (all candidates) Cleveland June 12 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh
AMERICAN BOARD OF OPHTHALMOLOGY Cleveland June 11 Sec Dr William H Wilder, 122 S Michigan Blvd Chicago
AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec Dr W P Wherry, 1500 Medical Arts Bldg Omaha
CALIFORNIA Los Angeles Feb 26 March 1 Sec Dr Charles B Pinkham 420 State Office Bldg, Sacramento
CONNECTICUT Basic Science New Haven Feb 10 Prerequisite to license examination Address State Board of Healing Arts 1895 Yale Station New Haven Regular Hartford March 13 14 Endorsement Hartford March 27 Sec Dr Thomas P Murdock 147 W Main St Meriden Homoeopathic New Haven March 13 Sec, Dr Edwin C M Hall 82 Grand Ave New Haven
IOWA Des Moines Feb 20 22 Dir Division of Licensure and Registration Capitol Bldg Des Moines
MAINE Portland March 13 14 Sec Dr Adam P Leighton Jr 192 State St Portland
MASSACHUSETTS Boston March 13 15 Sec Dr Stephen Rushmore 144 State House Boston
NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Feb 14 16 May 7 9 (limited to a few centers) June 25 27 and Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia
NEW HAMPSHIRE March 15 16 Sec Dr Charles Duncan State House Concord
NEW YORK Albany Buffalo New York and Syracuse Jan 29 Feb 1 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany
OKLAHOMA Oklahoma City March 13 14 Sec Dr J M Byrum Mammoth Bldg Shawnee
PUERTO RICO San Juan March 6 Sec Dr O Costa Mandr Box 536 San Juan
VERMONT Burlington Feb 7 9 Sec Dr W Scott Nay Underhill
WEST VIRGINIA Charleston March 12 State Health Commissioner Dr Arthur E McClue Charleston
WYOMING Cheyenne Feb 5 Sec Dr W H Hassel Capitol Bldg Cheyenne

Nevada November Report

Dr Edward E Hamer secretary Nevada State Board of Medical Examiners, reports the written examination held in Carson City, Nov 6, 1933. The examination covered 11 subjects and included 110 questions. An average of 75 per cent was required to pass. Two candidates were examined, 1 of whom passed and 1 failed. Four physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year	Per
		Grad	Cent
St Louis University School of Medicine	(1933)	86	6
School	FAILED	Year	Per
		Grad	Cent
Hahnemann Med College and Hospital of Philadelphia	(1902)	59	1
School	LICENSED BY RECIPROCITY	Year	Reciprocity
		Grad	with
University of California Medical School	(1930)	(1932)	California
Loyola University School of Medicine	(1930)	(1930)	California
University Medical College of Kansas City, Missouri	(1905)	(1905)	California

Minnesota October Report

Dr E J Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral written and practical examination held in Minneapolis, Oct 17-19 1933. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Forty one candidates were examined, 40 of whom passed and 1 failed. Five physicians were licensed by reciprocity and 2 by endorsement. The following schools were represented:

School	PASSED	Year	Per
		Grad	Cent
College of Medical Evangelists	(1933)	88	3
University of California Medical School	(1932)	90	3
Northwestern University Medical School	(1931)	91	4
Rush Medical College	(1930)	86	3
(1931) 88 2 90 2 (1932) 91 6			
State University of Iowa College of Medicine	(1932)	95	

Tulane University of Louisiana School of Medicine	(1930)	95 5
Johns Hopkins University School of Med	(1927) 88 3	(1931) 87 3
University of Minnesota Medical School	(1932)	95 1*
85 6* 87 2* 89 2 89 3* 90 1 90 5* 91 5* 93 1*		
(1933) 81 3 85 3 85 5 85 6* 86 1* 86 2 86 5 86 5		
87 3 88* 88 5 88 5 90* 91 1* 91 2		
Temple University School of Medicine	(1931)	87 5
University of Pennsylvania School of Medicine	(1933)	90
University of Wisconsin Medical School	(1932)	90 5
Queen's University Faculty of Medicine	(1930)	93 2

School	PAID	Year	Per
University of Minnesota Medical School	(1930)	Grad	Cent
			74

School	LICENSED BY RECIPROCITY	Year	Reciprocity
University of Illinois College of Medicine	(1932)	Grad	with
University of Michigan Medical School	(1924)	(1932)	Illinois
Univ of Minn Medical School	(1930)	(1932)	Michigan
		(1932)	Illinois

School	LICENSED BY ENDORSEMENT	Year	Endorsement
Tulane University of Louisiana School of Medicine	(1932)	Grad	of
University of Minnesota Medical School	(1930)	(1932)	B M Ex
			B M Ex

*The applicant has received an M B degree and will receive an M D degree on completion of internship

Michigan June Examination at Ann Arbor

Dr J Earl McIntyre, secretary, Michigan State Board of Registration in Medicine, reports the written examination held in Ann Arbor, June 7-8, 1933. The examination covered 9 subjects and included 60 questions. An average of 75 per cent was required to pass. One hundred and twenty-six candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year	Per
Yale University School of Medicine	(1932)	Grad	Cent
Howard University College of Medicine	(1931)		84 9
Loyola University School of Medicine	(1933)		83 9*
Northwestern University Medical School	(1933)	80 9 83 2†	85 7
University of Michigan Medical School	(1931)		86 8
(1932) 83 2* 85 9 86* 87 1* (1933) 80* 81 2*			
81 3* 81 4* 81 4* 82 2* 82 4* 82 5* 82 5* 82 5*			
82 6* 82 7* 82 7* 82 7* 82 7* 82 8* 82 8* 82 8*			
82 9* 82 9* 82 9* 83 1* 83 1* 83 2* 83 3* 83 3*			
83 3* 83 4* 83 5* 83 5* 83 5* 83 6* 83 6* 83 6*			
83 7* 83 7* 83 8* 83 8* 83 9* 83 9* 83 9* 83 9*			
84* 84* 84* 84* 84 1* 84 1* 84 1* 84 2* 84 2*			
84 2* 84 2* 84 2* 84 2* 84 3* 84 3* 84 3* 84 4*			
84 4* 84 4* 84 4* 84 5* 84 5* 84 5* 84 5* 84 6*			
84 6* 84 6* 84 6* 84 7* 84 8* 84 9* 84 9* 84 9*			
84 9* 85* 85 1* 85 1* 85 1* 85 1* 85 1* 85 1*			
85 1* 85 2* 85 3* 85 3* 85 3* 85 3* 85 4* 85 4*			
85 5* 85 8* 85 8* 85 8* 85 9* 85 9* 85 9* 86*			
86 2* 86 2* 86 6* 86 6* 86 6* 86 8* 86 9* 87 4*			
St Louis University of Medicine	(1932)		84 5
University of Buffalo School of Medicine	(1930)		86 6*
Western Reserve University School of Medicine	(1933)		86 4*
Temple University School of Medicine	(1932)		84 8
University of Western Ontario Medical School	(1933)		84 5*
85 8* 85 9*			
McGill University Faculty of Medicine	(1926)		83 1

* License withheld

† This applicant has received an M B degree and will receive an M D degree on completion of internship. License withheld

Michigan June Examination at Detroit

Dr J Earl McIntyre, secretary, Michigan State Board of Registration in Medicine, reports the written examination held in Detroit, June 14-15, 1933. The examination covered 9 subjects and included 60 questions. An average of 75 per cent was required to pass. Fifty-eight candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year	Per
Loyola University School of Medicine	(1933)	Grad	Cent
(1933) 83 3 83 4* 83 6* 84 5* 84 8 85 1*		(1932)	82 8
Northwestern University Medical School	(1933)		84 5
Rush Medical College	(1932) 83 7	(1933)	85 8
Sch of Med of the Division of the Biological Sciences	(1932)		87 3†
Harvard University Medical School	(1932)		81 9
Detroit College of Medicine and Surgery	(1933)		79 6*
80* 80 5* 80 6* 80 8* 81 7* 82 3* 82 4* 82 6*			
82 6* 82 9* 82 9* 83* 83 1* 83 1* 83 2 83 3*			
83 6 83 6 83 6* 83 7* 83 9† 83 9* 83 9* 84 1*			
84 1* 84 1* 84 3* 84 4* 84 4* 84 6 84 7* 85*			
85 3* 85 4* 85 4* 85 6* 85 8* 86* 86* 86 1*			
86 3* 87 4* 88 1*			
Cornell University Medical College	(1931)		88 3
Baylor University College of Medicine	(1929)		82 7†

This applicant has completed his medical course and will receive his M D degree on completion of internship. License withheld

† License withheld

Book Notices

Surgical Anatomy By Grant Massie M B M S F R C S Assistant Surgeon (City Hospital) Second edition Cloth Price \$6 1p 458 with 147 illustrations Philadelphia Lea & Febiger 1933

In order to help in the remembrance of anatomic facts, the author has correlated them with their clinical application. The old nomenclature is retained but the new is included. He considers the various regions of the body, taking up their characteristic anatomic points along with their application or importance. These regions are well described and include the female and male pelvis. The newer material includes injuries of the carpus, infections of the hand, the surgical approach to some long bones, and the autonomic nervous system. The section on the sympathetic nervous system is preeminently clear and concise with a correlation of the anatomic facts to their surgical application. The illustrations, while not particularly numerous for this type of work, are unusually well chosen. Their value in many instances is increased by the artist through overemphasis on certain parts. This work throughout shows the original teachings of the author and the result of mature experience. For use by the advanced student or the practitioner it may be considered an excellent textbook on surgical anatomy.

Die Differentialdiagnose der Baucherkrankungen Eine neuartige Darstellung auf Grund der konstitutionellen Sensibilitätsunterschiede der klinischen und Röntgenuntersuchung. Von Dr med A Voegell. Paper Price 22 75 marks Pp 320 with 185 illustrations Stuttgart/Lipzig Hippokrates Verlag G m b H 1933

Not only perfection of various specialties but also a correlation and coordination of them are essential for real progress in medicine. A proper synthesis of observations is a condition sine qua non for a correct diagnosis. Such considerations induced the author to form a link between the internist or surgeon on the one side and the roentgenologist on the other by offering the differential diagnosis of abdominal conditions from the clinical and radiologic points of view. One is impressed with the compact, simple and understandable presentation of the subject. The author outlines proper procedures to be employed in routine examination. The first few chapters are devoted to a careful analysis of pain and functional disturbances, such as nausea vomiting, hematemesis diarrhea, constipation, occult bleeding, meteorism and jaundice. Then follows a consideration of the history of the patient with special attention to hereditary factors, also a concise description of simple chemical laboratory methods. The physical examination is outlined rather superficially and briefly. The greatest part of the book is devoted to roentgenologic observations and their correct interpretation. As the book is designed primarily for the general practitioner only a short space is allotted to description of the technic, while roentgenographic observations in various diseases of the gastro-intestinal tract are described in a comprehensive yet thorough manner. The book is full of useful diagnostic points and illustrated with a large number of well reproduced roentgenograms. It can be highly recommended to every physician who wishes to familiarize himself with the roentgenologic aspect of abdominal conditions.

Investigations into the Oscillatory Method for Determination of Systolic Blood Pressure Its Principles and Some Errors Involved in Its Use By A Eldahl Paper Pp 168 with 75 illustrations Copenhagen Levin & Munksgaard 1933

This scholarly monograph is a clear and logical exposition of the fascinating study of the various oscillatory methods now employed in the determination of the systolic arterial tension. All the known advantages and disadvantages of the various methods are thoroughly discussed and carefully controlled experimental evidence is presented to justify any and all conclusions. The author has covered this field most comprehensively and is conservative in his conclusions, nowhere does his obvious enthusiasm lead him astray from logical thought. A number of important conclusions are demonstrated and confirmed. Among the observations of greatest clinical interest are the following: 1 The indirectly measured liquid pressures measured by means of cuff and manometer are equal to the

maximum pressure existing in the vascular section concerned when the vessel is occluded. 2 The thickness of the muscular layer on the extremity is without significance to the determination. 3 The normal brachial artery has a compressing pressure of about 10 mm of mercury and thus the indirectly determined blood pressure is approximately 10 mm higher than that found on direct determination. 4 The compressing pressure of sclerosed arteries has never been found to exceed 20 mm of mercury and therefore errors due to stiffening of the arterial walls are almost negligible. The author points out that there are really two systolic pressures to be considered: one occurring when the vessel is occluded (as in ordinary sphygmomanometry), or the end pressure and one existing when the flow of blood passes unobstructed through the vessel, or the lateral pressure against the arterial walls. Clinically the former is usually determined, while the latter is physiologically more correct. The difference between the two, however, is not significant. Unfortunately the oscillatory method of determination of the arterial tension is far more satisfactory for the measurement of the systolic than of the diastolic tension. The importance and vital significance of the diastolic tension is thus greatly underemphasized in oscillatory studies. From the point of view of the pathologic physiology of disturbed arterial tension, study of the diastolic tension is of the utmost importance. The author's exposition is clear and concise. The typography and graphs are excellent.

An Introduction to Dermatology. By Richard L. Sutton, M.D., Sc.D., I.D., Professor of Diseases of the Skin, University of Kansas School of Medicine, and Richard L. Sutton, Jr., M.D., L.R.C.P., Assistant in Dermatology, University of Kansas School of Medicine. Second edition. Cloth. Price \$7. 1p 566 with 180 illustrations. St. Louis: C. V. Mosby Company, 1933.

A second edition appearing within a few months after the first should be sufficient evidence that the authors have been successful in gaging the need of a short and concise textbook in their chosen field. The purpose of this book has been to simplify dermatology for the student and practitioner by omission of much of the theoretical and controversial material that clogs the larger books. References have been omitted but all the more important specialists who have contributed to the picture of present-day dermatology will be pleased to find their names mentioned in this volume and credit given for their work. The material is of course chiefly a condensation of the senior Dr. Sutton's popular textbook, but enough skill and judgment have been used in the selection of the material to give the impress of an original work. The authors are to be congratulated on the result.

Les gaz toxiques. Physiologie, toxicologie, protection, thérapeutique. Par L. Dautrebande, professeur à la Faculté de médecine de l'Université de Liège. Paper. Price 60 francs. 1p 371 with 125 illustrations. Paris: Masson & Cie, 1933.

This engaging publication devoted to toxic gases is not entirely limited to true gases but includes comment on such substances as mercury, antimony and phosphorus, which may give rise to vapors simulating gases. The best portion is found in the 124 pages devoted to the physiology and the pathophysiology of respiration. Among others, sections are devoted to fatigue, cyanosis, the role of the carotid sinus, reflex action of irritants in relation to respiration, and Cheyne-Stokes breathing as produced by various internal and external factors. The second general division, in which individual toxic substances are described, omits many intoxicants that might well have been included. For example, the large number of volatile solvents many of which are toxic are covered in approximately one page. To this extent the value of the book may be diminished for industrial physicians in the United States confronted with problems of toxicity in connection with a far greater variety of gases and vapors than are covered in this publication. On the other hand, chapters devoted to treatment are especially helpful as similar publications in the United States have provided only meager discussions of this aspect of toxic gases. The field of usefulness of the book is widespread. Primarily of value to the industrial hygienist and industrial physician it proffers helpfulness to the general hospital staff, the pharmacologist, the physiologist and the general practitioner in industrial communities. The contents are too technical to make the

book usable by the layman interested in industrial hazards. Something would have been gained if an index had been included instead of the table of contents, which is found at the end. This book is destined to become a much used volume of reference by workers engaged in studies of intoxicants entering the body through the portal of the respiratory tract.

Atlas of Pathological Anatomy. Volume I. Compiled by E. K. Martin, M.S., J.R.C.S. Issued Under the Direction of the Editorial Committee of the British Journal of Surgery. Supplement to the British Journal of Surgery. Cloth. Price \$17. 1p 489 with illustrations. Baltimore: Williams Wood & Company, 1930.

This volume comprises the drawings published as a supplement to the *British Journal of Surgery* during the five years 1926 to 1930. The material for the atlas has been selected from the Hunterian Museum to illustrate not only the more common varieties of morbid conditions but also as far as possible the natural history of disease and the correlation of physical signs with their pathologic causes. For this reason the arrangement is chiefly clinical. Whenever possible, drawings were made from specimens removed by operation. A certain disadvantage of this principle lies in incompleteness of the resulting picture of the disease. The editors intend to continue the publication of the atlas until it includes all subjects that can profitably be illustrated by drawings of museum specimens, without attempting a reproduction of rarities and curiosities of surgical practice. The book consists of chapters devoted to bone tumors, lesions of the stomach and duodenum, breast tumors, renal conditions including neoplasms, and gall bladder diseases. Each chapter consists of a concise review of the most common lesions, followed by marvelous photographic reproductions and superb colored plates, accompanied by short histories. No illustration, however good, can take the place of the actual inspection of specimens, but the study of beautiful illustrations as presented in this volume will both stimulate and assist in such examinations. In recent years it has been the custom to rely so much on a report from a skilled histologist that the information to be gained by a naked eye inspection at the time of an operation has often been completely neglected. A publication such as this atlas should arouse in the medical fraternity a renewed interest in morbid anatomy.

Les traumatismes fermés du rachis. Par G. Michel, professeur de clinique chirurgicale. M. Mutel, professeur agrégé et R. Rousseau, chirurgien des hôpitaux à la Faculté de médecine de Nancy. Paper. Price 50 francs. Pp 330 with 83 illustrations. Paris: Masson & Cie, 1933.

Knowledge of injury to the vertebrae has changed remarkably during the last few years. Roentgenographic examination is one of the important methods employed. It is remarkable how frequently fractures of the vertebrae have been overlooked in the past. The authors discuss the anatomy and physiology of the vertebrae individually and collectively. They discuss the mechanics of the spine and the movements, describe the examination of the wounded, and discuss complications of injury to the spinal cord. They consider also fractures and dislocations of the cervical vertebrae, fractures of the thoracic and lumbar vertebrae and dislocations. There is an interesting chapter on traumatic spondylolisthesis. Fractures of various portions of the individual vertebra are described, then traumatic lesions of the intervertebral disks and finally medicolegal considerations, including camptocormia. Many of the illustrations are highly instructive.

Fisiopatología del metabolismo basal. Por Dr. Francisco Gnecco Mozo. Prólogo del Dr. Gregorio Marañón. Paper. Price 15 pesetas. Pp 164 with 20 illustrations. Madrid: Pueyo, 1933.

With the exception of the work by Castex this is the only volume of its kind in the Spanish language. It is divided into three parts. The first is concerned with methods and apparatus used for metabolism determinations. The second discusses the physiologic variations encountered in metabolism. The third deals with metabolism in certain pathologic conditions: disorders of the thyroid gland, certain types of obesity, severe diabetes mellitus, rheumatism, nephritis and respiratory infections particularly tuberculosis. An exceptionally well prepared bibliography and the author's personal observations not only make this monograph interesting reading but confirm the scientific principles underlying metabolism.

Medicolegal

Workmen's Compensation Acts Cerebral Hemorrhage an Accidental Injury Arising in the Course of Employment—The employee, while engaged in the performance of his duties in carrying on quarrying operations for the defendant company, suffered a cerebral hemorrhage, which resulted in partial paralysis. The trial court sustained an order of the compensation commission disallowing compensation and the employee appealed to the Court of Appeals of Maryland. On the morning of July 1, an intensely hot and stuffy day, the employee in the course of his work descended several times into the quarry and arranged mud caps on charges of dynamite to be exploded. After his last trip he said that he felt hot, sat down for a while and fanned himself then started toward the car, where he usually went. Shortly thereafter he was found lying on the ground. He was taken to the office of a physician and from there to his home. Nine or ten days later he was examined by two physicians, who diagnosed his injury as cerebral hemorrhage. Another physician who saw him on the day of the accident after he had been taken home, testified that the employee was partially paralyzed and unconscious. Later the employee was removed to a hospital. A hole was made in the left temporal region of his skull, a needle introduced into the skull, and the blood which had collected there partially drained. As a result of that operation and subsequent operations, the condition of the employee slowly improved. One physician attributed the injury suffered by the employee to the effect of the extreme "temperature conditions" under which he was working on one suffering from high blood pressure. He characterized the conditions as abnormal and the day as one of the "hottest he had ever experienced." Another physician attributed the injury to the extreme heat and to the inhalation of gases released by dynamite explosions. There was testimony that the employee's high blood pressure alone would not have produced the injury had he not been subjected to the extreme temperature conditions under which he worked. While, said the Court of Appeals according to the opinions of the physicians, heat was a contributing cause of the injury, the injury was not classified by them as heat prostration, heat stroke or sun stroke but as a hemiplegic cerebral hemorrhage. The word "accident," in its ordinary and usual implication is associated with ideas of trauma and involves to a degree at least elements of force, violence and surprise. But in workmen's compensation laws its meaning has been expanded to include any mischance resulting in physical injury to the bodily tissues produced by some unusual and extraordinary condition or happening in the employment. It has been interpreted to include such untoward occurrences as the rupture of an aneurysm pulmonary and cerebral hemorrhages, hernia, infection and heart dilatation arising out of some unusual or extraordinary condition in the employment, even where the injury was due in part to preexisting disease or physical abnormality in the employee. The word "accident" or "accidental" is usually considered in connection with the phrase "arising out of," and where it seems clear that the injury arose out of the employment, the tendency of the courts has been to give the word "accidental" a liberal construction in harmony with the general intent of the act so as to find the injury compensable. As a result of that policy, such injury as cerebral hemorrhage when occasioned by some unusual and extraordinary condition in the employment is by the great weight of authority held to be accidental in its nature. The conditions under which the employee worked were peculiar to the employment and not such as affected the public generally in that neighborhood. When those facts are considered in connection with the medical testimony, they furnish legally sufficient evidence to permit the inference that the employee's injury was caused by unusual and extraordinary conditions in the employment that it was accidental in its nature, and that it arose out of and in the course of the employment. The judgment of the trial court therefore, affirming the order of the industrial commission disallowing compensation was reversed and the case remanded for a new trial.—*Schemmel v T B Gatch & Sons Contracting & Bldg Co (Md)* 166 4 39

Workmen's Compensation Act Abdominal Tumor Attributed to Trauma—The employee, while using a "breast auger" in boring holes incident to coal mining, experienced a pain in his abdomen, July 22 or 23, 1931. He testified "I was putting my weight, pushing against my abdomen and something stung me like a pin stuck in there." He worked two days thereafter but was then forced to quit. He consulted the company physician early in August, 1931, who discovered a tumor mass near the umbilicus and sent the employee to a hospital. There he was operated on and the tumor removed. The industrial commissioner refused to award compensation and the employee appealed to the Supreme Court of Appeals of West Virginia. The company physician testified that when he examined the employee in August, 1931, he found a "tumor mass of the abdomen," but there was no outside evidence of any injury, and he doubted whether the disability was the result of the injury complained of. The operating physician testified that the muscles of the abdomen had evidently been traumatized by using the auger to such an extent that the employee had developed a "tumor mass" of the abdominal muscles. He testified that a pathologic analysis of the tumor disclosed a "low grade of infection of the fascia and abdominal muscles due to trauma," and in his opinion there was no question but that the tumor was caused by the trauma. There was nothing in the record said the Supreme Court of Appeals, to contradict affirmatively the clear and definite statements of the operating physician. The evidence, therefore, in the opinion of the court established the fact that the employee's disability was a result of an injury received by him in the course of his employment. The case was remanded for an award to be made in compliance with the workmen's compensation act.—*Epperson v State Compensation Comr (W Va)*, 169 S E 168

Insurance Death "from Illness or Disease of Any Kind"—The appellee was the beneficiary of a life insurance policy issued by the appellant company on the life of her husband. The policy contained a double indemnity benefit clause, which was not to apply if the insured's death resulted from physical or mental infirmity or directly or indirectly from illness or disease of any kind. An automobile, which the insured was driving, ran into a ditch. The insured was found in an unconscious condition. Stimulants were given and artificial respiration attempted by two physicians but the insured died about two hours later without having regained consciousness. An autopsy disclosed that the insured had arteriosclerosis and enlargement of the heart. Experts for the beneficiary testified that in their opinion the death of the insured had resulted from concussion of the brain caused by blows on the head. Experts for the insurance company on the other hand, testified that the death of the insured had been caused by a heart attack due to the failure of the coronary artery to supply sufficient blood to the left ventricle. The trial court gave judgment for the beneficiary and the insurance company appealed to the United States circuit court of appeals, tenth circuit. Where the matter under inquiry is one on which a witness possesses expert knowledge which will be of aid to the jury in reaching a correct solution of the issues and is therefore properly the subject of expert testimony it is no objection, said the circuit court of appeals, that the opinion elicited from the expert is on an issue or point to be decided by the jury. A medical expert, after stating the facts, or assuming the facts on which his opinion is founded in case the question is hypothetical may give his opinion as to the cause of death. The district court did not err, therefore, in admitting the testimony of the experts for the beneficiary as to the cause of death.

The district court instructed the jury that if they found that the insured experienced an attack at the time of his injury which was new or unusual with him, arising from some sudden or unexpected derangement of the system, though it produced unconsciousness, it would not be a disease or bodily infirmity within the meaning of the insurance policy and would not exempt the insurance company from liability in this action. This instruction said the circuit court of appeals, excludes from the term disease or bodily infirmity a physical condition that was either sudden or unexpected, and which manifested itself in an attack which was either new or unusual. Diseases

of the heart are frequently insidious. Many persons die from a disease of the heart without being cognizant of such infirmity. In such cases the condition is unknown and unexpected and the attack is new, yet, continued the court, it is clearly an existing physical infirmity or disease. The instruction in effect told the jury that, even though they should find that the insured had suffered a heart attack at the time of the accident, if he had not theretofore been subject to such attacks and was not aware of the condition of his coronary artery and heart then such condition would not be a bodily infirmity or disease within the meaning of the policy. The evidence showed that the insured had a serious ailment of the coronary artery and heart. Under the facts, such ailment may have rendered the insured unconscious and caused him to drive off the road and strike his head on some portion of the automobile. If such were the facts, the heart ailment was a contributing cause to his death, although the primary cause may have been concussion of the brain. Under the facts, the blows on the head may have been insufficient to have caused his death and the insured may have died from a heart attack. If such were the facts the heart ailment was the primary cause of death. The testimony showed that the insured had not theretofore suffered a heart attack and was unaware of the condition of his heart and coronary artery. Such being the facts the instruction excluded those conditions which were clearly diseases or bodily infirmities, both as a contributing cause and as a primary cause of the insured's death. The instruction was therefore erroneous and prejudicial. The judgment of the district court in favor of the beneficiary was reversed and the case remanded for a new trial.—*New York Life Ins. Co. v. Doerksen* 64 Fed. (2d) 240

Silicosis Liability of Employer in West Virginia—In the course of his employment an employee contracted silicosis and died. His widow instituted a common law suit against the employer for the alleged wrongful death of her husband. The trial court overruled a demurrer to the declaration, interposed by the employer, who appealed to the Supreme Court of Appeals of West Virginia.

The gravamen of the employer's defense was that the workmen's compensation act of West Virginia relieves subscribing employers from liability to respond in damages for the injury or death of an employee, however occurring, regardless of whether or not there is involved a compensable injury. To justify this contention, the employer referred to section 2516 of the workmen's compensation act, which reads in part

Any employer subject to this chapter who shall elect to pay into the workmen's compensation fund the premiums provided by this chapter shall not be liable to respond in damages at common law or by statute for the injury or death of any employee however occurring.

Under the workmen's compensation act, said the court an employer is liable to employees for "personal injuries" or death sustained in the course of and resulting from employment. If the injury is due to a disease, that injury is compensable only if the disease is attributable to an exposure or injury at a definite time. In the present case, the court continued, the disease is attributable, not to exposure or injury at a definite time, but to exposure extending through a long course of employment. It constitutes an occupational disease for which no compensation is provided by the act. That being so, the question to be determined is: Does the exempting clause of the workmen's compensation act, above quoted, exempt an employer who is protected by the act from liability for an injury to an employee arising from disease contracted in the course of employment through negligence of the employer though the injury be not compensable under the act? At common law, said the court, an employer is liable in damages for the employee's traumatic injury and for disease contracted by the employee, where the injury or disease is caused by negligence of the employer. No liability attaches for occupational disease not produced by negligence. By the workmen's compensation act, compensation is provided for an employee who suffers a traumatic injury and where he suffers disease attributable to a specific and definite mishap. This burden is borne by industry as a whole and is met by the premiums paid by the employers. In return, the employers are relieved from

the burden of common law actions in such matters. The only element of common law liability which remains is predicated on disease occasioned to employees by the negligence of employers. Not only would constrained construction of the statutory exemption of liability result in precluding employees from maintaining damage actions for disease suffered on account of negligence of employers said the court, but immunity of employers from such liability would tend to foster negligence of a kind likely to produce disease. It must not be held that such right of action is taken from employees unless the statutory language is clear and concise and not subject to any other reasonable construction. It is difficult, continued the court, to perceive a satisfactory and reasonable basis for exemption of employers from liability for disease caused by their negligence, such disease being not compensable under the workmen's compensation act. Furthermore, under the workmen's compensation acts of most of the states, employers are not exempt from liability for damages in noncompensable cases. Thus to construe the exempting clause in the West Virginia act as not exempting employers from liability for damages in noncompensable cases would place such employers on the same footing as employers in the other states, and such construction would involve no special nor exceptional hardship. The phraseology of the exempting clause, continued the court, lends itself to the construction that the legislature intended not to exempt employers from liability for noncompensable disease caused by the negligence of the employer or from death resulting from such disease. This clause, the court pointed out, relieves an employer from liability for "injury or death" of an employee, provided "the injured employee" has remained in the employer's service with notice that the employer was a subscriber to the workmen's compensation fund. Note the language "injury or death" and "injured employee," said the court. The legislature in making provision in the act for injury to workmen was giving primary consideration to injuries other than disease. The phrase "injury or death" and "injured employee" as used in the exempting clause must therefore be taken to mean an employee who had been hurt, or sustained injury by reason of a trauma. It is from liability for such a traumatic injury that the clause under discussion exempts an employer. The contention of the employer, therefore, was in the opinion of the Supreme Court of Appeals untenable and the action of the trial court in overruling the employer's demurrer was affirmed.—*Jones & Rinehart and Dennis Co. (H. L. A.)* 168 S. E. 482

Privileged Communications No Inference to Be Drawn from Failure of Patient to Waive Privilege—Section 1536, Code of Mississippi, 1930, declares that all communications made to a physician by a patient are privileged and that only a patient may waive this privilege. No inference may be drawn said the Supreme Court of Mississippi, unfavorable to a patient because he fails to waive this privilege. If this were permitted, the statutory privilege accorded the patient would be nullified. In *Pennsylvania R. Co. v. Durkee* (C. C. A.) 147 F. 99 8 Ann. Cas. 790, the court said "To hold that, because the patient does not waive or abandon the prohibition inferences adverse to his side of the controversy may be drawn by the jury would be to fritter away the protection it was intended to afford. When it is the legal right of a party not to have some specific piece of testimony marshaled against him he may exercise that right without making it the subject of comment for the jury."—*Hobson & McLeod (Miss.)*, 147 So. 778

Society Proceedings

COMING MEETINGS

American Orthopsychiatric Association Chicago Feb. 22-24. Dr. George S. Stevenson, 450 Seventh Avenue, New York, Secretary.
Annual Congress on Medical Education and Licensure Chicago February 12-13. Dr. W. D. Cutter, 535 North Dearborn Street, Chicago, Secretary.
Tri-States Medical Association of the Carolinas and Virginia Charlottesville, Va. Feb. 12-14. Dr. James M. Northington, 804 Professional Building, Charlotte, N. C., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

46 705 940 (Oct) 1933

- *Treatment of Respiratory Failure in Acute Epidemic Poliomyelitis. M. B. Brahm and M. L. Lennarsky. New York.—p. 705.
- Some Reflex Changes in Poliomyelitis. J. A. Foomey. Cleveland.—p. 730.
- Practical Application of Some Lessons of Self Selection of Diet Study to the Feeding of Children in Hospitals. Clara M. Davis. Chicago.—p. 743.
- Diet of Tuberculous and Nontuberculous Children. Effect of Increased Supply of Vitamin B Concentrate and Minerals. P. D. Crimm, I. J. Raphael and Louise F. Schmitt. Evansville, Ind.—p. 751.
- Vegetable Feeding in the Young Infant. Influence on Gastrointestinal Motility and Mineral Retention. I. W. Schlutz, Minerva Morse and Helen Oldham. Chicago.—p. 757.
- Rickets and Hyperparathyroidism. B. Hamilton and C. Schwartz. Chicago.—p. 775.
- Effect of Lactose on Rickets in Rats. Certitude Sunderlin. Lafayette, Ind.—p. 786.
- Sensitive Test for Subclinical Scurvy in Man. G. Dalldorf. Valhalla, N. Y.—p. 794.
- Hemangio-Endothelioma of the Liver in Infancy. Case Report and Review of the Literature. R. H. Kunststadter. Chicago.—p. 803.

Treatment of Respiratory Failure in Acute Poliomyelitis.—Brahm and Lennarsky state that the timely administration of sedatives and parenteral injections of fluid, laxatives or other medication in respiratory embarrassment in epidemic poliomyelitis will avoid interference with the artificial respiration. Every effort should be made to prevent a rise in the temperature of the air inside the respirator. The paralyzed skeletal muscles should receive immediate attention. In some instances, removal of the patient from the respirator is not a simple matter. The simplest method is to lower the pressure gradually and to permit the motor to run. The patient then breathes of his own accord inside the chamber. Until the apparatus the technique of treatment or both are improved the authors do not advise the treatment of patients with slight or moderate respiratory distress in the respirator. Repeated small doses of sedatives and continued reassurances will make such patients comfortable and enable them to rest. Their twelve patients with bulbar lesions apparently associated with involvement of the vital centers all died. Among the patients with only spinal lesions, twelve died in the respirator and four within six weeks after treatment. One subsequent death five months after treatment was due to pneumonia. Another death which occurred seven months after the patient's discharge, was due to pneumothorax and pneumonia. After seven months twelve of the authors' thirty-four patients with spinal lesions are alive. This does not compare favorably with the results in cases of spinal lesions reported by Wilson. He advised that the respirator be used early, long before the appearance of cyanosis before there is evidence of marked dyspnea and at the first evidence of the existence of any paralysis of the respiratory muscles. The only other series of cases reported is that by Shaw and his associates. They treated ten patients with paralysis of the diaphragm and intercostal muscles with three deaths. Five other patients with bulbar lesions all died. The authors point out that the Drinker respirator is a notable advance in the treatment of respiratory failure in poliomyelitis.

Effect of Vitamin B Diet on Tuberculous Children.—Crimm and his associates divided forty tuberculous and non-tuberculous children of approximately normal weight ranging in age from 3 to 17 years into four groups which were designated as the control mineral mixture, vitamin B and special cereal groups. The daily administration of a special cereal

mixture composed of 53 per cent of farina, 18 per cent of oatmeal, 10 per cent of cornmeal, 15 per cent of wheat germ, 2 per cent of bonemeal, 1 per cent of dried brewers' yeast and 1 per cent of alfalfa leaf meal, which supplied in liberal amounts calcium, phosphorus, iron, copper and vitamins A, B, C and G in the diet of the group fed this mixture, was accompanied by an increase in weight and in hemoglobin over the controls. The serum calcium rose to the highest concentration in the group fed the special cereal. The serum calcium and phosphorus rose to higher concentrations in the groups fed the mineral mixture, the vitamin B complex concentrate and the special cereal than in the control group. The data suggest that the vitamin B content of the special cereal was largely responsible for the increased gain in weight. The mineral content of the special cereal was apparently responsible for the increase in hemoglobin. The addition of vitamin B concentrate or of minerals to a regular diet does not seem to be as satisfactory as the feeding of a combination of the two in the form of a special cereal which contains in addition vitamins A and C.

Sensitive Test for Subclinical Scurvy in Man.—The studies of Dalldorf indicate that the capillary resistance test as estimated by Hecht's method, may be used as a criterion of subclinical scurvy. Changes in values in an individual case or differences in average values for groups are of diagnostic significance. In a group of children from poor homes the incidence of subclinical scurvy, as estimated by this method, was found to be between 35 and 66 per cent.

American Journal of Surgery, New York

22 1180 (Oct) 1933

- Diseases of the Vulva. A. Stein. New York.—p. 1.
- Value of Roentgen Ray in Gynecology (Eighth Communication). Additional Studies of Cornual Sphincter, Physiologic Contraction and Relaxation of Uterine Components and Special Use of Small Quantities of Opaque Mediums. J. Jarcho. New York.—p. 13.
- Uterine Cancer and Its Treatment by Radium. A. P. Leighton, Jr., Portland, Maine.—p. 36.
- Management of Uterine Hemorrhages. L. O. Baumgardner, Cleveland.—p. 42.
- Cholecystectomy and Cholecystostomy in Acute Suppurative and Gangrenous Cholecystitis. G. H. Pratt. Philadelphia.—p. 46.
- Bladder Disease. One Thousand End Results. R. S. Fowler. Brooklyn.—p. 53.
- The Gallbladder. Surgical Opinion. V. G. Burden. Philadelphia.—p. 60.
- Carcinoma of the Colon. F. H. Lahey. Boston.—p. 64.
- Unusual Condition Simulating Acute Appendicitis. Vincent's Angina. E. R. Easton. New York.—p. 74.
- *Roentgenologic Visualization of Peripheral Nerves. Neurography in Vivo. M. Saito, K. Kamizawa and S. Kato, Nagoya, Japan.—p. 78.
- Coramine in Denarcotization and Resuscitation. Preliminary Report. P. M. Wood. New York.—p. 86.
- Treatment of Purpura Hemorrhagica. Report of Twenty Two Cases. E. R. Marzullo. Brooklyn.—p. 92.
- Lymphogranulomatosis Venerea. W. E. Coutts, J. Martini, Herrera and F. Landa, Perroni. Santiago, Chile.—p. 96.
- Choice of Procedure in Cases of Prostatic Obstruction. N. P. Rathbun. Brooklyn.—p. 106.
- *Spontaneous Perforation of Bladder Secondary to Osteomyelitis of Pelvis. A. B. Hepler and C. F. Fikenbury. Seattle.—p. 113.
- Anomalies of Lumbosacral Spine. E. LeCocq. Tacoma, Wash.—p. 118.
- Preparation of Dextrose and Saline Solutions and Apparatus for Intravenous and Subcutaneous Use. S. A. Thompson. New York.—p. 127.

Visualization of Peripheral Nerves.—Saito and his associates visualized roentgenologically the peripheral nerves in nine patients by means of injection of the emulsion of iodized poppy-seed oil into the intraneural or interneural sphere and it was ascertained that no unfavorable symptoms followed during and after the injection (pain, fever, neuralgia or paralysis). By intraneural injection the emulsion will diffuse toward the center of the part while in the case of interneural injection it will diffuse toward the periphery. In the case of intraneural injection the resorption of the injected emulsion will take much longer than in the case of interneural injection. By these methods the authors were successful not only in neurography but in epidural and extradural myelography when the emulsion was injected through the sacral hiatus. They believe that by the foregoing methods some particular diseases of the nerves such as neuritis, the amputation of nerves, neurinoma and spinal tumor, can be examined.

Coramine in Denarcotization and Resuscitation.—Wood administered 2 cc. of a 25 per cent solution of pyridine beta-carbamic acid (coramine), immediately on return to bed and

according to special indications, to eighty-two patients in whom tribrom-ethanol was used as the basal anesthetic. From his observations in these cases he concludes that 1 The 25 per cent solution of pyridine betacarboxic acid is a definite stimulant to respiration and circulation depressed by tribrom ethanol, solution of procaine (novol) or surgical shock. 2 The toxicity of the 25 per cent solution is low, and large repeated doses may be employed if the necessity exists. The author illustrates this in one of his cases, in which 28 cc was given during a period of sixteen hours with apparently excellent results. Further, in this series there was no depression after the immediate stimulation. 3 The use of the solution is suggested in all cases in which early recovery from anesthesia, especially the tribrom ethanol-ether sequence, is desired.

Spontaneous Perforation of the Bladder—Hepler and Eikenberry report two cases of spontaneous perforation by sequestrums with the formation of osteovesical fistulas and displacement of the bladder secondary to osteomyelitis of the pelvis in which attention was called to the complication by persistent pyuria, and two cases without perforation in which there were no urinary symptoms. In all four cases the marked displacement of the bladder was due to the intrapelvic intrusion of an enormous involucrum. The authors feel that the complication is fairly frequent from the fact that it was present in each of the four cases of osteomyelitis of the pelvis that they have had the opportunity to examine. The absence of signs and symptoms referable to the urinary tract accounts for the failure to consider this possible urinary complication. Even in the two cases with perforation there were no subjective symptoms, and examination was undertaken because of persistent pyuria. The clinical significance of the condition lies in the possibility of perforation of the bladder, which occurred in two cases and which might be assumed to be impending in the others in which the engendering factors were the same. This should be an additional reason for early and thorough drainage of all suppurative processes of the hip joint or the pelvic bones. The operation for osteovesical fistula is at times difficult because of the firm adhesions of the contiguous portion of the bladder to the involucrum and the infiltration about the fistula offering danger of laceration. Healing is rapid and the operative results are good. Once corrected the condition does not tend to recur provided adequate drainage of the osteomyelitis is established.

American Journal of Syphilis, St. Louis

17 449 606 (Oct.) 1933

- Report on Instruction Regarding Syphilis in American Medical Schools. M. J. Exner. New York—p. 449
- Reinfection in Syphilis. Case with Unusually Complete History. A. B. Cannon. New York—p. 459
- Congenital Syphilis. Advantage of Early Treatment as Judged by the Wassermann Test. L. Chargin and M. Umansky. New York—p. 468
- *Meaning and Reliability of Umbilical Cord Wassermann Tests. J. Roby and P. A. Lembcke. Rochester, N. Y.—p. 473
- Congenital Syphilis from Blood Transfusion to Mother During Pregnancy. G. R. Williamson and R. A. Strong. New Orleans—p. 484
- Third Generation Syphilis. W. M. Sams. Ann Arbor, Mich.—p. 492
- Syphilitic Origin of Elephantiasis of the Vulva. J. T. Witherspoon. New Orleans—p. 499
- Fixed Dermatitis Due to Tryparsamide. H. M. Robinson. Baltimore—p. 507
- *Agranulocytosis with Associated Skin Lesions Following Arsenobenzene Therapy. Report of Case. E. K. Stratton. San Francisco—p. 510
- Cellular Pathology of Experimental Syphilis as Studied by Supravital Method. R. S. Cunningham, H. J. Morgan, Edna H. Tompkins and S. Harris, Jr. Nashville, Tenn.—p. 515
- Effect of Trypan Blue on Experimental Syphilis in the Rabbit. H. J. Morgan, S. Harris, Jr., E. H. Tompkins and R. S. Cunningham. Nashville, Tenn.—p. 522
- Cultivation of Spirochaeta Pallida in Living Tissue Mediums. Clara C. Kist and J. A. Kolmer. Philadelphia—p. 529
- One Successful Cultivation of Spirochaeta Pallida from Syphilitic Chancre of Rabbit. Clara C. Kist and J. A. Kolmer. Philadelphia—p. 533
- Comparison of Sigma Kahn and Hinton Tests. D. L. Belding and Julia G. Arrowood. Boston—p. 539
- *Comparative Study of Muller's Conglobation Reaction in Syphilis with Wassermann Reaction and Another Precipitin Test. I. Chang. Shanghai, China—p. 550

Umbilical Cord Wassermann Tests—Roby and Lembcke believe that umbilical cord Wassermann reactions reflect almost exactly the condition of the mother's blood at the time of labor. If the mother's blood is negative the cord blood will be negative.

If positive, the cord blood will be equally positive. The substance causing the Wassermann reaction passes out of the child's blood in most cases by the end of two months' time leaving the child's blood frankly negative, provided the child actually does not have syphilis. If the child actually has syphilis, the Wassermann reaction, after a number of days and weeks, will remain as strongly positive as it was in the cord blood. The decreasing Wassermann reaction means that the child does not have syphilis and that treatment should be withheld. If treatment is instituted on these new-born children with positive cord blood not too much credit should be given to the drug used. The authors are in accord with Dunham concerning the Wassermann reactions and also with Denham, White, Brahmachari and Marty that the drug (sulpharsphenamine) may be regarded as one of the most innocuous at present in use, its lack of toxicity being most marked in comparison with its high efficacy.

Agranulocytosis Following Neoarsphenamine Therapy—Stratton reports a case of granulocytopenia with ulcerations of the skin following neoarsphenamine therapy. There was a rapid recovery under injections of pentnucleotide and sodium thiosulphate by mouth. Arsenic medication (using a pentavalent instead of the trivalent compound) was resumed in thirty days without further reaction on the bone marrow. The author recommends that more frequent blood counts be made on patients undergoing antisyphilitic treatment especially those reacting in any manner to arsenic therapy.

Muller's Conglobation Reaction in Syphilis—Chang states that Muller's conglobation reaction is technically simple, is easy to read, and agrees in its results in 96 per cent of cases with the Wassermann reaction and the Kahn test. It is more sensitive than the Wassermann reaction and the Kahn test, but nonspecific reactions occasionally occur. Muller's conglobation reaction would be a good auxiliary to the Wassermann reaction. A negative Muller conglobation reaction would have more value in excluding syphilis than the Wassermann reaction or the Kahn test and a positive Muller conglobation reaction means presumably syphilis but clinical evidence must not be neglected to establish the final diagnosis.

American Review of Tuberculosis, New York

28 411 536 (Oct.) 1933

- *Surgical Treatment of Tuberculous Cavities. K. Fischel. Duarte, Calif.—p. 411
- Ruptured Lung During Induction of Artificial Pneumothorax. A. A. Kuran. Wallum Lake, R. I.—p. 429
- New Artificial Pneumothorax Technique. R. A. Perlstein and W. F. Leslie. Honolulu, Hawaii—p. 437
- Oleothorax Apparatus. M. H. Joross. Boston—p. 442
- Artificial Larynx in Treatment of Tuberculous Laryngitis. J. Head. Chicago—p. 445
- Eradication of Chronic Tuberculous Middle Ear and Mastoid Disease in Tuberculosis Patient. I. Muskat. Indianapolis—p. 447
- Antituberculosis Millinery. S. J. Maher. New Haven, Conn.—p. 453
- Critique of Atelectasis in Pulmonary Tuberculosis. G. E. Ehrenburg. Sparks, Colo.—p. 457
- Development of Pulmonary Silicotic Nodule in Experimental Animal. W. S. Lemon and G. M. Higgins. Rochester, Minn.—p. 470
- Treatment of Acute Forms of Pulmonary Tuberculosis. C. C. Ornstein and D. Ulmar. New York—p. 484
- Tuberculosis Among Pupils of a Canadian School for Indians. L. G. Montgomery. Ninette, Manit. Canada—p. 502
- Examination of the School Child for Tuberculosis in the Rural Community. D. R. Hastings. Minneapolis—p. 516
- Dispensary Examination Versus School Examination in Discovering Tuberculosis in Children. E. Bridge and A. M. Stokes. Rochester, N. Y.—p. 522
- *Technic and Apparatus for Intrapleural Pneumolysis. J. W. Cutler. Philadelphia—p. 528

Surgical Treatment of Tuberculous Cavities—Fischel states that the peripheral cavity presents a strict indication for immediate collapse. By the early use of pneumothorax, in infiltrations that do not retrogress in a short time the formation of cavities and of adhesions may be prevented. The suspended cavity should be recognized and the distention of the cavity by adhesions and pneumothorax should be avoided. Phrenicectomy is applicable for the obliteration of cavities if and as soon as compression by pneumothorax proves unsuccessful. It can be used to great advantage in conjunction with incomplete pneumothorax or partial or total thoracoplasty. In

advanced pulmonary tuberculosis, phrenicectomy has a good hemostatic effect and is apt to improve laryngeal and intestinal tuberculosis. After partial upper thoracoplasty the closure of cavities takes place by concentric retraction. A thoracoplastic operation cannot be standardized as to its extent. No untoward effects were observed if the first stage was done on the upper ribs. Good results can be obtained by a partial upper thoracoplasty. If the cavities are collapsed first normal portions of the lung can be preserved and it may not be necessary to perform a total thoracoplasty.

Technic and Apparatus for Intrapleural Pneumolysis—Cutler describes a technic for the closed single cannula method of cutting intrapleural adhesions, based on modifications of the methods and apparatus in common use in which adhesions are accurately located by roentgenograms and fluoroscopy and the topography of the lung is outlined in mercuriochrome on the surface of the chest before the introduction of any instrument. Immediately before the operation the lung is further collapsed and the adhesions stretched by inflating with air. The pneumothorax needle is introduced at the point of entrance previously decided on for the cannula. The adhesion to be severed is selected and studied minutely by means of a diagnostic thoracoscope which brings a considerable area of the cavity of the chest into view. By means of an extension attached to the diagnostic thoracoscope a hooded lamp can be introduced to transilluminate the large blood vessels and extensions of tissue of the lung that may be included within the adhesion. Coagulation and cutting is an automatic and continuous process carried out under the direct control and vision of the thoracic surgeon by means of an operating forceps thoracoscope. By using suitable currents from a vacuum tube high frequency type of generator the adhesion is severed by diathermy. The coagulated area acts as an effective seal for the stump. Broad adhesions that are too bulky to be grasped within the elongated jaws of the thoracoscope can be severed by an operating electrotome. All the instruments employed fit interchangeably into one cannula and only one puncture of the wall of the chest is required.

Archives of Internal Medicine, Chicago

52 497 648 (Oct.) 1933

- Primary Carcinoma of the Lung with Especial Reference to Incidence Early Diagnosis and Treatment A J Hruby and H C Sweany Chicago—p 497
- Diffuse Ulceration of Esophagus and Trachea Associated with Diabetes Mellitus Absence of Arteriosclerosis P P Vinson and R M Wilder Rochester Minn—p 541
- Human Capillaries in Health and in Disease I S Wright and A W Durfee New York—p 545
- Monosodium Thyroxine Desiccated Thyroid and an Impure Sodium Salt of Thyroxine Comparison of Their Effects When Administered Orally with Effect of Thyroxine Injected Intravenously in an Alkaline Solution W O Thompson Phoebe K Thompson and Lois T A Dickie Chicago—p 576
- Benign Familial Polycythemia A Spodaro and C E Forkner Boston—p 593
- Temperature of Gastrointestinal Tract Effect Thereon of Hot and Cold Foods and of Physical Therapeutic Agents J S Hepburn H M Eberhard R Ricketts and C L W Rieger Philadelphia—p 603
- Changes in Gastric Acidity in Peptic Ulcer Cholecystitis and Other Diseases Analyzed with the Help of a New and Accurate Technic Frances R Vanzant W C Alvarez J Berkson and G B Eusterman Rochester Minn—p 616
- Nitrogen and Sulphur Metabolism in Bright's Disease IV Retention of Urea in the Nephrosis Syndrome G P Grabheld Boston—p 637
- Urea Clearance Test in Pregnancy A Cantow and G Riechman Philadelphia—p 637

Unusual Complications of Diabetes Mellitus—Vinson and Wilder report two cases of diabetes because of the discovery of unusual and so far as they know previously unrecognized complications—diffuse ulceration of the esophagus in the absence of any obstructive lesion and a similar ulceration of the trachea. The possibility of an etiologic relationship in the accompanying metabolic abnormality is considered. The first of these cases is also of interest because arteriosclerosis other than a few patches and streaks of fatty deposits in the intima that would be expected in any man of the patient's age could not be found at death. Weichselbaum and other investigators have suggested that arteriosclerosis may be the cause of diabetes in many cases

in which the two conditions are found accompanying each other, and not as is usually assumed the result of diabetes. This case adds strength to such a view. The diabetes was severe it persisted with ineffectual efforts at control for six years periods of severe acidosis occurred frequently. Under these circumstances the lipids of the blood must have been abnormally high most of the time, yet arteriosclerosis did not develop to a degree that can be considered abnormal.

Administration of Thyroxine—In six patients with myxedema whose basal metabolism varied from minus 18 per cent to minus 41 per cent during the period of myxedema, Thompson and his associates found it necessary to administer from 0.4 to 1.46 mg of the monosodium salt of thyroxine daily by mouth in order to hold the basal metabolism at the normal level. In the two patients in whom a comparison of the daily maintenance dose was made it was noted that the effect of the monosodium salt by mouth was only from one fourth to one fifth as great as that of thyroxine given intravenously in alkaline solution. Pure synthetic thyroxine had much less effect by mouth than its monosodium salt. Thyroxine for oral use had an effect greater than that of the monosodium salt and less than that of thyroxine given intravenously in alkaline solution. Thus in four patients whose basal metabolism varied from minus 31 per cent to minus 41 per cent during the period of myxedema it was necessary to administer from 0.46 to 0.73 mg daily of this product in order to hold the basal metabolism at the normal level. The effect of this substance was from two to two and a half times as great as that of the monosodium salt by mouth while in the two patients in whom the comparison was made it was only about one half as great as the effect of thyroxine given intravenously in an alkaline solution. The effects of desiccated thyroid by mouth and thyroxine intravenously or subcutaneously were the same on the basis of equivalent iodine contents. In the digestion of desiccated thyroid peptides and polypeptides of thyroxine are formed which have a wide range of solubility. The solubility of thyroxine compounds appears to be a factor in their absorption from the gastro-intestinal tract and hence in their effect on the basal metabolism.

Changes in Gastric Acidity in Peptic Ulcer—The studies of Vanzant and her associates show an increase of approximately 12 units of free acidity in the case of duodenal ulcer an increase which varied with the size of the ulcer, with the number of ulcers found at operation and with the severity of the symptoms produced. Less than 1 per cent of the patients with duodenal ulcer failed to show free acid after an Ewald test meal. In fifty cases studied the gastric acidity of patients having duodenal ulcer who after gastroenterostomy returned with jejunal ulcer was not higher than that of patients similarly operated on who after two or more years are still free from symptoms of jejunal ulcer. In 174 men having gastrojejunal ulcer the mean free acidity was lower than normal by about 4 units. The incidence of true achlorhydria was 71 per cent of normal. In the case of gastric ulcer the mean free acidity was lower than normal by about 6 units. This lowering was more marked in the cases of ulcers situated in the proximal two thirds of the stomach. The incidence of achlorhydria was half of that observed in normal persons. Practically no change from normal was found in the mean free acidity of patients having cholecystitis and cholelithiasis. No change from normal could be found in the gastric acidity of patients who had submitted to cholecystectomy. In patients who suffered from disease of the gallbladder and ulcer of the duodenum, the acidity was slightly higher than in patients presenting uncomplicated duodenal ulcer. There was no significant deviation from normal in the mean gastric acidity of patients suffering from allergic manifestations migraine psychoneurosis and chronic nervous exhaustion. Among the men presenting a psychoneurosis the incidence of achlorhydria was increased about 50 per cent and among those having migraine it was decreased about 50 per cent. In both groups the incidence of achlorhydria among women was normal. In the absence of marked organic obstruction at the pylorus it was noted that with duodenal ulcer and gastrojejunal ulcer there was a slight increase in the amount of gastric juice removed, there was also a slight increase in the presence of gastric ulcers situated in the distal two thirds of the stomach.

Archives of Pathology, Chicago

16 453 610 (Oct.) 1933

- Cerebral Arteries in Relation to Arteriosclerosis C R Tutill Buffalo —p 453
- Pneumonia Due to Friedländer's Bacillus C F Olcott New York —p 471
- Rhabdomyoma of the Uterus W C Hardin, II and F D Hankin Los Angeles —p 480
- Budding Forms (Conidia) in Cultures of *Sporotrichum Schenckii* F D Weidman Philadelphia —p 487
- Subcutaneous Mixed Tumor (Sarcoma and Lipoma) of the Left Thigh E T Hirsch Chicago —p 494
- Neumotosis of Vermiform Appendix K Hosoi New Orleans —p 500
- Lymphocytes in Peripheral Blood of Rabbits Following Injection of Foreign Substances J F Zeckwer, K C Bartlett, C A Schwarz and R M Shapiro Philadelphia —p 510

Pneumonia Due to Friedländer's Bacillus—Olcott reports five cases of pneumonia in which the blood at necropsy contained Friedländer's bacilli and a case in which positive cultures were obtained from the lung post mortem. The course was acute in all the cases in which death occurred in from two to ten days after the onset of acute symptoms. The patients were men between 38 and 55 years of age. Three had a definite history of alcoholism and three a history of chronic infections of the upper respiratory tract. In four the blood counts gave less than 7000 leukocytes and in one of these less than 2000 with 24 per cent large mononuclears. In four there was pneumonia of lobar distribution in one pneumonia of the lobular type, and in one lobar distribution in one lobe and lobular in another. In five a typically mucous appearance was seen on cross section. The pulmonary alveolar walls were more or less injured in all. Sections of four of the lungs showed enormous numbers of bacilli in the pulmonary alveoli while fewer bacilli were found in the other two. Large mononuclear cells in great numbers were the predominating intra-alveolar cell in these four cases with polymorphonuclears in lesser numbers. The proportions were reversed in the other two cases. The mononuclear cells are believed to be monocytes.

Archives of Surgery, Chicago

27 629 816 (Oct.) 1933

- Chronic Subdural Hematoma Etiology and Treatment J I Keek in Omaha —p 629
- Osteochondritis of the Head of the Femur Experimental Study J I Miltner and C H Hu Peiping China —p 645
- Periarterial Sympathectomy in Fractures Experimental Study R Colp, H Kneibach and S Mage New York —p 658
- Treatment of Pulsating Nephthidoma Report of Two Cases W J Hamby and W T Gardner Cleveland —p 676
- Surgical Aspects of Renal Agenesis with Special Reference to Hypoplastic Kidney, Renal Aplasia and Congenital Absence of One Kidney K Gutierrez New York —p 686
- Sweat Gland Tumor K Speed Chicago —p 736
- Influence of Hypertonic Salt Solutions on Motility of Normal and of Obstructed Intestine Experimental Study A Ochsner, J M Crue and R A Cutting New Orleans —p 742
- Perineal Prostatectomy Presentation of the Wildbolz Technique H Sugar Los Angeles —p 771
- Circular Suture of Blood Vessels Experimental Study H I Thurston and E B Lamb Indianapolis —p 786
- Staining of Cartilage Gross Staining by Intra Articular Injection of Dyes in Animals M S Burman and C J Sutor New York —p 801
- Fifty First Report of Progress in Orthopedic Surgery I G Kuhns, E F Cave, S M Robert and T S Farrington, T A Freiberg Cincinnati, J E Milgram New York, R J Stirling, Edinburgh Scotland and P D Wilson Boston —p 807

Sympathectomy in Fractures—Colp and his associates confirm the experimental work of others that periarterial sympathectomy has a physiologic basis for clinical application in the repair of fractures. Radiopaque visualization of the arterial tree of the lower extremity on which a femoral arterial sympathectomy was performed at Scarpa's triangle revealed an increasing vascularity in all experiments. This persisted throughout the longest period of observation (ten weeks). Callus was first detected on the sympathectomized extremities in five dogs three times on the control extremities and in one instance it was doubtful. Firm bony union was evidenced sooner on the sympathectomized side in all animals surviving a sufficient period of observation. Complete bony union as determined by obliteration of the fracture line occurred only on the sympathectomized extremity and was never noted on the control side during the period of observation.

Circular Suture of Blood Vessels—Thurston and Lamb used the original Carrel technic with the following modification. To form the posterior point of the triangle they placed two traction sutures through the edges of the vessel and closely together in the back wall. The ends of one were brought out to the right and the ends of the other to the left of the vessel. The collateral circulation is better preserved, as the artery need not be freed from its collateral vessels for so great a distance. The ends of the artery are apposed by tying the retaining stitches. An end of one of the posterior retention sutures is threaded into a number 16 straight needle and a side of the triangle is sutured. The last stitch of the line the lock stitch taken 1 mm from the traction suture prevents the line of suture from loosening or from being drawn too taut by subsequent pulling. When the second posterior traction suture is reached, the continuous suture is tied to one of its ends. The suture line is then carefully inspected, accessory sutures are taken if needed and the flow of the blood is reestablished. The distal type is removed first, and the proximal as quickly as possible. A thin strip of muscle held closely to the suture line as suggested by Bird, hastens clotting in the needle holes. When the bleeding stops the ends of the tunica adventitia are brought over the suture line by interrupted stitches the sheath of the vessel is closed and the edges of the peritoneum are apposed. From their experiments the authors conclude that surgical trauma and retardation or distortion of the blood current are the chief contributing factors to the thrombosis that occurs when blood vessels are sutured. Infection plays a minor part as a cause of blood clotting at the line of suture. Careful asepsis is essential to preclude breaking down of the line of suture. An obstructing thrombus when it occurs usually forms within a few hours after vascular repair. It is secondary usually to platelets deposited before the full flow of blood is reestablished. The increase in blood platelets does not reach its maximum until a few days after operation usually too late to influence thrombosis in the segment of repair. Solution of heparin fulfills the requirements of a satisfactory anticoagulant in suture of the blood vessels.

Colorado Medicine, Denver

70 365 400 (Oct.) 1933

- Incidental Address C B Webb Colorado Spring —p 340
- Nonfatal Unshot Injuries of Skull with Intracranial Retention of Projectile J A Schmidt Denver —p 37
- Unanimity of Pregnancy Menstrual and Iron Cycle T M Burn Denver —p 381
- Transfusion of Blood in Tuberculosis Report of Fifty Cases C A Bunsen Denver —p 52
- Ichthyosum Oleaceum and Scleroma Agent for Varicella Veni J I Terkin Denver —p 87

Transfusion of Blood in Tuberculosis—Bunsen states that small blood transfusions of from 15 to 20 cc have seemed of real value in hemoptysis. He has had four patients who stopped bleeding immediately, one shortly after transfusion and one in two weeks. Three of these have had no hemorrhage since but one had hemoptysis one year afterward. Chills and fever of varying degree were observed after the transfusion in thirty seven patients but seemed to have no deterrent effect on the subsequent progress of the cases. The author suggests that the contraindications to the use of the transfusion of blood in tuberculosis include pulmonary edema, advanced nephritis and myocarditis but in the complicating factor of nephritis which is not of long duration small transfusions of blood may be of decided value. The possibility of there being a distinctive value in the blood of a cured tuberculous patient has been considered and a record of a Pirquet reaction of donors would be of interest in this connection.

Florida Medical Association Journal, Jacksonville

20 139 186 (Oct.) 1933

- Placenta Praevia H J Pear on Miami —p 147
- Cerebral Injury of the New Born J H Fellows Pensacola —p 150
- Management of Acute Spinal Cord Injury F C Lively Richmond Va —p 153
- Diverticulitis and Carcinoma of the Colon F K Boland Atlanta Ga —p 157
- Primary Carcinoma of Gallbladder Tubes Report of Case T S Helms Jr Tampa —p 160
- Arthritis in Industry T M Rivers Kissimmee —p 16
- Possible Causative Mechanism of Bacterial Endocarditis J S Crable Tampa —p 166

Indiana State Medical Assn Journal, Indianapolis

26 503 544 (Oct 1) 1933

- The Work of the Indiana State Medical Association J H Weinstein Terre Haute—p 503
Rocky Mountain Spotted Fever Case Report T Z Ball Crawfordsville—p 508
Traffic Fracture of the Elbow M C Topping Terre Haute—p 509
Recognition of the Hyperthyroid State R D Bayles and R A Flick Lafayette—p 511
Medical Care of the Indigent in Indiana A W Evans Terre Haute—p 515
Indications for Surgery in Gallbladder Diseases M N Hadley Indianapolis—p 517
Hodgkin's Disease R F McIndoo Kokomo—p 520

Journal of Bacteriology, Baltimore

26 331 430 (Oct) 1933

- Application of Statistics to Problems in Bacteriology II Consideration of Accuracy of Dilution Data Obtained by Using a Single Dilution H O Halvorson and N R Ziegler Minneapolis—p 331
Gaseous Metabolism of *Lactobacillus Pentoceticus* with Reference to Several Representative Members of *Lactobacillus* Group C A Hunt New Haven Conn—p 341
Differentiation Between Gram Positive and Gram Negative Microorganisms by Use of Enzymes D W Bruner Ithaca N Y—p 361
Development and Control of Microorganisms in a Pulp and Paper Mill System J R Sanborn Glens Falls N Y—p 373
Use of Shredded Asbestos in Methane Fermentations C R Breden and A M Buswell Urbana Ill—p 379
Photo-Electric Nephelometer for Estimating the Population Density of Microorganisms O W Richards and T L Jahn New Haven Conn—p 385
Propionic Acid Bacteria II Classification C H Werkman and R W Brown Ames Iowa—p 393
Modified Eijkman Medium C A Perry and A A Hajna Baltimore—p 419

Journal of Infectious Diseases, Chicago

53 145 286 (Sept Oct) 1933

- Poliomyelitis IV Further Studies on Immunization of Sheep to Virus of Poliomyelitis with Comparison of Neutralization Tests Using the Old and Recent Strain of Virus Beatrice F Howitt San Francisco—p 145
*Relation of Allergy to General Resistance in Streptococcal Infection B J Clawson Minneapolis—p 157
Urinary Compound of Albumin Bence-Jones Protein Pseudoglobulin and an Unknown Antigen W H Welker and I Hektoen Chicago—p 165
Filterable Virus Carriers C S Gibbs Amherst Mass—p 169
Two Avian Tubercle Bacillus Dissociants and Two Human Tubercle Bacillus Strains of Different Virulence Chemical and Biologic Study Florence B Seibert E R Fong and Nelle Morley Philadelphia—p 175
New Type of Ball Mill for Maceration of Tissues and Bacteria Under Aseptic Conditions A P Krueger Berkeley Calif—p 185
Meningitis with Meningeal Involvement I W Smith and M E Sano New York—p 187
Bacteriophage of *Bacillus Pertussis* I W Sauer and I Hambrecht Evanston Ill—p 197
Micromotion Pictures of the Growth of *Mycobacterium Phlei* R W C Wyckoff and K C Smithburn New York—p 201
Kahn Reaction with Serum of Different Animals T J Porro Tacoma Wash—p 210
Gonococcal Meningitis M M Strumia and J J Kohlbas Philadelphia—p 212
Heterophilic Antibodies in Serum Disease Third Report I Davidsohn Chicago—p 219
Brucella Abortus Infection in Guinea Pigs Prevention and Treatment with Immune Serum R Gwatkin Toronto—p 230
Method for Preparation of Bacterial Antigens A P Krueger Berkeley Calif—p 237
Biliary Antiseptics R Ottenberg New York—p 239
Effect of Feeding of *Salmonella* Organisms to Rats on Balanced and on Unbalanced Diets Elizabeth Verder Elizabeth Downing and Hazel Wiggers Wilco Chicago—p 245
Phenylmercuric Nitrate K E Birkhaug Rochester N Y—p 250
*Is Salmonella Food Poisoning Caused by Living Bacilli or by Thermally Stable Toxic Products? Elizabeth Verder and C Sutton Chicago—p 262
Endemic Paratyphoid Infection in Turkey L F Rettger New Haven Conn W V Plastridge Storrs Conn and Ruth Cameron New Haven Conn—p 272
Relation of Spiral Organisms to Rough Colony of *Bacterium Fusiformis* Ruth Tunnick Chicago—p 280

Relation of Allergy to Resistance—Clawson studied experimentally, the relation of allergy to resistance. Rabbits were made hypersensitive (allergic) to streptococci. Another series was made highly resistant to streptococci without the allergic state developing. It was found that organisms were not removed from the blood stream as rapidly in fifteen minutes in the allergic animals as in the normal animals. This suggested some harmful factor associated with the phenomenon of allergy. After two hours, however a greater number of streptococci

per gram of liver were killed in the allergic animals than in the normal animals. This difference was but slight. Organisms in the blood stream and in the liver were killed at a much greater rate in the animals that were made resistant without allergy developing than they were in either the normal or the allergic animals. The observations suggest that the allergic state is not necessary in the development of a general protective resistance to streptococci. It even seems that allergy may be harmful from the standpoint of its effect on the phagocytic cells. Probably it should not be said that allergy in general is a harmful concomitant phenomenon associated with resistance, for from the standpoint of the repair of tissues, allergy might be looked on as being useful, since the growth of connective tissue is stimulated. It seems that allergy bears no useful relation to general resistance in streptococcal infection as indicated by phagocytosis and that at times there may be a harmful relation.

Salmonella Food Poisoning—According to the experiments of Verder and Sutton, heated and filtered cultures of enteritidis strains produced no symptoms of food poisoning when fed to human volunteers or to monkeys—except in the case of one volunteer who took a culture that had been heated insufficiently to kill the contained organisms. His severe illness though entirely accidental, provides weighty evidence in favor of living bacilli, rather than thermostable toxic products being the cause of *Salmonella* food poisoning. In both man and monkeys the first sign of illness was the development of diarrhea. Cultures of the diarrheal stools were practically pure cultures of the swallowed organisms, indicating that *Salmonella* enteritidis had supplanted the normal fecal flora. The smaller the number of organisms swallowed, the longer is the period of incubation. The symptoms produced by eating cultures of *Salmonella* are not unlike those that follow the ingestion of staphylococcus toxin except that in the cases of *Salmonella* food poisoning the period of incubation is longer, the onset more gradual and the illness more prolonged. These points of difference might be explained by a gradual accumulation and gradual decrease of absorbable toxic substances in the intestine following ingestion of cultures of *Salmonella*. With a return of the normal fecal flora the prostration disappears. While in the present experiments the recently isolated strain (A 5, isolated in May, 1930, five months before the work with monkeys began) was more potent than strain 716 (isolated in 1929) the potency of strain 614 (isolated in 1928 and taken by mistake) indicates that strains maintained on artificial mediums for some time may under certain conditions be as toxic or virulent as recently isolated strains.

Journal of Nervous and Mental Disease, New York

78 333 452 (Oct) 1933

- Mental Aspects of Brain Tumors in Psychotic Patients Study of Twenty Six Verified Cases C R Jameson and G W Henry White Plains N Y—p 333
Trypanamide in the Treatment of Neurosyphilis H H Reese Madison Wis—p 354
*Progressive Bulbar Paralysis Its Pathology and Relation to Amyotrophic Lateral Sclerosis M Helfand, Vienna Austria—p 362
Study of Developmental Craniocerebral Topography as Determined by Orthoscopic Method W T Peyton Minneapolis—p 381

Progressive Bulbar Paralysis—Helfand believes that progressive bulbar paralysis is a syndrome of other disease entities, mostly of amyotrophic lateral sclerosis. A pathologic process may exist in cells without giving its clinical equivalent. The process is not confined to motor cells or definite motor tracts. It is due to a constellation of causative factors and is most likely precipitated by an exogenous toxin which influences neural as well as mesodermic tissue. Of the author's four cases three presented unmistakable amyotrophic lateral sclerosis really amyotrophic bulbar paralysis, and only one of the four presented what might be called a true progressive bulbar paralysis for this case alone was unaccompanied by a degeneration of the pyramidal tract.

Maine Medical Journal, Portland

24 183 208 (Oct) 1933

- Renal Pathology Clinical and Pathologic Correlation J Gottlieb and O Tibbets Lewiston—p 187
Relation of Recreational Activities to Mental Health F F Iesle Northampton Mass—p 192

Minnesota Medicine, St Paul

16 609 660 (Oct) 1933

- Clinical Classification of Chronic Suppurative Diseases of the Middle Ear W B Stark Rochester—p 609
Conservative Treatment of Otitis Media C M Anderson Rochester—p 610
Indications for Surgical Interference in Case of Chronic Suppurative Otitis Media with Mastoiditis H I Illie Rochester—p 613
Operative Procedure in Chronic Suppurative Otitis Media with Mastoiditis B E Hempstead Rochester—p 615
The Achlorhydric Anemias F J Hirschboeck Duluth—p 617
Diagnostic Significance of Pupillary Changes A E Smith Minneapolis—p 623
Infectious Erythema Report of Ten Cases Observed During Epidemic of Measles in North St Paul Minn E W Cowern North St Paul—p 628
Septicemia Following Operation Report of Two Cases Selma C Mueller and J C Masson Rochester—p 631

Ohio State Medical Journal, Columbus

29 601 672 (Oct 1) 1933

- Glance at Our Balance Sheet Annual Address of the Retiring President H M Platter Columbus—p 621
Educational Functions of the State Medical Association Inaugural Address of the Incoming President C L Cummer Cleveland—p 625
Observations in Ulcerative Colitis with Illustrative Cases V C Rowland Cleveland—p 629
Cosinophilus 75 Per Cent A Cowan Cleveland—p 633

Public Health Reports, Washington, D C

18 1219 1250 (Oct 6) 1933

- Estimation of Fluorides in Waters L Flrove—p 1219

18 1251 1276 (Oct 13) 1933

- Sickness and Economic Depression Preliminary Report on Illness in Families of Wage Earners in Birmingham Detroit and Pittsburgh G St J Perrott S D Collins and L Sydenstricker—p 1251

Southwestern Medicine, Phoenix, Ariz

17 287 320 (Sept) 1933

- Some Observations on Cesarean Section J Vance El Paso Texas—p 287
Cancer of the Breast General Discussion J W Cathcart El Paso Texas—p 291
Etiology of Eczema B Shelmure Dallas Texas—p 297
Spinal Fluid J D Hamer Phoenix Ariz—p 307
Pain in Lumbar Region and Jaundice (Diagnostic Discussions) R Flinn R J Stroud and P Dysart Phoenix Ariz—p 310

17 321 358 (Oct) 1933

- Surgical Treatment of Arthritic Joints E D McBride Oklahoma City—p 321
Neurasthenia S D Swope El Paso Texas—p 323
Cooperative Plan for First Aid in Automobile Accidents (Fractures) C E Yount Prescott Ariz—p 328
*Encephalitis Complicating Measles Treatment with Convalescent Serum Intraspinal Case Report B P Storts Jr Tucson Ariz—p 330

Encephalitis Treated with Convalescent Measles Serum—Storts reports a case of encephalitis complicating measles in a boy of 7 in whom convalescent serum was used. Chloral hydrate and sodium bromide rectally and codeine hypodermically were given to control the convulsions. Coma prevailed and six hours later the rectal temperature was 107 F, the pulse 140 and the respirations 50. A hypodermoclysis of physiologic solution of sodium chloride and continuous intravenous injection of a 10 per cent solution of dextrose were given. Insulin was given with the dextrose. The next day the neck was stiff and opisthotonos was marked. The rectal temperature fluctuated from 101.4 to 108 F, the pulse rate to 130 and the respirations to 40. There were moist rales in the left side of the chest. The patient was still unconscious, but the convulsions were controlled. The spinal fluid was slightly opalescent. A second spinal puncture was done and 20 cc of fluid was withdrawn and 8 cc of recent convalescent serum was given intraspinaly. The serum was obtained from a patient two weeks convalescent from measles. The boy regained consciousness during the night of the third day of the illness, though he was still stuporous. The rectal temperature fluctuated from 100 to 103.4 F during the day. The opisthotonos was still marked. The spinal fluid cell count was 90. Again 20 cc of fluid was removed and 6 cc of convalescent serum was given intraspinaly. From here on the course was favorable. The patient was fed by gavage for three days more. The cervical rigidity and opisthotonos persisted for another ten days.

Tennessee State Medical Assn Journal, Nashville

26 369 416 (Sept) 1933

- Considerations of Surgical Treatment of Goiter Based on One Thousand Operations W D Haggard and C R Crutchfield Nashville—p 369
Surgical Treatment of Pulmonary Tuberculosis H Acuff Knoxville—p 381
*Use of Sodium Amytal in the Treatment of Eclampsia M S Lewis Nashville—p 392
Infections of Floor of Mouth or Ludwig's Angina G H Berryhill Jackson—p 397
*Nonsurgical Treatment of Carbuncles T R Ray Shelbyville—p 403

Sodium Amytal in Treatment of Eclampsia—After studying a series of forty-five cases, Lewis states that from 7½ to 15 grains (0.5 to 1 Gm) of sodium amytal given intravenously and repeated at necessary intervals will absolutely control the convulsions of eclampsia. Sodium amytal permits one to treat the patient intelligently without recurrence of the convulsions. Immediate delivery in eclampsia by radical operative procedures is unnecessary in both the mild and severe types. Rupturing the membranes seems to be the procedure of choice in inducing labor. Labor, as a rule, is allowed to terminate spontaneously. Inhalation anesthesia, other than gas oxygen should be discouraged. Cesarean section under local anesthesia is indicated in a few cases that do not respond to adequate medical treatment within six to twelve hours. Favorable or unfavorable results suggest that each case must be individualized.

Nonsurgical Treatment of Carbuncles—Ray, treating carbuncles, inserts in the center of the indurated dome a small caliber needle held in a 2 cc glass luer syringe filled with liquid phenol. The needle is carried into the central portion of the mass almost to the margin of induration turned at an angle of 45 degrees and the injection of from 2 to 5 minims (0.125 to 0.3 cc) of the fluid is made. The needle is then withdrawn but not through the skin, and three similar injections are made corresponding to the dial of the clock at 9, 12, 3 and 6. If there is considerable breaking down of the tissue this sequence cannot be followed but the areas that require treatment are injected. The injection must be made beyond the columns that are breaking down, just in the margin surrounding the inflammatory zone. The patient will experience a sharp pain at the time of injection but by the time a dressing is applied it will have subsided. The author treated 100 patients by this method without severe reactions and secured good results. The patients seen early require only one treatment and are well in from ten to fourteen days.

United States Naval Med Bulletin, Washington, D C

31 347-474 (Oct) 1933

- Compression Fracture of the Spine F V Sunderland—p 347
Cardiospasm Report of Case T C Anderson and J L Enjart—p 353
Atabrine in Treatment of Malaria Report of Fifty Three Cases T L Morrow and W G Wicand—p 359
Leprosy in the Philippines M E Higgins—p 363

Western J Surg, Obst & Gynecology, Portland, Ore

41 547 604 (Oct) 1933

- Recent Observations on Metabolism of Pregnant Woman L A Emge San Francisco—p 547
Role of the Outpatient Obstetric Dispensary with the Organization and Methods of the Los Angeles Maternity Service L G McNeile Los Angeles—p 554
Occiput Posterior Position Review of Seven Hundred and Sixty Six Cases T F Bell Oakland Calif—p 563
Some Experimental Studies of Anhydrous Cocaine U S P N Cocaine and Procaine with Reference to Their Use in Spinal Anesthesia E H Barendrick and R S Dow McMinnville Ore—p 574
Studies in Prevention of Goiter W Weston Columbia S C—p 582

Wisconsin Medical Journal, Madison

32 665 728 (Oct) 1933

- Occult Syphilis A Neglected Factor in Diagnosis and Treatment U J Wile Ann Arbor Mich—p 673
Cholecystitis Conclusions Based on Study of Five Hundred Operations A S Jackson Madison—p 678
Diaphragmatic Hernia Symptoms and Diagnosis of Traumatic Type Report of Case R W Blumenthal Milwaukee—p 685
Injuries to Heart and Aorta L M Warfield Milwaukee—p 688
Early Orthopedic Treatment of Infantile Paralysis W P Blount Milwaukee—p 693
Ectopic Viscerum Associated with Placenta Praevia Centralis Case Report E Haback Milwaukee—p 697

Yale Journal of Biology and Medicine, New Haven

6 188 (Oct) 1933

- Dr William Berumont, a Sketch W R Steiner Hartford Conn—p 1
- William Beaumont's Letter to His New Haven Bookseller Hezekiah Howe with a Bibliographic Description of the Editions of Beaumont's Book Charlotte H Peters and J T Linton, New Haven Conn—p 9
- Medulloblastoma of Cerebellum Report of Fifteen Cases B S Brody and W J German New Haven Conn—p 19
- *Treatment of Respiratory Failure in Poliomyelitis P Harper and R Tennant New Haven Conn—p 31
- Theories on Nutrition of Plants from Aristotle to Liebig Caroline C Sherman New Haven Conn—p 43
- Sensitivity to Light in a Case of Hysterical Blindness Studied by Reinforcement Inhibition and Conditioning Methods L H Cohen E R Hilgard and G R Wendt New Haven Conn—p 61
- *Unusual Localization of Tuberculous Lesions Report of Two Cases B Halpert and J L Wilson New Haven Conn—p 69

Treatment of Respiratory Failure in Poliomyelitis—Harper and Tennant present the results of respirator treatment in twenty-four cases of respiratory paralysis occurring during the acute stage of poliomyelitis with clinical, pathologic and bacteriologic data. The respirator was of unquestionable value in the treatment of patients whose respiratory embarrassment was due to paralysis of the intercostal muscles and diaphragm without significant bulbar involvement. It was of little or no value in the care of patients whose difficulty was bulbar in origin and may even have been harmful in some instances. In the unfavorable instances the machine overpowered the choking and coughing reflexes and in some patients even caused forcible insucking through the larynx of secretions from the throat. It hindered those other measures which were effective against aspiration, i. e., a position of hyperextension and postural drainage, suction of secretions from the pharynx, the administration of fluids by parenteral routes and nursing care. The authors' observation of ruptured alveoli and emphysema in their eight necropsies, and focal hemorrhagic pneumonema in seven of these, supports the clinical evidence that the use of the respirator is not harmless. It is not without significance that the only patients with severe bulbar injury to recover were two boys who were not put in the respirators. It is true that their respiratory difficulty was due solely to injury to the muscles of the throat and the larynx without detectable damage to the diaphragm, intercostal muscles or respiratory center. Even so they were not unlike some of the bulbar patients who succumbed, and at the height of their illness these boys were in greater respiratory distress when first put into the respirator than were some of the patients who died. The authors do not concur with the opinion of Wilson that the respirator should be used as a last resort in the pure bulbar types that have not responded to other therapy. It will be difficult to refuse the use of the respirator to these patients especially since temporary improvement is usual. Nevertheless the authors have seen no lasting improvement in such cases from this form of therapy, which, they believe, makes the ultimate prognosis poorer except in unusual instances.

Unusual Localization of Tuberculous Lesions—Halpert and Wilson report two cases in which the unusual localization of tuberculous lesions caused errors in diagnosis that were not rectified until microscopic studies were made of the tissues removed at operation. Had the possibility of such localization been borne in mind, the diagnosis of tuberculosis could probably have been made preoperatively in both cases. In one case microscopic preparations showed tuberculous ulceration with little caseation, giant cells and proliferative changes in the wall of the intestine. In a me-enteric lymph node removed simultaneously numerous typical tubercles were seen with predominating proliferative changes. There were a few areas suggestive of amyloid change. A newly prepared longitudinal section of the distal half of the appendix showed an occasional milky tubercle in the serosa. In the other case microscopic preparations showed tuberculous ulceration of the skin with typical granulation tissue and numerous giant cells. In the lymph node numerous solitary and conglomerate fibrocaseous tubercles were seen and some overgrowth of the germinal centers of the follicles.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

8 291 366 (Oct) 1933

- Studies in Anemias of Infancy and Early Childhood Part VIII Leukemia (Leukosis) in Children R Gittins—p 291
- Incidence of Congenital Hypertrophic Pyloric Stenosis in the Seventeenth and Eighteenth Centuries C E Kellett—p 323
- *Circumscribed Cerebral Tumors in Young Infants Dorothy S Russell and R W B Ellis—p 329
- Amphoplasia Congenita with Pathologic Report Case Dorothy Stopford Price—p 343
- Metabolism of Healing in Celiac Rickets F J Ford—p 355

Circumscribed Cerebral Tumors in Infants—Russell and Ellis report three cases of intracranial tumors in young infants. The cases show that progressive expansion of the skull in a young infant may in rare instances be caused by a large circumscribed tumor of the cerebrum. Such a tumor may be a glioma or a sarcoma; teratomas may also occur in a similar situation and produce similar results. The macroscopic features of such tumors suggest that early recognition of the condition followed by radical surgical treatment might be of benefit to the patient. The readiness with which the expansile skull of the infant compensates for raised intracranial pressure may result in the condition being far advanced before the patient comes under medical observation and the impossibility of making a neurologic examination in infants increases the difficulty of reaching an accurate diagnosis. In general the clinical history tends to be of short duration and deterioration is rapid after the infant first comes under observation. The tumor in one case, that of a still-born infant, was a glioma, a polar spongioblastoma.

British Journal of Anaesthesia, Manchester

11 140 (Oct) 1933

- Spinal Anesthesia Heavy Solution or Light? G F Hill—p 3
- Variations in Pulse Rate and Blood Pressure During Basal Anesthesia with Description of Special Case A P Gorham—p 12
- Death Under Anesthesia G Brown—p 16
- Observations on Avertin Narcosis K E Madan—p 20

British Journal of Experimental Pathology, London

14 297 366 (Oct) 1933

- Fujinami Myosarcoma in Ducks Resistance to Reinfection W J Purdy—p 297
- Specific Agglutination of Bacteriophage Particles F M Burnet—p 302
- Detoxication of Snake Venoms and Application of Resulting Antigens to Rapid Methods of Antivenomous Vaccination and Serum Production E Grasset and A Zoutendyk—p 308
- Inactivation of Insulin by Normal and Diabetic Blood P T Black—p 316
- Titration of Antipneumococcus Serum (Type I) in Mice W T J Morgan and G F Petrie—p 323
- Estimation of Urea by Urease Methods in Fluoride Blood C F M Rose—p 339
- Tryptophan and Growth of Bacteria P Fildes and B C J G Knight—p 343
- *Influence of Histamine and Pilocarpine on Human Gastric Secretion A P L Blakely and J F Wilkinson—p 349
- Observations on Absorption of Calcium in Normal Animals N B Taylor C B Weld and J F Sykes—p 355

Influence of Histamine and Pilocarpine on Gastric Secretion—Blakely and Wilkinson observed that the subcutaneous injection of pilocarpine nitrate (6 mg) was quickly followed by abundant secretion into the stomach of a clear opalescent fluid similar in appearance and usually nearly equal in volume to that produced by histamine (0.25 mg). The average ten minute volume excluding cases presenting achlorhydria was 24.8 cc with pilocarpine, as compared with 23.5 cc after histamine. The greatest ten minute volume was 84 cc in the case of histamine and 65 cc in the case of pilocarpine. In the majority of cases a maximal volume was reached within twenty minutes of the stimulus, whether by histamine or by pilocarpine after which the secretion gradually returned to its original level. A second and equal dose of histamine had an almost identical effect to the first with a tendency for a maximum to be reached a little more quickly. The response to pilocarpine was likewise fairly constant in any one case.

with an average value slightly greater after the second than after the first dose. Histamine and pilocarpine together produced a greater response than histamine alone, the average increase being about 50 per cent. In cases of pernicious anemia histamine had no effect and an almost negligible effect in the remaining cases of achlorhydria. Pilocarpine on the other hand produced a definite response in the majority of the former and in all the latter; in some cases the resultant volume was considerable.

British Journal of Ophthalmology, London

17 577-640 (Oct.) 1933

Ocular Conditions in Diabetes Mellitus W. A. Gray—p. 577

British Journal of Physical Medicine, London

8 85-100 (Oct.) 1933

Review of Seventeen Years Work in the Electrical Department of the Radcliffe Infirmary, Oxford W. J. Turrell—p. 85

Nationale and Technique of Treatment by Graded Muscular Contractions M. Smart—p. 87

Treatment of Gonorrhea by Electrolisis Survey of One Thousand Cases C. Russ—p. 90

Some Common Misconceptions Concerning Mechanotherapeutics F. Cyranek—p. 92

The Spinal Treatment of Heart Disease C. R. I. Orme—p. 95

British Journal of Surgery, Bristol

21 173-380 (Oct.) 1933

Clinical Aspects of Branchial Fistula H. Bailey—p. 173

Diverticula of the Jejunum-Ileum I. Fraser—p. 181

Isomorphism of the Mesentery Case F. d'Abreu—p. 212

Occupational Aneurysm of the Palmar Arteries D. S. Middleton—p. 215

Coccygeal Sinus R. I. Newell—p. 219

Associated Facial and Intracranial Hemangiomas I. Rogers—p. 229

Pouches of Pharynx and Esophagus with Especial Reference to Embryologic and Morphologic Aspects R. W. Raven—p. 235

Surgical Treatment of Bronchiectasis R. M. Jones—p. 257

Pulmonary Lobectomy Technique and Report of Ten Cases J. F. H. Roberts and H. P. Nelson—p. 277

Bronchiectasis Study of Pathology of Sixteen Surgical Lobectomies for Bronchiectasis W. J. Robinson—p. 302

Etiology and Treatment of Slipped Epiphysis of Head of Femur F. N. Wardle—p. 313

Observations on Multiple Intramural Diverticula of Small Intestine R. W. Butler—p. 329

Cleft Palate W. E. M. Wardill—p. 347

Clinical Aspects of Branchial Fistula—Bailey points out that the statement of Wenglowksi that the branchial apparatus never leaves remnants in the neck below the level of the hyoid must be incorrect. The author presents a case which illustrates a persistent branchial cartilage—a remnant the origin of which cannot be disputed—situated in the lower third of a child's neck in the exact position in which a branchial fistula commonly opens. A cervical auricle, by its structure clearly a homologue of the pinna, is situated at the point where a branchial fistula usually opens. Histologically, a branchial fistula is usually lined by a columnar epithelium and its walls sometimes contain muscle. There is no reason why a thymic bud should contain these elements. The anatomic relationships of a branchial fistula as displayed during an operation for its extirpation are in keeping with those depicted in works on embryology as belonging to the cervical sinus and the second cleft, which persists in the goat to open into the fossa of Rosenmüller.

Pulmonary Lobectomy—Roberts and Nelson state that by their technique the mortality of lobectomy may be reduced. One of the authors' patients died from cerebral abscess ten days after operation and one from influenzal pneumonia three months after operation. Six are well and free from symptoms and two are back at work but with slight symptoms. The incision through the skin and extracostal muscles runs straight from the costal margin in front along the seventh interspace to the midline behind for lower lobe lobectomy and the fourth interspace for upper lobe lobectomy. All bleeding points are coagulated with a diathermy current. The lateral margin of the erector spinae is freed, the posterior ends of the seventh and eighth ribs are exposed, the intercostal muscles in the middle of the incision are divided for about 3 inches; the space is widened by pulling the ribs apart with small hook retractors and the parietal pleura is exposed and incised. If there is a

rush of air into the chest the opening is immediately plugged with the finger and the air allowed to enter slowly. The pleural space, the intercostal muscles and the pleura are divided rapidly for their entire length with scissors. At the posterior end this incision keeps near the lower rib so as to avoid the intercostal vessels. The erector spinae is retracted and with a pair of straight bone cutting forceps the posterior ends of the ribs above and below the incision are divided opposite the tips of the transverse processes without previous elevation of the periosteum. Before the ribs are spread apart, the adjacent pleural adhesions must be separated. The fingers of the two hands are then inserted into the chest and the ribs slowly but forcibly pulled apart for from 4 to 5 inches in an ordinary adult. An illuminated rib retractor is inserted and opened out to maintain this space. All adhesions surrounding the lower lobe must be separated and the costal surface of the upper lobe freed in order to allow it to expand. The lobes are separated along the oblique fissure. Finally the pulmonary ligament is divided as far as the inferior pulmonary vein. A pedicle will now be produced, round which the operator's finger and thumb should be able to meet. The loop of a tourniquet is slipped over the diseased lobe and kept as high up the pedicle as possible while the assistant winds in the cord and tightens it. A second tourniquet is then employed and tightened up round the lung 1½ inches distal to the first. The pleural cavity is packed off with four or five large dry gauze swabs, which also cover the margins of the wound in the wall of the chest. The pedicle is divided half-way between the cords with curved scissors. When the lobe has been removed, the pedicle is swabbed with a 1:1,000 solution of acriflavine hydrochloride and the gauze packs are removed. The pedicle is sutured with number 1 chromicized catgut on a round bodied half circle needle. This passes through the white bronchovascular area as if this were a homogeneous structure and draws it together but the fringe of lung is not included in the first two rows. The suture is continuous, starts at one end of the pedicle and after reaching the other end returns as a second row to the first point where it is tied. A third continuous suture then draws the fringe of lung tissue across the surface of the pedicle and the pedicle is buried into the under surface of the upper lobe by three or four sutures. The skin and extracostal muscles are retracted, the lateral surface of the ninth rib is exposed in the midaxillary line, and 1 inch of the rib is excised. A stab incision is made through the skin and extracostal muscles into the chest and a drainage tube is drawn from within outward. The intrathoracic portion of the tube is attached to the diaphragm by a loop of catgut so that the tip lies 1 inch below the pedicle. Pericostal sutures are inserted 1½ inches apart for the whole length of the wound.

British Medical Journal, London

2 591-630 (Sept. 30) 1933

Radiology of Heart Disease J. Parkinson—p. 591

Id. P. Kerley—p. 594

Radiologic Diagnosis of Cardiac Enlargement C. Bramwell—p. 597

Some Observations on Rickets with Especial Reference to Its Occurrence in Pigs I. P. McGowan—p. 599

Observations on Examination of Swimming Bath Water J. A. B. Hicks, R. I. A. Pulveritt and F. R. Chopping—p. 603

2 631-670 (Oct. 7) 1933

Deficiency Anemias of Childhood I. G. Parsons—p. 631

Anesthetics from Practical and Scientific Aspects F. J. Morrin—p. 636

Bronchiectasis Diagnosis and Prognosis in Relation to Treatment F. C. Roles and C. S. Todd—p. 639

Hysterectomy Critical Survey with Report of Two Hundred and Ten Cases A. H. Davidson—p. 643

Acute Suprarenal Hemorrhage Case D. B. Rosenthal—p. 645

Glasgow Medical Journal

2 129-236 (Oct.) 1933

Diuretic S. Alstead—p. 129

Irish Journal of Medical Science, Dublin

No. 94 549-598 (Oct.) 1933

Operative Treatment of Cataract R. E. Wright—p. 549

Celiac Disease R. E. Steen—p. 567

Cardiologic Research at Bad Nauheim P. T. O'Farrell—p. 579

Control of School Myopia N. B. Harman—p. 587

Journal of Laryngology and Otology, Edinburgh

48 657 732 (Oct.) 1933

*Progressive Lethal Granulomatous Ulceration of the Nose J P Stewart—p 657

Granulomatous Ulceration of the Nose—Stewart describes a disease to which he cannot give a definite name and whose cause is obscure. In his opinion the most descriptive term is "progressive lethal granulomatous ulceration of the nose." He reviews ten cases. The disease is practically confined to the male sex, the ratio being 9:1. Eight of the ten cases occurred between the ages of 28 and 42 years. From the clinical and microscopic appearances the author concludes that the disease is not one of tumor but essentially a pyogenic one—a chronic inflammatory process. The clinical picture is one of progressive destruction of the nose, face and pharynx. The disease is characterized by a mild leukocytosis (14,800) or a leukopenia (2,200) with the white blood cells in their normal proportions. There is prolonged and hectic fever and frequent, severe hemorrhages. The duration of the illness is from one to two years. The most marked feature is the patient's complete absence of resistance to the infection. The disease must be differentiated from ulceration occurring in the nose due to syphilis, tuberculosis, malignant disorders—agranulocytosis, mycosis and myiasis, jaws, leprosy, rhinoscleroma, leishmaniasis, rhinopharyngitis mutilans (gangosa) and trophic postencephalitic ulceration. In six of seven cases in which bacteriologic observations were made the presence of a streptococcus in combination with a staphylococcus was reported. Local applications proved unavailing. Radium treatment was employed in two cases with indefinite results but high voltage roentgen therapy promised more success and deserves further trial. Eight patients died from the direct effects of the disease—sapremic cachexia and repeated hemorrhage. One survived for four months after local cure before succumbing to generalized sarcomatous cutis and one died from atypical "miners' phthisis" four years after recovery from the local disorder.

Journal of Tropical Medicine and Hygiene, London

36 281 296 (Oct. 2) 1933

Bacteriologic and Serologic Study of Eighty Nine Cases of Dysentery in Which *Bacillus Dysenteriae* Flexner and *Bacillus Dysenteriae* Castellani Sonne Were Isolated as Causative Agents M H Soule and Anne M Heyman—p 281
Antimalarial Chemotherapeutic Tests at the Devon Mental Hospital S P James—p 289

Lancet, London

2 735 786 (Sept. 30) 1933

Treatment of Urinary Infections in Puerperium by a Ketogenic Diet A T Fuller and L Colebrook—p 735
Angioneurotic Edema W Lennon—p 739
*Physiologic Investigation of Rocking Method of Artificial Respiration Esther M Killick and F C Eve—p 740
*Electrical Method for Use in Diagnosis of Diseases of Thyroid Gland M A B Brazier—p 742
Effect of Radiation on Blood Note G W Phillips—p 745
Observations on Serum Treatment of Type I Lobar Pneumonia D Ives—p 748
Otic Hydrocephalus H G Garland and G S Seed—p 751
After Care of Varicose Legs S McAusland—p 753
*Manipulative Method for Reduction of Fractures of Surgical Neck of Humerus C Frankau—p 755
Pathologic Calcification Case L B Stott and A Cotton Cornwall—p 755
Rickets in a Breast Fed Infant Aged Five Weeks B Sandler—p 757

Rocking Method of Artificial Respiration—Killick and Eve compared the tidal air induced in artificial respiration by rocking on the stretcher with that produced by Schafer's method. The comparison indicated that the rocking method is at least as effective as any of the manual methods. The rocking method has the advantage over the prone pressure method of requiring less exertion in performing the necessary movements. Therefore artificial respiration can be maintained more easily over long periods. The method can be applied by an untrained operator following simple instructions as to timing. Warmth a factor so important and so commonly neglected can be adequately applied. Investigation of the circulatory changes induced by the rocking method show that their magnitude is not such as should be of clinical importance. As to the variations in the gaseous exchange with different rates of rocking

the figures show that at rates above fifteen times per minute there is a tendency to overventilate and hence wash out carbon dioxide in amounts disproportionate to the amount of oxygen that can be absorbed. Since carbon dioxide is an important stimulus to the normal activity of the respiratory center, the onset of spontaneous breathing might be delayed if its amount in the blood should be reduced too far. Since measurements by Silvester's method of lung ventilation show that rocking the stretcher ten or more times a minute induces adequate ventilation the authors conclude that for most subjects the optimal rate of rocking the stretcher lies between ten and fifteen times per minute i.e. the normal rate of breathing. In practice Schafer's method must be tried without delay and used until the rocking stretcher with blankets and hot water bottles can be brought and employed if resuscitation is delayed or inadequate. One of the authors (Eve) described the method in the *Lancet* of Nov 5 1932. The unconscious patient is placed face downward on a pivoted rockable stretcher, which is rocked 45 degrees up and down. The weight of the abdominal viscera in the head down position pushes the diaphragm up into its expiratory phase. In the feet down position, inspiration is similarly produced.

Electrical Method in Diagnosis of Thyroid Disease

—Brazier developed a method for studying the impedance of the human body to an alternating current. He terms the electrical characteristic of the human body which is under investigation the "impedance angle." In constant current work the impedance of the body can be measured by a single factor—the resistance, but with alternating currents the body functions not only as a resistance but also as a condenser. The ratio of these two factors is a property of the dielectric under observation (in this case the body), and it is a function of this ratio which shows variations in thyroid disease and which is defined as the impedance angle. The patient sits on a chair with each arm immersed to the elbow in arm baths containing 10 liters of a 1 per cent solution of sodium chloride at a temperature of about 25°C. The results are unaffected by variation of the temperature of the baths, by slight movements on the part of the patient, by the emotional state of the patient or by the strength of the current passing through the body. No preparation of the patient by resting or fasting is necessary and only a slight degree of cooperation is required. When the arms have been immersed in the baths, an alternating current sufficiently low in intensity to be imperceptible to the patient is led through him into a simple bridge circuit. The impedance offered by the patient to the current can be balanced on the bridge by adjustment of a variable condenser and a variable resistance, and the impedance angle can be calculated from the readings. Study of the normal subject shows that the impedance angle remains almost constant from day to day in the same individual and that normal groups give only a small standard deviation about the mean for the impedance angle. The values for men and for women fall into two defined groups, the women giving higher values. In order to determine whether there is a significant departure from the normal mean in cases of thyroid disease 120 women were examined. The results indicated that in thyrotoxicosis there is a marked deviation from the normal, giving high values for the impedance angle—values which in nearly all cases are far outside the standard deviation of the normal group. A comparison of the means for the groups of primary thyrotoxicosis and secondary thyrotoxicosis with that of the normal women and with the mean of a group of patients having nontoxic goiter shows that the increase in the impedance angle in thyrotoxicosis is so great that even the means for these two groups are greater than twice the standard deviation of the normal. The author observed that the severer the disease the higher the impedance angle and in this way the impedance angle can be correlated with the basal metabolic rate. The impedance angle is not dependent on the basal metabolic rate. It has been shown that in the absence of a thyroid factor the impedance angle is independent of the basal metabolic rate but in all cases in which the basal metabolic rate is raised by thyrotoxicosis, by thyroid feeding or by the injection of thyroxine or thyroid the impedance angle also will be raised. In this way the impedance angle proves a more specific test for thyroid disturbance than does the basal metabolic rate.

Fractures of the Humerus—While operating on a patient for the reduction of a typical deformity of a fracture of the surgical neck of the humerus, Frankau observed that even after freely exposing the fragments he could not obtain reposition until the arm was pulled right across the trunk to the opposite side of the body—but with this maneuver immediate and easy reposition was obtained. In the next case that came under his care he exerted strong traction under deep anesthesia in the line of the long axis of the arm for some minutes, then crossing over to the opposite side of the body he adducted the arm across the trunk, adduction being carried out to the fullest possible extent and full traction being exerted. After a few moments there was a sharp crack, caused by the lower fragment slipping over the upper fragment. A roentgenogram taken three days later showed perfect anatomic reposition of the fragments.

2 767 848 (Oct. 7) 1933

- Certain Aspects of Coronary Thrombosis J. H. May—p. 787
Developmental Myopia and Treatment of Myopes J. Parsons—p. 795
Clinical Manifestations of Pulmonary Tuberculosis in Childhood W. B. Wood—p. 797
Infra Red Plates in Neurohistologic Illustration D. M. Blair and F. Davies—p. 801
Dislocation of Semilunar Bone J. H. Monroe—p. 801
*New Technic in Gastrojejunostomy J. Beck—p. 802
Bacteremia in Lobar Pneumonia I. M. Christie—p. 804
*Multiple Malignant New Growths Associated with Carcinoma of Esophagus J. E. G. McGibbon—p. 806

New Technic in Gastrojejunostomy—Beck believes that an easier access to the posterior wall of the stomach is provided by exposing it through an incision in the great omentum by the following technic. The abdomen is opened by a high right paramedian incision and a routine examination is made. If the case requires a gastrojejunostomy, the appendix is removed. An incision is made in the gastrocolic omentum parallel with the greater curvature. This incision gives free access to the lesser sac, and through it the whole of the posterior wall of the stomach can be examined. The site best suited for the anastomosis is selected and clamped. The transverse colon is then held up by an assistant and a second opening made into the lesser sac through the transverse mesocolon. A coil from the upper part of the jejunum is drawn up through the opening in the transverse mesocolon and the most proximal part that can be apposed to the stomach without strain or tension is selected and clamped. The transverse colon is returned to the abdominal cavity and the anastomosis is made in the usual way, except that it is done in the lesser sac. The edges of the opening in the transverse mesocolon are fixed to the jejunum by a few interrupted sutures and the opening in the gastrocolic omentum is closed. The author has found this method to have many advantages over the orthodox one.

Multiple Growths in Esophageal Cancer—In a series of forty cases of esophageal cancer, McGibbon encountered four in which the patient proved to have more than one growth. One was a primary double carcinoma. Two cases illustrated the spread of esophageal carcinoma by lymphatic permeation. This method of spread is similar to that which occurs in other organs, via the submucous lymph nodes, the secondary growths are upshoots to the surface, and the intervening mucous membrane appears normal. The other case is an example of spread by implantation. It is probable that during an esophagoscopy the under surface of the tongue was injured and that carcinomatous cells were implanted either from the instruments or during postanesthetic vomiting.

Medical Journal of Australia, Sydney

2 465 500 (Oct. 7) 1933

- Abuse of the Drainage Tube in the Treatment of Peritonitis with an Analysis of Two Hundred and Forty Four Cases of Diffuse Peritonitis Treated Without Drainage A. J. Trimer—p. 465
Early Diagnosis and Treatment of Uterine Cancer H. H. Schlink and C. L. Chapman—p. 476
Dental Health Education in New South Wales E. B. Green—p. 482

Quart. Bull., Health Org., League of Nations, Geneva

2 353 550 (Sept.) 1933

- Report on Housing and Malaria Summary of What Is Known About Anophelism in Relation to Housing and Malaria S. R. Christophers and A. Missiroli—p. 355
Reform of Medical Education J. Tandler—p. 483
Report of Health Organization for the Period October 1932 to September 1933—p. 495

Presse Medicale, Paris

11 1925 1940 (Nov. 29) 1933

- *Effects of Intravenous Injection of Sodium Salt of Cinchophen on Cholesterin in Man M. Chiray, G. Albot, C. Ribadeau Dumas and J. Jolourdy—p. 1925
Possible Role of Pancreatic Juice in Production of Certain Acute Cholecystitides E. Stulz and R. Bruer—p. 1928

Effects of Sodium Salt of Cinchophen on Cholesterin—Chiray and his associates studied the action of cinchophen on the liver. Their method consisted essentially in the collection of C bile before the intravenous injection of 5 cc of a neutral aqueous solution of a sodium salt of cinchophen and at periodic intervals after its injection and in the determination of the volume of bile and the concentration of bile pigments of each specimen collected. In persons with a healthy liver, the intravenous injection of a sodium salt of cinchophen always causes a marked stimulus to the pigmentary function of the hepatic cell. In persons with hepatic disease, following a similar injection, the pigmentary function is decreased or remains unchanged in more than half of the cases. This is undoubtedly due to a functional disturbance of the hepatic cell. The results obtained up till now are insufficient to permit evaluation of the hepatic function by means of the cinchophen test. They do not as yet give precise information as to the presence or absence of danger in a surgical intervention from the standpoint of a normal or deficient hepatic parenchyma. Increased observation and biopsies on patients in whom the cinchophen test demonstrated a hepatic deficiency may yield this information and may also explain why in some cases, in which clinically the liver appears diseased, it responds satisfactorily to cinchophen. The technic of the method may also be improved as the long duration of the drainage risks the mixture of gastric juice with the bile. Despite these reservations, the authors think that the test has at least a theoretical interest. It does not present any danger and it constitutes a selective examination of the pigmentary function of the hepatic cell which is one of the most important manifestations of the cellular activity of the liver.

Revue Belge des Sciences Medicales, Louvain

5 609 684 (Nov.) 1933

- *Menstrual Fever in Tuberculous Women J. Lecloux and C. Carez—p. 609
*Virus of Exanthematic Rat Typhus in Rats from Ghent and Port of Antwerp A. Van Meirhaeghe—p. 653

Menstrual Fever in Tuberculous Women—Lecloux and Carez studied the menstrual periods of 309 women affected with pulmonary tuberculosis in all stages. They found that the menstrual period is often a critical period and that the thermic instability of these patients is often accentuated at this time, particularly if the disease is in a stage of evolution. In most of the patients in whom the disease is stabilized, the menstrual period does not differ from a thermic point of view from the intermenstrual period. The more severe the lesions and their evolution the more abnormal are the menstrual thermic variations. During the course of hygienic and dietetic treatment, the progressive return of the menstrual temperature curves to normal marks rather well the stabilization of tuberculous lesions. It is the same during treatment by efficacious collapse therapy. The improvement of the general condition alone, while certain lesions continue to evolve, does not seem to bring the disturbed temperature curves back to normal. Most of the grave incidents in tuberculous women being treated in a sanatorium occurred during the menstrual periods. It is also during the menstrual period that most of the common and serious accidents inherent in pneumothorax therapy occur.

Minerva Medica, Turin

2 789 820 (Dec. 8) 1933

- Pleural Adhesions and Tuberculous Involvement of Lung E. Conte and U. de Michelis—p. 789
Elective Tropism of Streptococci Endothelial Streptococcus E. Frola—p. 795
*Relation Between Internal and External Secretion of Pancreas G. Lucchi—p. 799
Amino Acidemic Curve in Experimental Uremia S. Cerqua—p. 802
Etiology of Götter Research in Endemic Mountain Zone G. Trikarakis—p. 809

Internal and External Secretion of Pancreas—Lucchi stimulated the external pancreatic secretion of thirteen patients by introducing into the duodenum from 60 to 70 cc of an 8

per thousand solution of hydrochloric acid. The solution was well tolerated by the majority of the patients. The glycemic curve was studied before the test and every five, ten, twenty, thirty five and sixty minutes after it. The majority of cases showed a lowering of the glycemic curve. The hypoglycemia was found never less than twenty minutes after administration of the solution and in several cases was preceded by a slight and temporary hyperglycemia. The author maintains that there is a certain degree of correlation between the secretion thus brought on and the internal pancreatic secretion. In the light of a number of factors that cannot be eliminated, it is not improbable that a disturbance of equilibrium of the vegetative nervous system is the cause of symptoms developing immediately after introduction of the liquid into the duodenum such as general malaise, flushing of the face and brief hyperglycemia.

Brasil-Medico, Rio de Janeiro

47 815 832 (Nov. 16) 1933 Partial Index

New Species of Genus *Proteus*—Magalhães and R. Muniz Aragão —p. 815

Neurotrophic Infection—A. J. de Siqueira —p. 817

New Species of Genus *Proteus*—Magalhães and Muniz Aragão isolated an organism of the Genus *proteus* from pure cultures of the pus of an infant having otitis media. The organism was the etiologic agent of the disease. The agglutination test with the blood serum of the patient was positive with a titration of 1:600. An autovaccine prepared from the micro organism gave satisfactory results. According to Bergey's classification, the morphologic and cultural characteristics of the micro organism showed that it belonged to the group of *Proteus americanus*, discovered by Pacheco in 1928 since it produces no action on sucrose, mannitol and salicin, is motile and produces acid and gas in glycerin. Nevertheless, the new organism ferments galactose with production of gas and acid and does not have any action on glycerin as opposed to *Proteus americanus*. The author believes that the organism is a new species of the Genus *proteus* and proposes to name it *Proteus panamericanus*.

Archiv für Gynakologie, Berlin

154 309 645 (Nov. 17) 1933 Partial Index

Primiparas in Fifth Decade of Life—J. von Khrenninger-Guggenberger and E. Leutenmeyer —p. 309

Thyroid Hormone Content of Blood During Pregnancy—W. Neuweiler —p. 326

Carbohydrate Metabolism in the New Born—E. W. Winter —p. 354

Pathologic and Clinical Aspects of Ovarian and Tubal Pregnancies—E. W. Winter —p. 374

Studies on Moor in Pyrmont: Action of Moor Baths—E. Weberitz and E. Gierhake —p. 384

Brenner's Tumors in Wall of Ovarian Cystomas—Z. von Szathmari —p. 390

Conservative Operation of Benign Cystic Ovarian Tumors—B. Kriss —p. 415

Isolated Torsion of Uterine Tubes: Case Reports—E. Mosetting —p. 421

Persistence of Wolffian Ducts with Renal Aplasia and with Double Formation of Uterus: Case—E. Tschernie —p. 432

Hormonic Function of Granulosa Cell Tumor—H. Dworzak and K. Podleschka —p. 441

Velocity of Blood Stream in Normal and Abnormal Pregnancy: Functional Test of Heart During Pregnancy and Birth—W. Spitzer —p. 449

Experimental Studies on Temporary Hormonic Sterility According to Haberlandt—C. O. Kramer —p. 459

Psychosympathetic Modification of Gravid Human Uterus—C. Gianella —p. 499

Bilirubin Tolerance Test of Liver in Diagnosis of Hepatopathy of Pregnancy—K. Fuge —p. 507

Pregnancy Reaction on Basis of General Stimulation of Cells—M. Popoff and A. Dimitrowa —p. 522

Congenital Cecocolic Tumors—R. Szendi —p. 538

Hormonic Modification of Mammary Gland of Mice: Etiology of Reclus Disease—C. Wieser —p. 548

Genesis of Brenner Tumors—E. G. Abraham —p. 565

Clinical Aspects and Histology of Malignant Ovarian Pseudomucinous Adenocystoma—E. Latzke —p. 574

Changes in Suprarenals During Pregnancy—H. Guthmann and Lilli Voelcker —p. 591

Rapid Pregnancy Reaction with Mature Mice—R. Bruhl and K. Hollstein —p. 604

Hormonic Function of Granulosa Cell Tumor—Dworzak and Podleschka call attention to the fact that hypertrophy of the uterine musculature and of the uterine mucosa as evidenced by genital hemorrhages, and hypertrophy (sometimes with secretion) of the breasts are frequent attendant phenomena

of granulosa cell tumors. Hypertrophy of the uterine mucosa, usually in the form of a glandular cystic hyperplasia but occasionally in the form of a decidua, is almost always present. These changes indicate a hormonal function of the granulosa cell tumor. However, exact analyses of the hormone production of granulosa cell tumors are still scarce. In studies on the hormone production of granulosa cell tumors, the authors found that even a fivefold concentration of the urine of the patient produced in the test animals only the reaction I of the anterior hypophysis. Since this reaction often is elicitable with urine of women presenting malignant genital tumors, and also after castration and during the menopause, it is of course not specific for the granulosa cell tumor. The production of follicular hormone, however, is of greater significance. Experiments have shown that the healthy woman eliminates during the intermenstrual period from 2 to 3 mouse units of this hormone in each liter of urine. In the woman with granulosa cell tumor observed by the authors, the follicular hormone amounted to 50 units per liter. The prolonged influence of such large quantities of hormone must eventually affect the uterus and in the case under consideration they caused considerable enlargement of the uterus and glandular cystic hyperplasia of its mucous membrane. Because a decidua develops in some cases of granulosa cell tumor, the authors assume that in these cases another hormone, that of the corpus luteum, may be produced by the tumor. They think that in many instances it will be possible to diagnose a granulosa cell tumor before the operation but that it is advisable to have a frozen section made in the course of the operation. In the event that the examination of the frozen section corroborates the diagnosis, the operation should be made as radical as possible and should then be followed by irradiations. The tests for the presence of the follicular hormone should be repeated from time to time for in this manner recurrences may be detected.

Pregnancy Reaction on Basis of General Stimulation of Cells—Popoff and Dimitrowa demonstrate that it is possible to detect the flooding of the pregnant organism with hormones by a reaction that is based on the general cellular stimulation. They employ cysts of *Euglena gracilis* because a rapid and sure reaction to stimuli is characteristic of these cysts. The authors tried the cysts first in tests on hypophyseal preparations and then on urines from pregnant women on normal urines and on urines eliminated shortly before or during menstruation. They reach the conclusion that the *Euglena* cyst reaction has a high degree of exactness, almost comparable to that of the Aschheim-Zondek reaction. As far as the rapidity is concerned, it is superior to the latter reaction, because it can be read in twenty-four hours. However, its execution and reading present great difficulties and it requires more practice than the Aschheim-Zondek reaction. An increase in the stimulating action of urines is demonstrable also a few days previous to and during menstruation, which indicates that during this time the organism is likewise flooded with hormones. This fact which had been demonstrated by other methods, was thus corroborated by the *Euglena* cyst reaction. The authors point out that the same cell stimulating substances can be demonstrated also by an acceleration of yeast fermentation. However, in spite of a reliable basis, the latter method is still subject to errors in the technic and can be used only together with the *Euglena* cyst reaction. In this connection the authors call attention to the action exerted by the urine from pregnant women on the germination of certain plant seeds, a phenomenon already pointed out by others.

Changes in Suprarenals During Pregnancy—Guthmann and Voelcker observed in studies on white mice that pregnancy produces a noticeable increase in the size of the suprarenals. The enlargement of the medulla was greater than that of the cortex. Histologic examination disclosed that pregnancy increases the blood perfusion, loosens the tissues, produces a transformation in certain layers and effects an increase in the lipid content. The pregnancy changes appear in different species of animals in different portions of the organ. In the same species individual changes occur but these involve less the type than the degree of the changes. A relation between the severity of changes and the length of the pregnancy could not be detected. The authors conclude that the measurements

as well as the histologic changes indicate an increased function of the medulla and of the cortex of the suprarenals during pregnancy

Beitrage zur klinischen Chirurgie, Berlin

158 449 560 (Nov. 15) 1933

- Absorption of Calcium K. von Haefen—p. 449
Status of Electrolytes in Aseptic Wounds R. Andreesen and H. Tammann—p. 457
*Suppurative Tenosynovitis of Hand Treatment and Late Results H. Deicke—p. 461
Topical Diagnosis of Embolism of an Extremity W. Dick—p. 481
Perforations of Esophagus into Pleural Cavity T. Morl—p. 487
Esophageal Diverticulum B. Breitner—p. 501
Volvulus of Small Intestine in Partial Situs Inversus I. Ochlecker—p. 515

Suppurative Tenosynovitis of Hand—Deicke presents a follow-up study of 200 cases of severe infections of the tendon sheaths of the hand treated at the surgical clinic of the University of Leipzig. Of these, 129 were designated as phlegmons of the sheaths and 71 as panaritria or simple felons. The streptococcus was the causative agent in 72 per cent and the staphylococcus in 28 per cent. Involvement of the forearm took place in sixty-one cases by passage of pus from tendon sheaths and from the palmar spaces into the deep intermuscular septums of the forearm. Pus from the midpalmar space can burrow directly under the transverse ligament of the hand while pus from the radial and ulnar bursae must first perforate it. Necrosis of the sheath and suppuration of the bone or the joint resulted in stiffness of the involved finger. A far more dangerous complication is suppuration of the wrist joint which develops by extension from the radial bursa by way of the short tendon sheath of the flexor carpi radialis muscle. This complication occurred four times in the author's material and was the cause of one death, two amputations of the forearm and one completely stiff hand. In thirteen cases a severe streptococcal infection became complicated by erysipelas. Hemorrhage resulting from erosion of the radial or the ulnar artery occurred in severe long standing suppuration. Mummifying necrosis of the finger, in contrast to wet gangrene of the phlegmonous tendon sheath developed in ten cases. Fatal septicopyemia developed in ten cases in five with metastatic localization of abscesses in the bones and in five without metastatic localization. Of the concurrent constitutional diseases, diabetes played the most important part. It was present in six patients, two of whom passed into a diabetic coma and died, while in one a fatal sepsis developed. Before the introduction in 1905 of constrictive hyperemia treatment, which in the author's opinion, marks a new era in the treatment of these infections, healing with preservation of function of the fingers was exceptional. The constrictive hyperemia method permitted the use of small incisions, abandonment of packing the incision and of drains, and early recourse to movements of the fingers. The author adopted Klapp's lateral incisions on both sides of the finger missing the annular ligament. He tabulates his results as follows: mortality 8 per cent, good results in 30 per cent, fair results in 17 per cent, and bad results in 53 per cent. When felons of the sheaths alone were considered, the results were as follows: good, 46.5 per cent; fair, 23.9 per cent; and bad, 29.6 per cent. With phlegmons, good results were obtained in 20.9 per cent, fair in 13.2, and bad in 65.9 per cent. The age of the patient played an important part in the prognosis. Most of the fatalities occurred in patients past 60. The younger patients exhibited less tendency to development of complications and more frequently recovered function when complications took place. The earliest possible surgical intervention was essential. Hyperemia treatment alone was practiced in only a few cases and, as a rule, later energetic treatment became necessary in most cases.

Chirurg, Berlin

5 849 888 (Nov. 15) 1933

- *Surgical Treatment of Peptic Ulcers E. Enderlen and I. Zukschwerdt—p. 849
Diagnosis, Prophylaxis and Therapy of Postoperative Disturbances of Circulation K. H. Schmidt—p. 865
Isolated Fracture of Femoral Condyle Its Operative Treatment C. Neiler—p. 871

Surgical Treatment of Peptic Ulcers—Enderlen and Zukschwerdt express the opinion that the good results obtained with gastro-enterostomy in the early history of gastric surgery

were mainly due to the fact that the operation was performed for benign pyloric stenosis in elderly people with diminished gastric secretion. The disadvantages became evident when the operation was performed in younger persons. In the authors' experience it was followed by not less than 50 per cent of peptic jejunal ulcers. They doubt that neutralization of gastric contents takes place through regurgitation from the bowel of bile and pancreatic juice. Redwitz showed in animal experiments that introduction of the entire duodenal contents into the stomach failed to neutralize its contents. The authors regard gastro-enterostomy as an operation of necessity rather than of choice and practice it in the elderly patients or when resection is not feasible. Only 28.5 per cent of the 192 gastro-enterostomies performed at the Heidelberg clinic resulted in cure. The mortality was 9.6 per cent. The incidence of peptic jejunal ulcer was 51 per cent. The younger the patient, the more likely was the development of the peptic jejunal ulcer. A single profuse hemorrhage was successfully treated by blood transfusion and withdrawal of all nourishment by mouth. Intervention was indicated for recurring hemorrhage or chronic bleeding leading to grave secondary anemia. Of the 112 cases of acute perforation treated by simple suture of the perforation 31.5 per cent remained healed. Additional gastro-enterostomy is objected to on the ground of the danger of subsequent jejunal ulcer. The authors adopted a conservative course in the treatment of the so-called threatened or walled off perforation. Of the 1100 partial gastric resections 800 were followed up. Of these 85 per cent were found to be symptom free. Recurrence of the ulcer was present in 1 per cent. Failure was due to objective causes such as ventral hernia, unequal length of anastomotic loops and gastritis in 5 per cent. While considering partial gastric resection as the best surgical procedure, they do not regard it as unfailing. Gastric secretion after resection is diminished in quantity but not in quality. They found in man and in animals that the lost chemical phase of secretion may return. The stimulus for it proceeds from the bowel. For these reasons they resect at least two thirds of the stomach. Too extensive resection on the other hand, may lead to pernicious anemia. They point out that it is quite possible to leave an ulcer behind and that narrowing of the anastomosis and ventral hernia may take place. Adhesions as the cause of postoperative complaints are discredited. That the importance of residual gastritis has been exaggerated is evident from the fact that in the majority of sixty-six cases in which after a resection, roentgenologic evidence of residual gastritis was present, there were no subjective complaints. They emphasize the importance of psychic factors and the desirability of including the internist in the treatment of postoperative cases.

Deutsche medizinische Wochenschrift, Leipzig

59 1721 1750 (Nov. 17) 1933

- Incretory Diseases of Childhood E. Thomas—p. 1721
*Intravenous Folliculin Therapy R. Spiegel—p. 1726
Substitutional Ferment Therapy in Disturbances of External Secretion of Pancreas K. Nissen—p. 1729
Diagnostic Progress in Hormonal Ovarian Disturbances C. Kaufmann—p. 1732
*Development of Genotype in Human Beings W. Zeller—p. 1734
*Beer and Health P. Schmidt—p. 1736
Psychiatric Testimony in Penal and Civil Courts K. Schneider—p. 1739
Thyroid and Carbohydrate Metabolism Grafe—p. 1741

Intravenous Folliculin Therapy—In a large percentage of genital hemorrhages traceable to irritations of the uterine adnexa, Spiegel obtained good results with the intravenous injection of folliculin. In other cases in which folliculin proved ineffective, prolan produced a temporary improvement. The author gained the impression that prolan is effective in the absence of adnexal disturbances while folliculin produces results in the presence of disturbances of the adnexa. Further investigations will be necessary to prove this theory. He resorted to intravenous injections because quick results were required. The usual dose was 1 cc (= 100 units). If on the following day the hemorrhage had not ceased the injection was repeated with the same dose and if necessary a third dose was administered. However if this was not effective the folliculin therapy was considered a failure and prolan was tried. In discussing the mode of action the author points out that the therapeutic efficacy of such small quantities of hormones is probably the result of

a hormonal stimulus which effects an instantaneous alteration in the hormone content and that this in turn leads to the cessation of the genital hemorrhage.

Material for Racial Studies—Giving a short outline of the various phases of the growth process Zeller shows that at the end of the period of puberty the human subject comes closest to its genotype and that neither before nor after this period does he reach such a degree of genotypical representation. Consequently this time of life is best suited for the determination of the familial and racial characteristics of an individual and it is advisable that only persons of this stage of development be used as material for racial studies.

Beer and Health—Schmidt discusses the alcohol content certain aspects of the fermentation and other factors that are important in the preparation of beer. He stresses the necessity of meticulously hygienic conditions. He says that in light lager beer the alcohol content should not exceed 3 per cent by weight. He considers the consumption of larger quantities of beer with an alcohol content of over 4 per cent by weight injurious to the health. He does not entirely oppose the preparation of stronger beers but he thinks that they should be taxed highly. As a general health rule for the consumption of all alcoholic beverages he advises that one should never take a drink without being sure that the stomach contains some food.

Munchener medizinische Wochenschrift, Munich

SO 1805 1840 (Nov. 17) 1933

The Child Does Not Eat! J. Schall—p. 1805

*Epidemic of Pfeiffer's Glandular Fever J. Schulz—p. 1809

Diphtheria S. Wolff—p. 1813

Cause of Death in Accidents Caused by Electricity S. Koepfen—p. 1815

Diagnosis of Latent Cardiac Insufficiency K. Barth—p. 1817

Treatment of Nasopharynx Schwarzl—p. 1818

*Value of Nonspecific and Specific Fever Therapy in Acute Gonorrhea in Men T. Grüneberg and G. Liebmann—p. 1820

Familial Leukemia F. Steiner—p. 1822

Satureia Hortensis Medicinal Plant Helpful in Diarrheal Condition R. Schultze—p. 1824

Simple Method for Determination of Motility of Vertebral Column L. Bohler—p. 1826

Danger of Overexertion in Youth Movement H. Sturberg—p. 1826

Erroneous Granting of Disability Compensation and Possibility of Withdrawing It A. Haase—p. 1827

Epidemic of Pfeiffer's Glandular Fever—Schulz observed thirty-five cases of glandular fever from May until July. During the prodromal stage adults frequently complain of fatigue and drowsiness, while children become irritable and unmanageable. Profuse sweats, lack of appetite, headaches and abdominal pains are quite frequent. This period usually lasts a few days, but it may persist for three weeks. The blood picture, with its pathologic lymphocytes, is decisive in the diagnosis. The prognosis is favorable. After citing several other epidemics of glandular fever from the literature the author discusses the treatment. He counteracts the fever with amidopyrin. He treats the painful swellings of the lymph nodes with hot oil or paraffin poultices, and solutions of hydrogen dioxide are used for gargling. He recommends also the latter measure as a prophylactic for those who come in contact with patients who have glandular fever.

Cause of Death in Electrical Accidents—On the basis of studies on dogs and rabbits, Koepfen assumes that the central nervous system is not impaired directly by the electric current but rather by way of an irritation of the circulatory system. He also points out that since the cranium provides great resistance direct impairment of the brain seems hardly possible. Registration of the respiration and of the cardiac activity revealed that the electric current paralyzed first the cardiac system and after that the respiratory center. The electrocardiogram discloses cardiac fibrillation. Anatomical investigations show that a disturbance in the cardiac vessels predominates. The author reaches the conclusion that death from an electric current is death from impairment of the cardiac vessels. The observations are important for the treatment in that they indicate that artificial respiration alone is not sufficient and that the disturbance in the cardiac vessels requires medicinal therapy.

Diagnosis of Latent Cardiac Insufficiency—Barth points out that failure to recognize latent insufficiency of the circula-

tory apparatus is the cause of two of the most deplorable and unfortunately also most frequent mistakes in the treatment of patients with heart disease: (1) when a heart which is in need of rest is being stimulated and (2) when a heart which requires exercise is given rest. The latter is of course a rarer occurrence. As the most significant somatic symptoms that should call the physician's attention to the possibility of latent cardiac insufficiency the author mentions gastric catarrh, tympanitis, a feeling of fullness in the epigastrium, constipation, lack of appetite, soreness of the muscles of the neck, pain in the throat flat and easily tiring voice, headache, general debility, a feeling of heaviness in the legs, dizziness, particularly on arising in the morning, hemorrhoids and pain in the pelvis due to venous congestion, insomnia, particularly a too early awakening, increased sweating, nycturia and decrease in virility. The psychic changes occurring in these subjects are increased irritability, moodiness, frequent depression, impatience, restlessness, anxiety, lack of sexual desire, forgetfulness and indecision.

Fever Therapy in Acute Gonorrhea—On the basis of comparative investigations on the value of nonspecific and specific fever therapy in acute gonorrhea in men, Grüneberg and Liebmann reach the following conclusions. A noticeable result can be obtained only if local treatment is employed simultaneously. In new superficial anterior gonorrhea, the fever therapy in order to shorten the course of the disease, must produce temperatures of more than 39 C (102.2 F) and must be accompanied by local reactions. The use of a specific fever-inducing remedy seems to give no particular advantages in these cases. Fever therapy is of equal value in somewhat advanced cases that are complicated by posterior involvement, slight prostatitis or infiltration. If vaccine is used temperatures of from 37.5 to 39 C (99.5 to 102.2 F) are sufficient in these cases, because the specific action plays a part. But this seems to be the case only if there is a further stimulation of immunizing processes that have been induced spontaneously.

SO 1841 1880 (Nov. 24) 1933

*Experiences with Serum Withdrawn After Vaccination P. Linser—p. 1841

Influenza O. Müller—p. 1842

Diagnosis and Treatment of Heart Disease R. Siebeck—p. 1844

Placenta Praevia F. von Mikulicz-Radecki—p. 1848

Errors in Training of Children in Their Significance for Physical and

Psychic Development W. Birk—p. 1853

Sport as Therapy of Internal Disturbances Schilzyer—p. 1856

Obstetrician and Race Welfare A. Mayer—p. 1859

Familial Benign Spontaneous Pneumothorax as Sign of Pulmonary

Weakness P. Morawitz—p. 1861

Treatment of Postoperative Tetanus with Antitetanus Preparation 10

P. Martini and A. Heymer—p. 1864

Therapy of Progressive Muscular Atrophy Self Observations II—p. 1865

Improved Pneumothorax Needle F. Prusnitz—p. 1866

Experiences with Serum Withdrawn After Vaccination—Linser points out that it is of great importance in infections whether the patient himself is capable of resisting the infection that is whether the organism possesses sufficient antibodies resulting from former infections or whether it has the time and power to produce new ones. Prophylaxis by vaccination previous to exposure to an infection has given good results in the campaign against infectious diseases. On the other hand passive immunization by means of animal serums has proved effective, but in many infections this is not possible, either because of certain peculiarities of the heterogenous serums or because of insufficient formation of antibodies by the animals. For this reason the author has for many years resorted to the vaccination of healthy human subjects with the respective micro organisms in order to be able to introduce into the patient a human serum rich in antibodies. He found this procedure helpful in severe gonococcal sepsis in gonorrheal epididymitis in streptococcal sepsis and even in a case of Streptococcus viridans infection. Passive immunization from one human being to another is done by first vaccinating a healthy person with the respective organism. Then after from two to four weeks serum from this person is introduced into the patient who may be given several hundred cubic centimeters of the serum. The author gained the impression that the more severe the infection the larger should be the doses of serum. In doubtful cases in which the bacteriologic diagnosis is not yet definite passive immunization should be started on an assumptive basis. This applies particularly to streptococcal

infections, especially those of the viridans type. On the basis of many years of experience the author asserts that the procedure involves no danger for the donor or the patient and that, in conferring immunity, the vaccination is even helpful for the donor.

Zeitschrift für klinische Medizin, Berlin

125 565 708 (Nov. 10) 1933

- Uric Acid in Blood Cerebrospinal Fluid and Pathologic Fluids. F. Reiche—p. 565.
Epidemiology of Diphtheria and Scarlet Fever. F. Reiche—p. 584.
Behavior of Blood Sugar and of Basal Metabolism Following Injection of Insulin in Nondiabetic Persons. G. Reiter—p. 605.
Micromethod for Sedimentation of Erythrocytes. H. Reichel—p. 623.
*Xanthoprotein Reaction in Blood Serum. Jette Kämmer—p. 632.
Significance of Fat and Protein for Dietary Treatment of Diabetes Mellitus. J. Schloss—p. 641.
Available Liver Glycogen in Obesity. K. Prischlik—p. 654.
Investigations on Carbohydrate Metabolism of Obese Persons. H. Staub, Traugott's Phenomenon in Obese Persons. C. V. Medvei—p. 662.
Rheumatism. Clinical Experimental Investigations. Gudzent—p. 672.
Lactic Acid Content of Blood and Alkali Reserve Following Physical Activity in Exophthalmic Goiter. K. Dambile and A. Reuter—p. 690.

Xanthoprotein Reaction in Blood Serum.—Kämmer studied the xanthoprotein reaction, devised by Becher, on 120 patients suffering from various disorders. The reaction is based on the presence of aromatic atomic complexes which, by the addition of concentrated nitric acid, are changed into yellow nitroderivatives. In ten out of sixteen patients with thyrotoxicosis, the xanthoprotein values were considerably increased. There was a certain parallelism between the xanthoprotein values and the basal metabolism. It was also noted that as the patient's condition improved, the xanthoprotein values decreased. In hypothyroidism the xanthoprotein values were found to be extremely low. Of twenty-seven patients with disturbances of the liver, twelve showed an increase in the xanthoprotein values. It could be demonstrated in two of these cases that an improvement produced a decrease while an exacerbation caused an increase in the xanthoprotein values. Ten out of twenty-two patients with severe heart disease showed xanthoprotein values above normal. The highest values were detected shortly before death. But there was no parallelism between the xanthoprotein values and the severity of the cardiac disorder. In three cases ending fatally the xanthoprotein values were low. Tests on fifteen patients with gastrointestinal disturbances disclosed in only two a slight increase in the xanthoprotein values. In pulmonary disturbances (pneumonia), the xanthoprotein was increased in six out of eleven cases. The highest values were found in uremia (up to 170 per cent). In the other renal disturbances the values were comparatively low. Increased xanthoprotein values were also noted in patients with cancer in two patients with blood diseases and in one case of peritoneal tuberculosis.

Zentralblatt für Chirurgie, Leipzig

60 2705 2736 (Nov. 18) 1933

- *Syndrome Complex of Right Half of Abdomen. M. Titone—p. 2706.
Carcinoma Developing in Gunshot Scar. B. Nimet—p. 2712.
Use of Camphorated Phenol in Erysipelas and in Suppurating Wounds. W. Gross—p. 2713.
Palliative Resection in Deep Ulcers of Duodenum. G. Hromádka—p. 2714.
Removal of Appendix in Ileocecal Tuberculosis. F. Mühl—p. 2716.
All Sided Traction Splint for Upper Part of Arm. W. Schar—p. 2717.
Literature of Fatal Pulmonary Embolism After Injections of Sugar Solution into Varicose Veins. F. Remenovsky—p. 2719.
Calculus Gallbladder Contained in Incarcerated Umbilical Hernia. A. Demian—p. 2722.

Syndrome Complex of Right Half of Abdomen.—Titone presents the concept of a syndrome complex of the right half of the abdomen as developed by his chief, Prof. Nikola Leotta of the University of Palermo. According to this concept ulcerative disease of the stomach and duodenum, cholecystitis and appendicitis do not exist as isolated lesions. They are always associated with each other as well as with a complex of anatomic changes of the perivisceral tissues in which inflammation of the appendix is present in 100 per cent of the cases. The constant association of a diseased appendix with peptic ulcer is based on numerous observations made in the course of surgical intervention as well as on histologic studies. This association was emphasized by Pauchet, Moynihan and Paolucci.

The interrelationship is not limited to the appendix, the gall bladder and the stomach but involves in varying degrees other organs and gives rise to certain symptom complexes or syndromes. Chronic inflammation of the appendix is believed to be the original lesion, while the various abdominal syndromes develop by the extension of the process along the peritoneal surfaces. Four distinct groups are differentiated on an anatomic basis: (1) a simple syndrome of the right half of the abdomen in which inflammation of the appendix is the predominant lesion, (2) a syndrome in which gastroduodenal ulceration is the principal lesion, (3) a syndrome with cholecystitis or cholelithiasis playing the important part and (4) a group in which a combination of ulcer disease and gallstones exists together with the other lesions mentioned. The chronic peritonitis that has its origin in the disease of the appendix spreads by way of the mesenteries, the omentum, the lymph vessels and the portal vessels. It is responsible for such entities as periduodenitis, Lane's kink and perisigmoiditis. Anatomic and functional lesions of the liver and pancreas likewise exist and furnish an explanation for heretofore obscure symptoms, such as enlargement of the liver, subicteric discoloration of the skin, hyperbilirubinemia and intolerance for fats and carbohydrates, as well as certain hyperglycemias. The diagnosis of the syndrome is made by a careful analysis of the foregoing symptoms and a complete roentgenologic study of the gastrointestinal tract and of the extrahepatic bile tracts. The author stresses the necessity of a complete exploration at operation made possible by the use of a median incision 15 cm. long, removal of the appendix and of the constricting adhesions, and a proper treatment of the associated lesions.

Hospitalstidende, Copenhagen

76 1069 1096 (Nov. 2) 1933

- *Secondary Pellagra. Seven Cases. A. Hofman Brang—p. 1088.

Secondary Pellagra.—Hofman-Brang's cases all in women are from a hospital for the insane. No etiologic relation is seen between the patients' psychoses and the pellagra. All patients had had poor appetites and four of them more or less long-continued diarrhea. Of the three fatal cases, one was diagnosed shortly before death and two after death from the case reports.

Ugeskrift for Læger, Copenhagen

95 1257 1276 (Nov. 23) 1933

- Treatment of Hematemesis and Melena with Food. E. Meulengracht—p. 1257.
*Generalized Osteitis Fibrosa (Renal Form). Case. C. Schwensen and T. Eiken—p. 1259.
Attempt to Measure Color of Skin. Erythrometer for Clinical Use. H. Ehlers—p. 1264.
Determinations of Metabolism During Treatment with Bergonie's Chair. B. Möller—p. 1267.
Transportable Delivery Bed for Normal Deliveries. F. Mynster—p. 1269.

Treatment of Hematemesis and Melena with Food.—Meulengracht advocates abundant puree diet as another well balanced diet in easily digestible and nonirritating form for patients weakened by hematemesis and melena. Of the 119 patients treated by him by this method during the last two years 5 have died in the remaining 114 the benzidine reaction of the feces became negative after an average of 10.2 days. Of the seventy-five cases of hematemesis and melena treated by him from 1928 to 1930 with regular ulcer diet with partial manition, twelve were fatal in the remaining sixty-three the benzidine test became negative after an average of 12.4 days.

Generalized Osteitis Fibrosa (Renal Form).—In Schwensen and Eiken's patient a woman aged 36 with symptoms of nephrosclerosis together with colicuria, vague "rheumatic" attacks appeared after a year and a half. Roentgen examination disclosed a generalized osteitis fibrosa with calcium deposits in the kidneys (renal form). The greatly increased calcium content of the blood and the urine pointed to disease of the parathyroid gland. On exploratory operation an adenoma of unusual size (37 Gm.) was removed. A somewhat threatening postoperative tetany was successfully treated by intravenous injection of solution of calcium chloride. In after-examination one year later the patient was well and fully capable of working.

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OBSERVATIONS ON INDIVIDUAL SENSITIVENESS TO PAIN

WITH SPECIAL REFERENCE TO ABDOMINAL
DISORDERS

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NEW YORK

For over thirty years I have been interested in the varying symptomatology of disease of the same kind occurring in different individuals. The subject of pain naturally received most attention. In this paper I shall take up mainly individual sensitiveness to pain, substitution symptoms, and radiations of pain. Some other important subjects, such as sensitiveness of diseased blood vessels and pains due to them can only be touched on.

Besides summarizing my earlier publications,¹ I shall give a survey of recent investigations. Theoretical questions will not be discussed. Nor can the vast and remarkable general literature on pain be reviewed. Like all others, I am deeply indebted to the studies of Ross, Goldscheider, Head, Mackenzie, Hurst and many others.

Many methods of gaging sensitiveness to pain have been suggested. The simple test that I employ is carried out by first pressing the thumb against the tip of the mastoid bone and then slipping the finger forward and pushing against the styloid process. Pressure on the normal mastoid bone causes no pain and therefore serves as a control. It is important not to rub the bone, because rubbing the periosteum of any bone is apt to evoke pain. Pressure in the direction of the styloid process is painful to some individuals and not to others. The sensitive point is really not the styloid process but a branch of the auricularis magnus nerve. For the sake of brevity, however, the term styloid pressure is employed. Algesimeters do not appear to be of service in practical clinical tests.

CLASSIFICATION OF GROUPS

According to the response to the test, individuals are classed as

- 1 0 sensitive
- 2 + sensitive
- 3 +++ sensitive

The first group comprises those who give no evidence of pain, and who state that they feel none. The second

includes those who evidence little pain, and also those who show none, but who in response to questioning say that they feel a little pain or give some such answer as "I feel a little pain when you press" or "It hurts when you press" or "I feel your pressure." For practical purposes it is desirable to classify groups 1 and 2 as hyposensitives. I do not refer to those in group 1 as "insensitive" because, given sufficient provocation, pain is manifested by some of them at least. Group 3 represents those who give evidence of marked pain and those who, while they may control the expression of pain, admit that the test is definitely painful. In order to indicate that there is a sharp division between hyposensitivity and sensitivity, a ++ group is not made. There is apparently no practical advantage in making any groups of those so sensitive that they might be designated ++++ sensitive, and so on.

When the styloid test is performed it is important not to press on the lower jaw. One is especially liable to do so if the latter structure is very close to the mastoid bone. There exists a sensitive point about the middle of the ramus, and when this is pressed on in addition to the sensitive point behind it, a summation occurs, which may be misleading.

If the patient experiences pain when the control pressure is exerted on the (normal) mastoid bone it must be concluded that central (cerebral) sensitization is present. If enlarged lymph nodes should be present behind the ramus of the jaw, or any condition that is in itself sensitive, other sensitive points on or near the surface of the body are available. The point that I have chosen has several advantages. It is accessible and the test is easily carried out without the patient realizing what is being done.

It is important to note that there are individuals—fortunately small in number—who, though really hyposensitive, react to the test as though they were sensitive. In such subjects, if one reverses the test by employing the styloid before the mastoid pressure, it elicits but little or no response, whereas the mastoid pressure proves painful. In other not naturally sensitive parts of the body, they act in the same way. In other words, any second stimulus gives a reaction. Because of this observation it is wise in all cases in which the styloid pressure is found sensitive to employ it again after a short interval. In the peculiar group under consideration the reaction will now be that characteristic of hyposensitivity.

Clinical experience has revealed that individuals who are sensitive to the styloid pressure on only one side react clinically like those who are hyposensitive on both sides. I do not speak of normal sensitiveness to pain, because there are apparently certain races that are preponderantly hyposensitive. For example, it was found by Dr. Leon Saul that, of thirty full-blooded male

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¹ Libman Emanuel Mayo Clinic Bull 5 No 135 1924 Tr A Am Physicians 41 305 1926 Proc Staff Meet Mayo Clinic 2 273 1927 Proc Inter State Post Grad M A North America 1926 p 61 1927 Tr A Am Physicians 44 52 1929

Pueblo Indians, only one was sensitive (and he was tested on only one side). In my office practice, between 30 and 40 per cent of the patients are hyposensitive.

TOLLRANCE, SENSITIZATION, DESENSITIZATION

It is necessary to distinguish between natural sensitiveness to pain and the way in which the patient acts in response to whatever he feels. The increased or decreased response can be termed decreased or increased tolerance or reaction. The differentiation between sensitiveness (of peripheral or central origin, or both) and tolerance is rarely difficult to the trained observer.

It is advisable to call tolerance the X factor and to say that a patient has a plus X factor or a minus X factor (at times, stoicism). There are many endogenic and exogenic causes of increased or decreased tolerance, and the expression X factor is useful as indicating that there is an unknown element until, in each instance, one discovers the particular cause of the variation in tolerance. When a person's mind is engaged, pain may not be noted. During crying, sensitiveness to pain is diminished.² A patient may not feel the pain of a given condition because he fixes the involved part (for example, with cervical spondylitis, fixes the head in a more or less rotated position). On the other hand, as already mentioned, an individual may even complain of pain when a nonsensitive point is pressed on. Sir James Paget well said "For pain expected, watched for, long thought of, will come, it will come in or from the nerve center and be as bitter as any from the nerve's end."

TYPES OF SENSITIVITY

The sensitiveness that is determined by means of the test is regarded as the natural sensitivity. Besides that, one must reckon with sensitizing and desensitizing factors. These may be due to causes inside or outside the body—endogenic and exogenic influences. All these influences may have a local or a general effect, or both. A good example in connection with sensitization would be that of a patient who, after examination by a physician, is informed that he has heart disease. Following that he may, whether he has a cardiac condition or not, develop pain in the cardiac area or general pains and other symptoms. Examples of endogenic factors are worry (the worry possibly being due to an exogenic cause), fear, anger, sorrow, fatigue, diversion of attention, joy, focal infections, such intoxicants as gout and lead, and endocrine influences (especially the menopause). Among exogenic influences are all persons or conditions that affect an individual in one way or another, trauma, meteorological changes, and the like.

The physician often applies repeated, continued or strong pressure to a part of the body in order to elicit tenderness. This I designate induced sensitization. It is important in connection with the subject of induced radiations, which I shall soon discuss. It is often difficult to decide whether an exogenic sensitizing factor acts by increasing sensitiveness centrally or in the focus of disease.

Desensitization may be purposefully brought about in a number of ways, the employment of drugs being one of them. This kind of desensitization is not infrequently valuable in performing physical examinations. It may happen, for example, that when the right iliac fossa is palpated with the idea in mind of the presence

of a lesion of the appendix, there may be difficulty, because of a marked superficial hyperalgesia. However, by the use of a local anesthetic the cutaneous tenderness may at times be removed and the examination properly carried out. In cases in which there is so much local muscular spasm and tenderness that one is in doubt whether a chest condition, such as pneumonia, or an acute abdominal disease is present, a hypodermic injection of morphine (given anywhere) may diminish the muscular spasm and tenderness sufficiently to permit of a more conclusive examination.

An interesting form of sensitization is that which takes place when an exogenic or an endogenic condition sensitizes one already present. I am referring to instances in which an endogenic condition that can cause pain does not do so unless one or more other conditions are also present (secondary and multiple sensitization). For instance, a patient may have coronary artery disease to a degree not marked to give him pain, but he may experience it if a gastric disturbance is added. Under such conditions, treatment directed toward the gastric difficulty may remove a cardiac pain. A good example is that of a man suffering from carcinoma of the liver who, on sharply raising his right arm, suddenly dropped it with such severe pain that a fracture or dislocation was suspected. On examination I found evidence of perihepatitis and sensitiveness of the right trapezius muscle. What had really transpired was that the muscle had been sensitized by the perihepatitis but not sufficiently for the patient to note pain. When, however, he strained the muscle, he suffered a cumulative effect.

An interesting instance of an exogenic factor acting in a similar way is described by Billroth.³ He relates that at a concert, "when the soprano, with incredible assurance, took a high B a quarter of a tone too high," he suffered a severe attack of pain in a tooth that had never before been painful. On the following day, his dentist found that tooth carious.

HYPSENSITIVITY

I wish to pass over now to a consideration of hyposensitivity. While it may happen that a sensitive patient may show the same clinical picture as a hyposensitive one, and vice versa, there is a great tendency for the latter to feel less or none of the pain of a given disease and to present irregular radiations of pain. He is also apt, in the case of visceral disease, to suffer more in the way of symptoms due to a disturbance of the autonomic nervous system, a number of which symptoms are brought about by reflex mechanisms.

Instead of pain, the hyposensitive patient may have what is called substitution symptoms. Substitutions are classified into two groups, the one being substitution symptoms—in the strict sense—and the other, covered symptoms. The latter might just as well be called uncovered symptoms, for the reason that the patient who is sensitive does not usually complain of them (when present) because he suffers so much from the pain.

In the first group are included all symptoms that might be considered representative of pain, such as pressure, burning, numbness, prickling, tingling and other forms of paresthesia. Such symptoms as pruritus and ticklishness need special study in this connection. That ticklishness may represent pain is sug-

² It is important to keep this in mind when examinations are being made.

³ Billroth C. A. T. Wer ist Musikalisch? Berlin: Gebrüder Paetel, 1898.

gested by the observation that pressure over a diseased organ may elicit laughter in a hyposensitive patient instead of pain

Covered symptoms are of at least three kinds

A Those that appear in hyposensitive patients when pain is not predominant

A good example of this is encountered in cases of "angina pectoris" due to coronary artery disease. It is generally thought that dyspnea is not a symptom of this condition (I am not, of course, referring here to the dyspnea unaccompanied by pain, which is dependent on myocardial breakdown). If, however, the patient is hyposensitive, dyspnea may be the predominant symptom or be complained of in addition to a moderate pain. In general, I have found that severe pain covers dyspnea and that marked dyspnea covers a moderate pain. Many of the symptoms uncovered in hyposensitive patients will be noted later when disturbances of the autonomic nervous system are taken up.

B In cases in which multiple foci of the same disease process are present, the symptoms of one may cover those of another.

In a case of multiple carcinoma of the bones, the spine was very tender to percussion in several places while the patient was sitting up in bed. When standing, the spine was no longer tender, because the patient suffered very severe pain from a metastasis in one of the tarsal bones.

C When two clinically independent conditions are present, the symptoms due to one may cover the other.

Such a state of affairs is well illustrated by the story of a patient who suffered for several months from dyspnea due to emphysema, asthma and coronary artery closure (right side—clinical diagnosis). After the dyspnea had disappeared, he complained of a burning sensation on the outer side of the right thigh (meralgia paraesthetica). It developed that he had suffered from this discomfort for a number of years but that it had disappeared with the onset of the dyspnea.

The role played by substitution symptoms in hyposensitive patients is so extensive that only a few examples can be noted here. Others will be found scattered throughout the paper.

1 Patients suffering from peptic ulcer may suffer little or no pain, speaking only of fulness, pressure, burning, coldness, nausea, "gas," depression and weakness (with some, only in relation to meals), headache, dizziness and the like. The patients who perforate or bleed with little or no previous history are usually hyposensitive. The same holds true for cases of pyloric stenosis due to ulcer.

2 The hyperalgesic cutaneous areas of Head are more significant in hyposensitive individuals.

3 Most hyposensitive patients complain little or not at all of pain while undergoing dental manipulations that are usually painful, while they fear drilling because it gives them a most uncomfortable (not painful) feeling.

4 Patients who come under observation with advanced abdominal neoplasms with a short history, or none at all, usually prove to be hyposensitive. The importance of periodic health examinations is made even more evident by the studies on hyposensitivity.

5 Some patients suffering from ureteral calculus complain only of "crowding" in the iliac region. In cases of acute pancreatitis, the same complaint may be present, referred to the epigastrium.

6 In patients suffering from such disorders as subacromial bursitis or brachial neuritis, there may be complaints of paresthesias alone. Not infrequently such patients drop things that they are holding, because of weakness in the hands.

In attempting to elicit pain during the examination of hyposensitive patients, I often find it necessary to employ strong pressure. It is always essential to ask not only "Do you feel any pain?" but also "Does it hurt you when I press?" There is a great difference in the psychology of the sensitive and of the hyposensitive patient. The former knows that you are inquiring as to whether or not the examination causes pain. Most hyposensitive patients think that one is referring to spontaneous pain.

It is important to keep in mind that substitution symptoms (mainly those which are real replacements of pain) may occur in sensitive patients. In them, however, they are indicative of a mild disturbance. As indicated earlier in the paper, one must magnify in one's mind the mild symptoms of a hyposensitive patient if one wishes to calculate their real significance. In a hyposensitive patient it may happen that a moderately severe condition is characterized by substitution symptoms, and a severe one by the usual symptoms. Thus in a case of narrowing of a coronary artery there may be found dyspnea on exertion and later pain without dyspnea. Still later dizziness (substituting for gastric symptoms) may occur with attacks of pain, and finally, when a thrombosis takes place, the usual nausea and vomiting with pain.

RADIATIONS OF PAIN

As a result of the studies of Ross, Head, Mackenzie and others, much is known concerning the location of pain in various diseases and the radiation of pain. The pains and radiations that are believed to be understood and that are expected to be found may be designated as regular or usual. There are, however, many that need further observation and explanation. They may be called unusual or, better still, irregular. Among the latter are included contralateral radiations, inverse radiations and recurrent radiations.

It is practical to make a distinction between contralateral pain and contralateral radiation. A contralateral pain is one that has its initial location on the side opposite to that of the lesion. For example, if, in a case of coronary artery disease, the pain begins on the right side, that is a contralateral pain. Contralateral pains belong in the general large group of referred pains. There is no unanimity in the literature as regards the definition or conception of referred pains. The pain felt in the parietes in cases of visceral disease is by some called referred pain. The term "reflected pain" is preferable for such a pain if it is situated in the location typical for the organ involved, the hyperalgesia being designated "reflex hyperalgesia" (Mackenzie). It leads to clarity to define referred pain as that felt in a locality removed from its cause.

A contralateral radiation is one that spreads to the side opposite to that of the lesion. At times there are present radiations from a focus to the same side and also to the other side. Only those contralateral radiations seem to be of special interest in relationship to hyposensitivity which occur in the absence of any homolateral radiation. The term "purely contralateral radiation" might well be employed to characterize them.

In cases of cholelithiasis one not rarely encounters contralateral pains and contralateral radiations. In

cases of chronic obliterating appendicitis, contralateral radiations may be felt in various directions (upward to the left, directly across, or downward to the left). Contralateral pain may also occur. There are other explanations for left-sided pain in cases of appendicitis. The appendix may (rarely) be situated on the left side, or the symptoms may be produced by a reflex spasm of the descending colon (at times demonstrable by roentgen examination) and not directly by the local lesion. Of particular interest are those cases of "angina pectoris" of various origins in which the pain is felt only on the right side, or in which it is substernal and always radiates to the right side.

By an inverse radiation I mean one that radiates toward the focus of disease and not as usual from it. This is seen under a variety of conditions. In a case of coronary artery disease the pain may begin in the hypogastrium and radiate upward, or radiate from the fingers, wrist, forearm, elbow or arm of one or both sides to the precordium. I have seen a case of basilar subarachnoid hemorrhage in which the pain began in the region of the coccyx and shot upward to the base of the skull. Similarly, in a case of dysmenorrhea the pain radiated from the neck downward.

In a case in which the pain is contralateral the radiation may be inverse. This is well illustrated by a case of coronary artery occlusion in which the pain was felt in the right side of the chest (corresponding to the precordium) and always radiated toward the position of the heart.

Of great interest, I believe, is the finding that contralateral pains, purely contralateral radiations and inverse radiations are all characteristic of the hyposensitive state. Further studies are still necessary to determine their incidence in the sensitive patient. It is important clinically to realize that one should always seek the focus of disease on the side opposite to that of the position of the pain or other local symptoms if none are discoverable on the same side—and to remember always that the focus may be in a position toward as well as that from which a pain radiates.

My studies on recurrent radiation are meager. Perhaps its occurrence is infrequent. By this term I mean a radiation that returns more or less completely to its site of initiation. A better term might be "reversing radiation" or "returning radiation." Such a radiation is very significant, as one must believe that it is dependent on a disturbance in peristalsis. In a case recently observed by me the patient had complained for many months of a pain beginning to the right of the upper part of the sternum, shooting downward in a straight line to the epigastrium and then nearly all the way back. Just as the pain began to radiate upward, a gurgle was felt. The correct diagnosis (verified by operation) of carcinoma of the stomach was made before I saw the patient, because of a routine roentgenologic examination. Before that, a cardiac disorder was suspected. A knowledge of recurrent radiation might have been very helpful. Another striking instance will be given later, when I take up the important topic of muscular relaxation in relation to abdominal diagnosis.

INDUCED SENSITIZATION

The next subject, that of induced radiation, is one that has been of the greatest value in my clinical work. An induced radiation is one produced by means of the induced sensitization of which I have already spoken. When a part of the body is pressed on in order to bring out tenderness, the mistake is usually made of merely

inquiring whether or not pain is felt. It is essential to ask also where any pain is felt, and how it (possibly) radiates. If one succeeds in reproducing the pain and the radiations from which the patient is suffering, by means of induced sensitization of a certain part of the body, it may be concluded that the seat of the trouble has been located. Unfortunately not all parts of the body are adapted to this type of investigation. (The heart is made available to a certain degree by means of exertion.) All examinations should be made in a definite fashion, with intervals between them. This is an important matter, because hyposensitive patients, in particular, are apt to be desensitized by rapidly repeated examinations.

My experience with this subject is very extensive. I shall, however, present only a few brief illustrations.

1. A case of pain in the left iliac fossa traveling upward in a straight line to the left nipple and, as a result of walking, radiating at a right angle almost as far as the right nipple. Pressure on an enlarged left ovary caused exactly the same kind of pain, thus explaining its origin.

2. A case of pain in the upper part of the right side of the chest in front during an attack of rheumatic endocarditis in a patient suffering from aortic insufficiency. It was proved to be due to arteritis of the innominate artery, because it could be brought about by touching a part of the innominate artery.⁴

3. A case of recurring pains radiating from near the midline of the abdomen obliquely toward a ventral hernia resulting from an appendectomy. The hernia was not at all tender. Pressure on a large plaque on the right side of the aorta just above the bifurcation caused a pain exactly like that of which the patient complained.

4. In cases of calculous cholecystitis in hyposensitive persons, it has been a not uncommon experience to find tenderness absent in the region of the gallbladder but present in the right trapezius muscle and in the epigastrium. For the purposes of diagnosis, such trapezius tenderness may be considered equivalent to tenderness in the region of the gallbladder. In cases in which the pain is always felt on the left side the diagnosis may be made less difficult if one succeeds in inducing (or increasing a preexisting) tenderness of the trapezius and of the epigastrium by firm and repeated pressure in the region of the gallbladder, and not obtaining the same result in the left hypochondrium.

If in the course of examining patients with the aid of induced sensitization pain is not brought about one must inquire for other sensations. It is possible at times to reproduce substitution symptoms. A woman who complained of burning in the lower part of the left thorax did not feel any pain when the spine was sharply manipulated. When, however, she was asked whether she felt anything at all, she stated that the movement of the spine caused the same burning sensation for the relief of which she had come under observation. I had a similar experience with a patient who complained only of "coldness" in the left flank. On compression of the large mass present (tuberculous pyonephrosis), the same sensation was experienced.

Not only can substitution symptoms at times be reproduced but also contralateral and inverse radiations. I have already referred to a case of gallbladder disease

⁴ In one case of rheumatic endocarditis in which part of the innominate artery was tender, marked arteritis was found at postmortem examination.

in which a contralateral pain was caused by pressure in the region of the gallbladder. A good example of the induction of an inverse radiation is the following. A woman suffered from a pain beginning in the right flank and radiating to the lower part of the right iliac fossa. Pressure on the kidney and in the right iliac fossa gave no result, but pressure on an enlarged right ovary elicited exactly the same pain.

VISCERAL DISEASE

As I have already stated, the hyposensitive patient is apt to present more in the way of symptoms referable to the autonomic nervous system, a number of which are brought about by reflex mechanisms. These reflex disturbances (which have thus far been studied only in disorders of the heart and of the abdominal organs) are of great interest and make for difficulty in diagnosis. This difficulty is, however, considerably diminished by a knowledge of hyposensitivity. Instead of pain, or together with little pain, there may be present symptoms due to spasm of the cardia, the pylorus, ileocecal junction, sigmoid flexure, and the like.

Thus there may be prominent or predominant in the clinical picture such manifestations as eructation (or aerophagia), yawning, coughing, choking, hiccups and sneezing. At another time I will detail my complete observations. A few notes must suffice here.

In a case of coronary artery thrombosis, eructation (or aerophagia) may be the most important symptom. Rarely, sneezing takes the place of the usual pain of pyloric stenosis. Renal and ureteral conditions may present the picture of a more or less marked intestinal obstruction and not be accompanied by the pains characteristic of them. In cases of chronic obliterating appendicitis, the symptoms present may be entirely ascribable to spasm of the transverse or descending colon.

I have noted cough in disorders of the stomach, gallbladder, spleen, appendix, colon and kidney (it has been described by others in connection with the uterus). What is of great interest is that, in a given case, cough may be present on less and pain without cough on more marked stimulation. For example, in a young man complaining for many months of moderate abdominal pain, belching and cough, in whom a diagnosis of chronic appendicitis was made, moderate pressure elicited cough, and marked pressure, pain without cough. The latter disappeared promptly on the removal of an appendix that was thickened and completely obliterated.

Among the symptoms referable to the autonomic nervous system, so commonly encountered in hyposensitive patients, are weakness, exhaustion, syncope, collapse, sweating, vertigo the Meniere syndrome, mental depression, general nervousness, anxiety, tremulousness, distress on breathing, insomnia and dreaming. Twice in hyposensitive women, a remarkable observation was made in connection with menstruation. Instead of pain, they presented small cutaneous hemorrhages in the area in which menstrual pain is usually located (the right lower portion of the abdomen and the upper part of the thigh).

In the past few years I have noted that all of my cases of Osler syndrome (visceral lesions of the erythema group) occurred in hyposensitive patients. It is necessary to study the hematuria and the urticaria sometimes associated with disease of the abdominal organs, with reference to sensitiveness to pain.

The subject of weakness (and collapse) has been of particular interest. It has been found that, instead of pain, a visceral disease may be characterized by local or general weakness. At times the patient suffers from some pain and some weakness, instead of the severe pain that one would expect. The patient may complain of a "weak pain." This does not mean a slight pain, but weakness and pain. In hyposensitive patients suffering from rheumatic fever, there may be no complaint of pain but of general weakness, weakness in the legs or fatigue on walking. The same holds true for cases of obliterative arterial disease in the lower extremities. Dysmenorrheic women may complain of "weakness in the back" or general tiredness. A patient who collapsed and, on reviving, complained of pain in the back was found to be suffering from spondylitis without any cardiac disorder.

A study of pugilists has afforded interesting information. A number of years ago, Dr. Leon Saul tested for me ninety-seven of the leaders in New York City. Of them, 90 per cent were found to be hyposensitive. The correct figure may well be higher, because at the time the test was not always made on both sides. Some of the +++ sensitive patients may have been hyposensitive on one side. The pugilist suffers from shock, usually not from pain.

In various acute abdominal disorders, disturbances of cardiac rhythm, such as extrasystoles, tachycardias and auricular fibrillation⁵ may occur without the marked pain characteristic of the particular disorder. This state of affairs seems to be associated with hyposensitivity. It needs much further study.⁶

I wish to draw special attention to the occurrence of vertigo and of the Meniere syndrome (with or without auditory manifestations) as a substitution symptom. It is not at all infrequent in cases of coronary artery closure, and I have also found it as a substitution symptom for pain in disease of the gallbladder and even of the appendix.

In cases of "angina pectoris" of various origins one finds a particularly fertile field for investigations of the type that I am reporting. If the cases not due to disease of the coronary arteries are considered first it is found that pain is usually the one important symptom. In hyposensitive patients various substitution symptoms are encountered, some of which have already been mentioned—burning, coldness, a sense of pressure, a sensation of constriction in the chest, a feeling of swelling of the arms or forearms. If pain is present it may be contralateral, and contralateral radiations and inverse radiations of various kinds may occur.

In cases of coronary artery thrombosis apart from the fever, pericarditis and leukocytosis there is added to the pain, gastric and perhaps intestinal symptoms (diarrhea) more marked evidences of a general disturbance of the autonomic nervous system and the typical great anxiety. In hyposensitive patients the pain may be slight or absent and be replaced by the substitution symptoms just detailed. Epigastric localization is here of more frequent occurrence. Dyspnea may become the salient complaint. Vertigo may replace

⁵ Auricular fibrillation is infrequent in the course of subacute bacterial endocarditis. One of the explanations for its occurrence is infarction of the spleen in hyposensitive patients. Under such conditions there may be dyspnea or tightness of the chest but no pain.

⁶ The relationship if any between the heart block that occasionally occurs in connection with visceral disorders and the hyposensitive state is also worthy of investigation.

⁷ Occasionally a hyposensitive patient speaks of dizzy pain in the epigastrium. This is to be interpreted as pain and gastric disturbance.

the gastric disturbance.⁸ Other symptoms may become predominant, such as sweating, weakness of the extremities, general weakness and collapse. If the patient recovers from the attack of thrombosis and in walking is compelled to stop from time to time there usually occurs at such times a mild form of whatever symptom was the principal feature of the attack. In patients on whom operations have been performed for the relief of "angina pectoris" and in whom success is obtained in the relief of the pain, clinical pictures are encountered which resemble those observed in hyposensitive patients having a cause for angina pectoris but not presenting the typical clinical picture.

On analyzing the numerous observations that I have made, I have come to the following general idea: that the great difference between the hyposensitive and the sensitive patient is that in the latter the impulses travel more directly into the central nervous system. In hyposensitive individuals, they seem to be delayed in the autonomic system or linger there. If it proves true that impulses may linger in this pathway, there is available a hypothesis that may well aid in clearing up some cases of so-called visceral neurosis. Further, if one accepts the idea that impulses may travel upward or downward before entering the central nervous system, one has a clue to the understanding of some referred pains.⁹

Space is lacking for a discussion of other relevant studies. A difficult subject, but one of considerable importance, relates to disturbances in the autonomic system itself. For example, one is occasionally confronted, in the presence of tenderness in the region of the gallbladder, associated with tenderness of other abdominal organs, with making a decision as to whether a diseased gallbladder has caused sensitiveness of the autonomic nervous system or whether a disturbance of the latter (so-called sympathetic neuralgia) has led to sensitiveness of a gallbladder that may be normal. Of great interest is the observation that a chronically diseased appendix may be influenced by a disturbance in the autonomic nervous system in such a way that pain, fever and even leukocytosis may result, in the absence of any pathologic evidence of acute inflammation.

Another subject that cannot be taken up properly is that of sensitiveness of arteries and pains due to diseases of their walls alone or associated with incomplete or complete obstruction. I might note that atherosclerotic and calcific plaques may be painful and tender and may initiate remarkable radiations, and that a closure of the lumen may give rise to radiations different from those originating in thickened parts of the wall. Of great significance, I believe, is an observation made in the case of a young woman, suffering from abdominal pain and vomiting, that pressure on calcific deposits in the wall of the abdominal aorta gave rise to pain and marked nausea and itching, whereas the uninvolved parts did not.

SENSITIVITY OF MUSCLES

The last subject to which I shall refer is the sensitiveness of muscles. Tense muscles, whether natural for the patient or due to underlying disease, interfere much in making diagnoses. In intra-abdominal dis-

orders the muscular wall is apt to be tender over a localized or a wider area. It is important to make every attempt to relax these muscles. I have found that it is often of the greatest aid to turn the patient toward the side opposite that of the suspected lesion. Occasionally, turning to the same side is of more help. When a patient is thus turned, not only can one carry out a better palpation but a previously tender muscle may no longer be tender. This loss of tenderness occurs frequently in muscles that are the seat of more or less tension.

In cases of inflammatory or obstructive disorders of the kidney, not only the muscles of the back may become tender but also those of the right side of the abdomen. In such instances it may be difficult to say whether or not a renal lesion is present alone or together with an acute appendicitis. Turning the patient to the left is not infrequently of the greatest assistance, because the muscles in front may be made to relax and no longer be tender.

The short recital of one case will suffice, I believe, to make evident the great value of this muscular relaxation.

A man aged 64 took sick with abdominal pain, fever and vomiting. A leukocytosis was present. Some hours later he collapsed. A diagnosis of coronary artery thrombosis was made. When I was consulted on the following day, he was in fairly good condition, with fever and increased pulse rate. On careful inquiry the patient described his pain as starting on the right side, at about the level of the umbilicus radiating in a straight line to the left and then returning to about its original site. This radiation was considered to indicate a disturbance of peristalsis. The only tenderness present was in the lower rectus muscles. On turning the patient to the left, I observed that this muscular tenderness disappeared, and deep palpation revealed no abnormality. The tenseness of the lower rectus muscles pointed to a disorder in the lower part of the abdomen, and the reversing radiation to the intestinal tract. As no lesion could be located in the abdomen proper, it was concluded that it would be found by rectal examination (which would in any event have been carried out as a matter of routine). Without difficulty a tender exudate was palpable high up on the right side. Operative intervention disclosed a perforated gangrenous appendix.

This purposeful muscular relaxation has been of great value in connection with the consideration of the Mackenzie theory of hyperalgesia. As is well known Mackenzie believed that in visceral disease the seat of the pain is not in the viscus but is due to the reflected peripheral hyperalgesia. A number of observations has made others and myself doubtful of the general validity of the theory. In fact, evidence to the contrary can be obtained in a number of ways. One of the most available is by means of observations on tender gallbladders in hyposensitive individuals.

It is not an infrequent experience that, in a patient suffering from symptoms due to gallbladder disease there may be only moderate or no tenderness while the patient is lying on his back but marked tenderness and a widespread radiation of the pain when he is turned to the left. If the trapezius muscles were not tender before this examination, and one or both become tender (usually only the right) the inference can be made that the sensitization has been brought about by a reflex from the gallbladder. It is important in making such studies to perform a control test by pushing against the liver to either side of the gallbladder.

It is clear that if there is but little or no tenderness with the patient in the dorsal position and marked ten-

⁸ I have published notes concerning this subject in the papers cited at the beginning of my presentation.
⁹ One must of course consider the possibility of impulses spreading upward or downward in the spinal cord itself (as suggested by Behan and others) before being reflected to the periphery.

derness in the lateral position, the tenderness cannot be ascribed to the tissues of the abdominal wall. They should be as tender in one position as in the other if the seat of the pain were in them and should, in such an event, be more tender with the patient on the back, the muscular wall being then more tense. The sensitization of the trapezius muscles cannot be due to hyperalgesia of the abdominal wall.

According to my investigations, I should say that Mackenzie taught that much of what was considered to be visceral tenderness is ascribable to superficial hyperalgesia. In the sensitive patient this hyperalgesia interferes with making correct observations concerning an involved viscus itself. In the hyposensitive patient, however, the abdominal wall may be rigid and not tender, and if one succeeds in relaxing it evidence of a visceral sensitiveness may be obtained. Future studies may well reveal the diseased viscus itself is usually sensitive but that this sensitiveness is not always appreciable because of the overlying hyperalgesic abdominal wall.

COMMENT

These studies are largely preliminary in nature. It is only too evident that it will require the efforts of many observers, and over a long period, to cover the extensive field involved. Nobody realizes more than myself the liability to errors in observation and interpretation.

It is necessary to study the relationship of race, sex and age to sensitiveness to pain and to investigate fully the subjects of sensitization and desensitization. This includes the influence of pain itself, drugs and disease (especially of the nervous system).

In the future, all investigations concerning pain must take into consideration the question of natural sensitivity. Much earlier work needs repetition. In all such studies it is advisable that comparisons be made only of zero sensitive individuals (according to the classification already given) with +++ sensitives. Attempts to make finer distinctions in the course of basic investigations are liable to lead to confusion and errors.

Studies on animals may prove of value. In all the work hitherto performed it has been taken for granted that sensitiveness is the same in all animals of a given species.

The possible relationships of sensitiveness to pain to the general physical and mental character of the individual constitute another field for investigation. A comparison of sensitiveness to pain with that of the special senses should be made. A study of the relative importance to the brain of all symptoms may yield valuable results. Of significance is the fact that observations of the kind presented in this communication can be carried out without special facilities. There is therefore afforded a fruitful opportunity for studies by the practitioner.

At present the description of the clinical features of various diseases in all branches of medicine applies to individuals who are sensitive to pain. It is essential that as soon as possible there be recorded the clinical pictures of disease as occurring in the hyposensitive (and hypersensitive?). It is in these that one has the greatest difficulty in connection with diagnosis. Studies such as those here undertaken are dependent largely on what has been learned from the work of physiologists and pharmacologists and, in turn, present to them new problems to be elucidated.

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CLINICAL ASPECTS OF ABDOMINAL PAIN

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Pain is a necessary part of the animal's mechanism of defense. Exaggeration of a sensory stimulus, whether it is transmitted centrally over cranial or spinal afferent nerves from the skeletal structures or over the afferent systems that accompany the sympathetics and parasympathetics to the internal viscera, may lead to discomfort or pain. Pain is the automatic danger signal that tells the individual to beware, for the normal mechanism is irritated in an abnormal manner, or even its integrity may be threatened.

In considering pain, it is necessary for the clinician to remember that the perception of painful stimuli is bound up with the patient's physiologic stability and that the complaint of sensory changes will differ greatly in different individuals. What may be a painful stimulus to one person may not be to another.

THE VISCERAL NERVOUS SYSTEM

The sympathetic or thoracolumbar and the parasympathetic or craniosacral components that make up the vegetative or autonomic nervous system form a correlating mechanism which in conditions of health brings the action of all the viscera into harmony and, further, in conjunction with the voluntary nervous system, brings visceral and skeletal activity into harmony. In conditions of disease, these nerves furnish the mechanism for creating disharmony.

Every secreting gland and every bit of smooth muscle is supplied by neurons belonging to one or both of these systems. Each of these systems consists of efferent neurons, which transmit stimuli to and produce action in structures, and afferent neurons, which pick up stimuli that originate in the various structures and carry them centrally, where they transmit them to efferent neurons and thereby translate them into action in the same organ or in other organs or parts. If the stimuli are of normal strength they are spent without disturbing physiologic function, but if of extraordinary strength they produce abnormal effects which result in either increased glandular secretion or increased muscular activity and not infrequently altered sensibility, which may be discussed for clinical convenience as a sensory reflex.

NATURE OF VISCERAL PAIN

There has been a great deal of discussion concerning the nature of visceral pain, largely because of a lack of knowledge of the visceral nervous system.

Early in the investigation of visceral pain, Lennander and Mackenzie showed that the viscera do not respond to the same character of stimuli that cause pain in somatic structures. They showed that the viscera may be cut, pinched and burned without causing pain. This necessitated that some theory be advanced to explain this difference.

Not only were clinicians surprised to learn that viscera do not contain nerves that have the property of showing the same acute pain when injured as do skeletal structures, but they have been slow to accept it, because they have been familiar with many forms of acute visceral pain in their clinical practice.

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Visceral pain, as studied in the parietal pleura and parietal peritoneum, has been long known to be acute in character and further to be expressed immediately over the areas of inflammation. Certain inflammations of abdominal viscera, too, have been known to show acute pain on deep pressure over the organ.

These facts seemed to justify clinicians, in the absence of accurate knowledge of visceral neurology, in assuming that the viscera and skeletal structures show pain in the same manner, both at the point of injury. This opinion prevailed, regardless of the fact that it was well known that the heart refers its pain regularly to the left arm and upper portion of the chest wall and that the diaphragm refers its pain to the shoulder. Later, I pointed out that the lung expresses what discomfort there is accompanying inflammation of its tissues in the somatic areas supplied by spinal nerves that arise from the midcervical segments of the cord producing changes in sensibility in areas sometimes over the area of inflammation and sometimes removed from it, and even removed from the lung itself, as in the neck over the sternocleidomastoid and trapezius muscles.

Thus it has become evident that there is a type of visceral pain which is expressed wholly neither in nor over the pathologic process nor even in the diseased viscus itself, but at a distance, in definite areas on the surface of the body, to which it is referred. Study showed that these areas are supplied by neurons which are closely associated in the central nervous systems with the neurons which supply the viscus in question and that there is great regularity in the localization. This type of pain was therefore designated as referred pain, being referred from the visceral neuron to the skeletal neuron for its expression. It was later proved that this referred pain is segmental in nature and that it follows certain definite laws as to its localization.

Pulmonary pain is not of an acute character. Neither is pain arising in the liver, the cortex of the kidney or the spleen. In fact, the usual pain in any solid viscus so long as the inflammation is confined to the parenchyma of the organ, is not acute. A large area of a lung may be involved in a destructive process, and unless the overlying pleura takes part in the inflammation, the patient may be wholly unaware of its presence, as far as sensation is concerned. So may destruction occur in the cortex of the kidney and the parenchyma of the liver without causing a disturbance in sensibility commensurate with the destruction. This is an important fact in the argument that has been advanced to explain the nature of visceral pain. There is some factor connected with hollow viscera, on the other hand, which causes them to respond with a greater degree of sensitiveness than the solid organs, when injured. The facts of contractibility and distensibility have been considered to be the most probable cause of this difference. The intestine, the ureter or the common bile duct, which under usual conditions of physiologic activity give their possessors no evidence of their existence, under spasm or distention may cause acute pain. This fact may be interpreted as indicating that referred visceral pain, as compared with referred visceral discomfort, depends first on the character of the organ in which the stimulus arises and secondly on the severity of the stimulus. This is modified always by the particular sensitivity of the patient.

Head interpreted his classic studies on pain as indicating that the afferent nerves of the viscera are the

same as those which furnish skeletal tissues with deep and protopathic sensibility and, further, as showing that visceral pain is produced by a mechanism similar in nature to that which causes the less acute sensations found in the skeletal structures. This view is accepted by many but is rejected by others.

The visceral sensory system, like the sensory system of the deep skeletal structures, is not able to express discriminating sensibility. Under ordinary circumstances it is assumed that the afferent visceral neurons are subject to an inhibition from higher centers, which prevents the impulses from reaching the perceptive centers in the brain and, instead, are held to lower levels in the central nervous system, where they are regularly transformed into reflex effects without the individual's knowledge. Under circumstances of unusual stimulation, however, the inhibition may be overcome and the impulse transmitted to the thalamus and cortex. In case it should reach the higher centers the pain is not ascribed wholly to the viscus in which the impulses arise but is referred partly to the surface of the body. That deep pressure over inflamed visceral tissues can also produce pain which is felt in the viscus is accepted as a fact by many.

Head recognizing the segmental nature of referred pain suggested in explanation of it what has come to be known as Head's law.

When a painful stimulus is applied to a part of low sensibility in close central connection with a part of much greater sensibility, the pain produced is felt in the part of higher sensibility rather than in the part of lower sensibility to which the stimulus was actually applied.

In other words, visceral stimuli are transmitted centrally over neurons that belong to the deep or the protopathic systems—neurons of the same order as those found in the deeper skeletal tissues. Should the patient's threshold for stimuli be below normal, or should these stimuli become abnormally severe, as under conditions of undue irritation or disease, they may produce pain.

SEGMENTAL NATURE OF VISCERAL PAIN

An important factor in visceral pain is its regular localization in definite somatic areas.

It is a physiologic axiom that each part adapts itself to its particular environment and develops whatever conditions are adequate for normal physiologic action in that environment. Since the more acute types of sensibility (pain) carry with them the more ready protective reaction, and since quick protective response is not regularly needed by the internal viscera, visceral pain is not developed to the same degree of acuteness as that in the skeletal structures. Under unusual circumstances, however, such as those which produce excessive irritation or injury, the structures are not left without defense, for a pain mechanism sufficient for the emergency is called into play.

When painful visceral stimuli reach the perceptive centers in the brain the effect is regularly redistributed segmentally with the same degree of definiteness of localization as the visceral, motor and trophic reflexes that are mediated in the cord, if the effect is expressed in adjacent segments, this too follows the law that governs the spread of reflexes.

Thus visceral pain may be either narrowly localized or widely spread but always follows definite physiologic laws. In the former case it may be confined to those

segments which receive the major portion of the afferent impulses from the viscus, in the latter, it may be distributed through intersegmental neurons to either higher or lower cord levels. While each viscus receives its sympathetic nerve supply from several segments of the cord, there are usually two or three segments that may be looked on as being the chief centers of supply. The latter proves to be the principal center for the mediation of reflexes. Thus the heart receives its sympathetic supply from the upper five, six or seven thoracic segments, yet cardiac pain is most commonly expressed over neurons from the first, second and third segments.

DIFFICULTY OF COMPREHENDING REFLEX EFFECTS

Among the difficulties that are encountered in attempts to study visceral pain clinically are (1) the individual variation in reaction of different persons to stimuli of the same degree of strength, (2) the patient's inability to describe his sensations accurately, and (3) the physician's inability to comprehend and interpret properly the patient's descriptions.

The same difficulty is encountered in interpreting reflex secretory and motor effects in organs because except in cases of a low degree of physiologic stability, only major disturbances are noted and complained of by the patient. Increased tension in the skeletal muscles, which is commonly present when viscera are inflamed, too, is often neither perceived by the patient nor recognized by the examiner.

Reflex effects may be slight or severe and of short or long duration according to the reacting powers of the patient and the character of the visceral lesion that causes them. When visceral inflammation is of long duration, degeneration takes place in those skeletal tissues which take part in the reflex and may be detected either on inspection or palpation or both. It does not seem illogical to assume that degeneration may also result in those visceral tissues which are affected reflexly by chronic inflammation. Clinical experience would indicate this for it often shows a permanent functional disturbance in those viscera which are in close reflex relationship with organs that are chronically inflamed, for example the stomach in case of disease of the gallbladder. I have found this also to be the case in chronic inflammation of the lungs, pleura, peritoneum, kidney and intestine. In the case of the lungs, I have been able to establish beyond question that reflex trophic changes may be produced not only through the sympathetic afferents and spinal nerves but also through vagus afferents and the mediating cranial nerves, particularly those supplying the facial muscles, the tongue and the mucous membranes of the nose, pharynx and larynx. Paths similar to those from the lung are open for other viscera, and chronic inflammation in them is probably followed by the same effects.

DIFFERENCE IN ACUTE AND CHRONIC PAIN

Chronicity and previous disease in the viscera are often followed by altered visceral sensibility. Visceral pain may be caused by active inflammation at any time and may recur after all evidence of active inflammation in the viscus has long disappeared. This is particularly to be expected in patients of the hypersensitive class, although it is frequently met in the hyposensitive too. This chronic pain is explicable on the basis of a permanent lowering of the threshold for stimuli or even a

permanent injury to the sensory neurons, which causes them to show pain on a minimal stimulation, even though the stimulus is such that it would not be noticed were the neuron normal. This recurrent pain is not sufficiently appreciated by clinicians and is often misinterpreted as meaning active disease, when in reality it is an expression of permanent injury to the sensory neurons which causes them to respond unphysiologically.

The recurrent pain that comes on without recurrent visceral inflammation is rather a discomfort than a pain. It may appear at any time after a given viscus has been diseased.

Recurrent pain may occur in the neurons associated with any viscus that has been the seat of prolonged inflammation and possibly prolonged irritation without inflammation. It has the same segmental characteristic as the more acute pain and is sometimes difficult to differentiate from it. I have found it in those who have previously suffered from disease of the lungs, pleura, gallbladder, ulcer of the stomach and duodenum, tuberculous peritonitis, tuberculosis of the intestine, diverticulitis (personal experience), tuberculosis of the kidney and disease of the uterus and adnexa. It is also fairly well recognized in arthritis.

It seems that there is an inability on the part of these injured neurons to adapt themselves to unusual requirements of physiologic adjustment whether originating in the external or in the internal environment. The change in sensibility is manifest under many conditions, such as changes in the weather, seasonal changes, tiring, such depressive emotions as worry, discontent and unhappiness, and during menstruation. While these factors differ widely in their nature it is evident that each one calls for an unusual physiologic adjustment on the part of the patient, it will be further noticed that the individual fails to react normally only in those particular neurons which are segmentally connected with organs that were formerly diseased. Thus the patient who has had or who at the time is suffering from chronic lung trouble experiences discomfort in the segments innervated particularly by the third, fourth and fifth cervical nerves, the man who formerly had ulcer of the stomach may note pain in the skeletal areas supplied by the sixth and seventh thoracic segments to the left of the median line, while the woman with past or chronic pelvic inflammation feels the pain in the lower lumbar and sacral regions. It is a further fact that the degree of discomfort varies greatly according to the physiologic stability of the patient being most severe in the most unstable. This type of pain is inadequately appreciated. It causes both physicians and patients much needless anxiety and results in operations when no serious danger exists.

USUAL LOCATION OF PAIN FOR THE PRINCIPAL ABDOMINAL VISCERA

Since the cell bodies of the afferent neurons that supply a given viscus are located in the same segments of the cord as the efferent neurons going to the viscus, and since the cell bodies of the somatic, motor and sensory nerves, which express reflex action and referred visceral pain, are located in the same segments by knowing the connector nerve supply of an organ one also may know the skeletal nerves through which and the tissues in which, reflexes from that organ will be most apt to be expressed. In case reflex effects and referred pain spread, they are most apt to be expressed by neurons arising either above or below in segments adjacent to those which the afferent impulse enters.

In figure 1 is shown the connector neurons which bring into connection with the cord those sympathetic cells which lie in peripheral ganglions and give origin to the nerve fibers that supply each of the more important viscera. In figure 2 is shown the arrangement of the somatic segments from which one may see the location of the pain from the viscus, with corresponding segmental innervation. It will be noted that in their sympathetic nerve supply the organs may be arranged in groups and that there is some overlapping in the distribution of the neurons to the groups themselves and also in the various organs of the groups, but, regardless of this fact, the main supply to the various organs may be arranged in a definite progressive order from the upper segments to the lower, and the somatic segments showing referred pain follow a similar progressive order. This schema can be only approximately correct with present knowledge, because the exact innervation of some of the organs is still undetermined, for example, innervation of the heart is usually given as arising in the upper five or six thoracic segments, yet operations for angina have shown that even the seventh thoracic connector neuron carries painful impulses.

The first to the sixth dorsal segment give origin to connector neurons to the heart and lungs. The lungs, however, following their developmental relationships, express their somatic reflexes through cervical spinal neurons, particularly the third, fourth and fifth, while the heart joins with the corresponding thoracic nerves, showing reflex effects most commonly through the first,

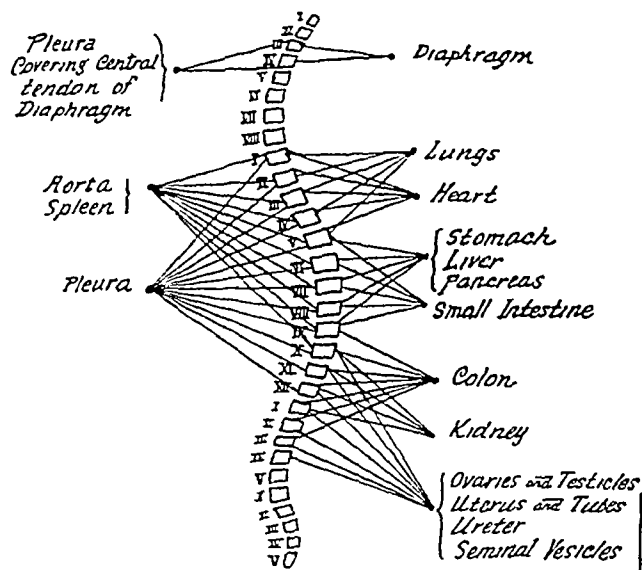


Fig. 1—The connector neurons for the important thoracic, abdominal and pelvic viscera. The connecting neurons are those which belong to the thoracicolumbar outflow except those going to the diaphragm and pleura which are spinal nerves. The motor cells for the viscera are found in the various collateral ganglions. This shows that the innervation of the various viscera may be divided into groups. The heart and lungs are innervated from practically the same segments the upper first to the sixth thoracic. The stomach, liver and pancreas from the same segments fifth to the ninth thoracic. The colon, kidney and pelvic viscera from practically the same segments ninth and tenth thoracic to the third and fourth lumbar. In spite of this grouping in innervation each organ is brought in reflex connection with efferent neurons both sensory and motor, which are more or less definite in such a way that the motor and sensory reflexes do not overlap as much as might be indicated.

second and third thoracics. The major portion of the aorta, too, is supplied from the upper five or six thoracic segments and reflects through the same neurons as the heart.

Following the lungs, heart and aorta caudad in the cord, the stomach, liver, gallbladder, pancreas and small intestine are innervated from the fifth to the ninth thoracic segment, but the skeletal area in which individual organs regularly express reflexes and referred pain is more or less distinct for each organ. The stomach expresses its pain most readily in the epigas-

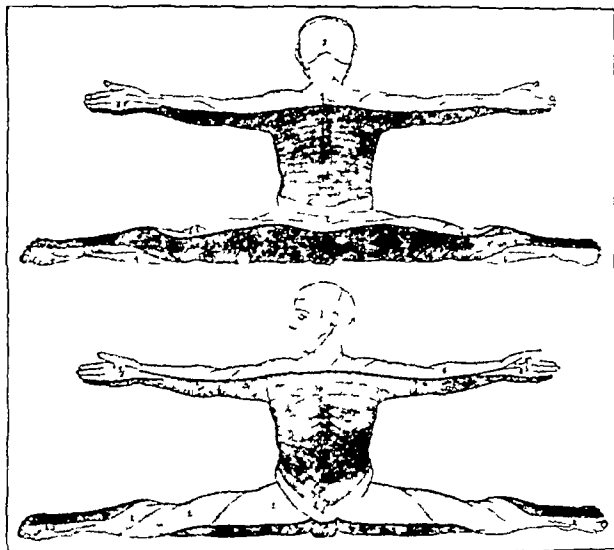


Fig. 2—Metamereric distribution or transverse segmentation of cutaneous areas of sensibility of the human body drawn with the limbs in the position of their embryonic growth. The series of dermatomes which successively correspond to the cervical, lumbar and sacral routes is indicated by different degrees of shading and the different segments are numbered according to the spinal nerve supplying them. The location of the principal sensory disturbances from internal viscera can be determined from this diagram. (Constructed by Luciani from Bolk's data.)

trium in the median line and on the left side in areas supplied by the sixth and seventh thoracic spinal nerves, the liver and gallbladder in the median line, and on the right side. Posteriorly, the pain may be expressed in the interscapular region through the fifth to the ninth dorsal spinal nerve, on the left side from the stomach and on the right from the liver and gallbladder. The small intestine refers its pain most readily to the median line in areas supplied by spinal sensory nerves from the eighth, ninth and tenth thoracic segments.

The colon, kidney, ureter and bladder follow next in order, being supplied by neurons arising in spinal segments from the ninth thoracic to the third lumbar. Pain from the colon is expressed most commonly through the eleventh and twelfth thoracic nerves over the lower part of the abdomen, although pain may also be expressed in the first, second and third sacral segments. Kidney pain is reflected through the tenth, eleventh and twelfth dorsal nerves and the first lumbar nerve, both anteriorly over the abdomen and thigh and posteriorly in the lumbar regions. Ureteral pain is expressed both posteriorly and anteriorly.

Bladder pain is usually expressed through the eleventh and twelfth thoracic and from the first to the third lumbar segments, although it too may refer its pain through sacral nerves. This brings it low down in the abdomen anteriorly, as expressed through thoracic nerves, and in the peritoneum and down over the leg through the sacral nerves.

It must also be remembered that all the viscera with vagal supply may transfer stimuli to the fifth cranial nerve and express pain in some of its peripheral branches.

Pottenger Sanatorium

PAIN AND TENDERNESS OF THE
ABDOMINAL WALLJOHN BERTON CARNETT, M.D.
PHILADELPHIA

Pain and tenderness occur far more frequently in the abdominal wall than in the abdominal viscera. Palpation over relaxed abdominal muscles fails completely to differentiate parietal from visceral tenderness.

Parietal tenderness and, inferentially, pain are demonstrated best by making firm palpation while the patient balloons out the abdomen and holds the abdominal muscles as tense as possible.¹ Any tenderness thereby disclosed is necessarily parietal in location, because the tense muscles prevent the examiner's fingers coming in contact with the viscera. This is a simple bedside test, requiring no special instruments, it can be carried out in less than two minutes and will give invaluable diagnostic information if it is employed, as it should be, on every patient having abdominal pain or tenderness.

Hypersensitiveness, either on pricking or stroking the abdominal skin with a pin, or on pinching a liberal fold of skin and fat, indicates parietal tenderness, but both of these tests may be negative in about 5 per cent of patients with parietal tenderness in whom the muscles are hypersensitive, as shown by palpation over the tensed muscles.

The methods of applying the tests by various diagnosticians give widely different results. Some insist on gentleness in applying pinch tests, or on simply lifting a fold of skin (without pinching) and drawing it gently away from the muscles, and fail to recognize the milder grades of tenderness. I find in normal persons that my maximum pinching effort does not cause pain and I do not hesitate to employ it before concluding that tenderness is absent in those cases in which distress is not caused by a milder pinch. Livingston² employs a vigorous pinch and twist. I prefer a pinch without a twist, as it involves only one force in estimating the comparative degree of tenderness in various areas. For routine clinical purposes, a pinch is preferable to the pin for promptly disclosing the areas of tenderness, particularly in a widespread search. The pin, however, is better than the pinch in determining the exact outlines of an area of tenderness. In a trifling percentage of cases the pin may indicate hypesthesia when pinching will disclose hyperesthesia.

Pain and tenderness of the abdominal parietes are variously interpreted by different diagnosticians. The majority fail to consider the possibility of these two symptoms being located in the abdominal wall neglect

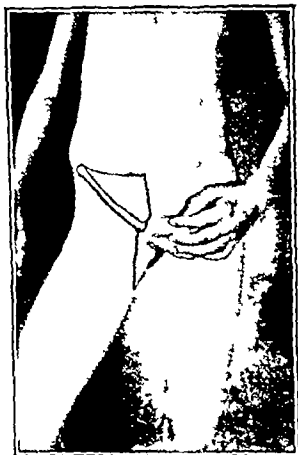


Fig. 1—One abdominal and two thigh areas of distribution of the iliohypogastric and ilioinguinal branches of the first lumbar nerve.

to apply the special tests to determine their parietal location, and wrongly ascribe them to an existent or nonexistent lesion of an underlying viscus.

Many times when the pain and tenderness are not recognized as parietal they are attributed to malingering, hysteria or some other vague neurosis, because they are atypical of organic visceral disease or the latter has been excluded by extensive clinical and laboratory studies, often including one or more futile laparotomies.

The four areas (figs 1 and 2) of distribution of the first lumbar nerve afford many points of interest in the study of parietal pain and tenderness. The abdominal triangular area is bounded by a line from the anterior superior iliac spine running obliquely downward to the midline, which

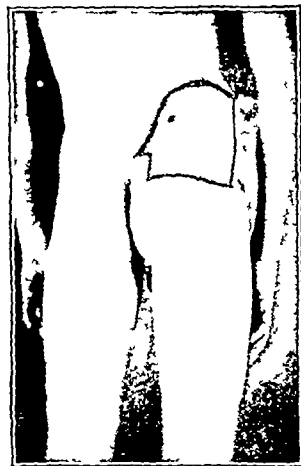


Fig. 2—Buttock area of distribution of the first lumbar nerve.

it follows to the symphysis and returns along or a trifle above the crease of the groin to the iliac spine. This area is sharply delineated at the midline in unilateral cases. Its upper limit is distinct only in the comparatively rare clinical cases in which there is no associated involvement of the subcostal nerve. Its lower limits merge with the rectangular area about an inch wide in the upper anterior thigh overlying the flexors of the hip joint and in the female includes the upper part of the external labium. Its lower limit is commonly sharply circumscribed, as the immediately subjacent nerves are frequently not involved. From the mesial end of the preceding area a line extends downward and backward for a distance of 3 or 4 inches, thence upward and backward to the perineum, and forward to the starting point. The limits of this triangular area in the upper inner thigh often are not obscured by involvement of adjacent nerves. An irregular inverted U-shaped area in the buttock (fig 2) extends from the superior crest of the ilium downward to a transverse line at the level of the top of the great trochanter. Its posterior border follows the outline of the ilium and its anterior border is somewhat variable but lies posterior to the great trochanter. The outlines of this area are usually very distinct, as adjacent nerves commonly exhibit slight or no involvement. The first lumbar probably is involved more often than any other nerve in parietal pain and tenderness. Often spontaneous pain is felt only in one area, but even then all four areas exhibit tenderness of a similar type, i. e., pinching or pin pricking may reveal tenderness in all or none. In the latter event palpation will reveal tenderness of muscles in all. Consistent tenderness within the anatomic boundaries of the four areas serves to remove the stigma of malingering from many an honest patient.

Libman's³ classification of patients into sensitive and hyposensitive in accordance with his studies at the mastoid tip and styloid process is not applicable to cases of pain and tenderness of the abdominal parietes. His local results probably depend on the sensitivity of the overlying skin and are not a trustworthy index to other regions, as Libman himself recognizes when he

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¹ Carnett, J. B. Intercostal Neuralgia as a Cause of Abdominal Pain and Tenderness. *Surg. Gynec. & Obst.* 42: 625-632 (May) 1926.
² Livingston, E. M. The Skin Triangle of Appendicitis. *Arch. Surg.* 13: 630 (Nov.) 1926.

³ Libman, Emanuel. Studies in Pain. *Tr. A. Am. Physicians* 44: 52, 1929.

finds the mastoid region on one side sensitive and on the opposite side hyposensitive. Each region of the body must be judged on its own merits for sensitivity by pinching or pin pricking and over the abdomen by palpation during voluntary tensing of the muscles.

To Libman's classification might be added a third group consisting of the hypersensitive patients who exhibit almost universal tenderness. They are usually obese and care-free, without psychopathic tendencies. By some they are regarded as individuals with a low threshold for pain. It is possible that an allergic or endocrine disturbance is responsible for their hypersensitivity. A superadded local cause—even though it is slight—is necessary in them to produce local spontaneous pain and increased local tenderness either of the abdominal wall or elsewhere.

The superficial location of parietal pain and tenderness is recognized by only a minor percentage of diagnosticians. Some of them ascribe the symptoms to parietal fibrositis or panniculitis independent of visceral lesions. The sensitive nodules of the type described in fibrositis I have encountered once on the chest, three or four times at the back of the neck in patients with neuralgic scalp aches but never in the abdominal parietes or elsewhere. Fibrositis might be an occasional cause for tenderness of the abdominal parietes in spite of my never having been able to recognize it. To account for many of the cases of parietal tenderness it would be necessary for the fibrositis to occur either (1) as a diffuse process over one side of the abdomen up to but not crossing the midline or (2) as a more restricted process involving every one of many adjacent nerve trunks and no other more distant trunks. One of the most common nerves to be involved in parietal tenderness is the first lumbar as manifested almost invariably by tenderness throughout its entire areas of distribution in the lower part of the abdomen, the upper thigh (fig 1) and the buttock (fig 2), implying a lesion at or proximal to its intervertebral foramen to affect both its anterior and its posterior divisions. It is not conceivable that any such haphazard processes as fibrositis and panniculitis either as diffuse or as localized lesions could consistently present these and other common clinical pictures of parietal tenderness.

Many psychologists and neurologists believe that pain and tenderness in the abdominal parietes are usually psychogenic and Pratt, Golden and Rosenthal⁴ state that they effect cures by psychology and the insertion of a hypodermic needle only or in conjunction with procaine or some innocuous solution. They are apparently much better psychologists than the surgeons who fail to effect promised cures of similar symptoms by the profound mental impression of one or more laparotomies. I have had considerable experience in injecting procaine in cases of parietal pain and tenderness and though chronic symptoms are sometimes relieved for weeks or months by a single injection, I have not seen improvement result in extensive cases other than in the restricted area of the nerves injected.

Many diagnosticians wrongly regard parietal pain and tenderness as the usual surface manifestations of visceral disease resulting from the viscerosensory reflex described by Mackenzie, Head, Sherren,⁵ Pottenger⁶ and others.

The only parietal pain and tenderness of fairly consistent type in location, size and frequency of associa-

tion with a visceral lesion of which I am aware is an area the size of a thumb nail situated in the midline about midway between the umbilicus and the tip of the xiphoid process in ulcer of the stomach or duodenum. The severity of the parietal symptoms varies in direct proportion to the activity of the ulcer. Curiously, this area does not seem to have attracted much attention from the adherents of the viscerosensory reflex. Its small size is in marked contrast to the larger areas forming the usual basis for discussions of the reflex.

It is my belief that the shoulder or scapular reference of pain and tenderness in biliary colic occurs only as an aggravation of a neuralgia, primarily due to some extraneous cause, and that the neuralgia is not cured by complete removal of the biliary pathologic changes. My experience indicates that chronic visceral lesions do not cause widespread pain and tenderness or pain that is present every waking moment over a period of weeks, months or years.

I believe that parietal pain and tenderness of the abdomen are usually due to a neuralgia and, as a rule, are independent of any intra-abdominal lesion. Spontaneous pain may be limited to a part of the abdomen in many cases in which the tenderness will be found to extend far afield. Entirely similar neuralgic pain and tenderness occur as localized manifestations in the superficial tissues of the head, neck, chest and extremities, as can be shown by pin pricking and by pinching of skin and fat alone or inclusive of muscle. Pinching is an extremely valuable but much neglected method of examination of pain and tenderness anywhere on the surface of the body. Failure to recognize neuralgia by the pinch test of skin and fat leads to many erroneous diagnoses such as aches of the brain, mastoiditis, myalgia, myositis, osteomyelitis, bone tumor, tennis elbow, mastitis, pleurisy, sprain or relaxation of the sacro-iliac joint, coccydynia, arthritis—particularly of the knee—and varicose veins. For the most part, no effort has been made to hook up these pains with a viscerosensory reflex. However, cardiologists and internists generally believe that the pains of angina pectoris are accompanied by superficial tenderness in accordance with the viscerosensory reflex. I believe their views are incorrect and I hope in the near future to collaborate with a cardiologist in demonstrating that tenderness is either absent or due to neuralgia during attacks of angina pectoris. Similar absence of tenderness in the area of referred pain occurs in so called subacromial bursitis with pain anywhere between the neck and the hand in irritative lesions of the diaphragm with pain in the supra-acromial region and its vicinity, and in ureteral colic with pain in the external genitalia. These observations indicate that pain and tenderness may not always be due to the same mechanism, a fact which seems to have escaped many clinicians.

There are a great variety of causes for neuralgia in the anterior abdominal wall or any other part of the body.¹ Any form of nerve irritation may produce neuralgia. The usual cause in chronic neuralgia is some form of spinal trouble, as scoliosis, excessive lumbar lordosis or spinal arthritis.

Chronic parietal pain and tenderness that have been present for months or years are not due to and are not cured by the operative removal of intra-abdominal lesions. As a believer in the viscerosensory reflex, Pottenger⁶ explained that the failure of recurrent parietal symptoms to disappear for months or years after subsidence of an acute visceral lesion is due to slow recovery from nerve damage. Microscopic exam-

⁴ Pratt J. H., Golden J. A. and Rosenthal Joseph. The Psychalgias. J. A. M. A. 98: 441 (Feb. 6) 1932.
⁵ Sherren J. Lancet 2: 817, 1903.
⁶ Pottenger F. M. Surg. Gynec. & Obst. 40: 62, 70 (Jan.) 1925.

mation of nerves that I excised failed to show any damage, and I prefer to regard chronic and recurrent parietal symptoms as due to extra-abdominal causes that can be relieved without intra-abdominal operations.

The diverse digestive symptoms incident to visceropositis when associated so commonly in asthenic hollow-backed individuals with chronic parietal neuralgia in varied localized abdominal areas lend further simulation to a variety of nonexistent chronic visceral lesions⁷ and are not benefited by laparotomy. I always warn the referring physician and some member of the patient's family before operation that chronic parietal symptoms will continue after complete removal of intra-abdominal pathologic changes and will require a different line of treatment for their relief. Chronic parietal neuralgia sometimes disappears spontaneously, but no more frequently with than without operation. In common with many other surgeons, I no longer operate for chronic appendicitis. Its alleged symptoms can be cured by extra-abdominal measures. The persistence of chronic parietal pain and tenderness after necessary and otherwise successful operations has given rise to common use of the opprobrious term "operative failures." Chronic parietal pain and tenderness which consistently are not cured by operative removal of organic visceral lesions certainly cannot be caused by functional organic lesions, as claimed by some internists.

Chronic parietal tenderness in the absence of spontaneous pain is a not infrequent finding in routine physical examinations in patients with spinal lesions causing mild neuralgia. I have seen many of that type who subsequently developed chronic or acute visceral lesions that ran their course either with or without operation without material change in the degree of parietal tenderness either during the illness or during several months or years following full recovery.

Chronic neuralgia may start in the chronic form but more commonly it is preceded by recurrent acute attacks which are frequently mistaken for acute visceral disease.

The three spinal conditions—scoliosis, excessive lumbar lordosis and spinal arthritis—which cause chronic neuralgia act as predisposing causes in acute neuralgia in which the exciting cause is commonly a spinal trauma or an acute toxemia from any cause such as an acute tonsillitis, an acute sinusitis, an ordinary cold, an abscess or any other acute infection.

Acute parietal pain and tenderness are usually due to acute infections that do not require operation and disappear rapidly on subsidence of the toxemia resulting from the infections. In addition to acute parietal pain and tenderness any acute infection distant from the abdomen may give rise to fever, tachycardia, leukocytosis and vomiting, a group of symptoms suggestive but far from conclusive of an acute intra-abdominal lesion, particularly appendicitis. It is a rather common experience with pathologists to find that many of the appendices removed during supposed acute attacks do not show any acute changes and therefore could not have caused the acute symptoms. In more than half of the patients referred by physicians with the diagnosis of acute appendicitis I find that the local and constitutional symptoms are due to a distant toxemia and appendectomy is not performed. The cases in

which I do not do an appendectomy are the ones that tend to develop into so-called chronic appendicitis, and there is no more need to operate in the first week than in the tenth year of their symptoms.

Acute pain and tenderness of the abdominal wall, and not infrequently elsewhere on the body surface, are caused by acute appendicitis infrequently, by acute pelvic inflammatory disease fairly commonly, and by other intra-abdominal infections rather rarely.

I believe that acute toxemia is responsible for the great majority of the cases in which acute intra-abdominal infections cause acute parietal pain and tenderness, especially when the affected parietal area lies entirely outside the Head zone for the particular visceral lesion present. A minor percentage of these patients differ from the general run in having parietal pain and tenderness localized near the site of the lesion without tenderness over the trunks of the intercostal nerves leading to the area, and in those with involvement of the lowermost part of the abdomen without tenderness in the upper thigh or buttock. Cases of this type come nearest to supporting the theory of the viscerosensory reflex, but they are not convincing and, being relatively rare, do not justify the extensive claims made by proponents of the theory. It is possible that Morley's⁸ theory that parietal symptoms are brought about by a peritoneocutaneous reflex may explain the preceding group of cases, but my studies do not permit my acceptance of the peritoneocutaneous theory for the average case of parietal pain and tenderness.

In acute appendicitis and other acute intra-abdominal lesions, Cope⁹ found that hyperesthesia might be absent or vary greatly in its position and extent, as shown by his published diagrams. In one of his diagrams a right-sided appendicitis caused mainly left-sided parietal tenderness. In my experience the great majority of quite similar areas of parietal hyperesthesia occurs in the absence of any intra-abdominal lesion. Cope records an instance of this type in his figure 19, in which anticipated cholecystitis with local peritonitis was not found at operation and the same symptoms after operation were ascribed to diaphragmatic pleurisy despite absence of friction sounds. When extensive search is made for hyperesthesia it is often found to extend far beyond the extreme limits described by Pottenger and, in addition to the abdomen and chest, it may involve the scalp, neck, arms, buttocks, thighs and, much less frequently, the legs and forearms. The wide extent of hyperesthesia, so often encountered, is sufficient in itself to negative the viscerosensory theory. The disciples of the viscerosensory reflex generally admit that arthritis or tuberculosis of the spine, various neurologic lesions and basilar pleuropneumonia may cause symptoms in the abdominal parietes quite similar to the ones they claim are produced by intraperitoneal lesions, but they offer no means of differentiation. For the most part the advocates of the viscerosensory theory are medical men; surgeons rather generally have found that the theory does not work out when checked by pathologic observations before and after operation on tenderness, which in either acute or chronic cases may persist with, or more often without, spontaneous pain for weeks or months after complete recovery from a necessary or needless operation.

Most commonly, acute pain and tenderness of the abdominal wall are not associated with an acute intra-

⁷ Carnett, I. B. Chronic Pseudo-Appendicitis Due to Intercostal Neuralgia. *Am. J. Sc.* 17:4 579 (Nov.) 1927. Acute and Recurrent Pseudo-Appendicitis Due to Intercostal Neuralgia, *ibid.* 17:4 833 (Dec.) 1927. The Simulation of Gallbladder Disease by Intercostal Neuralgia of the Abdominal Wall. *Ann. Surg.* 86:747 (Nov.) 1927. The Simulation of Various Intra-Abdominal Lesions by Intercostal Neuralgia of the Abdominal Wall. *U. S. C. Rec.* 129:64 (Jan. 16) 1929. Intercostal Neuralgia of the Abdominal Wall. *Colorado Med.* 27:72 (March) 1930.

⁸ Morley, John. *Abdominal Pain*. New York: William Wood & Co. 1931.

⁹ Cope, Zachary. *Chemical Researches in Acute Abdominal Disease*. New York: Oxford University Press. 1925.

abdominal lesion and on the other hand acute visceral lesions commonly do not cause parietal pain and tenderness. However, an acute visceral lesion and acute parietal symptoms may coexist. Acute parietal tenderness if sought for by the special tests, is easily recognized and any diagnostic difficulty that may arise is incidental to determining the presence or absence of a coexisting acute visceral lesion. When this doubt arises I abolish the parietal symptoms in the area under suspicion by injections of procaine hydrochloride—into the subcutaneous fat if the area is small, or around the trunks of the nerve supplying the area if the latter is large.¹⁰ Abolition of parietal tenderness does not cause disappearance of visceral tenderness. In the natural or induced absence of parietal tenderness I know of no better single test for acute appendicitis or other sensitive visceral lesion than to find marked palpation tenderness present over relaxed muscles and completely absent even under vigorous poking, over thoroughly tensed muscles.

My views on the treatment of parietal pain and tenderness are reported elsewhere.¹⁰ Briefly, acute neuralgia calls for treatment of the causative acute infection or spinal injury.¹¹ Scoliosis is treated by appropriate exercises and by elevation of the heel of the shoe if a short leg is found in the search that is always made for it. Parietal pain and tenderness due to spinal arthritis are promptly relieved in the majority of cases by mild irradiation of that portion of the spine from which the affected nerves emerge. Treatment of excessive lumbar lordosis by the Goldthwait special exercises to correct bad body mechanics¹² cures parietal pain and benefits digestive disturbances, although the tenderness may be slow in disappearing.

The presence of parietal pain and tenderness never excludes the possibility of a coexistent intra-abdominal lesion but the surgeon should exercise due care that a visceral lesion is present before he resorts to laparotomy.

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ANORECTAL PAIN AND ITS CLINICAL SIGNIFICANCE

LOUIS J. HIRSCHMAN, M.D.
DETROIT

The two symptoms that usually first induce the patient to consult his physician are pain and some noticeable departure from normal in his physiologic functions. Pain is usually the symptom that induces this contact in the vast majority of cases, but apprehension and worry caused by any noticeable deviation from the normal is second only to physical suffering in causing an individual to seek medical advice and care.

Pain referred to or originating in the anorectal region usually induces the patient to seek relief promptly on its appearance. Since in most cases pain is aggravated by anorectal function and thus perforce cannot be suspended in the average case for a very long period of time, the patient who seeks immediate medical advice as a result of his disability should be the recipient of early and effective therapy.

Unfortunately, in many instances, a large group of persons will defer medical attention for the relief of symptoms referred to this region but instead indulge in self-treatment as a result of the unwarranted claims made by advertised so-called cures and specifics for all sorts of anorectal disease.

Because it is the acute symptoms that usually are noted by the patient and that cause him to seek relief the significance of acute anal pain will first be discussed. Since the sensory nerve supply of the anal canal and anus is generous while that of the ampullar or rectal portion of the lower part of the bowel is the reverse sudden or acute pain should immediately direct one's attention to the anus or anal canal.

The perianal skin undergoes a change at the line where the walls of the anal canal first appose. The glandular elements become sparse and disappear, and the skin itself thins out and the squamous epithelial cells gradually merge with and join the goblet cells of the mucous membrane. There is no clearly defined mucocutaneous juncture. The area of cutaneomucous coalescence is characterized by a transition from one type of epithelium to the other. Any lesion of the perianal or anal skin as well as the lining of the canal itself is characterized by pain, the acuteness of the pain being increased or amplified by the amount of motion of the parts.

Pain characterized by sudden onset in this region points to trauma. Overstretching of the sphincter muscle as a result of the forcible expulsion of hard, impacted or scybalous stools is one of the most frequent causes of acute anal pain. Trauma is also caused by small swallowed foreign bodies being lodged in the anal crypts.

The two next most common traumatic conditions encountered are anal fissure and acute hemorrhagic piles also improperly called "acute thrombotic hemorrhoids." Trauma caused by the faulty or careless insertion of rectal tubes and enema tips as well as that caused by clumsy or careless instrumentation in the course of a proctologic examination is merely mentioned but will not be discussed because the origin of the pain in these cases should certainly be self evident.

An individual who has become constipated or who has ingested certain indigestible or insoluble substances, such as phenyl salicylate, bismuth compounds, kaolin and barium sulphate, may suffer acute, even excruciating pain from the expulsion of stools containing substances such as these mentioned. Hard scybalous or impacted stools that are not only larger in caliber than the stools normal to the individual but as a rule are blunt instead of tapered or rounded are apt to cause overstretching and occasionally laceration or tearing of sphincter fibers in their expulsion. The muscle may be simply overstretched without there being any actual break in the lining of the anal canal, but the pain that this causes is accompanied by sphincter spasm which may last for several hours.

Anal fissure, which is also characterized by a sudden sharp onset, presents sphincter spasm as its most frequent symptom. In this case the fissure, whether produced by trauma from large stool masses or anything else that overstretches the muscle or from the breaking down of a submucous sinus is the site of pain out of all proportion to its size. The exposure of numerous sensory nerve endings produces spasmodic contraction of the sphincter and tonic spasm which resists the oncoming defecatory effort. Occasionally a fissure or splitting of the lining membrane of the anal canal will

¹⁰ Carnett J. B. and Bates William. Treatment of Intercostal Neuralgia of the Abdominal Wall. *Ann Surg* 98: 820 (Nov.) 1933.

¹¹ Carnett J. B. and Bates William. Railway Spine. *S. Clin. North America* 12: 1369 (Dec.) 1932.

¹² Carnett J. B. and Bates William. Body Mechanics in Relation to Posture of the Abdominal Organs and to Abdominal Pain and Tenderness. *Physiotherapy Rev.* 12: 246 (Sept. Oct.) 1932. Some Phases of Body Mechanics. *J. Health & Physical Ed.* 4: 28 (April) 1933.

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be caused by sudden and unexpected body movement such as is produced by sneezing, coughing or undue muscular effort during bodily exercise or labor

If the patient has been suffering from an anal cryptitis or anal sinus, the thin covering of the crypt or sinus is also ruptured and a fissure will frequently be produced. Either single or multiple fissures may be produced by any of the causes mentioned.

The same causative factors may also produce a sudden rupture of some of the numerous small veins surrounding the anal canal, with extravasation into the surrounding tissues. The absorption of the liquid constituents of the blood leaves the clot, which, by its pressure on the surrounding nerve endings, causes considerable pain and soreness following the acute pain accompanying its onset.

Ulceration of the anal canal as well as of the anal crypts frequently is superimposed on the wounds caused by trauma. The frequent and erratic fluid movements resulting from hypercatharsis so weaken the mucous membrane and transitional lining of the anal canal as to render them more liable to ulceration and fissure when put to any unusual strain.

After a swallowed foreign body, such as a bit of bone, bran or popcorn, bristle shell, husk core or sharp seed, becomes lodged in an anal crypt, it not infrequently lacerates the crypt and produces symptoms of sharp, often agonizing, pain, accompanied by sphincter spasm. The inflammatory condition usually extends to the surrounding anal papillae, which become swollen, edematous and inflamed and add to the patient's misery. These are traumatized by succeeding stools to such an extent that the patient usually is forced to seek relief without delay.

While in some instances the perianal hematomas will be absorbed, in more cases the blood clot acts as an excellent nutrient culture material for infective organisms. Perianal abscess frequently follows if these clots are not evacuated.

Anorectal pain of a more gradual onset or occasionally supervening on sudden acute pain may be caused by any congestive, inflammatory, ulcerative or infective condition.

Practically every patient who consults the proctologist on account of pain of this character, or in fact any pain in the anorectal region, appears with a self-made diagnosis of "hemorrhoids." When the pain is of an acute character, even though internal hemorrhoids may be present, they may be disregarded for the moment as the cause of the acute pain. Pain, however, of a dull steady character aggravated by the passage of stools and persisting after defecation, is often produced by the presence of internal hemorrhoids. This pain may not only be evidenced in the hemorrhoidal region itself but be conducted along the sensory nerves to the sacral region and also reflexly into the groin down to the thighs.

If hemorrhoids are of the prolapsing type and become strangulated pain becomes very intense and unless relieved by the physician does not cease until the strangulation has produced a necrotic condition involving the nerve trunks themselves. Pain of this type should suggest internal hemorrhoids as its source even though the other principal symptoms of protrusion and bleeding may not be present at the time.

If the patient complains of pain that seems to increase in intensity and is accompanied by a pulsating or throbbing sensation with increasing difficulty in defecation suppuration must always be borne in mind.

Anorectal abscesses usually originate in infected crypts or from infected perianal hematomas. This type of persistent, unrelenting, increasing pain should always suggest perianal infection and suppuration. If this pain is accompanied by an increasing rise of temperature, repeated examination of the parts should be made to detect an area of induration in the anus, rectum or surrounding tissues.

It must be borne in mind that anorectal pain may be indicative of pathologic changes in other organs contiguous to or impinging on the rectum or anal canal. In the male, a posterior urethritis, prostatitis or seminal vesiculitis may all manifest themselves by pain referred to the terminal end of the bowel. Prostatic abscess is frequently prone to make its presence known first during defecation.

Vesical calculus and various types of cystitis may also cause rectal pain particularly on defecation, as well as pain radiating down the spermatic cord into the testicles.

Injuries or diseases of the coccyx or sacrum also manifest themselves by pain in this region.

In the female, disease conditions of the fallopian tubes and ovaries will not infrequently give rise to rectal pain in addition to other symptoms, and an enlarged and adherent uterine fundus, by its interference with defecation, will give rise to pain during the passage of stools. Any pelvic or uterine inflammatory condition will give rise to these symptoms, and a hypertrophied cervix not infrequently will cause pain by pressing the rectum against the sacrum, causing a definite obstruction to the fecal flow.

The pouching produced by rectocele is also productive of pain of a dull, sometimes prolonged character, particularly during the efforts to expel inspissated or scybalous stools.

Pain of a burning type as well as pruritus is frequently experienced in this region. A burning of the anus will usually follow frequent liquid defecations. These may be of the ordinary diarrheal type following intestinal upsets or acute intoxications or may be an accompaniment of the more chronic types of colonic dysfunction.

Any condition characterized by frequent fluid stools such as the various forms of dysentery or colitis, intestinal tuberculosis, or polyposis, causes maceration and denudation of the perianal integument and is productive of pain of a burning character.

Itching or pruritus ani may be produced by any of these causes and in addition may be produced by any local infection, irritation or traumatization of the perianal integument. It also may be produced by irritation from vaginal discharge or is a referred symptom from surrounding organs. A thorough search for parasitic infestation should not be neglected in the search for the cause of perianal itching. Itching of the perianal region is a subject about which volumes have been written but which must be dismissed with mere mention at this time.

The subject of anorectal pain and its clinical significance, paradoxical as it may seem must include mention of the most important disease condition that affects this part of the body, even though pain is unfortunately not an early symptom.

Of course, I refer to the presence of malignant disease. While statistics vary according to the authorities quoted, it is generally agreed that fully one half of all malignant growths to be found in the body occur in the gastro-intestinal tract and fully one half of these occur

in the large intestine. The most frequent site for the location of a malignant growth in the large intestine is the rectal ampulla. As has already been mentioned, the sensory nervous system of this part of the body is extremely meager. It is an unfortunate but nevertheless important fact that a malignant lesion may not only occur but may progress in many cases to an inoperable stage before the patient experiences noticeable pain.

Obstruction, bleeding, discharge and even a loss of weight may be noted before appreciable pain is experienced when a malignant condition occurs in the rectal ampulla. In contrast to this, any lesion, whether benign or malignant, located in the anal canal makes its presence known soon after its onset by symptoms of a decidedly painful character. For this reason, any symptoms that focus the patient's attention on the terminal end of the intestinal tract should be carefully investigated, particularly when no pain is noted.

Practically the only exception to carcinoma being the cause of symptoms not accompanied by pain is the occurrence of benign lesions in a patient who, on account of some disease of the cerebrospinal nervous system, has suffered interference with his nerve conduction. In tabetic patients this is known to occur not infrequently.

One cannot discuss the subject of anorectal pain without saying a word about some of the agents that are used to relieve pain in this region.

In the earlier days of medicine, before any of the real local anesthetic remedies were conceived and adopted, various preparations of opium were used for producing local amelioration of pain. Even today it is surprising to note the number of medical practitioners still prescribing and advising the use of the old "lead and opium wash" for external application, as well as the insertion of "opium and iodoform" suppositories for the relief of anorectal pain. The local anesthetic effect of opium is practically negligible. Far more relief can be rendered the patient suffering from anorectal pain by the use of moist heat. Heat either in the form of hot sitz baths or applied through the medium of hot compresses to the parts, is one of the best agents for the relief of pain. The inhibition of physiologic function, as far as possible, is another important factor in obtaining relief from pain in an organ whose function cannot be entirely suspended for very long.

The administration of enemas as hot as can be borne but not under any circumstances containing soapsuds affords great relief. The enema should be administered through a soft rubber catheter. Hard rubber metal or glass enema tips are under no circumstances to be used.

One of the best remedies to produce local anesthesia of inflamed or eroded surfaces is ethyl aminobenzoate. Powdered chlorbutanol and nupercaine are also valuable as local surface anesthetics. These remedies may also be administered in the form of suppositories for intrarectal pain, but, even in these instances, their anesthetic properties will be greatly enhanced by the application of external heat.

For prolonged anesthesia for the relief of pain particularly that produced by an anal fissure or ulcer of the anal canal, the subcutaneous injection of a 2 to 5 per cent solution of quinine-urea hydrochloride is strongly recommended. It must be remembered that this injection should be subcutaneous and never intracutaneous. The anesthesia produced by quinine-urea lasts from two to forty-eight hours. The use of these agents for the temporary relief of pain is for the

purpose of easing the patient's suffering while the measures for permanent relief are being planned.

Anorectal pain calling attention to the parts early, as it usually does, is a mandate to the physician to make a complete examination, not only of the anus and rectum but of all the surrounding contiguous organs, in order to discover the cause of the pain. The origin of the pain being discovered, it follows that the surgeon should carry out the indicated therapy for the relief of the condition that causes it.

In the speciality of proctology, as in the other important specialties of medicine and surgery, an early and correct interpretation of the symptoms presented is the first long and important step in the treatment of any disease and in the restoration of the patient's health.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DR. LIBMAN, POTTENGER,
CARNETT AND HIRSCHMAN

DR. RUSSEL S. BOLES, Philadelphia: I admit some hesitation in accepting Dr. Libman's styloid pressure test as an index of one's sensitivity. The susceptibility of the individual, the element of suggestion, and the method of approach of the examiner are such variables that it would seem exceedingly difficult to draw any conclusions from the application of such a test. Certain individuals are more sensitive to pain than others. Some believe that increased sensitivity exists in those of a neurotic nature, while others dispute this. Dr. Libman has stated that hyposensitive types show a marked tendency to feel less or none of the pain of a given disease. Specifically he mentions that such individuals may have little or no pain from ulcer of the stomach or duodenum, and that the fulness, burning or pressure that they exhibit should be interpreted as pain. If fulness, distention and pressure are due to stretching of the muscle fibers of hollow viscera as they appear to be, and if splanchnic pain is due to peritoneal irritation as many believe, it is impossible to consider these symptoms as so-called substitution symptoms for pain at least in gastro-intestinal cases. One must not let the wish be "father to the observation." Furthermore, Dr. Libman states that hyposensitive types present little or no history of an ulcer and consequently are more likely to perforate or bleed. In an analysis of twenty-four cases of perforated ulcers that came to operation in the Philadelphia General Hospital, I did not find this to be the case. With two exceptions all of these patients presented an ulcer history of a duration of from six months to thirty years. The two exceptions were mental cases. I believe that practically all ulcers produce symptoms in other words are not latent. As far as an actual acute perforation is concerned, I know of little variation in the overwhelming intensity of the pain be the individual hyposensitive or hypersensitive. Dr. Libman has mentioned contralateral pain. An occasional instance of this is cited in the case of renal colic in which the pain is on one side while the calculus is on the opposite side. With a known calculus in one kidney, the probability of another undetected calculus or some other lesion on the painful side should first be considered. In the case of appendicitis to interpret pain on the left side as a possible contralateral pain calls for a careful consideration of the associated clinical observations.

DR. BURRILL B. CROHN, New York: It has been suggested that there is considerable imagination confused with the facts regarding pain sensitivity. It is because I thought that such a comment might be made that I asked for the privilege of discussing Dr. Libman's paper so that I might again assert that the subject matter consists of more facts and less fancy, and no imagination. My experience with this algometric method convinces me that the test is reliable in the hands of any clinician who familiarizes himself with its technique and who knows how to evaluate the reaction of the patient to the pain sensitivity test. Such knowledge is easily acquired. One must remember that there are two elements in the apprecia-

tion of pain by the patient. The first is the actual physical factor, the variations in the reception of the midbrain to the afferent ascending pain stimuli. This factor apparently varies in all individuals. The second is the psychic element which steps up or diminishes, as the case may be, the expression and enunciation of the physical pain. My work has carried me particularly into the subject of pain sensitiveness in ulcer of the stomach. There must be a reason why hemorrhage and perforation so often occur as the primary symptoms in ulcer. It seemed logical to believe that the patient's low degree of pain sensitiveness explains the absence of previous symptoms of ulcer. I have a chart published which strikingly bears out this hypothesis as originally formulated. It is readily seen that, the more severe the complication is, the more likely it is to occur in a patient who is insensitive to pain. Among controls in the normal population only 11.5 per cent are insensitive to pain. One sees immediately that ulcer, even the uncomplicated types, is more likely to affect persons insensitive to pain (32.3 per cent). Hemorrhage occurs still more frequently in this type of patient, at least 40.8 per cent of all hemorrhage patients are either subsensitive or practically insensitive to pain. This figure rises to 61 per cent when perforation is considered and rises still higher to 72.7 per cent in cases of ulcer complicated by pyloric stenosis. Three patients with hour glass stomach were absolutely insensitive to pain. I believe that the degree of sensitiveness to pain affects and modifies the course of the ulcer patient. In one who is sensitive to pain who therefore diets carefully, observes precautions and constantly remembers the distress he has suffered, the course of the ulcer is likely to be more benign. The patient who is insensitive to pain is in great part unconscious of the existence of his ulcer.

DR FRED M. SMITH, Iowa City. I wish to consider briefly the clinical implications of the so called digestive form of distress. This distress is one of the most common abdominal complaints and its significance is often misinterpreted. The character of the distress varies. To some it may be a feeling of fullness, heaviness, burning, gnawing or cramplike in nature, whereas with others an accurate description is apparently not possible. The fact that the pain or discomfort is located in the epigastrium and is related to the taking of food is the most characteristic feature. For some time I have been making a careful study of the digestive distress presented by patients with peptic ulcer, malignant disease of the stomach, and various extragastric conditions giving rise to a reflex stimulation of the stomach. The mechanism of the distress so far as I have been able to determine by various means is apparently the same regardless of the underlying cause. In the past, emphasis has been placed on the relationship of the pain in peptic ulcer to meals. While in this condition the pain commonly occurs at regular intervals after meals this in itself is by no means distinctive of a gastric lesion. The significance of epigastric distress is somewhat comparable to that of the systolic apical murmur. The systolic apical murmur directs attention to the heart but there may or may not be organic heart disease. In the same manner the digestive form of distress directs attention to the stomach but unless accompanied by some distinctive feature as elicited by the history or the examination or perhaps by both there is probably no intrinsic gastric disease. It is well to bear in mind that various extragastric conditions may produce epigastric pain or discomfort of the character under consideration and that here again the diagnosis is dependent on other manifestations.

DR EMER L. EGGLESTON, Battle Creek, Mich. Dr Pottenger has again called attention to the reflex visceral disturbances of the skin areas. With this in mind one is not in such great danger of making faulty diagnoses which sometimes lead to the recommendation of surgical intervention when not indicated. For example diagnosis of a ruptured gallbladder or peptic ulcer when a diagnosis of coronary thrombosis with cardiac infarct should be made is most unfortunate. Dr Pottenger did not elaborate on the disturbances of the vegetative nervous mechanism due to anxiety or psychic disturbances. He has stressed the pain resulting from inflammatory origin but in practice one has more trouble with the purely functional symptoms than with those originating from organic cause. An undue vagus action may so disarrange the normal gastro-intestinal function as to produce symptoms difficult to differen-

tiate from organic disease. I am sure that more attention to the innervation of the abdominal viscera will present many cases drifting from the hands of physicians into the care of the irregulars. In medical thought it is difficult to leave the beaten paths. One is too prone to label the symptoms with some specific diagnosis without attempting to think rationally along the lines indicated by the symptoms. Dr Pottenger while not professing to be a gastroenterologist, has again called attention to the fact that the function of the gastro-intestinal tract is under control of the vegetative nervous system.

DR WILLIAM J. KERR, San Francisco. I have looked on pain involving the trunk as related to various sources, psychogenic pain being not so very uncommon as has been shown recently by Dr Joseph Pratt and others. Pain may be of visceral origin, related to the contraction of the hollow viscera and the various excretory tubes leading from these viscera. In patients with pain of the psychogenic type, many of the good results, obtained by surgeons and gynecologists are more or less psychogenic in nature. Proving in this case the patient has been given a very impressive psychogenic treatment. Many of the results obtained by some of the irregulars are accomplished through the influence of a strong personality or by the satisfying effect of a vigorous procedure. The viscerocutaneous reflexes are of great interest and have a distinct bearing and importance in medicine. I would not for a moment want to disagree with some of the celebrated workers who have contributed to this field but I am certain that physicians have gone too far in attributing many of the symptoms to this reflex. It is my experience that at least a third of the patients who are referred by physicians because of symptoms of angina pectoris do not have angina pectoris. In most instances they really have arthritis of the spine, scoliosis or other disturbances in the spine or the nerve roots, which give rise to referred pain in the segment. If these patients are watched over a period of weeks or months their angina pectoris is seen to go away and they develop sciatica, lumbago, or some other complication that is attributed to spinal causes. I am interested in what Dr Carnett had to say about the pinch test. I think it is of great importance in distinguishing between these various types of conditions. If the muscles of the abdominal wall are tense, it is much easier to distinguish between pain that arises in the segments themselves and pain that arises from deeper sources. I have found the variations in sensation to cotton wool and the pin to be of value in detecting disturbances in the various segments.

DR DESCUM C. MCKENNEY, Buffalo. An earlier symptom than pain, in rectal carcinoma in some cases is a feeling of weight, pressure bearing down or fullness in the rectum. In practically every case of rectal gonorrhea, especially in the female there is a complaint of frequency and burning with a blood-tinged purulent discharge, and as cryptitis, fissure and subcutaneous abscesses are prone to develop, pain may follow. Anal pockets or crypts are not infrequently the starting point of an infection that spreads in the subcutaneous tissue of the entire anal canal. Such infection makes the lining friable and easily broken during the passage of feces and accounts for recurring fissure or fissures, which produce acute pain that is followed by a more or less continuous distressing soreness. Diagnostic of this condition are the traumatic fissures showing dark thrombotic venous bases, which appear before one's eyes during even the gentlest manual eversion of the anal orifice and canal. These heal, only to recur until the cause is removed. From this source, infection may spread in the submucosa of the lower rectum and form a painful stricture. The pain of a recurring colorectal invagination or intussusception with attacks at irregular intervals extending over months or years is felt in the lower left abdominal quadrant and is in my opinion, often overlooked and mistaken for something else. When the invagination is high, the pain is felt chiefly above the pubis, but as it descends lower into the rectum it is felt in the sacrum. A pain located by the patient rather deep in the ischio-rectal fossa may be due to injury to the levator ani muscle which may be found thickened, spastic and tender (a *malgia*). Such injury may result from a fall on the buttocks. Pain that the patient locates in the end of the spine or coccyx may be caused by a posterior anal fissure sinus or infected crypt. Such a pain is sometimes cured by the linear canteri-

zation of the cervical canal and puncture of the cysts of a large cystic cervix.

DR WILLIAM BATTS Philadelphia For the past ten years I have had the opportunity of following out Dr. Carnett's ideas in examining patients. As a result of these examinations, checked by pathologic reports and operative observations, I am convinced that his interpretations of abdominal pain and tenderness are correct. The numerous viscerosensory reflexes do not stand up under critical clinical investigation as checked by surgery. The examiner will find it necessary to learn the tensed muscle test and learn to pinch so vigorously that either the patient is hurt or the examiner is compelled to quit because he has no more power, before declaring skin tenderness is negative. It is also necessary to examine for surface tenderness far more extensively than is usually done, extending the examination beyond the abdomen to the neck, arms, chest and thighs. It is likewise necessary to detect inequality in the length of the legs and to appreciate that mild degrees of scoliosis and excessive lordosis need to be recognized and corrected. The work done by Dr. Carnett offers a better explanation than any other theory for persistence of pain after operation and removes many cases from the tribulation of "operative failures" to wrong preoperative diagnosis. His test of finding tenderness present over relaxed abdominal muscles and entirely absent over tensed muscles is one of the most reliable indications for operation with which I am familiar. Many case records might be quoted in support of these facts, but the following will illustrate at least a part of them. M. S., a white woman aged 28, complained of pain in the right lower quadrant of four years' duration. Three months after the onset of the pain, an appendectomy was performed. While in bed she felt relieved but when she was up again the same distress was present. Six months later she had the right tube and ovary removed, with exactly the same result. A year later she was operated on a third time for 'adhesions,' but some pain continued. Examination revealed the operative scars with parietal tenderness over the whole right lower quadrant. There was also tenderness over the right buttock and high up on the inner aspect of the right thigh. Examination of her back revealed a right-left scoliosis, lordosis, low right shoulder and low right iliac crest. The right leg was found to be five-eighths inch short. I ordered five eighths inch to her right heel and planned on the next visit to start exercises to correct lordosis and to search for possible foci of infection. With her as with many other scoliotic patients, the raised heel gave such prompt relief that no further treatment was required. For over four years this woman has had no recurrence of her right lower quadrant pain.

DR SEALE HARRIS Birmingham, Ala. Only one of the authors mentioned the pancreas as the seat of abdominal pain. Dr. Pottenger spoke of the very intense abdominal pain in acute pancreatitis. If one will consider the anatomic relations of the pancreas, one will realize that gallbladder disease is frequently associated with pancreatic infections. The blood supply of the pancreas is such that hemic infections may occur from lesions of the intestine and colon. Allen and others think that diabetes is preceded by pancreatitis in a large proportion of cases. That certainly would make one believe that pancreatitis is a frequent condition and one that is rarely recognized. I have observed several cases of subacute and chronic pancreatitis in which abdominal pain was a prominent symptom. In one case a woman had recurring attacks of pain in the abdomen apparently due to a chronic pancreatitis. She first had a history of hyperinsulinism with recurring hypoglycemic manifestations, and later diabetes developed. In her case the pain was more over the pancreas than over the gallbladder and the Graham-Cole test showed slight impairment of gallbladder function. A youth aged 20 had recurring attacks of narcolepsy, i. e. sudden stiffening of the body and then relaxation and falling and being unconscious for an hour or two. Abdominal pain was an important factor and following his first attack he was operated on for appendicitis. The gallbladder was explored at the same time and the appendix was removed, without any relief of the abdominal pain. The attacks of pain were recurring as in duodenal ulcer or gallbladder infection. Before he came to me he had had three attacks of unconsciousness, narcoleptic attacks and the abdominal pain

was quite pronounced. His physician sent him to me with a diagnosis of probable ulcer of the duodenum. I found that he had a very low blood sugar—a typical hyperinsulinism curve. I controlled his hypoglycemic symptoms and his abdominal pain while in the hospital, with a moderately low carbohydrate and high fat diet with frequent feedings, but when he returned home his tendency to somnolence and pain recurred because of the fact that he couldn't carry out the dietary instructions and he came back and was operated on. It was expected that an adenoma of the pancreas would be found but the pancreas was apparently normal. It was decided to follow the operation that Finney, Hartman and Judd have done, the resection of a portion of the pancreas so that about half of the body and all of the tail of the pancreas was removed. All of the symptoms of hyperinsulinism subsided and the abdominal pain was relieved. He has been under observation now for ten months and his blood sugar fasting has remained normal. No pathologic condition was found to account for the abdominal pain.

DR H. L. BOCKUS Philadelphia I am one of the fortunate clinicians associated with Dr. Carnett for the past thirteen years and I want to emphasize what he has said about the importance and the frequency of abdominal pain due to other than visceral disease. I will present statistics from my office files for this purpose. Nine hundred and twenty-six consecutive office records have been gone over and in that group a diagnosis of neuralgia of the abdominal wall was made in seventy as a primary diagnosis giving an incidence of 7.5 per cent of the patients who consult me as a gastroenterologist. Sixty-four of these seventy patients were females. Scoliosis or lordosis was present in 47 per cent, and I thought that was probably the cause of the condition in that group. Arthritis of the spine was present in 20 per cent and the remainder were classified as faulty posture. Dr. Carnett will like to hear that 44 per cent of these seventy patients had had laparotomies performed without relief of this particular symptom. The location of the pain in the group was mostly in the lower part of the abdomen, mostly on the right side although there was a considerable number in which it was generalized.

DR EMANUEL LIBMAN New York In connection with my report on the occurrence of pain and gastric disturbances with calcific impregnation of the abdominal aorta, the investigations of Professor Waterston of St. Andrews are of interest. According to an abstract in *THE JOURNAL*, June 10, 1933, page 1875, he found that contact of the point of a needle with the wall of an artery elicits sharp pain and that when the point is pushed into the wall a peculiar sickening pain results with nausea and faintness. I fear that Dr. Boles has had little experience with the test. Whatever method is employed, errors can be minimized only by much experience. That contralateral pains do occur is sufficiently proved by the 'toothache on the wrong side.' Dr. Boles says that he does not believe that the symptoms which I described in connection with the stomach are often occurring in hyposensitive persons can represent pain because they result from distention. His statement really confirms my view because practically all authorities now agree that pain is produced in the hollow organs by tension, pulling and spasm. Dr. Carnett evidently misunderstood me. The mastoid process is utilized as a control for the very reason that it is normally not tender. I am deeply interested in the subject of 'pseudocholecystitis.' One of the mechanisms for its production may be explained by a recent hypothesis of mine. According to it, toxic foci (especially intestinal putrefaction) may cause hyperemia, edema (and hemorrhage) in various tissues and spasm. There is also evidence that spasm and distention may have similar effects. It is probable that gallbladders are not infrequently closed off in such ways. Of interest is the observation that a nonvisualized gallbladder may become visible following the use of mild mercurous chloride. In connection with this subject it is necessary to say a word on rebounds in the autonomic system. For example, an attack of sinusitis can cause sigmoidal spasm which in turn may set up pyloric spasm. If one succeeds in releasing the pyloric spasm (alkali carminatives) the spastic sigmoid usually relaxes and the sinusitis may improve. Many attacks of pain are dependent on the development of hyperemia especially in areas already diseased—and spasm as well as inflammatory lesions, as I have already stated, can cause such

hyperemia I believe that physicians will advance much in therapeutic accomplishment by taking these factors into consideration and studying assiduously all possible methods of influencing hyperemia

DR WALTER C ALVAREZ, Rochester, Minn I have seen many cases in which the absence of pain could be understood only after it was shown that the patient was insensitive I saw a man who complained of nothing more than severe attacks of nausea When the roentgenologists reported a large duodenal ulcer and I couldn't elicit any symptoms of ulcer I was much puzzled, but finally all became clear when I found that the man was so insensitive that he could have fourteen teeth out at one sitting without an anesthetic and without any pain I remember another man with a duodenal ulcer who got paranoid ideas three hours after meals when he should have been getting his hunger pain At those times he would get the idea that some one was following him He, too, was insensitive to pain Other such patients with ulcer complain of a gaseous distention which corresponds to the usual hunger pain One thing to be remembered is that a person can be neurotic and psychopathic and still be insensitive I agree also with Dr Crohn I think the main reason why it is so difficult to diagnose carcinoma of the stomach early is that the patients are often so insensitive that they cannot become aware of the fact that they are seriously ill I am particularly interested in the pains that have no relation to the digestive cycle, and I am disturbed over the number of useless abdominal operations performed nowadays on these patients Often the surgeon would not have operated if he had only learned first that the pain complained of was not associated in any way with the taking of food It is important also to know just where the pain is felt and if it always comes there Does it move around? Pains that move around suggest to me a functional origin Burning pains are particularly likely to be without demonstrable organic origin I think many useless operations would be avoided if more physicians knew that pain in the lower part of the abdomen is rarely a sign of disease in the upper part of the abdomen Pain below the navel is more likely to be due to a highly sensitive colon or to disease of the pelvic organs I hope that Dr Carnett's teachings will save more and more persons from needless operations

DR F M POTTENGER, Monrovia Calif After listening to the discussion, I realize that this subject needs clarification The works of Langley Gaskell Muller, Schiffl Cannon Kuntz, Higier and many others have presented a definite knowledge regarding visceral neurology which clinicians are all too slow in using for the explanation of the various reflexes met in disease One must bear in mind that the correlation of the body through the nervous system is so complete that a single afferent impulse may produce a widespread probably universal, discharge through efferent neurons as is indicated by strychnine poisoning in which sight sound smell or touch may throw the entire body into spasm In studying all phases of reflex action one must remember that different people react differently toward stimuli of a similar nature Dr Libman has given a method of measuring this as far as pain is concerned Physicians are in error in keeping their minds too much on pain Most sensory visceral effects are altered sensation rather than distinct pain The usual methods for determining changes in sensation are too gross The feather or a little piece of cotton as mentioned by Dr Kerr, will discover altered sensation better than instruments that produce greater pressure Dr Carnett doubts the nature of anginal pain and speaks of it as being a neuralgia Somatic pain and altered sensation of visceral origin are segmental in nature and their definite location is an indication that they are precipitated by the stimulus coming from the viscus itself The peripheral nerves which show sensory changes when an organ is involved can usually be shown from their origin in the central nervous system to be connected intimately with afferent neurons which supply that organ A failure to understand that chronic visceral inflammation injures sensory neurons and lowers their threshold to further stimulation is frequently the cause of useless operation and not infrequently gives both patient and clinician much concern that would be avoided if its nature were once comprehended I have had a splendid opportunity to study chronic pain in conditions of the lung and pleura Without any

increased inflammation in the viscus, patients complain of pain under conditions of depressive emotions, menstruation, weather changes and so on The recognition of this fact will help very materially in understanding some of the annoying symptoms in visceral disease

DR JOHN BERTON CARNETT, Philadelphia The papers and discussions demonstrate the widely divergent views pertaining to the subject of abdominal pain The subject demands more careful study by correlation of preoperative, operative, pathologic and postoperative observations Dr Pottenger has a better comprehension than other advocates of the viscerosensory theory in recognizing the wide extent and persistent recurrence of parietal symptoms despite operative or nonoperative treatment of visceral lesions The radical modifications that he suggests in order to make the theory fit the clinical facts however practically kill the viscerosensory theory So-called contralateral symptoms of a visceral lesion in my experience consisted of a primary complaint of parietal pain and tenderness on one side in which examination unearthed a quiescent visceral lesion on the opposite side Without exception, operative correction of the visceral lesion failed to benefit the contralateral parietal symptoms as shown by prolonged follow-up observations I am interested in another type of contralateral symptoms in which tenderness and often pain are found in a lower quadrant on one side of the abdomen and in an upper quadrant on the opposite side of the chest Without an exception thus far in dozens of cases this combination has always occurred in patients with an S scoliosis, the parietal symptoms being on the concave sides of the S curve The subjective symptom which patients describe as distention has been brought up in this symposium In my experience, so-called distention is often a symptom of parietal neuralgia The worst aerophagic gas belchers I encounter all have parietal neuralgia but ascribe their symptoms which are not relieved by use of the stomach pump to gastric distention When the neuralgia is unilateral, the patient states that the distention affects only the half of the stomach on the same side as the neuralgia, but if the neuralgia is bilateral the whole stomach feels distended Aerophagic belchers usually do not have an organic gastric lesion In the exceptional event of an organic gastric lesion being present, its correction does not cure the belching, whereas improvement or cure of the neuralgia has a corresponding effect on the belching Intestinal gas pains are likewise found in patients with parietal neuralgia and if the latter is unilateral the gas pains are usually restricted to the same side of the abdomen In closing I desire to repeat my plea for examination of all patients having abdominal pain or tenderness by the simple tests that will disclose the presence or absence of parietal neuralgia

DR LOUIS J HIRSCHMAN, Detroit Patients suffering from abdominal pain due to colonic dysfunction, on account of increased or of decreased peristalsis achieve a most astonishing measure of relief from the removal of lesions that are located in the anal canal Colonic dysfunction causes colic and extreme abdominal pain, and often such distensions caused by spasm of the musculature at the anal outlet will cause inflammatory conditions of the organs, and they will cause the opposite type of dysfunction diarrhea, followed by cramps

The Way He Walks—I need not describe to you in detail here the stamping, broad-based action of tabes dorsalis, the steppage drop-foot gait of peripheral neuritis the dragging spastic gait of the paraplegic and the hemiplegic the festinant trot of the paralysis agitans or the stiffening shuffle of old age Their enumeration however brings me to the question of how we may best train our eyes to do better as time goes by I would first of all tell you simply to make a rule of having a good look at every patient as he walks into your presence or sits or stands or lies before you To avoid embarrassment ask a question or two by all means but study him well meanwhile The art of medicine is largely the art of noticing You need to cultivate constantly both the enthusiasm and the watchful patience of the field naturalist if you wish to obtain the full value and interest which clinical work can bring—Ryle J A *The Training and Use of the Senses in Clinical Work*, *Gen & Hosp Gaz* 47 421 (Oct 28) 1933

IMPORTANCE OF THE SIZE OF STOMACH AND STOMA IN GASTRO-ENTEROSTOMIES

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Considerable has been written during the past fifteen years on gastro-enterostomy. Much has been said about the indications, contraindications, location and size of the stoma. Straus has done some excellent work on the preparation of the stomach prior to a gastro-enterostomy.

The importance of the position of the stoma has been stressed by many writers. Many have advised that the opening be placed at the most dependent part of the stomach, while others have found that the location of the stoma was of little importance if the most important indication for the gastro-enterostomy was present, namely, pyloric obstruction. There seems to be quite universal agreement among surgeons that obstruction at the pylorus or in the first part of the duodenum is the most important indication for a gastro-enterostomy. It is in this type of case that the best results are obtained. Frequent fluoroscopic observations lead one to believe that the obstruction must be of the organic type and not due merely to spasm. If the obstruction is due to spasm the food will after the spasm has been relaxed, pass through the pylorus rather than through the stoma.

From my observations I am inclined to believe that patients with obstructive symptoms who show definite roentgen evidence of pyloric or duodenal obstruction should be placed on a strict diet, accompanied by antispasmodics to determine whether or not the obstruction is organic or due to spasm. If the obstruction is found to be organic and permanent operation may be resorted to. On the other hand if the obstruction is due to spasm further medical management should be tried and, if the residue can be greatly reduced or eliminated, operation may be dismissed or at least delayed.

For many years I have been interested in gastric retentions. Many things must be taken into account when five or six hour gastric residues are considered. It is important to consider first the habitus of the patient. Many long lean persons will show a definite six hour gastric residue with no apparent organic lesion present in the stomach or duodenal bulb. It can safely be said that these patients are not subjects for gastro-enterostomies, as other factors functional in origin may be the cause.

The residue in these patients can often be reduced by proper feeding and by support to the abdomen. Often the addition of weight by proper diet will increase the fat in the abdomen, and the stomach will be elevated and will empty quite normally.

A common observation in this type of patient is the normal emptying of the stomach, which is seen during fluoroscopic examination with the patient lying on the right side. This position certainly expedites the emptying of the stomach.

I realize that the low stomach in itself may not be the deciding factor in some of these patients. I have seen persons whose stomachs were located in the pelvis and at the six hour examination there was no residue. The low position of the stomach does not seem to be

the important factor as the cause of large gastric residues. According to my observations, the position of the pylorus and first part of the duodenum plays an important role. If the pylorus and the duodenum remain high in their normal positions there will usually be a large residue, whereas if the pylorus and the duodenum are displaced downward with the stomach there will probably not be a large gastric residue. These are anatomic variations, and the mechanics of the residue can be readily explained on this basis. Often in routine five hour fluoroscopic examinations I see rather large gastric residues, but when the stomach is filled with the barium mixture I am surprised to find that the stomach is not a low fish-hook type but is high and of the steer-horn type. Further examination adds to confusion, since no lesion can be found in the stomach or duodenum to account for the residue. For a time I reexamined these patients after they had been thoroughly atropinized, but the residue was still present and I felt that spasm was ruled out as the cause of the residue. After more investigations I learned that these patients were taking the barium meal and then were lying in bed in the dorsal recumbent position. While in this position there was a saddling of the stomach and the residue followed. The proximal half of the stomach was kept from emptying by the saddling of the lower half over the spinal column.

Other factors may play an important role in gastric retentions. First, most persons are apprehensive and the resulting stimulation of the sympathetics causes a decreased tone of the organ proper and an increased tone of the sphincter. Second, barium sulphate which is not palatable and which is not a normal constituent of the tract seems to disturb the normal downward rhythm and produces at times a feeling akin to nausea. Third, when the normal routine of many persons is disturbed as related to food taking, headache tends to develop.

Any one of these factors may be associated with delayed emptying in the absence of organic disease.

Organic lesions in the pylorus and duodenum may cause either large or small gastric residues. Frequently the residues are due to spasm rather than to scar and are relieved by antispasmodics.

If after the administration of atropine or belladonna to their physiologic limits the residue is still present, one can feel quite safe in saying that an organic lesion is causing the delayed emptying. While these drugs usually rule out the possibility of spasm they do not dispose of a rather common cause of the obstruction, namely, edema which usually accompanies the ulcer.

Often these patients are subjected to surgery, such as gastro-enterostomy, after antispasmodics have not decreased or eliminated the gastric residue. It has been taken for granted that the residue is due to an organic stricture and the functional side of the question has been disregarded.

Earlier writers such as Walton,¹ have demonstrated quite conclusively that the stoma acted chiefly as a means of drainage, and, in the presence of pyloric obstruction, the stomach contents passed through the anastomosis.

The good results reported by Walton have led others to do gastro-enterostomies for lesions without obstruction. It was in this type of case that poor results were obtained and led others to doubt whether the operation

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¹ Walton, A. J. The Surgical Dyspepsias. London: Edward Arnold & Co. 1930.

acted as a short circuit. Observations made by Kelling,² who did gastro-enterostomies in which all methods were used, proved that food would continue and preferred to pass through the pylorus unless the stoma was very large. The position of the stoma, whether high or low, made very little difference. If the pylorus was patent, the food preferred to pass through it. A very large stoma would serve to alter some of the flow but not the entire flow of food.

The work of Dilbert corroborated by others, showed that, regardless of when an anastomosis was made along the gastro-intestinal tract, the food prefers to pass along the normal route unless there is obstruction. Investigators working on man have shown that, provided there are no complications and the pylorus is open, the meal for the first two or three months almost wholly passes through the stoma. After the period of three months the food usually commences to pass through the pylorus.

It seems to be the accepted view that the passage of food through the stoma is dependent on the presence of pyloric spasm or stenosis.

Walton draws the following conclusions:

- 1 If there is pyloric obstruction, the food will pass through the stoma.
- 2 If there is a pyloric ulcer with stenosis, it will probably be accompanied by pyloric spasm. All the food will pass through the stoma.
- 3 If there is an ulcer on the lesser curvature the pyloric spasm will be less complete and the food will pass through the pylorus and the stoma.
- 4 If the obstruction is due to the pyloric spasm the food will later pass through the pylorus rather than the stoma.

Pyloric spasms, as a rule, are only temporary and unless there is organic pyloric obstruction the food will later pass in most part through the pylorus and the stoma will become smaller.

Gastro-enterostomies performed for ulcers high on the lesser curvature of the stomach are of doubtful value. The food usually passes through the pylorus rather than the stoma. Roentgen examination of the stomach is of great value in deciding where to place the stoma. Much of the success of the stoma in draining the stomach depends on the habitus of the patient and the position and type of the stomach.

Balfour³ and others stress the importance of a large stoma. The possibility of mechanical obstruction developing at the stoma is greatly decreased if the opening is made as large as the lumen of the jejunum. Some surgeons are of the opinion that a large stoma lessens the chance of obstruction following angulation of either the afferent or the efferent loop.

Balfour states very clearly the following:

The first and most important rule for the avoidance of failure is to be certain that the operation is needed. If there is no ulceration or obstruction at the pylorus a gastro-enterostomy is likely to make the patient worse. The second rule is that the operation be performed properly: the opening must be large; the proximal loop must not be too short and a segment of stomach surrounding the anastomosis should bulge funnel-like for a distance of at least 2 or 3 cm below the opening in the mesocolon.

Roentgen observations over a period of years prompted me to write this paper. I became especially interested in the fluoroscopic examinations of gastro-

enterostomized stomachs, first, because I felt that radiologists were not giving the surgeon or the internist as much information as it was thought they should receive and, secondly, because I was interested in the study of the stoma as to size, position and its ultimate efficiency in the drainage of the stomach.

Any one who has examined stomachs fluoroscopically is familiar with the passage of the barium meal from the cardia to the pylorus. The barium meal usually clings to the lesser curvature of the stomach for a distance of about 3 inches and then inclines toward the greater curvature in the region of the pars media and then downward to the pylorus. If the stomach is large, as in marked pyloric obstruction, the normal canalization will not take place, and the barium meal will drop at once to the most dependent part instead of being held up in the normal manner as the result of tone.

I have watched the canalization on many occasions and have thought that perhaps the best location for the gastro-enterostomy opening could be decided on during the fluoroscopic examination. If the stoma is large and is placed at the point at which the food comes in contact with the greater curvature, drainage will be facilitated.

With the usual type of gastro-enterostomy it may be difficult to outline the stoma fluoroscopically unless the radiologist is cognizant of its presence. This is especially true if the pylorus is patent. To study a gastro-enterostomized stomach carefully the radiologist should be informed that the patient has been operated on. If the radiologist knows there has been an abdominal operation, he can at least be on the lookout for a gastro-enterostomy. The most satisfactory time to study the stoma and adjacent structure is during the first swallow of the barium suspension. If the stomach is allowed to fill before the study is made, it is often difficult to obtain the desired information. The stomach will enlarge when filled with barium, and if the gastro-enterostomy is located on either the posterior or the anterior wall the opening may be obscured. Prompt examination with the initial swallow of barium sulphate I believe is the optimum time to study the stoma and small bowel adjacent to the enterostomy. The fluoroscopic study at the time of the five hour examination often gives added information as to the mobility, tenderness and presence of an ulcer crater. Frequently the exact size of the stoma can be determined at the five hour period.

My first case, in which the stomach was very large, stimulated my interest in this subject. The greater curvature was below the iliac crest and there was a definite six hour residue, about half of the original barium meal remaining in the stomach. The patient had a definite duodenal ulcer with obstruction, although it was not complete. The patient was operated on and a posterior gastro-enterostomy was performed on the greater curvature of the pars pylorica. The opening according to the surgeon, was the usual size and seemed ample.

Three weeks after the operation I reexamined the patient, the stoma was functioning quite freely and the barium was also passing through the pylorus. The bowel was freely movable at the site of the stoma. The size of the stomach had decreased probably as a result of the free drainage. Some months later the patient was again examined for a check up and a further study of the stoma. At this examination, most of the barium was passing through the pylorus. The stoma could be out-

2. Kelling, G. Zur Resektion des carcinomatoen Magen. Arch f. Klin. Chir. 229:290, 190.
3. Balfour, D. C. Results of Gastro-Enterostomy for Ulcer of the Duodenum and Stomach. Tr. Am. S. A. 45:146, 1930.

lined only by palpation and pressure and was very small. The stomach was much smaller than during the previous examination. Although the barium meal was leaving the stomach almost entirely through the pylorus, there was a moderate six hour residue.

I tried to figure the cause of the residue and determine in my mind what had occurred in this patient. From further observations of this and other cases I have arrived at the following conclusions:

The obstruction was not complete, as was shown in the original fluoroscopic examination. The obstruction present was not entirely due to the organic lesion, spasm played an important part.

The stomach was very large and low, and when the stoma was made it appeared sufficiently large. Following the gastro-enterostomy the stomach emptied freely through the stoma for a time. The tone of the stomach improved and in turn the stomach became smaller. As the stomach became smaller the stoma also decreased in size owing to contraction. While the stoma was functioning freely the duodenal ulcer improved, the spasm became less or disappeared and food again began to pass through the pylorus freely. This improvement continued up to a certain point, when the pyloric or duodenal ulcer again became active, accompanied by spasm and symptoms.

It is my opinion that if this type of patient is placed on a proper ulcer management, surgery may be avoided. If, on the other hand, medical management results in no improvement and the obstruction persists a gastro-enterostomy may be performed. If the opening is made large and the stomach is compensated, contraction of the stoma will not accompany the decrease in size of the stomach to such a point that it will not function.

I have examined a number of such cases and have found these facts to be true in patients with small or medium sized enterostomy openings.

MECHANISM OF THE DECOMPENSATION AND COMPENSATION OF THE STOMACH

Usually the normal stomach shows rather definite peristaltic waves not necessarily pronounced but in definite periods.

When the barium meal enters the normal stomach there is a certain degree of tone present and the meal is held momentarily, probably as the result of muscle tone. If the patient is of a nervous temperament, the pylorus may remain contracted for a short period. As the patient becomes accustomed to his surroundings there will follow a relaxation, and the barium will pass through the pylorus. In other patients the meal may pass rapidly to the pylorus and through the sulcus into the duodenum.

Peristaltic waves usually begin in the lower part of the pars cardiaci and pass on both curvatures to the pylorus unobstructed. While changes in the frequency and depth of the peristaltic waves are important diagnostically, it is not uncommon, in a normal stomach, to observe practically no peristaltic movements. It is my belief that increased frequency and depth of the waves is more important diagnostically than an absence of waves.

The absence of peristaltic waves is not uncommon if the patient is examined only in the upright position, the waves become more active with the patient in the recumbent position (anterior prone).

The size of the normal stomach is familiar. One forms an opinion when doing fluoroscopy as to whether

the stomach is small, large or normal. With an early lesion such as a gastric or duodenal ulcer, with no obstruction, the stomach may be small, owing to spasm and irritability. In other words it is hypertonic. During the period in which the stomach is compensating, there is no relaxation of the muscles and the peristaltic waves are usually moderately active. If the patient is not treated, obstruction may develop, due to spasm, edema or scar. Accompanying the obstruction the stomach will begin to dilate and gradually become decompensated. The muscles become fatigued, relaxed and thin. One familiar with fluoroscopy of the stomach has recorded the hyperactivity of the peristaltic waves in pyloric obstructions during the first part of the examination and, later the absence of waves, probably due to fatigue.

If the patient is operated on and a gastro-enterostomy is performed the stomach after the stoma has been made will become smaller and again compensate. If the duodenal ulcer that was causing the obstruction begins to heal and the spasm relaxes food will again pass through the normal opening. The stomach will regain its tone and become smaller. The stoma will also become smaller or as is occasionally observed become closed. The size of the stoma is very important in these cases. A good comparison is the making of a hole in an inflated rubber bladder. The hole may be 2 inches long when the bladder is inflated but will be only one fourth inch long when the air is released. I believe the same principle applies to the stoma. When the stomach is greatly dilated with loss of tone and compensation, the stoma may seem adequate but as the tone returns and the stomach becomes smaller the opening becomes correspondingly smaller and may finally fail to function, defeating its main purpose namely, drainage. If the ulcer remains healed, the chances are that no further operation will be necessary, but if the symptoms recur the stomach will again decompensate as the obstruction develops.

The preparation of the patient's stomach prior to operation in pyloric stenosis is of great importance, especially if the stomach is greatly dilated. I have observed the work of one of my associates, Dr. Grant Lang, for some time and have been favorably impressed with his method of preparation. I have had an opportunity to examine his patients fluoroscopically before and after the preoperative treatment. His reasoning certainly sounds feasible, and frequent fluoroscopic check ups have proved his contentions.

The patient is placed on small frequent feedings, and the stomach is evacuated each night. The evacuation of the stomach diminishes the secretion and as a consequence the patient is more comfortable and the stomach is under less tension.

The frequent small feedings and the evacuations tend to keep the stomach empty, and after three weeks the stomach will be smaller and there will be improvement of its tone. With the stomach improved in tone and decreased in size the anatomic landmarks are more nearly normal and the surgery is made less difficult. During the period of preoperative treatment, fluids should be given by rectum to keep up the body chlorides.

While I feel that the stoma should be large enough in every case to insure proper drainage, I do feel that there is a limit to the size of the opening. No doubt radiologists have all seen openings that have proved to be too large. In this type of case the food passes through into the small bowel too rapidly, and diarrhea

and abdominal distress follow. Another condition that is occasionally seen if the pylorus is open and the stomach is too large is the vicious circle that develops: the food passes through the pylorus and again into the stomach through the stoma.

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ABSTRACT OF DISCUSSION

DR E. P. PENDERGRASS, Philadelphia. There is one point to which I should like to call attention. Occasionally one has an opportunity in a study of a patient after a gastro-enterostomy to see the reason for the nonfunctioning of the stoma. I had a patient whom I examined in the horizontal, the right oblique, the recumbent and the prone posture, and in none of these postures did the gastro-enterostomy function. The patient was then placed in the Trendelenburg posture and the gastro-enterostomy functioned normally. The patient was very sick and because of this observation was allowed to stay in bed for two weeks in the Trendelenburg posture. Subsequently the stoma began to function normally in all positions. I think that in Dr. Kirklin's case it was the edema that prevented the gastro-enterostomy from functioning.

CHRONIC RECURRENT DISLOCATION OF THE PATELLA

WALLACE H. COLE, M.D.

AND

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Dislocations of the patella, both acute and chronic, have been known in medical writings since the earliest times, and from the time of Hippocrates to the present a rather large literature on the subject has been built up. Various classifications have been used in describing the condition, but probably the simple division into (1) acute traumatic dislocation, (2) congenital dislocation and (3) chronic recurrent dislocation seems to clarify the various types as well as any other system.

Acute primary dislocations due to severe injury are not within the scope of this paper except for the fact that such a lesion may be the actual cause and forerunner of a recurrent condition. As such it is well to remember that treatment must be prolonged and made analogous to that of a dislocated shoulder, in which recurrence also is to be feared.

Congenital dislocation from the standpoint of classification probably should be limited to those cases in which the patella is developed away from its normal position and never has been where it belongs, a family history of such a lesion frequently being present, and should not include congenital defects which predispose to dislocations as hereafter discussed. In these congenital cases the bone is practically always found on the lateral surface of the knee, resting firmly against the side of the lateral femoral condyle. The contour of the knee joint is distorted of course, and the joint function is usually very definitely decreased. The vastus medialis muscle is absent except as a flat fascial layer and a valgus of the knee may develop as the child grows older. It would seem as if normal function in a knee whose extensor mechanism was developed to the lateral side of the joint was an impossibility, and this is the rule of course, but several cases can be found in the literature in which no apparent disability

resulted. Probably the most striking case is that reported by Shapleigh of a man with congenital non-reducible bilateral dislocations of the patella who had served actively as a soldier during the Civil War with absolutely no disability from his knees. A family history of such a condition was present in this case.

The treatment of these cases differs from those in which the patella has been in or can be replaced into its normal relationship to the other joint structures, as the primary problem is to correct the dislocation, and only following this must some procedure be devised to prevent redislocation. On exposing a congenitally dislocated patella at operation it is found to be firmly held on the lateral side of the knee, and no amount of manipulation can place it in the intercondylar notch except after a rather extensive severance of the tendinous, capsular and fascial attachments on what ordinarily would be its lateral side but which is actually at the time its posterior margin, on account of its rotation of about 90 degrees. Probably the best method to accomplish this is by a long lateral incision through the component parts of the fibrous capsule down to but not through the synovial membrane of the joint. This incision may have to reach from the region lateral to the tibial tubercle to well up on the lateral side of the thigh before the patella, which is definitely underdeveloped, can be pulled to its normal position on the anterior surface of the femur. When this is accomplished, the thinned-out capsule and undeveloped vastus medialis aponeurosis, which has been stretched over the front of the knee joint, becomes very relaxed and redundant. This redundancy is used as a sling around the patella to hold it in place after the classic and highly efficient method of Krogus. This method consists briefly of making two longitudinal cuts in the medial capsule and putting the strip thus formed around the patella so as to make a sling, holding it anteriorly and preventing lateral displacement. The gap in the lateral capsule formed by changing the position of the patella is also closed by this strip from the medial side. The capsule is so thin at times that technically there may be some difficulty in separating it from the synovial membrane. This procedure seems to accomplish reduction and retention of the congenitally dislocated patella better than any other method that has ever been reported. In very young children this is probably all that will be necessary to effect a cure, except, of course, the training and physical therapy that should always follow the radical procedure. In older children it may have to be reinforced by some one of the operations described later, in order to straighten the line of quadriceps pull.

Chronic recurrent dislocations of the patella, the third type in the classification mentioned, are usually due to certain underlying predisposing causes, which may be acquired or congenital. Acute trauma may be the original etiologic factor, as mentioned earlier, but by far the majority of the cases occur without any such injury. The main predisposing factors can be listed in about their order of frequency.

1. *Genu Valgum*.—A deformity of this character angulates the line of the quadriceps pull and tends to displace the patella, which is at the apex of the angle, outward. However, the mechanism is not as simple as it at first seems, and a full discussion of it would take much more space than can be allowed here. Other factors enter into the picture and it can be argued that in many cases the valgus is a secondary growth reaction to an abnormal pull of the quadriceps.

2 *Underdevelopment of the Lateral Femoral Condyle and Lateral Ridge of the Intercondylar Notch*—Here one may also raise the question as to whether the flattening of the condyle is not a direct growth response, at least in some cases to abnormality in the pull of the quadriceps, and patellar pressure resultant on other underlying causes. As a corollary to this group are those few cases in which fractures of the lateral femoral condyle cause the same general mechanism to be developed.

3 *Relaxation of the Medial Capsule and Other Patellar Attachments*—The cases following infantile paralysis fall into this group, although some of the other underlying factors, such as genu valgum may also result from this disease. A relaxed patellar tendon is prominent in the literature as an etiologic factor.

4 *Abnormal Lateral Displacement of the Tibial Tubercle*—This finding is prominent in a high percentage of the cases and apparently may be either a congenital or an acquired defect. Certainly, when once the patella starts to dislocate, the abnormal pull will tend to accentuate this tendency, but other factors must also be present.

It can readily be seen that to separate cases of recurrent dislocation of the patella definitely into their etiologic groups is an impossibility, as all the factors may be present in any one case and the primary cause indistinguishable from others. There are a few general etiologic points that should be mentioned here although no long discussion of them is necessary. With very few exceptions all the cases reported in the literature are in the female and some authors even state that the condition is confined to girls. The three males in our small series of cases indicates that the discrepancy between the sexes may not be as marked as the literature seems to show.

In most of the cases of recurrent dislocation, symptoms first develop in the period of rapid growth between 12 and 18 years of age, although we have seen one girl of 11 years in whom dislocation of the patella would occur whenever the knees were flexed, the history showing this condition to have been present since she was about 2 years of age. The true congenital dislocations with the patella on the lateral side of the knee usually cause symptoms when the child begins to walk or even sooner, but this is of course, a different lesion from that just mentioned.

The symptoms and diagnosis of recurrent dislocation of the patella are so apparent as a rule that no discussion of them is necessary in this short paper, although much might be said about these two subjects.

It is necessary, of course, to analyze every case carefully and to reason out as accurately as possible the basic cause for the dislocation and, with this and the anatomic peculiarities before one, to mark out the proper treatment.

The question of treatment opens up a large field, and one can find in the literature in addition to the conservative methods nearly sixty different operations which have been devised to prevent and cure recurrent dislocations of the patella, and probably many more have been used without reporting. All these procedures, however, can be grouped into a few classes with basic principles underlying each group, and modifications of a technical nature do not change these principles.

The conservative treatment with special trusses and supports has never been successful as a cure and at most must be only temporarily indicated. Historically, it is interesting to recall that Hugh Owens Thomas

cured a girl with a bilateral lesion by building up the height of the lateral condyles of the femurs by weekly irritation of the bone by percussion and consequent stimulation of local growth.

The operative procedures are in the main divided into three groups:

1 Those directed toward tightening and reinforcing the relaxed structures on the medial side of the patella.

2 Those which attempt to straighten the line of pull of the extensor mechanism.

3 Those which have for their object the raising of the lateral condyle of the femur.

In the first group are those operations which tighten the medial capsule by plication or by excision of an elliptic portion, which may or may not then be used to fill in the defect in the lateral capsule which forms as the patella is moved medially. The method reported by Krogius has been referred to and its particular application to congenital dislocations indicated. Reefing and excision of a portion of the capsule are usually not sufficient in themselves to effect a cure or prevent a redislocation. The medial structures have been reinforced by transplantation of the tendons of the gracilis or semitendinosus muscles into the patella or patellar tendon, by transplanting the vastus medialis and a portion of the medial capsule into the lateral side of the patella and its tendon, and by various other combinations of muscle transplantations. For the most part, these operations are complicated and the results obtained have not been uniformly satisfactory.

Many schemes for supporting the medial capsular structures by substituting an elastic check ligament to hold the patella in its proper position have been devised. Strips of fascia lata used as free or pedunculated bands, and strands of silk have been used for this purpose. It is difficult to assign to any author the credit for the use of fascia in this manner but in this country at least, the names of Soutter and Gallie are most prominent. The former passed the fascia from the patella to the medial condyle of the tibia, and Gallie passes it to the medial condyle of the femur. In our experience, both of these procedures have been most satisfactory, the range of motion in the knee joint has not been affected and no recurrences of the original condition have been noted. The operations are ideal and seem to stand at the head of all others in this class. The isolated operations for shortening the quadriceps or patellar tendons are mentioned only to be condemned.

As an example of the result obtained by fascial transplantation, the following history is given:

A girl, aged 12 years, had had infantile paralysis five years before, which had prevented her from walking for eight weeks but which had cleared up except for some weakness in the left lower extremity. She was admitted to the hospital because of recurrent dislocations of the left patella which usually required the assistance of a physician for reduction. She had some genu valgum and relaxation of the patellar ligament. A fascial band was carried from the patella to the medial condyle of the tibia, and when she was seen two years later the motion in the knee joint was normal in its range, there had been no recurrence of dislocation, and the fascial band was holding perfectly.

A similar result has been obtained in a more recent case in which a bilateral Gallie type of operation was performed.

In the second group of operative procedures in which an attempt is made to straighten the line of pull of the extensor mechanism, both the correction of angulation due to genu valgum and the abnormal lateral displacement of the tibial tubercle must be considered. The

first operation of any type ever attempted for recurrent dislocation of the patella was a supracondylar osteoclasia performed by Guerin in 1842. Since then, osteoclasia and osteotomies have been reported by a number of surgeons as sufficient for cure, but usually the correction of skeletal alignment has had to be supplemented by some other procedure. Correction of a genu valgum deformity is still a necessary procedure at times, but we believe it will rarely in itself effect a cure and that by far the most satisfactory method of straightening the extensor mechanism is that described by Goldthwait and since modified many times. Transplantation of the lateral portion of the patellar tendon with or without the corresponding segment of the tibial tubercle, under the remainder of the tendon, to a new insertion on the medial side of the tibia has been highly satisfactory. Variations in detail, such as transference of the medial half instead of the lateral portion, transference of the entire tubercle and a number of other modifications leave the principle involved unchanged.

We have found this operation highly satisfactory, as in the following case:

A man aged 20 had been disabled for the past thirteen years by repeated dislocations of both patellas when he made any sudden twisting movements. He was able to walk quite well but was apprehensive, and instability of his gait when walking fast running, or playing games frequently ended in dislocations. Both knees were operated on, the Goldthwait procedure having been used in October, 1932, when he was last seen, in April, 1933 he pronounced himself cured. His enthusiasm over the result of the operations was gratifying. He was able to step out vigorously without fear of dislocations.

The Goldthwait operation or one of its modifications is to be recommended whenever the indications are for straightening the pull of the extensor mechanism. There is one factor, however, that must be borne in mind and that is the age of the patient. While the tibial tubercle is still cartilaginous and an intimate part of the upper epiphysis of the tibia, the possibility of interfering with the growth of the epiphysis is always present.

The third group of operations has not been as popular as those of the other two groups, as the indications are probably not so well defined. It is the aim of these procedures to elevate the lateral condyle of the femur as a barrier against the outward displacement of the patella, and surgeons have attempted to accomplish this purpose by supracondylar rotation osteotomy of the femur, by deepening the intercondylar notch, by intra-articular removal of cartilage and bone and by raising the anterior surface of the lateral condyle by an osteotomy and holding the elevated flap forward with a wedge of bone or ivory, as described by Albee, Brackett and Trendelenburg. One of the earlier attempts to prevent dislocation was by Cosma in 1865 and consisted of forming adhesions of the soft parts to the lateral condyle by the use of the actual cautery. The elevation of the lateral condyle gives excellent results in picked cases, but deepening of the notch and rotation osteotomy are not to be recommended. A brief summary of a case in which the lateral condyle was elevated, as has been described, will indicate the course of such a procedure.

A girl aged 12 years was admitted to the hospital because of recurring dislocations of the left knee since she was 3 years of age. There was a marked degree of valgus present and because of this an osteotomy of the femur was done. This did not prevent lateral displacement of the patella however and it was necessary later to raise the anterior surface of the lateral condyle as already mentioned. There has been no recurrence of the dislocation since.

SUMMARY

In the chronic recurrent type of dislocation of the patella, a combination of operations may be necessary.

The best method in our hands for reinforcing or tightening the relaxed structures on the medial side of the knee is a fascial transplantation.

Straightening the line of pull of the extensor mechanism is best accomplished by the procedure described by Goldthwait or by one of its modifications.

Raising the anterior surface of the lateral condyle of the femur is the best method for increasing the bony barrier against lateral displacement of the patella. The uses for this type of operation alone are more limited but good results are obtained in properly selected cases.

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ABSTRACT OF DISCUSSION

DR HERMAN C. SCHUMM, Milwaukee: This paper is of particular value because it classifies and brings down to the present a subject the literature on which is voluminous. Any one who has attempted to cover this literature in recent years will appreciate the amount of work this paper represents. Every case of dislocated patella must be carefully studied in order to bring out the many etiologic factors present. When the etiologic factors are known it is not difficult to decide the best method of treatment. My experience coincides with that of the authors in that I get the best results in the majority of cases with either the Gallie or the Goldthwait type of operation. However, I feel that there is an occasional case in which a combination of methods is of importance. I should like to ask the authors how many authentic cases of medial dislocation of the patella there are. As one reads the literature one finds it mentioned, but it is difficult to find any case reports. I should also like to ask just how commonly infantile paralysis plays a part in the etiology. I do not recall seeing a case of dislocated patella as a result of infantile paralysis and I have seen quite a few cases of infantile paralysis.

DR PAUL W. GIESLER, Minneapolis: The general agreement as to the best method of treatment of this condition as well as the excellence of this paper precludes a great deal of discussion. The primary problem in congenital dislocations is the reduction and restoration of normal anatomic relations, as nearly as possible before the function can be considered and recurrence prevented. In acquired luxations the reduction is simple and the problem here is the correction of faulty functional mechanics. It is open to argument whether the knock knee and the undeveloped lateral condyle are the causes of the chronic recurrent dislocations or the result of a faulty pull of the quadriceps mechanism. The most important point brought out in this paper is to decide as nearly as possible the underlying cause for the chronic dislocation and to plan the treatment accordingly. This will consist of some or all of the following: (1) to correct a definite knock knee by casts or osteotomy; (2) to transfer the lateral half of the patellar tendon with or without its tibial attachment to the medial side; (3) further to prevent dislocation, a fascia lata check ligament between the patella and the medial condyle of the femur or tibia; and (4) if necessary an occasional raising of the anterior surface of the lateral femoral condyle.

DR JAMES A. DICKSON, Cleveland: The authors have given an excellent summary of the etiologic classification and treatment of the recurrent dislocation of the patella. They have emphasized the basic principles in its treatment rather than suggested any one particular operation. The operative treatment as the paper brought out is aimed to bring about a state of affairs that will allow the extensor apparatus to pull in a straight line and at the same time correct the relaxation of the medial capsular ligament. The operation of choice to overcome this malalignment of the patellar tendon will, of course vary with the different surgeons, some stressing the transference of the patellar attachment and others stressing the use of fascia to repair and strengthen the medial capsular ligament while others again stress the reconstruction of the exten-

nal condyle. The method of choice will depend on a complete review of the case in hand. The method that I have felt to give me the most satisfactory results was a combination of the Krogius and Gallie operations.

DR EDWIN W. RYERSON, Chicago. Years ago I did a transplantation of the tubercle of the tibia with the patellar ligament about three-fourths inch to the medial side of its original position. Fourteen years later that young woman, now grown to maturity, came back to me. During the course of those fourteen years the tibia itself had become so rotated around to the outer side that it presented a very unpleasant deformity. From that time on I have done no more of those complete transplantations of the patellar tendon and of the tubercle of the tibia. I think that this operation and all operations, including Goldthwait's ingenious procedure, should be abandoned in favor of Gallie's operation of inserting a fascial ligament to connect the patella with the internal condyle of the femur. This is mechanically correct. It will produce no rotation deformity of the tibia. It is essentially sound and I have done it a number of times with great satisfaction. In the case reported the pull of the patellar ligament was changed to the inner side and it gradually rotated the tibia round and made plastic changes that were not at all desirable. That case was a great lesson to me. There is no possible objection to the Gallie operation. It is extra-articular all the way and is mechanically sound in principle and result.

DR FRED H. ABBOT, New York. It was interesting to observe in each case the contour of the groove and the external condyle. In one case I found the groove completely filled with a markedly dome-shaped enlargement so much so that the dome had to be removed to restore the groove in order that the patella would glide up and down. There is no procedure more simple, or one that can be done any more quickly, than the raising of the external condyle of the femur by a bone graft wedge, and this has been very satisfactory in my hands. I have had a number of persons come to me in whom soft-tissue operations resulted in recurrences. The external condyle in a large percentage of cases is very much flattened. From a mechanical standpoint elevation of the external condyle restores the desired anatomy and the groove. To my knowledge I have never had a recurrence after such an operation.

DR C. A. STONE, St. Louis. I don't believe they are all due to the same cause. I questioned Dr. Ryerson to see what he thought was the cause of this distortion of the tibia, not that I objected to what he had to say. My objection to the fascial anchorage is that the fascia will stretch. I have had instances in which the fascia has stretched and a recurrence took place.

DR H. E. COOPER, Peoria, Ill. I want to place on record one case of recurrent medial dislocation of the patella. This dislocation was corrected by fastening the patella to the external condyle of the femur by means of the long perineal tendon taken from the ankle.

DR GEORGE A. WILLIAMSON, St. Paul. I am grateful for the discussion and feel that although no specific operation has been described in detail the best procedures to meet the individual anatomic factors have been mentioned and recommended. Medial displacement is apparently very uncommon. On a thorough search of the literature only one case report was found, although Janz states that medial displacement occurs in 5 per cent of cases. It is surprising that recurrent dislocations do not occur more frequently as a result of infantile paralysis. We feel that this is the most frequent etiologic factor and that the paucity of reported cases is probably due to lack of symptoms or recognition. The recommendation of Dr. Ryerson to abandon the Goldthwait operation is quite a surprise, as one bad result is not enough to condemn any surgical procedure. The entire tibial tubercle should not be transplanted as there is danger of losing the function of the extensor mechanism if any accident should occur. We have not experienced any recurrences due to stretching of the fascial transplant in the Gallie or Soutter operations and I firmly believe that any slipping that takes place is in the suture lines and not in the substance of the fascia.

BRONCHIAL ASTHMA AS A COMPLICATION OF PREGNANCY

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Bronchial asthma as a complication of pregnancy would seem to be found rarely, since a review of the literature from 1920 reveals a remarkable paucity of information on the subject. It is noteworthy that most of the work reported has been published in foreign medical journals and, in a few cases, subsequently abstracted in the American journals.¹ It will therefore be of value to put on record the two cases reported herein and give a brief summary of the condition and the accepted views as to the prognosis and treatment.

The bronchial asthma occurring during pregnancy may be divided into two separate and distinct groups, namely, those in which a previous history of asthma can be obtained and those in which the asthma seems to be a direct result of the sexual cycle or pregnancy. Group I includes those in whom the asthmatic attacks are directly traceable to sensitization to pollens, proteins or some focus of infection in the body, such as the teeth, tonsils and sinuses. In these patients a history of asthma antedating the pregnancy can usually be obtained, although occasionally the attacks make their first appearance during gestation. When they are encountered during pregnancy, the attacks are of much greater severity than usual, often reaching alarming proportions and terminating in the death of the mother or the fetus or both. Williamson² in his series cites

- 1 These include
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2 Williamson A. C. Pregnancy Concomitant with Asthma and Hay Fever. *Am. J. Obst. & Gynec.* 10: 192 (Aug.) 1930.

two cases in which death occurred during an asthmatic attack, one of the present cases terminated likewise. The question of therapeutic abortion or induction of labor often comes up in this type of case, but the consensus is that the asthmatic condition should be treated, per se, and the coexisting pregnancy ignored entirely.¹

Group II presents a varied and interesting series of cases in that the asthmatic attacks appear to be the direct result of malfunction of the female genital system.⁴ The cases can be divided into subgroups, as shown in the accompanying table. In the first of these, the asthmatic attacks start with the menarche and recur with each succeeding menstrual period. Very often the attacks cease during pregnancy and lactation only to recur on reestablishment of the menstrual cycle. It is likely that these attacks are precipitated by some of the hormones produced during the menstrual cycle or are due to absorption of some of the products of the uterine cavity during the phase of endometrial disintegration.⁵

In another subgroup the asthmatic attacks are seen during gestation and lactation only. No history is obtainable of attacks antedating the pregnancy or after the termination of the pregnancy and lactation. Such cases are rare and when they do occur indicate a sensitivity to some specific product eliminated by the embryonic tissue.⁶ This group is the only one in which therapeutic emptying of the uterus would be warranted.

Bronchial Asthma During Pregnancy

- | |
|---|
| I Asthma due to pollens, proteins, infective foci and the like |
| 1 Preexisting asthma with the attacks aggravated during pregnancy |
| 2 Attacks first noticed during pregnancy but continuing after parturition |
| II Asthma due to sexual cycle disturbances |
| 1 Attacks at each menstrual period relieved during pregnancy and lactation |
| 2 Attacks occurring only during pregnancy with freedom from attacks when not pregnant |
| (a) Attacks during all pregnancies |
| (b) Attacks during gestation with male fetus only |
| (c) Attacks during gestation with female fetus only |

in the hope of relieving the asthmatic condition. Occasionally, this group is found to subdivide into cases that show the asthmatic attacks during a pregnancy with a male fetus, with complete absence of attacks during gestation with a female fetus, and vice versa. It is possible that in such cases the factor responsible for the attacks comes from the developing sexual organs of the fetus. That such a factor exists has been shown by the experiments of Dorn and Sugarman,⁷ in which the sex of the fetus could be predicted from the reaction caused in immature male rabbits by the injection of the mother's urine.

Several interesting facts as to the prognosis in the child have been brought out by a follow up of these asthmatic cases.² Fifty-eight per cent of the children from group I in which the mother had preexisting asthmatic attacks showed some form of allergic reaction before the age of 10 years. In cases in which the father also exhibited some type of sensitivity, this rose to 72 per cent. The most interesting observations in the children of mothers catalogued as group II are in those in which male or female pregnancies only produced the

attacks. The children who had caused attacks while in utero almost invariably had some type of sensitivity themselves, while their siblings of the opposite sex were not affected.⁸

Two histories of patients with bronchial asthma during pregnancy are submitted. Both belong to group I, but the first should be included in subgroup 1 and the second in subgroup 2.

REPORT OF CASES

CASE 1—A woman aged 22, in November, 1930, a few months after the birth of her first child, had a severe attack of bronchial asthma, which all medications except morphine failed to relieve. She was admitted to the Mount Sinai Hospital with a history of attacks of asthma for seven years, beginning at the age of 15. The interval between attacks, in 1930, had lengthened to about eight months.

A roentgenogram of the sinuses after admission showed that the frontals were absent and the maxillary sinuses small and symmetrical and both slightly cloudy, the sphenoids and ethmoids displayed no abnormality. A submucous resection was performed under local anesthesia while the patient was in the hospital. A roentgenogram of the chest showed no evidence of consolidation or effusion but considerable congestion in the left lower lobe and marked fibrosis radiating from the right hilus region downward to the right lower lobe and probably an associated bronchiectasis.

The blood count revealed 80 per cent hemoglobin, 4,280,000 erythrocytes and 19,000 leukocytes. The blood urea nitrogen was 17.8 mg per hundred cubic centimeters of blood and the blood sugar 101 mg. The Wassermann reaction was negative and a blood culture yielded no growth.

A diagnosis was made of bronchial asthma of infectious origin, associated with moderate allergic reaction and sinusitis. After discharge, the patient continued attending the allergic clinic of the hospital and was given injections of dust vaccine with good results.

Nov. 29, 1932, then 24 years of age and in the eighth month of her second pregnancy, the patient had an acute and very severe attack of asthma, followed in a few hours by another attack, and was brought to the Lankenau Hospital. She was cyanosed with respiratory discomfort answering questions with difficulty and with an expression of despair. Sedatives were administered and after a time she appeared comfortable.

The lungs showed impaired resonance throughout and distinct prolonged expiration accompanied by many wheezing musical rales. Inspiration was free and rather of the bronchial type. Tactile and vocal fremitus was increased throughout. The mucosa of the nose was injected and there was some nasal discharge. The pharynx was injected.

The cardiac outline was normal, the sounds were rapid and distinct with a blowing systolic murmur of functional nature. The abdomen was distended and the fetal heart sounds could be heard.

The urine was clear yellow, acid and of 1.011 specific gravity and showed a very faint trace of albumin, a slight trace of acetone, mucus, epithelial cells and urate crystals. The blood count revealed hemoglobin, 70 per cent, 3,740,000 erythrocytes and 16,500 leukocytes, with 64 per cent neutrophils, 30 per cent lymphocytes, 5 per cent large mononuclears and 1 per cent eosinophils. The blood urea nitrogen was 10 mg per hundred cubic centimeters of blood and the blood sugar 95 mg.

The following day, at noon the patient had another acute attack and became irrational. Sedatives were given with good effect. She perspired freely, the color improved and the pulse was good. Toward evening there was a second attack. The patient became cyanosed and started screaming, but under medication the condition abated and she rested comfortably during the evening.

The next day, December 1, she had another paroxysm, the irrationality continued, and a few hours later she became violent screaming and swearing. By noon she was definitely cyanosed and was unaffected by drugs. Since the patient was eight months pregnant a consultation was held relative to

¹ Barsony, J. Bronchial Asthma and Pregnancy. *Gyogaszat* 68: 564 (July 21) 1929. *abstr. J. A. M. A.* 94: 2009 (June 21) 1930.
² Harrison, W. T. A. *Clin. of Menstrual Allergy*. *J. A. M. A.* 100: 738 (March 11) 1933.
³ Johnstone, R. W. An Experimental Study of the Anaphylactic Theory of the Toxemia of Pregnancy. *J. Obst. & Gynaec. Brit. Emp.* 19: 253 (Jan. June) 1911.
⁴ Rosenau, M. J. and Ander, I. F. Further Studies on Anaphylaxis. *Bull. Hyg. Lab., U. S. P. H. S.* June 1903, p. 55.
⁵ Dorn, J. H. and Sugarman, E. I. A Method for the Prediction of Sex in the Unborn. *Preliminary Report*. *J. A. M. A.* 99: 1639 (Nov. 12) 1932.
⁶ Ratner, Bret and Gruell, H. I. Transmission of Respiratory Anaphylaxis (Asthma) from Mother to Offspring. *J. Exper. Med.* 49: 833 (May) 1929.

emptying the uterus. It was decided, however, that the shock would be too great. Oxygen was administered and the color improved, but the patient continued in her irrational state and died at 6:30 p. m. The advisability of a postmortem caesarean section was considered to save the child but, as it was scarcely viable and the family objected, the operation was not performed.

The systolic and diastolic blood pressure readings in this case while in the Lankenau Hospital were 130/85, 140/70 and 135/95. The temperature, November 29, was 97.8 F., on the 30th it ranged from 98 to 99.2 and, December 1, from 99.6 to 108 just before death.

It is of interest that although this patient had been subject to asthmatic attacks since she was 15 years of age, none occurred during the entire course of her first pregnancy. From this point of view, the case would seem to fall in group II, but the infective foci and the later history suggest that it should be included in group I subgroup 1.

A summary of this case leads one to believe that death was due to the chest complication, that is, to the asthma and that the pregnancy was but an exacerbating cause of the asthmatic condition. The maternal symptoms are difficult to explain either from an asthmatic standpoint or from that of a toxemia of pregnancy. The urinary conditions, the blood pressure, the blood urea and the differential leukocyte count all tend to discount the possibility of a toxemia of pregnancy of a degree sufficient to cause such violent symptoms.

An attempt to empty the uterus, by either the abdominal or the vaginal route, had little to offer in the way of decreasing the severity of the asthmatic attacks and any operative delivery would probably have taken away whatever chance the woman had for surviving. In other words in this case the pregnancy could be disregarded since any hope for the survival of the patient lay in her response to treatment for the asthma. Whether or not the prolonged anesthesia induced by colonic administration of ether, as advocated by Mavtium⁹ would have saved this patient is a question but in another case of the same type and severity this mode of treatment should certainly be given a trial.

CASE 2—A quinquagena aged 32, admitted to the Germantown Hospital, complained chiefly of dyspnea, gain in weight and absence of menses.

Menstruation had begun at 14 years and was regular until seven years previously when the patient first began to increase in weight. Since then she had had one period a year until thirteen months before admission, and none since, she had gained 30 pounds (13.6 Kg.) in the last year.

The history showed that the tonsils and adenoids and the appendix had been removed and that the patient was subject to attacks of dyspnea which tended to disappear suddenly. She stated that she had had "chronic bronchitis" for several years, which had been worse during the summer months. For six or seven weeks previous to admission to the hospital, the patient had had a persistent cough with expectoration of thick greenish mucus but no blood. At times the dyspnea became quite severe and the patient perspired freely. More recently she had had headaches, spots before the eyes and occasional edema of the lower extremities. Her appetite had been good and the bowels regular, and there had been moderate frequency of urination and nocturia.

On physical examination, the patient coughed a great deal and appeared anemic and dyspneic. The head, eyes and ears were normal, many teeth were missing but the rest were in good condition. The tongue and throat were normal and no tonsillar tissue was seen. It was noted that the neck was full, but the thyroid could not be felt. The chest was symmetrical and well developed with no depressions. Expiration was prolonged. On auscultation many wheezes and musical rales

could be heard over the entire chest but were more prolonged at the bases anteriorly. The voice sounds apparently were not changed. The heart sounds were poorly heard owing to the thickness of the chest wall, but no gross murmur was evident. The blood pressure was 130 systolic, 80 diastolic, the pulse was regular, beating at the rate of 96 per minute. The abdomen was pendulous with a scar over McBurney's point, and generalized tenderness was present over the entire lower portion. The liver and spleen were not felt but a mass 3 or 4 inches in diameter, smooth, round, firm and freely movable, was thought to be palpable in the right lower quadrant. The extremities showed slight varicosities and edema with normal reflexes. A provisional diagnosis was made of bronchial asthma, obesity and probable ovarian tumor.

The asthmatic attacks continued in spite of the administration of epinephrine or morphine. No areas of dullness could be found on percussion although many fine asthmatic rales persisted throughout. There was some vomiting and diarrhea with the more severe attacks, but less cough than when the asthma was mild. The surgeons believed that an ovarian cyst might be the predisposing factor for the asthma and an exploratory laparotomy was advised. The presence or nonpresence of pregnancy could not be definitely determined.

At operation the uterus was found extending to the rib margin with a fetal body palpable through the uterine wall, so the abdomen was closed without further surgery. Post-operatively the patient had gas pains and vomited, but in general she had a good convalescence.

Laboratory examination showed urine with a specific gravity varying from 1.010 to 1.030, negative albumin until just before discharge when a trace was noted. Hyaline casts on one test, and occasional leukocytes, squamous epithelial cells and amorphous urate crystals. The blood picture showed hemoglobin, 82 per cent; erythrocytes 4,100,000 and leukocytes, 8,000 with 73 per cent neutrophils, 18 per cent lymphocytes, 8 per cent large monocytes and 1 per cent eosinophils. The blood urea nitrogen was 77 mg. per hundred cubic centimeters of blood and the blood sugar was 87.2 mg. Both the Wassermann and Kahn reactions were negative. The basal metabolic rate on three occasions varied from plus 3.1 to plus 22.3 per cent.

Röntgen examination of the chest showed no pathologic changes. A roentgenogram of the pituitary gland was negative except for a posterior lip that was slightly longer than usual. Examination of the sinuses was negative but one of the maxillae showed bone destruction from pyorrhea, though with no apical infection.

Protein sensitization tests showed that the patient was susceptible to the following foods: cow's milk, 1 plus, cod fish, 2 plus, tuna fish 1 plus, turkey 1 plus, carrots 1 plus.

The patient was discharged from the hospital and was treated in the prenatal clinic for the following three months, she then was readmitted to the hospital in labor and was delivered, without any untoward effects, of a male child weighing 8 pounds 4½ ounces (3,756 Gm.). She was kept in the hospital for fourteen days post partum during which period the temperature at no time was elevated above 99 F. and she had no asthmatic attacks although previous to delivery the attacks had been continuous since discharge from the earlier admission.

Fifteen months later the patient was again sent to the hospital with a history of two attacks of asthma a night for the past two months, relief from which was usually obtained in from two to three hours with medication. She had had no menstrual period for the past three months.

Physical examination showed generalized squeaking rales in the thorax and a slight cough, vocal fremitus was good and the breath sounds were fairly good over the back. Otherwise the examination was negative. The laboratory reports were similar to those obtained on the previous admission except that a blood count showed 2 per cent eosinophils and blood epinephrine of 3.1 per cent. The basal metabolic rate varied from minus 20 to plus 28 per cent. A phenolsulphonphthalein test revealed 45 per cent elimination in two hours. Electrocardiographic examination proved the heart essentially normal.

During the stay in the hospital the patient was treated with epinephrine, ephedrine, potassium iodide and thyroid extract plus the usual sedatives, laxatives and the like. On discharge, the attacks had decreased both in frequency and in severity.

⁹ Mavtium, C. K. Relief of Prolonged Attack of Bronchial Asthma by Colonic Administration of Ether. *Clin. North America* 15: 201 (July) 1931.

An analysis of this case indicates that for several years previous to the first admission to the hospital the patient had a mild degree of asthma which was not sufficiently severe to require medical intervention, but that with the onset of pregnancy the asthmatic condition became more pronounced. Although delivery gave relief for a few months, the asthma has now become a specific entity and is not affected by any obstetric condition. Here a marked endocrine dysfunction is apparent, but the patient is also definitely sensitive to exogenous influences, and the case appears to fall in group I, subgroup 2.

CONCLUSIONS

1 In a patient with true bronchial asthma of anaphylactic origin, the attacks are markedly exacerbated by pregnancy and the outlook can become alarming.

2 In the type of bronchial asthma which is directly related to the sexual cycle, the attacks may appear with each menstrual period, be absent during pregnancy and lactation, and then recur with the reestablishment of the menses.

3 On the other hand attacks may occur only during pregnancy or even only during pregnancy with one sex and not with the other.

4 The attacks are occasionally associated with a mild toxemia and are relieved when the toxemia is cleared up under conservative treatment.¹⁰

5 Treatment consists of combating the asthma and disregarding the pregnancy.

6 Termination of pregnancy at best assures only the pregestational state.

7 When the attacks are not accompanied by toxemia but are due specifically to pregnancy, therapeutic abortion might be warranted in extreme cases.

8 Attacks of bronchial asthma are a decided menace to the welfare of the fetus.

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AMEBIASIS

INCIDENCE IN PRIVATE PRACTICE

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Most of the published reports on the incidence of human intestinal protozoa in the United States are based on studies of patients in charitable institutions, that is, indigent persons. The present survey is offered to show the incidence of intestinal protozoa in individuals of a higher social status. It is a summary of the results of routine examinations of the stools of 1852 patients from the private practice of the Rees-Stealy Clinic during the past four years. With the exception of an insignificant number of Mexican families of the better class the material for this study came from American homes of San Diego city and county.

This study was not limited to patients with gastrointestinal complaints. Many of these examinations formed a part of the routine general examinations of patients with more or less indefinite symptoms and the results therefore constitute a fair estimate of the incidence of protozoa in general private practice.

Patients were given printed instructions regarding the obtaining of the specimens and were asked to sub-

mit three fecal specimens on consecutive days. The first, a liquid specimen, was collected in the laboratory following a saline cathartic. This was kept in a warm cabinet until the examination was completed. Subsequent specimens were brought to the office in paraffined paper cartons. A number of patients failed to submit the desired number of stools and in some cases only one specimen was obtained.

For the detection and identification of protozoa, a combination of the cover-glass preparation in physiologic solution of sodium chloride and a modification of Donaldson's iodine-eosin mixture¹ was employed. At first, permanent preparations stained with Haidenhain's iron-hematoxylin were used. It was soon found, however, that it was not necessary to resort to this procedure except in rare instances. In many specimens in which there were only a few parasites it was our experience that all the protozoa disappeared from the slides during the iron-hematoxylin staining. Further-

TABLE 1—Results of Examinations

	1,339 Adults		513 Children	
	3,394 Examinations 2.5 per Case		735 Examinations 1.43 per Case	
	Number	Per Cent	Number	Per Cent
<i>Endamoeba histolytica</i>	31*	2.3	2	0.4
<i>E. coli</i>	227	16.2	21	4.0
<i>E. nana</i>	117	8.7	16	3.1
<i>Iodamoeba</i>	9	0.6	0	0
<i>Chilomastix</i>	15	1.1	9	1.7
<i>Giardia</i>	33	2.4	19	3.7
<i>Trichomonas</i>	48	3.5	2	0.4
<i>Ismbadomonas</i>	34	2.5	0	0

* Includes three nonresidents.

more, these preparations rarely disclosed parasites that had not been previously detected. This has been the experience of other workers also. With the iodine-eosin mixture properly adjusted, the cysts appear as bright yellow circles in a red field, the flagellates and motile amebas stained red. The oil immersion objective was used to study the internal structure. In almost every case the cysts of *Endamoeba histolytica* can be identified in the cover-glass saline solution preparation by their large highly refractile chromatoidal rods. The identification of motile forms is frequently difficult. Good illumination is absolutely essential and we are using with satisfaction the Bausch and Lomb adjustable microscope lamp with a Corning Daylite glass.

The results of the examinations in the cases of 1,339 adults and 513 children are given in table 1. The cases in children are listed separately to show the low incidence of protozoa as compared to adults. *Endamoeba histolytica* was found in thirty-one adults, or 2.3 per cent, and in two children, or 0.4 per cent. Combining these results gives an incidence of 1.7 per cent. In three of our adult cases the infestation undoubtedly occurred outside the United States, as two cases were from families of United States naval officers who recently had returned from the Orient, and the third case was that of a missionary who recently had returned from India. If these cases were not included, the incidence among the adult permanent residents would be reduced to 2.1 per cent. In this series only one case of frank amebic dysentery was encountered and that was in a 5 year old child. In only four cases were cysts absent from the stools.

1 Saturated solution of eosin in physiologic solution of sodium chloride 1 part 5 per cent potassium iodide in physiologic solution of sodium chloride saturated with iodine 1 part physiologic solution of sodium chloride 2 parts. These solutions are kept in separate dropping bottles and mixed fresh daily.

¹⁰ Williams J. W. Textbook of Obstetrics. New York: D. Appleton & Co.
From the Rees-Stealy Clinic.

Table 2 compares the results of this survey with surveys made elsewhere. The incidence of *Endamoeba histolytica* varies from 0.2 to 15.58 per cent in the different studies. There is no doubt that the incidence varies with the class of patients and the geographic location. One cannot but wonder why, in view of the large number of people harboring this parasite, so few cases with frank amebic dysentery are seen and why there are not more local epidemics like the recent outbreak in Chicago.

It has been stated repeatedly that a single fecal examination will reveal only about half the protozoa that can be detected by multiple examinations. This has not been our experience as is shown by table 3, which is an analysis of the positive cases. In the thirty-three cases of infestation with *Endamoeba histolytica*, the parasite was found in the first specimen in thirty-one cases, in the second in one case and not until the third examination in one case. The fact that the first specimen was collected following a saline cathartic

NUTRITIONAL NIGHT BLINDNESS

REPORT OF A CASE

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Night blindness, sometimes called hemeralopia or nyctalopia, which is a difficulty in adapting, or an inability to adapt the faculty of vision to very faint illumination, may result from nutritional deficiency as well as from intra-ocular disease. It was recognized at the time of Hippocrates that liver or liver and honey was a cure for night blindness. In the past few years, experimental and clinical evidence have demonstrated that night blindness caused by faulty nutrition is the result of deficiency in vitamin A and is not infrequently the first manifest symptom of such deficiency.

TABLE 2—Comparison of Surveys for Intestinal Protozoa

Source	Place	No. of Cases	Average Incidence per Cent	<i>E. histolytica</i> per Cent	<i>E. coli</i> per Cent	<i>Shigella</i> per Cent	<i>Trichomonas</i> per Cent	<i>Giardia</i> per Cent	<i>Chilomastix</i> per Cent	<i>Trichomonas</i> per Cent
Boeck and Stiles, Bull. Hyg. Lab. U. S. P. H. S. 1923	U. S. P. H. S. hospitals	5,000	1.0	4.1	10.0	1.0	0	6	1	0.6
Williamson, Kaplan and Gelger, J. A. M. A. 528 (Feb. 16) 1929	Chicago food handlers	1,148			10.0	0	1	0	1.0	1.8
Williamson, Kaplan and Gelger, Ibid.	Hospital Dispensary Chicago	350	1	10	8.10	0.8	1.0	1.0	1	10
Kessel and Mason, J. A. M. A. 94:1 (Jan. 4) 1930	Los Angeles General Hospital	2,431		0.8	1	16.9	3.2	4.4	8	0.9
Andrews and Paulson, Am. J. M. Sc. 181:102 (Jan.) 1911	Hospital outpatient Baltimore	22	1	0.5	4.2	2	1	2	1	2.1
Faust, Am. J. Trop. Med. 11:21 (May) 1931	Charity patients Private patients New Orleans	620 80		1.5 8.0						
Meleney, J. Lab. & Clin. Med. 19:11 (Nov.) 1925	In and outpatients Nashville	2,112	1	0	1.4		3.2			1.7
Magath, Proc. Staff Meet. Mayo Clin. 703 (Nov. 22) 1933	Mayo Clinic			0						
Sumerlin	Adult private patient Children San Diego	1,733 17	2.5 1.4	2 0.4	10 4.0	5 1	0 0	24 7	11 1	0.4

TABLE 3—Analysis of Positive Cases

	Number	Per Cent
Positive on first examination	64	92.2
Positive on second examination	18	6.2
Positive on third examination	10	1.6

probably explains these results. We found, however, that in some cases subsequent examinations revealed other species of protozoa not found on the first examination.

SUMMARY

1 During four years, a survey for human intestinal protozoa among 1,852 private patients was made. The incidence among 1,339 adults and 513 children was noted.

2 The incidence of *Endamoeba histolytica* among 1,336 adult permanent residents of San Diego city and county was 2.1 per cent, and among 513 children was 0.4 per cent.

3 A single fecal examination will reveal the protozoa actually present in over 90 per cent of the cases, if a liquid specimen is collected following a saline cathartic and examined while warm.

The most familiar form of deficiency of vitamin A, xerophthalmia, both of infants and of adults especially the latter, is extremely rare in the United States. This is largely because vitamin A or its precursor, carotene, is widely available in foodstuffs, and the body ordinarily stores large quantities of this substance, a fact not true of some of the other essential foodstuffs. Although nutritional night blindness is not uncommon in the Orient and in some European states, it probably is extremely rare in this country and there are few if any authentic cases reported as having occurred in the United States.

Disease caused by deficiency of vitamin A may result (1) from reduction of adequate intake of vitamin as the available food supply may be poor in it, (2) from deficient absorption and storage as the result of intestinal or hepatic derangement or disease, (3)

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Since submission of this paper for publication, our attention has been called to a report of a case of night blindness due apparently to vitamin A deficiency, presented by Dr. D. I. Filderquist of Duluth at the meeting of the Minnesota State Medical Association in May, 1933. The report of this case, which was observed in 1927, will be published in Minnesota Medicine.
1. Mori, M. Leber den sogenannten Hikari (Xerosis conjunctivae infantum ex keratomalacie). *Jahrb. f. Kinderh.* 59:175-195, 1904.
2. Pitts, Arnold. The Main Symptoms of the Eye in Vitamin A Deficiency in Adults. *Nat. M. J. China* 15:614-620 (Oct.) 1929.
3. Bloch, C. E. Effects of Deficiency in Vitamins in Infancy. *Caries of Teeth and Vitamins*. *Am. J. Dis. Child.* 42:263-278 (Aug.) 1931.
Spence, J. C. A Clinical Study of Nutritional Xerophthalmia and Night Blindness. *Arch. Dis. Childhood* 6:17-26 (Feb.) 1931.

from altered metabolism of the vitamin in the body,³ and (4) from the increased demand for and consumption of the vitamin, for example during periods of rapid growth, pregnancy or disease, especially during severe infectious diseases when the basal metabolic function may be greatly enhanced. McCollum and Simmonds⁴ have emphasized the fact that it is doubtful whether a deficiency disease ever occurs uncomplicated in man or in animals and that deficiency diseases, with the possible exception of scurvy, can be produced as uncomplicated syndromes only by carefully planned experimental diets.

The versatility of vitamin A has only recently been appreciated. A remarkably increasing literature, which we recently reviewed, testifies to its growing importance in the chemistry of food and nutrition, not only in the prevention and cure of certain ailments of man but when supplied in liberal proportion, in the maintenance of a satisfactory state of nutrition and a high degree of health and vigor, both in the growing child and in the adult.

Because of the extreme rarity of case reports of nutritional night blindness occurring in the United States, and in order to emphasize the fact that even though the daily intake of an individual is adequate, a state of nutritional deficiency may result, the following case has been thought worthy of presentation.

REPORT OF CASE

A man, aged 48, a civil engineer, registered in the clinic June 5, 1933, because of diarrhea of two years' duration. Since the age of 18 years he had had symptoms of duodenal ulcer, for which gastro-enterostomy had been performed at the clinic in 1919. Ten years subsequently, symptoms of jejunal ulceration developed and two years thereafter symptoms of gastrocolic fistula appeared. During this period of two years he had continued on a diet which was quantitatively and qualitatively adequate for proper nutrition. In the course of the diarrhea he had passed from four to six liquid or soft stools daily and the stools often had contained undigested particles of food. Physical examination at the time of admission in 1933 revealed a general cachectic state, which will be considered subsequently. Surgical repair of the gastrocolic fistula was performed early in June, and from this surgical procedure the man made an uneventful convalescence.

The first symptoms of night blindness had developed about April, 1932, one year after onset of the diarrhea. The patient, who because of his gastro-intestinal disabilities had not done any work since 1928, had become interested in the discussions regarding a municipal power plant in the small city in Missouri where he resided. One of the reasons for his interest was that the street lights had appeared amber colored and dim, and he had also noted that the lights in his house were dim. He had complained bitterly about this for some time before he had appreciated the fact that the trouble was his inability to see the lights as well as formerly. In the daylight he could see satisfactorily. In June, 1932, he had attended a fish supper, and about 8 o'clock in the evening when it had become dark, he was unable to get around satisfactorily and walked over the grates where the fish were being cooked, burning his feet in the coals and stumbling over several objects. Since that time he had noted that on coming from the bright outdoors into the house, he would be unable to see details for about five minutes. If there was a clock or a picture on the wall he would be unable to tell the time and unable to distinguish the details of the picture for

about five minutes. One evening, when coming out of church, the exit from which was very brightly lighted artificially, he had bumped into several people without realizing that any one was in his way until he came in contact with them. He had had similar experiences on the street at night. He had fallen over steps which he did not see and at one time he had tripped over a dog, which was sleeping in his pathway. One of the greatest difficulties he encountered was driving a car at night. He usually was able to do this by focusing on a light in the distance, but by so doing he was unable to tell whether he was on the shoulder or on the wrong side of the road. If he put on the dimmer lights, which would illuminate the street directly in front of the car, he was able to get along fairly satisfactorily. Although he had driven into the driveway leading to his garage many hundreds of times, he had a great deal of difficulty in finding the driveway and on one occasion drove up onto the lawn and to the front steps of his neighbor's house.

The night blindness occurred periodically. As a rule, the patient had periods of from two to three days to seven to ten days in which the night blindness was present with free intervals between of from one to four weeks. There was no apparent cause for the exacerbations or remissions of symptoms. In addition, the onset of a period of night blindness was usually slow, occupying from one to three days, usually the latter, whereas the attack usually subsided in one day. Peripheral vision seemed somewhat better to him than central vision.

Since the time of the repair of the gastrocolic fistula there has been complete freedom from night blindness, and this has been the longest period of freedom from the disability since its onset. At the time of the patient's dismissal from the clinic, five weeks after operation, his weight was 6 pounds (27 Kg.) lower than before operation but diarrhea and abdominal symptoms were absent and his diet was satisfactory.

Ophthalmologic examination made by Dr. W. I. Lilje, post-operatively, disclosed the following: The pupils reacted normally, the media were clear, and the fundi were normal except for mild sclerosis of the retinal arteries. Presbyopia was present. The perimetric fields were normal.

For two years the patient had lived on a generous diet which contained reasonably large quantities of milk, butter and fresh vegetables, and he ate rather large amounts. At no time during this period did he exist on a diet which in any way could be said to be low in vitamin A or its precursor, carotene.

COMMENT

The physiologic changes accompanying the development of nutritional night blindness are remarkable. They depend on a disturbance in the metabolism of visual purple of the retinal rod cells, which have to do with vision under faint illumination. Under ordinary circumstances of bright light visual purple is bleached but it is also constantly being regenerated. Experimental evidence indicates that there is a close relationship between vitamin A and the visual purple, since Fridericia and Holm⁶ have shown, and Tansley⁷ has confirmed quantitatively that there is delay or failure in regeneration of visual purple of animals that are deprived of vitamin A. In addition, the high vitamin A content of the hog's retina has been demonstrated by Yudkin, Kriss and Smith.⁸ It is possible that in the retina there may occur a reversible reaction, vitamin A being required for the production of visual purple, and the latter, under suitable conditions, producing vitamin A. It is obvious that manifestations of night blindness will occur chiefly after exposure of the patient to bright light for it is in this way that the supply of visual purple is depleted and ample regeneration can-

3. Strauss, M. B., and Castle, W. B. Nature of Extrinsic Factor of Deficiency State in Pernicious Anemia and in Related Macrocytic Anemias: Activation of Yeast Derivatives with Normal Human Gastric Juice. *New England J. Med.* 207: 55-59 (July 4) 1932. Minot, G. R. Some Fundamental Clinical Aspects of the Deficiencies. *Ann. Int. Med.* 3: 216-229 (Sept.) 1929. Minot, G. R., Strauss, M. B., and Cobb Stanley. Alcoholic Polyneuritis: Dietary Deficiency as a Factor in Its Production. *New England J. Med.* 208: 1244-1249 (June 15) 1933.

4. McCollum, E. V., and Simmonds, Nina. *The Newer Knowledge of Nutrition*. 4th ed. New York: Macmillan Company, 1929.

5. Fu, Terman, G. B., and Wilbur, D. I. Clinical Features of Vitamin A Deficiency. *J. A. M. A.* 98: 2054-2060 (June 11) 1932.

6. Fridericia, L. S., and Holm, Eiler. Experimental Contribution to the Study of the Relation Between Night Blindness and Malnutrition: Influence of Deficiency of Fat Soluble A Vitamin in the Diet on the Visual Purple in the Eyes of Rat. *Am. J. Physiol.* 73: 63-78 (June) 1925.

7. Tansley, Katherine. The Regeneration of Visual Purple: Its Relation to Dark Adaptation and Night Blindness. *J. Physiol.* 71: 442-458 (April 24) 1931.

8. Yudkin, A. M., Kriss, Max, and Smith, A. H. Vitamin A Potency of Retinal Tissue. *Am. J. Physiol.* 97: 611-616 (July) 1931.

not occur. This has been convincingly demonstrated by Aykroyd,⁹ who found that, after prolonged exposure to brilliant sunlight with apparent rapid depletion of the visual purple, night blindness in several cases, first developed.

Night blindness may be the result of such intra-ocular diseases as retinitis pigmentosa, optic atrophy, glaucoma and choroiditis, or the disability may be congenital. In the absence of evidence of intra-ocular disease, as in the case reported, night blindness is of the essential type and is usually considered to be the result of nutritional disturbance. There are several factors in the present case which are worthy of note. There were two atypical features. First, the patient regarded the lights at night as amber colored and second, the night blindness was intermittent. It is possible that the second factor may be explained on the basis of a very close balance between supply and requirements of vitamin A. During the periods of night blindness a negative balance may have existed and then during periods of remission a positive balance may have been present. That very small amounts of vitamin A will relieve night blindness of patients has been demonstrated by Spence who eradicated this symptom in from twelve to thirty hours by the administration of one or two small doses of cod liver oil.

It is exceedingly important to note that the dietary intake was apparently adequate. Nutritional deficiency, therefore, is to be explained largely as the result of the presence of the gastrocolic fistula which allowed food to pass into the colon from the stomach preventing proper and adequate digestion and assimilation. Evidence that a state of malnutrition was present included the cachectic appearance of the patient, the moderate loss of weight, the occurrence of repeated cutaneous infections, and the presence of true cachecticorum as well as the night blindness. Spence has noted nutritional night blindness in cases in which patients apparently were well nourished. The only other physical evidence present that might have been the result of deficiency of vitamins was caries of the teeth. This symptom has been shown to accompany deficiency of vitamins A, C and D. The disappearance of the night blindness in the case reported, is a result of surgical repair of the gastrocolic fistula and the resultant cessation of diarrhea is another link in the evidence that this symptom was the result of nutritional disturbance. Direct proof that the night blindness was caused by deficiency of vitamin A would have been furnished if parenteral administration of the vitamin had successfully relieved the symptoms. However it cannot be denied that actual proof of such relationship has not been established in this case. The evidence although good, is circumstantial and presumptive.

It is conceivable that, with the widespread use by experts of methods for the detection of night blindness numerous instances of such inability to adapt the vision in part or completely to faint illumination will be noted in this country. Care must be exercised in ascribing such changes to deficiency of vitamin A. It should also be emphasized that clinicians must be on the alert for latent and actual dietary states of deficiency among patients with organic and even functional gastro-intestinal disturbances. Despite an apparently adequate diet, the presence of derangement or disease interfering with normal digestion and assimilation, as in the case reported, may be the underlying factor in

the production of a state of deficiency. General recognition of this fact is highly desirable.

Our interest in disorders caused not only by restricted or unbalanced diet or voluntary prolonged abstinence but by pathologic processes or serious dysfunction of the gastro-intestinal tract gravely interfering with proper nutrition goes back almost a decade. In 1931 Eusterman and O'Leary¹⁰ reported observations concerning thirteen cases of pellagra which developed during the course of disease or dysfunction of the digestive tract. Several similar striking cases of deficiency of vitamin G have been observed since then. We have also seen two cases of pronounced nutritional edema with the usual marked decrease in the value for total serum proteins and with disturbed mineral metabolism, following operations for benign lesions of the upper part of the digestive tract, in which the sequelae were those of obstruction of high grade. Fortunately, such instances are extremely rare when operation is carried out by competent experienced surgeons.

The night blindness in the case here reported also rather convincingly developed as the result of a post-operative complication, in which the clinical feature of deficiency of vitamin A was prominent. In our opinion this is the first example of a highly probable nutritional night blindness on record in the clinic. It is not unlikely that more meticulous study would have revealed other deficiency disorders in the thirteen cases of pellagra previously reported for such disorders are usually multiple in man but the clinical evidence for this was not obvious. Students of nutrition and clinicians have emphasized in recent writings the importance of excluding organic disease of the digestive tract when confronted with a deficiency disorder. Other conditions formerly not looked on as deficiency diseases such as pernicious anemia, sprue, gastric dyspepsia of Schmidt and idiopathic steatorrhea are also apparently dependent on a disturbance of gastro-intestinal function resulting in deficient production, absorption or utilization of one or more essential factors. Also evidence has been advanced recently by Minot¹¹ and Strauss¹² and their associates indicating that the polyneuritis of pregnancy and probably alcoholic polyneuritis are deficiency disorders.

It is imperative carefully to investigate the diet of all patients with ill defined complaints, dental defects, lowered resistance to infection, lack of physical well being, inhibition of bodily development and the like. States of partial deficiency may be very common, and the lack of adequate intake of calcium is particularly striking.

SUMMARY

Report of a case of highly probable nutritional night blindness is made because of the rarity of reports of such cases occurring in the United States. The relationship of this symptom to deficiency of vitamin A and the retinal pigment visual purple are considered. It is worthy of emphasis that states of nutritional deficiency may arise as in this case not as a result of inadequate intake of vitamins or other foodstuff but as a result of gastro-intestinal or other disturbances interfering with either the normal digestion and assimilation of foodstuffs or their metabolic activity.

10 Eusterman, G. B. and O'Leary, P. A. Pellagra Secondary to Benign and Carcinomatous Lesions and Dysfunction of the Gastro-Intestinal Tract. Report of Thirteen Cases. *Arch. Int. Med.* 47: 633 649 (April) 1931.

11 Minot, Strauss and Cobb.

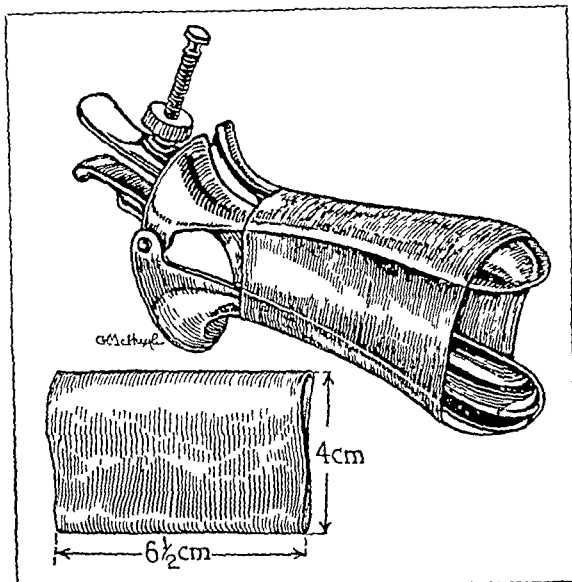
12 Strauss, M. B. and McDonald, W. J. Polyneuritis of Pregnancy. A Dietary Deficiency Disorder. *J. A. M. A.* 100: 1320-1323 (April 29) 1933.

Clinical Notes, Suggestions and New Instruments

AN AID TO SPECULAR EXAMINATION

BEATRICE E. TUCKER, M.D., CHICAGO

At the Chicago Maternity Center we have been using a simple device, contrived by Dr. DeLee, to improve vaginal specular examinations, as shown in the illustration. A $2\frac{1}{2}$ inch rubber sleeve, used in making cigaret drains, is slipped over the regular duckbill speculum. When the blades are opened a rubber side-wall is formed, which keeps the vagina from pouching into the field. This device is particularly useful in multiparas and pregnant women with relaxed and redundant



Device to improve specular examinations consisting of bivalve vaginal speculum with a section of Penrose drain used as a sleeve

vaginal walls. It also obtains good exposure for colposcopic examination and forms a protection to the tissues when the cervix is cauterized.

1336 Newberry Avenue

CONGENITAL PROCTOLOGIC DEFECTS IN TWINS

C. C. MECHLING, M.D., PITTSBURGH

The occurrence of identical congenital defects in identical twins is a rarity. An instance of this has been observed in male twins 23 years of age.

The small skin-lined congenital sinus located under the skin over the lower sacrum is usually not observed until inflammation has occurred and it is probable that many such sinuses exist without ever being discovered. When inflammation, with pus formation sets in it will require incision with drainage and a later excision of the cutaneous-lined sinus to effect a complete cure.

A vigorous healthy twin, a man aged 23, was seen with an abscess apparently located in the subcutaneous tissue over the lower sacrum. It was incised and drained and, six weeks later, the acute cellulitis having subsided, was excised *en bloc*. It was positively identified by the pathologist as being of the congenital type—a pilonidal fistula. One year later the second twin presented himself with a similar abscess. It was treated by the same method.

In a series of 7,500 private proctologic cases seen in a period covering twenty years I have seen seventy-two patients 0.96 per cent with pilonidal disease—either the acute abscess or the chronic fistula. This is my first observation of this condition in twins.

121 University Place

Special Articles

THE OUTBREAK OF AMEBIASIS IN CHICAGO DURING 1933

SEQUENCE OF EVENTS

HERMAN N. BUNDESEN, M.D.
President, Board of Health

FRED O. TONNEY, M.D.
Director, Technical Service and Research

AND

I. D. RAWLINGS, M.D.
Chief, Bureau of Communicable Diseases
CHICAGO

There have been so many conflicting statements regarding the recent outbreak of amebiasis in Chicago that we take this occasion to recite briefly the sequence of events as they occurred.

On August 16, two cases of amebic dysentery in two different hospitals of the city were reported to the Board of Health. An immediate investigation was ordered. It was found that both patients had eaten in a certain hotel, and further inquiry revealed some diarrheal cases in this hostelry. Two additional cases among the guests were also found. On the basis of this evidence, a temporary laboratory was set up on the premises on August 17, and stools from all the food handlers were collected and examined under supervision of trained technicians who were experienced in the diagnosis of amebiasis.

Out of 364 food handlers examined in this first survey up to September 1, 15 clinical cases and 11 carriers of *Endamoeba histolytica* were found. In addition, there were five other clinical cases among the non-food handling personnel.

The infected food handlers were excluded from the kitchens and stringent sanitary regulations were put into effect with unusual measures of sanitary supervision designed to check further spread of the disease to the patrons of the hotel. With these stringent control measures in effect, and with the carriers removed, no further apprehension was felt about additional cases by Drs. Tonney and Rawlings, who were in charge of the situation.

During the month of September, the situation was watched for possible developments. It was believed at that time that this was a strictly food-borne outbreak. It is to be borne in mind that no previous food handling outbreaks of amebiasis of serious proportions had ever been reported. No new cases were reported among the guests of the hotel which were not attributable to earlier infection, nor were any more than the usual number of clinical cases reported in the city at large. In fact those reported from sources other than the laboratory survey cited were less than the normal expectancy.

Nevertheless, in order to bring the matter to the attention of health officers, special arrangements were made to report the first laboratory survey of this hotel to the annual convention of the American Public Health Association in Indianapolis. The paper was presented on Oct. 9, 1933, by Tonney, Hoeft and Spector. It was given some publicity in the local press of Indianapolis on October 9, and a news item was sent out by radio over the NBC network from the "Radio

Forum" which was part of the official program of the Convention. News releases were also issued from the Association headquarters, but these were not generally accepted by the press.

Later on in the day, Dr. Tonney was advised by a citizen of Indianapolis that there were in his family two cases of amebic dysentery which had developed after a recent visit to Chicago. On inquiry, it was learned that these persons had stopped in the hotel referred to. Further inquiry among physicians in Indianapolis brought to light a total number of eight cases, apparently originating from the same focus in Chicago.

These facts were reported to the President of the Board of Health on October 19, immediately after returning from the convention. Meanwhile, some additional clinical cases were appearing in the nonfood handling personnel of the hotel which as yet had not been examined by the laboratories. These together with the discovery of two new cases in the guests, brought the realization that the situation must be more serious than had been recognized. One of the two guests was a resident of long standing in the hotel but the other, taken ill in October, had registered only a short time before, and had not been in the hotel at all during the summer.

It was therefore decided to extend the examinations to include the nonfood handling personnel and also to reexamine the food handlers, provided means could be found to finance the work. These costs were underwritten by the hotels served.

Accordingly, the local universities were asked to provide competent technicians, and after preliminary arrangements were made for financing, organizing personnel and equipping the laboratory, the second survey of the hotel personnel began on October 27. This investigation revealed fifty-three more food handlers infected and sixty-five nonfood handlers up to November 24.

Although amebic dysentery is a reportable disease by law, no unusual number of cases had been reported in Chicago up to October 27.

Because of the illnesses reported at Indianapolis however, it was decided to attempt to find out if any cases were occurring outside of Chicago. For this purpose, sixteen thousand questionnaires were sent to guests registered at the hotel during the three months' period June to August. Permanent residents of the hotel and persons living in Chicago but registered at the hotel under unidentifiable names were not included in this survey.

As the questionnaires were returned, those persons reporting any intestinal ailment were called by long distance telephone or were sent a telegram urging immediate medical care. It was requested that a return telegram be sent at once (collect), giving the name of the attending physician. As these came in, more long distance telephone calls went out to the doctors, suggesting that they be on the lookout for amebiasis in the patients.

By the evening of November 8 about thirty-five replies were received indicating diarrheal disturbances and it was then decided that the situation was sufficiently serious to justify issuing a general warning to the press. On November 9, therefore, a news release was sent to the press by the Board of Health and the circumstances were reported to the Surgeon-General by long distance telephone with the request that consider-

ing the apparent interstate importance of the outbreak, a representative of the federal government be sent to Chicago to confer.

On November 10, another statement prepared in cooperation with a representative of the United States Public Health Service was released. On November 14, a special broadcast was made over the NBC network, from coast to coast and in Canada with the appeal to those suffering from intestinal disorders to see their doctors and to physicians to be on the lookout for amebic dysentery.

The original article presented in Indianapolis was published, together with another report on the later developments in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* on November 18, namely, "The Health Hazard of Amebic Dysentery. Report of an Outbreak" by Dr. Herman N. Bundesen, Dr. I. D. Rawlings and Dr. William I. Fishbein, and "The Threat of Amebiasis in the Food Handler" by Dr. F. O. Tonney, Gerald L. Hoeft and Dr. Bertha Kaplan Spector.

When the second survey of physical examinations of employees was completed, about the middle of November, it revealed that there were carriers in the hotel who had not been found infested on the first examination. It began to become apparent that control over food was not checking the infection. At the same time the returns of questionnaires were indicating the true size of the outbreak. It was therefore decided that although water had not been commonly implicated in epidemics of amebiasis, the possibility of water contamination should be investigated.

Therefore, on November 22 a detailed investigation of the water and sewage piping of the hotel was begun. Conditions were discovered indicating that a careful check of the entire system was desirable. Verbal notices were given as rapidly as potential hazards were discovered. On November 27, a general notice was sent to the hotel directing the correction of conditions which might possibly permit contamination of the water. Because of the complexity of the system, this notice was sent before the survey had been completed in order to get corrective measures started without delay.

While investigating the physical plant of one of the hotels on January 3 the chief engineer of the hotel revealed that on July 2 two sewer pipes had broken under the ice storage room, permitting sewage to flood areas where food and ice were stored prepared and handled, and also where 345 food handlers worked, many of whom ate their meals in the basement in the quarters which were flooded.

Following this lead it was also found that water and sewage had penetrated into the ice-handling area of the other hotel during a heavy rain on June 29. Subsequently, it was also learned that there had existed in one hotel connections between water and waste pipes through which contamination of the water supply of portions of both hotels might have occurred. The location and character of these cross-connections were such as to make them serious potential hazards.

Since that time the Health Survey Laboratory in this hotel has been continuously maintained. Five surveys of food handlers and two surveys of nonfood handlers have been completed. A sixth survey is under way. To date 165 food handlers and 141 nonfood handlers out of approximately 1,100 employees have been found infected in this institution.

Up to January 24, 721 clinical cases of amebic dysentery in 206 cities, including Chicago have been reported as apparently originating from this source. In addition, there have been 1,049 carriers of *E. histolytica* brought to light in Chicago by our investigations. There have been fourteen deaths in this city from the disease.

A general laboratory survey of all the principal hotels of the city, as well as the larger restaurants, has also been made by the laboratories of the Board of Health.

No condition paralleling that of the two original foci has been found in any other Chicago hotel. In an industrial plant in Chicago, employing approximately 375 workers, a cross-connection permitting raw river water to contaminate the water supply of the plant was made in December. An outbreak of diarrhea in this plant followed shortly after. Investigation by the Board of Health revealed 7 cases of amebic dysentery, 71 carriers of *E. histolytica* and 3 cases of typhoid fever following this contamination by raw river water.

Realizing the peculiar circumstances concerned in this outbreak and the widespread interest of public health officers, the Board of Health is endeavoring to prepare a complete and detailed report of all phases of the epidemic which will, when ready, be made generally available.

AMEBIASIS OUTBREAK IN CHICAGO

REPORT OF A SPECIAL COMMITTEE

NOTE.—Following is the report of a committee assembled by the President of the Board of Health of Chicago, Dr. Herman N. Bundesen, to consider an outbreak of amebic dysentery in that city during the summer and fall of 1933. The members of the Committee were selected by a preliminary subcommittee consisting of Drs. Herman N. Bundesen, Morris Fishbein, Ludwig Ecktoen, F. W. O'Connor and Milton M. Portis. The Committee met in Chicago from January 22 to January 26 inclusive. The members of the Committee heard reports from the heads of various bureaus involved in a study of the outbreak and also inspected at first hand the premises concerned.—EDITOR

The Committee, after careful investigation of the clinical histories and laboratory evidence of the epidemic of dysentery which originated in Chicago during the summer and fall of 1933, is convinced that the epidemic was one of amebic dysentery, and not of bacillary dysentery.

Until 1933 amebic dysentery had not figured largely in the morbidity and mortality reports in Chicago or indeed in any city in the United States. The outbreak in 1933 embraced about 800 reported cases, most of which became apparent in cities other than Chicago. A large majority of these were traced to two hotels as probable sources of infection. Some of the cases were not so traceable.

In considering this outbreak the unprecedented nature of the occurrence must be borne in mind. Until this time, amebic dysentery had not been known to occur as an epidemic disease in a civil population.

Members of the Committee have examined the original records and in addition clinical cases of amebic dysentery and carriers originating in Chicago at the hotels concerned in the cities outside of Chicago and in the Municipal Contagious Disease Hospital in Chicago. They have examined the laboratories established to examine carriers and cases by the Chicago Board of Health. They have examined the technic

involved and the prepared specimens as well as the cultures of *Endamoeba histolytica* obtained. They have examined the physical equipment of the hotels involved as related to food handling, plumbing and sewage.

The Committee presents herewith its observations the significance of the observations and its recommendations for the prevention of possible epidemics of amebic dysentery in the future in the light of these studies.

LABORATORY DATA

The methods used for the determination and identification of *E. histolytica* were the direct smear method the staining of smears with iodine and approved cultural methods as well as fixed and stained slides. In addition to this, necropsy material was also obtained and studied. The Committee is convinced that these methods were adequately and properly carried out by a well qualified personnel and resulted in the identification of *E. histolytica* in all of the so diagnosed cases and carriers observed.

SANITARY ENGINEERING SURVEY

In undertaking an investigation of the sanitary engineering features related to the outbreak of amebic dysentery in Chicago, the physical or structural factors of the sanitary equipment of the two hotels chiefly concerned were surveyed. An initial inspection, made on Nov. 22, 1933, disclosed sufficient causes for further detailed review, and such examination has been carried on to this time. Sufficient preliminary evidence on a number of major aspects has already been accumulated to warrant presentation.

Both the hotels have their source of water supply from the public water mains of the city of Chicago. Owing to the heights of the buildings however, supplementary pumpage is necessary.

Water is taken from the city mains in Hotel C and pumped to two sets of tanks, one of which is on the roof of the main Hotel C building and the other on the roof of the annex of Hotel C. The pumps in the Hotel C basement in addition, deliver water to the upper stories of Hotel A by way of tanks beneath the roof of Hotel A. Hotel A, at least in its major part, has therefore, a common source of supply with Hotel C. The basements and lower stories of both hotels probably obtain the major portions of their supply directly from the city of Chicago water mains.

From the field investigations so far made, three important groups of structural sanitary hazards were found in both hotels. In order of increasing importance, they are tentatively listed as:

- 1 Old and generally defective water and sewerage piping layouts, potentially at least permitting back siphonage of a number of fixtures such as bath tubs and flush toilets, into water lines.

- 2 Chance breaks in sanitary sewers or heavy overflows of mixed sanitary sewage and storm water drainage in and outside of the basements.

- 3 Cross-connections of serious character between water and sewer lines or between water lines carrying potable water and water potentially subject to contamination.

With reference to class 1 (old and generally defective water and sewerage piping layouts, potentially at least permitting back siphonage of a number of fixtures such as bath tubs and flush toilets, into water lines) the water and sewer systems in both hotels are typical of layouts in the older buildings in Chicago and in other American cities. They are a potential source of danger, but do not, except under special circumstances,

such as continuous overloading by capacity use of the facilities of the hotel, produce extensive pollution. Their hazard is of a limited, rather than of an explosive, general nature.

In class 2 (chance breaks in sanitary sewers or heavy overflows of mixed sanitary sewage and storm water drainage in and outside of the basements), several events occurred during 1933 which may have some significance in determining the cause of the epidemic. On June 29, 1933, an unusually heavy rainfall (2.81 inches in twenty-four hours) occurred in the city of Chicago. It flooded the combined sanitary and storm water sewers of the city including those in the streets in the vicinity of these hotels. The flood waters penetrated the basement of Hotel A through an alley manhole and reached the ice storage house, according to the statement of employees in the basement. This flooding extended over some hours.

The rain of June 29 was followed by a second unusual rainfall on July 2 (1.63 inches in twenty-four hours). On this occasion, according to statements made by hotel employees in January, 1934, early in the morning of July 2, 1933 (approximately between 2 and 3 a. m.) two sewers from Hotel C, discharging into the public sewer, broke. Sewage flowed back into the basement of Hotel C directly into the ice storage house. It is stated that a hole was torn in the wall and floor of the ice storage house approximately 8 to 10 feet in diameter, the sewage rose to the ceiling of the ice storage house until its pressure forced one of the closed doors of the ice house open. The opening permitted the sewage to flow over a considerable portion of the basement of Hotel C. This sewage covered much of the entire food handling establishment of the hotel to a depth of 3 to 6 inches according to statements by employees.

So far as the class 3 hazards (cross-connection of serious character between water and sewer lines or between water lines carrying potable water and water potentially subject to contamination) are concerned, a number of cross-connections were found and these have since been eliminated. Such cross-connections between sewers and water lines are significant as a public health hazard since they may permit sewage to flow into water lines.

EPIDEMIOLOGY

The results of the questionnaires sent out by the Chicago Board of Health to the guests and patrons of the two hotels involved as well as to those of several other hotels in which there was no evidence that cases originated, clearly demonstrates that these two hotels were the source of most of the cases so far traced.

An examination of the data resulting from a study of the incidence of *E. histolytica* in the stools of employees in these two hotels, as well as in many other hotels and restaurants in the city shows that 3.9 per cent of employees in hotels and restaurants in general in Chicago are carriers of *E. histolytica* or suffer from amebic dysentery. This incidence is about equal to that of the population of the United States in general.

In Hotel C, on the other hand, at the time of the first survey (August 17 to September 1) 7.1 per cent of the food handlers were found to be infected. As the result of additional surveys of the food handlers in this hotel, as well as in hotel A, it became evident that at times more than 18 per cent of these employees were infected.

It was evident from the first survey of food handlers of Hotel C that they were a possible source of infection

for guests and patrons of the hotel, and control measures were instituted, including the removal of carriers from employment, which were calculated, in the light of previous knowledge, to control the epidemic. In spite of these measures, cases continued to develop among employees of the hotel. The percentage of those infected among non-food handlers was found to be approximately the same as among food handlers.

Because of these facts an investigation of the sanitary engineering conditions of the hotels was undertaken, and the conditions as reported were found.

These observations offer presumptive evidence that structural defects, either permanently or intermittently operative in one or both of these hotels were associated with the development of the unusual incidence of amebiasis. Although similar defective structural arrangements no doubt exist in Chicago, as well as in other cities of the United States, only special and fortuitous circumstances may bring them into play to cause a severe epidemic.

This conclusion is further strengthened by the knowledge that, experimentally, extremely large doses of *E. histolytica* have to be administered to both man and animals to produce infections comparable to those observed in this epidemic, in which the incubation period was short, the lesions were severe and the exposures were frequently minimal. These features were out of proportion to what would have been expected if smaller doses had been obtained by contamination from fingers of food handlers exclusively.

GENERAL RECOMMENDATIONS

1 Cases of amebiasis (including amebic dysentery) should be promptly reported *as such* to the lawfully constituted health authorities of the community.

2 Carriers not engaged in food handling should be treated but not required to vacate their occupations.

3 The feces of untreated and insufficiently treated carriers and convalescents and sometimes those of active cases contain the infective (cysts) form of the parasite. Therefore, the stools of such persons should be disposed of according to local sanitary regulations. Those infected should be informed of the manner of transmission of the disease treated and cautioned to

(1) Wash their hands thoroughly after using the toilet.
(2) Avoid depositing their feces where they can be exposed to flies and other insects or where they can contaminate food, water or articles handled by other persons.

(3) Avoid preparing and handling food to be eaten by other persons until considered incapable of spreading the disease.

Laboratory examination of the feces of food handlers should be required if circumstances point to a particular individual or group of individuals as a possible source of infection. The general examination of all food handlers for *E. histolytica* is considered impractical.

4 A patient or carrier should not be allowed to become a food handler unless after an interval of at least seven days since the completion of his treatment three negative examinations of feces are made at intervals of at least one day. Thereafter to continue as a food handler, a person should have at least four negative stool examinations at intervals of one month.

RECOMMENDATIONS CONCERNING SANITARY ENGINEERING

1 Sanitary engineers have for years recommended, and the laws of practically every state and municipality

provide, that water and sewer installations should be so arranged as to prevent absolutely contamination of water supplies for domestic use by water of nonpotable quality. The Committee recommends that attention be called again to this extraordinary hazard and the necessity of rigid enforcement of these regulations.

2 No physical connection should be permitted between water supply systems that are safe for domestic use and those that are unsafe for domestic use. There should be no provision for a connection or arrangement by which unsafe water or sewage may be discharged or drawn into a safe water supply system.

3 An exhaustive and searching study of the whole water and sewage systems of hotels with antiquated plumbing should be made and any defects immediately corrected. This work should be done only by competent sanitary engineers.

4 The present conditions under which, during periods of flood, flood waters from the street can reach and cause an overflow of sewage in the basements of any hotels should be thoroughly investigated by officials having jurisdiction, and methods adopted to prevent such an occurrence. Unless the antiquated plumbing and conditions of food handling found in Hotels C and A are remedied, there seems to be no warrant that a recurrence of the outbreak here considered may not develop under similar conditions.

CONCLUSIONS

1 It is believed that this outbreak might not have been recognized and traced to Chicago without the action taken by the Chicago health authorities. The direct contacts established by the president of the Board of Health with guests previously registered in the hotels concerned as soon as he had learned of cases in other cities traceable to Chicago served to bring to light the majority of the more than 700 cases in some 206 cities thus far reported.

2 The measures taken by the public health authorities of Chicago when there was sufficient evidence to warrant the belief that the population of the city and its visitors were faced with the menace of amebic dysentery were those generally recommended and generally considered sufficient in the light of the best scientific advice and in conformity with the best public health practice. Exclusion of carriers among food handlers and sanitary precautions with respect to all food handlers had apparently been applied successfully in an outbreak in Chicago in 1926-1927.

3 Evidence supports the conclusion that cases of amebiasis are frequently diagnosed incorrectly and that as a result specific methods of treatment are not administered sufficiently early and with sufficient intensity to secure successful outcome. Inadequate treatment of both carriers and those suffering from amebic dysentery accounts for many recurrences. Those under treatment should be watched carefully for clinical symptoms of recurrence. Laboratory evidence should be sought immediately to establish the nature of the recurrence. Courses of treatment may need to be repeated sometimes substituting other well recognized drugs for those first employed.

4 The researches carried on by the Chicago Board of Health have already thrown further light on the epidemiology and mode of transmission of amebic dysentery, a disease about which our knowledge is defective in many respects. Further studies are needed

before we can be in possession of all the facts necessary to enable public health authorities to combat successfully the spread of this disease.

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LABORATORY EXAMINATION AND DIAGNOSIS

The conclusive diagnosis of amebiasis rests primarily on laboratory observation, and depends on the demonstration of *E. histolytica* in the stools, discharges or tissues of the suspected person. A negative report, however, does not necessarily mean absence of infection.

Stool Examinations—As a rule, only the motile forms (trophozoites) of *E. histolytica* are found in liquid or semi-liquid stools, while cysts are found usually in formed stools. However, flakes of blood or mucus on formed stools frequently contain motile forms.

The best results will be obtained by examination of very freshly passed specimens and whenever possible the patient should pass his stool at the laboratory where he is to be examined. So far as is possible, the entire stool should be available for examination. If the stool is fluid or contains blood or mucus, it is imperative for the identity of motile forms that it be examined before it has had time to reach room temperature.

While it is true that satisfactory results may be obtained by the examination of formed stools which are not perfectly fresh, it is nevertheless desirable to have them as fresh as possible, delayed examinations are usually unsatisfactory.

To obtain motile forms from persons passing formed stools, a suitable dose of magnesium sulphate should be administered, and the first liquid stool examined.

Stools are unsatisfactory for examination when they follow the administration of oil barium bismuth or oily suppositories, and the container used for collecting the specimen should be clean and dry. Urine should not be passed into the container.

If the condition of the patient prevents the direct collection of the specimen in the laboratory arrangements should be made to bring the specimen to the laboratory at once, and in any event if motile forms are to be searched for, the specimen should be kept at body temperature.

A very serviceable container for formed specimens is the standard seal-tight, half-pint paper carton.

Technic of Stool Examination—1 *Unstained Smear Preparations*. If flakes of blood or mucus are present in the stool they should be selected for examination. If the stool is liquid any portion may be used after stirring. If the stool is formed samples should be taken from different portions, including the outside and the interior. A useful instrument for making smears is a standard wooden applicator.

Upon a clean glass slide place a capillary drop of physiologic solution of sodium chloride (0.85 per cent). Thoroughly mix a portion of the stool in this drop so that when a 22 by 22 mm cover glass is dropped upon it one can readily read newspaper print through the emulsion. Under no conditions should fewer than two cover glass preparations be examined. The preparation should then be examined under the microscope with a low power (ocular 10 × objective, 16 mm) preferably with the aid of a mechanical stage so that in some regular manner all of the area is covered. Suspicious objects should then be critically examined under high power (4 mm objective). If necessary, oil immersion examination may also be used. In addition to this examination, the stool should be examined in the following manner:

2 *Iodine Smear Preparations*. The purpose of the iodine is to demonstrate the number and characteristics of the nuclei within the cysts and also to show the characteristics of glycogen material in the protoplasm of the cysts. Because the iodine frequently is slow in penetrating the cysts a short interval of time should elapse before examination of this preparation.

Place on a clean glass slide a drop of compound solution of iodine and emulsify the same quantity of stool in it as in the saline preparation. After placing a cover glass on it, examine in the same way as described.

Some workers prefer to use a 1:1,000 solution of aqueous eosin yellowish, dissolved in saline solution and to add this solution to the iodine, instead of using compound solution of iodine alone. Some experience will be necessary to determine the exact amount to be added, but equal parts are generally satisfactory.

3 Concentration Methods. In examining formed stools concentration methods are frequently useful. The following procedure is recommended.

A portion of stool equal to the size of a pea is thoroughly emulsified in saline solution in a centrifuge tube the tube filled with saline, at moderate speed for one minute centrifuged and the sediment examined by the methods outlined in 1 and 2. It may be necessary, if coarse particles are present in the stool to strain it through two layers of cheesecloth before centrifugation after it has been diluted with saline solution.

4 Staining Methods. Many fixing and staining methods have been proposed which, in the hands of experienced workers, have been found to be extremely useful in the identification of doubtful specimens. However, it is not essential to use such methods for routine diagnosis.

5 Culture Methods. Various satisfactory culture methods have been reported and can be found in original papers or in recently published text-books on parasitology. It must be apparent that a well appointed bacteriologic laboratory is necessary to prepare and use suitable mediums, therefore the use of culture methods is limited. It must be recognized that if cultures are used in addition to smear methods, occasional additional positive cases will be discovered that were negative by the smear method. On the other hand the experience, labor, and skill necessary for the use of cultural methods will make them impractical for ordinary routine diagnosis.

Discharges Other Than Fecal Material.—One may examine these by the same general methods described under smear examination and cultural methods, making such modifications as will be obvious to the examiner. Such discharges are likely to contain only motile forms.

Complement Fixation.—This method is intricate and the antigen is so difficult to prepare that it is not considered justifiable to recommend it as a routine procedure at present.

Examination of Tissues.—Any tissue suspected of containing *E. histolytica* should be fixed in either Schaudinn's or Zenker's solution. After sectioning the tissue some sections should be stained with iron-haematoxylin, as this stain brings out the nuclear structure of the ameba.

Number of Stool Examinations.—The number of examinations will obviously have to depend upon the circumstances under which the worker is conducting his tests, the methods employed and the skill of the observer. In examining formed stools, from one third to one half of all persons harboring *E. histolytica* should be detected on the first examination, approximately three fourths of the total number of cases on two examinations and six examinations should detect practically all cases. These examinations should be spaced at least twenty-four hours apart.

If fluid stools are examined, approximately three fourths of the cases should be detected on the first examination, and in three specimens one should detect practically all of the cases.

The existence of at least five different species of amebae living in the human intestine makes it most essential that one should differentiate the pathogenic *E. histolytica* from the four nonpathogenic species. Standard texts dealing with the intestinal protozoa contain descriptions of these differential features.

The diagnosis of amebiasis and the differentiation of *E. histolytica* from other amebae should be attempted only by those qualified by special training and experience. Unfortunately at the present time, comparatively few clinical pathologists and technicians have received adequate training in this field. No one should be considered satisfactorily qualified unless he has received adequate training under a qualified instructor.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
H. A. CARTER, Secretary

OYE FOOT SPRAY NOT ACCEPTABLE

This unit consists of a container resembling a wash boiler arranged so that the patient's feet may be confined within it. Pipes with a series of small holes (nozzles) are arranged to spray either hot or cold water, or both, on the feet. If the unit is used in the home, it is recommended to be placed in the bath tub and the hose connections fastened to the faucets of the tub.

The Oye Foot Spray was submitted by Ida St. John Oye 901 Washington Avenue, Brooklyn. Several claims are made for it:

- 1 It perfects the condition of feet of men and women
 - 2 It gives a needle spray
 - 3 It gives hot and cold quickly interchangeable
 - 4 Pressure from the spray gives percussion on nerves and ligaments
 - 5 Treatment for sprained ankle
- It is recommended for use in the home by physicians, clinics, chiropractors, beauty parlors and barber shops.

The unit was investigated. The Council declared that it did not find any special advantage in the apparatus over that obtained by the use of an ordinary rubber hose and nozzle. It also declared that simpler, more convenient and less expensive methods were available for treating a sprained ankle.

The Council found the Oye Foot Spray ineligible for inclusion in the Council's list of accepted devices.

K-M INFRA RED RAY LAMP, TABLE MODEL NO 630, NOT ACCEPTABLE

The Infra Red Ray Lamp manufactured by the Knapp-Monarch Company, Belleville, Ill., has been given consideration by the Council on Physical Therapy. The Table Model type examined resembles a reading lamp in outward appearance, the difference being that an electrical heating element takes the place of an electric bulb. The element draws about 300 watts on a 110 volt circuit on either alternating or direct current. The Council finds little difference, if any, in therapeutic effect between this infra-red ray lamp and an ordinary bathroom heater.

The blue covered booklet describing the lamp contains many objectionable, unwarranted or misleading statements. Among others, the following paragraphs may be cited as misleading:

Infra red rays penetrate under the surface of the skin to a depth of four to six inches and form heat units which cause an excess accumulation of blood.

Catarrhs of the stomach and intestines tend to disappear, the digestive secretions resume their normal functioning and the liver, adrenals, lymphatic glands and other poison-destroying organs are again effective.

Infra Red rays hasten the disappearance of fat by the oxidation of excess tissues. They are of great value in the treatment of organic or functional heart disease because from one third to one half of the entire volume of blood can be stored in the capillary system—thereby relieving the heart of its hardest work.

Other misleading as well as absurd statements follow:

DOCTOR SUN—The World's Greatest Physician

The smoke and dust of cities, the atmospheric density of low altitudes and the general uncertainty of sunshine all combine to make it almost impossible for the average person to get the desired benefits from sunbaths regardless of the individual desire or need.

But in recent years it has been found possible to build lamps which duplicate the different rays of the sun—which have been demonstrated through actual tests and experience to produce virtually the same beneficial results as the sun itself.

In this booklet (pages 4, 5, 6, 7 and 8) there is a list of thirty-one so-called "Common Ills" for which there are given suggested methods of treatment. Among other misleading indications for the therapeutic use of infra-red rays, the firm lists the following diseases: angina pectoris, asthma, biliousness, heart disease, itch and delayed menstruation.

The Council is not in possession of critical evidence to support these unwarranted suggested indications for the therapy.

peutic employment of infra red radiations. Promotional advertising matter of this kind is bound to be misleading and in effect constitutes an appeal to the public with arguments that are unscientific and may harmfully promote a feeling of false security on the part of the public.

The Council on Physical Therapy declares the K-M Infra Red Ray Lamp Table Model No. 630 unacceptable for inclusion in the Council's list of accepted devices because the firm in its advertising matter violates the rules of the Council.

Council on Pharmacy and Chemistry

The Council on Pharmacy and Chemistry of the American Medical Association records with profound regret the sudden death of one of its members.

ALFRED FABIAN HESS

on December 5, 1933, in New York City at the age of 58 years.

After graduating from Harvard University with the degree of B.A. in 1897, he attended the College of Physicians and Surgeons in New York City, from which he received the degree of M.D. in 1901. Subsequently he studied abroad at various continental universities. Dr. Hess early devoted his attention to the practice and problems of pediatrics to which he was destined to make notable contributions. He pursued his ideals without cessation until the day of his death.

The scientific investigations of Dr. Hess included many fields of the extensive domain of child welfare and the diseases of children. He had an unusually wide familiarity with the literature of the subject, he was personally acquainted with many distinguished colleagues throughout the world of scientific medicine, he managed in a broad way to acquire an understanding of the ever-changing technique of scientific research, he always had a virile approach to its unsolved mysteries.

Some of Dr. Hess's achievements deserve special mention even in a brief reference to his life work. His book on "Scurvy, Past and Present," published in 1920 promptly won distinction for its author. It was the first really comprehensive monograph on this important disease published since that of Lind more than a century ago. Embodying much of Hess's own thorough investigations, his volume brought together in a masterly way and an interesting style items of great value to the clinician, the hygienist, the biologic chemist and the medical historian. Of comparable importance is the newer volume by Hess on "Rickets Including Osteomalacia and Tetany," published in 1929. In this the admitted master of the subject has brought together the results of his vast experience and ripe judgment.

Dr. Hess has been among the pioneers in the study of the vitamins. His most significant contribution was his discovery of the effects of ultraviolet rays in developing antirachitic potency in many foods. Through these studies and his collaboration with European scientists, the relation of ergosterol to vitamin D ultimately became established.

In 1927 Dr. Hess received from the Academy of Natural Science in Philadelphia the John Scott Medal and \$1000 for devising 'a method of producing a vitamin factor in food by ultraviolet light.' Other academic honors have come to him. His advice was widely sought and freely given without thought of reward. He contributed liberally of his time and material things to philanthropic and scientific undertakings. At the time of his death Dr. Hess was president of the Harvey Society.

Dr. Hess became a member of the Council in 1932 and served energetically and enthusiastically until his death. He had previously been a valued consultant of the Council. His colleagues recall Dr. Hess's quiet deliberate manner, his forceful advice and his judicial attitude. Like many others among his wide circle of acquaintances they retain the memory of his sincerity, his wisdom, his personal loyalties and his devotion to the best ideals of his generation.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTIG, Secretary

MCCORMICK'S PREPARED MUSTARD

Manufacturer—McCormick and Company, Inc., Baltimore

Description—Prepared mustard manufactured from distilled vinegar, English and American yellow and brown mustard seeds, salt, sugar and spices.

Manufacture—The mustard seed is aged to develop flavor, cleaned, crushed, and mixed with spices, distilled vinegar, salt and sugar. The mix is ground and automatically bottled.

Analysis (submitted by manufacturer) —

	per cent	Fat, salt and sugar free solids basis per cent
Total solids	18.4	
Total ash	4.6	
Acid insoluble ash	0.1	1.1
Sodium chloride	4.1	
Nonvolatile ether extract	3.2	
Volatile oil	0.04	
Nitrogen	0.65	7.2
Protein (N \times 6.25)	4.0	44.2
Sucrose	2.0	
Crude fiber	0.9	9.9
Copper reducing substances by direct inversion	1.3	14.4
Titrateable acidity as acetic acid	2.4	

Claims of Manufacturer—Conforms to the United States Department of Agriculture definition and standard.

LONG'S OX-HEART BRAND PEANUT BUTTER

Manufacturer—Oswego Candy Works, Inc., Oswego, N. Y.

Description—Peanut butter seasoned with salt.

Manufacture—Selected peanuts are roasted, run through peanut blanchers to remove the embryo and red skin, again inspected, ground, salted to taste and sealed in jars.

Analysis (submitted by manufacturer) —

	per cent
Moisture	2.8
Ash	2.8
Fat (ether extract)	50.9
Protein (N \times 6.25)	28.8
Crude fiber	2.3
Carbohydrates other than crude fiber (by difference)	12.4

Calories—62 per gram, 176 per ounce.

LIGHT CRUST FLOUR (BLEACHED)

Manufacturer—Burrus Mill & Elevator Company, Fort Worth, Texas.

Description—A patent flour milled from hard and soft wheat, bleached.

Manufacture—Selected hard and soft wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended, and bleached with nitrogen trichloride (one seventh ounce per barrel) and benzoyl peroxide and calcium phosphate (three-sevenths ounce per barrel).

SHEFFIELD "SEAELECT" BRAND UNSWEETENED EVAPORATED MILK

Manufacturer—Sheffield Condensed Milk Co., Inc., New York.

Description—An unsweetened, sterilized evaporated milk. The procedure of evaporation and canning is essentially the same as for the usual evaporated milk. (THE JOURNAL, April 16, 1932, p. 1367).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 3, 1934

SUBCLINICAL SCURVY

The rapidly growing information with respect to the nature of the so-called deficiency diseases includes evidence that there are many instances of latent avitaminosis or subacute disorder not commonly recognized. Obviously persons who give no conspicuous evidence of deficiency maladies may nevertheless be victims of the effects of less than optimal or of minimal necessary intake of essential dietary components. The harm done may be particularly insidious through not being recognized in the absence of the gross manifestation of unmistakable disease. Bacterial infections rarely present such subtle symptoms for any prolonged period because the invasion of the harmful offender tends to become more and more threatening as the days go by. The symptoms soon develop into characteristic phenomena of specific maladies. Latent avitaminosis is something far more subtle. It more readily defies recognition except through painstaking special modes of clinical investigation. At the present time accelerated efforts are being directed to the earlier diagnosis of deficiencies, notably in relation to some of the vitamins. This is particularly true of vitamin C, the essential substance that protects against scurvy.

In his classic treatise on this disease, A. F. Hess¹ pointed out long ago that it may develop and progress in various ways. It may remain latent for a long period and be cured by some accidental change of diet, or, as more frequently occurs, it runs a moderately acute course and is promptly cured by means of antiscorbutics. Hess remarked that the syndrome which the medical student is taught to carry away to guide him in his everyday practice is the acute, florid type and presents a striking picture but must not be regarded as the common form of the disorder. If infantile scurvy is to be diagnosed early and if its more subtle manifestations are not to be overlooked, the classic textbook description must be augmented by portrayals of types of the disorder that are less crude and more diffi-

cult to recognize—of "subacute" and of "latent" scurvy. A recent writer² also remarks that, judged by clinical criteria, scurvy is uncommon in this country. An acquaintance with experimentally produced scurvy, however, indicates that various degrees of deficiency associated with a number of morbid changes can occur without classic symptoms or signs of the disease.

Capillary fragility, leading to the appearance of petechiae, is one of the earliest detectable manifestations of the effects of a scurvy-producing diet in animals. The close analogy between the experimental disease in guinea-pigs and man has suggested that some method of measuring capillary resistance or fragility might be developed for the human organism. An early procedure³ involved observations of the hemorrhagic diathesis produced by constricting part of the arm. An alternative method consists in the application of negative pressure to the surfaces of the skin through a suction cup connected with a mercury manometer and vacuum pump. It has been employed by Dalldorf² at the Grassland Hospital in Vallhalla, N. Y., on a group of children not suffering from any disease known to produce a hemorrhagic diathesis. Many of them were tuberculous, others were sent for observation. In any event they came from poor homes. Judged by their capillary resistance, the incidence of subclinical scurvy was found to be between 35 and 66 per cent. The shortcomings of such methods have frequently been stressed, notably by Hess.⁴ Nevertheless, Dalldorf counts them as of some value. A consistent feature of the measurements of capillary resistance has been the difference between persons. This constitutes a serious limitation to the use of the test, since the values secured in a single reading can have little significance unless the normal for the person is known. Dalldorf believes that the character of the skin itself partly determines the results of the test. The groups studied included dark-skinned southern Europeans, light-skinned nordic types and persons with intermediate complexions, commonly found among Americans. Dalldorf points out in conclusion, that the effects of slight dietary deficiencies on health are not known. Of late years, much has been made of the relationship of mild vitamin C deficiency to dental caries, and it has long been known that patients suffering from scurvy are prone to contract infectious diseases. The effect of a lesser degree of vitamin C deficiency on the resistance to infectious diseases is yet to be determined. These and similar

² Dalldorf, Gilbert. A Sensitive Test for Subclinical Scurvy in Man. *Am J Dis Child* 46:794 (Oct.) 1933.

³ Hess, A. F. and Fish, Mildred. Infantile Scurvy. The Blood, the Blood Vessels and the Diet. *Am J Dis Child* 8:385 (Dec.) 1914.

⁴ Hess, A. F. Recent Advances in the Knowledge of Scurvy and the Antiscorbutic Vitamin. *J A M A* 98:1429 (April 23) 1932.

¹ Hess, A. F. Scurvy Past and Present. Philadelphia: J. B. Lippincott Company, 1920.

⁴ Hess, A. F. Recent Advances in the Knowledge of Scurvy and the Antiscorbutic Vitamin. *J A M A* 98:1429 (April 23) 1932.

problems are fully discussed in recent treatises on nutrition. In Drildorf's opinion the prevalence of this dietary stigma among the poorer classes requires further study from the standpoint of public health.

THE CHICAGO OUTBREAK OF AMEBIASIS

Elsewhere in this issue appear two documents relative to the outbreak of amebiasis that developed in Chicago during the summer and fall of 1933. The first of these reports (p. 367) provides a chronology of the incidents associated with the recognition of the nature of the outbreak and the measures employed in attempting to bring it under control. The second report (p. 369) is that of a committee¹ assembled to study the available data with a view to determining the source of the outbreak and to drawing up recommendations for the prevention of similar catastrophes in the future.

The evidence appears to be sufficient to warrant the opinion that this outbreak of amebiasis originated in two hotels as a result of the contamination of the water supply of the hotels with sewage. Thereafter, no doubt, widespread infection of the food handlers and the employees of the hotel in general served to aid in the spread of the infection to guests. The unusual incident recited in the paper by Bundesen, Tonney and Rawlings, in which raw river water was turned by a cross-connection into the water supply of a manufacturing plant, resulting in an outbreak of amebiasis which included also some cases of typhoid, serves as a remarkable control case, to demonstrate the possibilities.

In various places the Board of Health of Chicago, including its president, has been criticized for failure to notify the public sooner of the presence of amebiasis in the hotels concerned, and it has been intimated that this alleged failure bore a definite relationship to the presence in Chicago of the Century of Progress exposition. Attention is called in this connection to the chronology of the incidents concerned in this outbreak, the gradual manner in which necessary facts were perforce developed, and the way in which questionnaires, radio broadcasting and publicity were used to bring to light as many cases as possible in cities outside of Chicago. It is safe to say that in a previous generation the majority of these cases might never have been detected in relationship to the original focus in Chicago. Without such efforts the existence of a widespread epidemic might never have been known. In the present

instance the procedure served to awaken the attending physicians of more than 700 patients in some 206 cities throughout the United States to a realization of the nature of the disease, the necessity for laboratory study, the desirability of avoiding surgical operations, and the specific quality of the various remedies that have been proved to be successful in treating the disease.

Amebiasis has been a rare diagnosis in most Northern communities, so rare indeed that suspicion is now aroused as to the frequency with which it may have been overlooked. Now comes good evidence that from 3 to 5 per cent of our entire population is infected. This evidence justifies strong emphasis on the subject in medical schools, hospitals, medical societies and other places of medical education. At the Cleveland session of the American Medical Association, to be held next June a general scientific meeting will be held devoted wholly to this subject. Several of the authorities who developed the report in this issue of *THE JOURNAL* will take part in the program.

While the report of the committee serves many useful purposes—for example, its listing of standard laboratory technique and standard methods of prophylaxis—its most vital section would appear to be the recommendations concerning sanitary engineering of large buildings and hotels. Notwithstanding the fact that the laws of practically every state and municipality forbid the existence of cross-connections in plumbing which permit sewage or contaminated water supplies to mix with supplies of water for domestic uses, it is apparent that such cross-connections actually do exist in many of these hotels and buildings and that they are a constant menace to the health of human beings. In a survey of water-borne typhoid fever outbreaks, Wolman and Gorman² report that water-borne outbreaks during the past decade have been due as much to laxity in handling water from its source to the consumer as to the use of water from polluted sources. Two thousand and fifty-five cases of typhoid in the United States occurred because of pollution of an apparently safe water as it was being distributed to the consumer. Of these, 1,995, or over 95 per cent, were due to unprotected cross-connections with polluted water supplies. Chlorination may inhibit typhoid organisms but does not seem to control or destroy *E. histolytica*, the cause of amebiasis. Apparently the business of inspection and control of plumbing for such defects is beyond the funds and facilities anywhere available for the purpose. One wonders therefore whether it might not be advisable for every large building or hotel housing and catering to thousands of people daily, to employ its own sanitary officer, responsible jointly to the president of the corporation and to the health officials of the community, with a view to detecting hazards relating to water supply and sewage disposal, food handling, ventilation and similar problems.

¹ The members of the committee were Albert J. Chesley, M.D., secretary, Conference of State and Provincial Health Authorities of North America, Minneapolis; Charles F. Craig, M.D., Colonel U.S. Army, retired professor of tropical medicine, Tulane University of Louisiana School of Medicine, New Orleans; Morris Fishbein, M.D., editor of *THE JOURNAL*; Ludwig Hektoen, M.D., director of the John McCormick Institute of Infectious Diseases, Chicago; Thomas Byrd Magath, I.D., M.D., of the Section on Clinical Pathology, Mayo Clinic, Rochester, Minn.; George W. McCoy, M.D., medical director, U.S. Public Health Service, Washington; D. C. Henry E. Meloney, M.D., associate professor of preventive medicine and public health, Vanderbilt University School of Medicine, Nashville, Tenn.; F. W. O'Connor, F.R.C.S., of the Department of Tropical Medicine, Columbia University, New York; Milton Portis, M.D., professor of medicine, Loyola University School of Medicine, Chicago; and Abel Wolman, chief sanitary engineer, Maryland State Board of Health.

² Wolman, Abel and Gorman, A. E. The Significance of Water Borne Typhoid Fever Outbreaks 1920-1930. *J. Am. Water Works A.* 23: 160 (Feb.) 1931.

Finally, it is obvious that there are throughout the United States numerous buildings and hostels with antiquated plumbing incapable of withstanding the stresses likely to be placed on it by the demands of modern congestion. Until such equipment is suitably inspected and brought down to date in accordance with the building and the number of people whom it must serve, there can be no warrant that similar outbreaks may not occur in any place where similar conditions prevail.

ABSORPTION IN INTESTINAL OBSTRUCTION

It is not surprising that the view attributing the cause of death in intestinal obstruction to the absorption of toxic material from the lumen of the intestine was early expressed and has since been held with more or less tenacity. This organ is the locus of vigorous digestive activity brought about by the enzymes of the juices of the pancreas and of the intestine itself. Furthermore, bacteria cause changes in food residues with the production of chemical compounds which, in suitable doses are recognized as toxic. In view of the fact that the intestine is the organ of absorption *par excellence*, it seems reasonable enough to suspect that toxic material entering the body by way of the intestinal epithelium is concerned with the fatal outcome of intestinal obstruction. However, experimental studies have cast considerable doubt on the validity of toxin production in nongangrenous obstruction. Nevertheless, the possibility still exists that the symptoms of this disorder are attributable to an alteration of normal absorption of substances ordinarily present in the intestine.

Experiments designed to elucidate the foregoing thesis have been carried out by Best, Newton and Meidinger.¹ They emphasize the importance of investigating the absorption both above and below the obstruction in studies of this kind. Trypan blue and red, both colloidal dyes, were given to normal animals and to others with intestinal obstructions. In no case could the absorption of the dye be demonstrated. Then methylene blue was introduced into the intestine of normal controls and of experimental animals, some with obstructions in the duodenum and others with obstructions near the terminal ileum. Examination of the urine for the dye led to the conclusion that the rate of absorption from the intestine was essentially the same in the experimental group as in the normal animals. Furthermore, no difference between the rate of absorption above the obstruction and that below could be demonstrated. It appears from these studies that an altered absorption from the intestine is not an invariable consequence of obstruction, the importance of this alleged circumstance as a factor in the cause of death can be questioned.

Best, Newton and Meidinger believe that as a result of the admixture of upper intestinal contents with the material in the intestine farther down, there is formed a substance of unknown nature, the absorption of which is essential for normal cell function. The facts that introduction of vomitus into the intestine through a fistula posterior to a high duodenal obstruction prolongs the life of experimental animals and that obstruction in the distal colon is compatible with life for some time are cited as evidence for this view. The manifold nature of the functions of the intestine—digestion, absorption, excretion, potential influence on acid-base equilibrium, electrolyte and water balance—together with the fact that it harbors a complex bacterial flora inevitably renders difficult both the planning of cogent experiments and the interpretation of clinical observations.

CYTO-INHIBITION OF SERUM THERAPY

Experimenters¹ in the Rockefeller Institute observed two decades ago that tubercle bacilli ingested by leukocytes are apparently protected from the lytic action of the peritoneal antibodies of tuberculo-immune guinea pigs. This immunologic paradox was afterward studied in detail by Rous and Jones² who found that test tube phagocytosis not only protects such micro-organisms as the typhoid bacillus against lysis by homologous specific immune serums but also protects them against certain chemical antiseptics. This protection is apparently due to certain vital factors in the ingesting phagocytes, since cytologic protection ceases on the death of these cells. The New York investigators concluded from their data that serum therapy and chemotherapy might conceivably be ineffective in numerous specific infectious diseases, solely on account of the intracellular location of the infectious agent.

Rous and his colleagues³ have recently extended this paradox to include certain filtrable viruses. Suspensions of embryonic tissue culture cells (rabbit), for example, were inoculated with vaccinia. Both viable and nonviable cells were found to absorb this virus, the thoroughly washed exposed cells causing typical vaccinia lesions on injection into rabbits. The addition of specific immune serum to virus-infected cell suspensions killed or otherwise inactivated all free virus and all virus on or within nonviable tissue cells. The same antiserum was without demonstrable virucidal effect on virus units on or within living cells. Similar protective results of viable tissues were obtained with the filtrable agents causing rabbit fibroma and chicken sarcoma.

Indirect confirmation of the Rous-Jones paradox is currently reported by Schultz and Gebhardt⁴ of Stan-

¹ Manwaring, W. H. and Bronfenbrenner, Jacques. *J. Exper. Med.* **18**: 604 (1913).

² Rous, Peyton and Jones, T. S. *J. Exper. Med.* **23**: 601 (May) 1916.

³ Rous, Peyton, McMasters, P. D. and Hudack, S. S. *Proc. Soc. Exper. Biol. & Med.* **31**: 90 (Oct.) 1933.

⁴ Schultz, F. W. and Gebhardt, L. P. *Proc. Soc. Exper. Biol. & Med.* **31**: 260 (Nov.) 1933.

¹ Best, R. R., Newton, L. A. and Meidinger, Roy. *Absorption in Intestinal Obstruction*. *Arch. Surg.* **27**: 1081 (Dec.) 1933.

ford University. In their hands, prophylactic injections of convalescent monkey serum or of hyperimmune horse serum prevents the development of experimental poliomyelitis in monkeys in about one third of the cases. Repeated massive doses of the same antisera, however, given two or more days after intranasal inoculation, are without demonstrable therapeutic effects. Kolmer and Rule's⁵ demonstration of the therapeutic failure of intravenous injections with massive doses of such antiseptics as mercurochrome, methenamine and arsphenamine in experimental poliomyelitis in monkeys is in accord with the Rous-Jones theory. Control tests of the prophylactic efficiency of the same antiseptic have not yet been reported by the Philadelphia investigators.

Current Comment

FURTHER EXPANSION OF RADIO BROADCASTING BY THE AMERICAN MEDICAL ASSOCIATION

Last week attention was called to the special facilities provided by the National Broadcasting Company for broadcasting on health subjects by the American Medical Association. This week we announce the provision of similar facilities by the Columbia Broadcasting System. At present thirty-two additional stations are listed on this hookup, covering the Middle West, Northwest, Southwest and the Pacific Coast. The time of these broadcasts will be each Thursday from 4:30 to 4:45 p. m., Central standard time. The subjects covered will be advice on health, discussions of the relationships of the medical profession to the public, and similar topics. These will be listed in *THE JOURNAL* each week under the heading Association News. It is highly desirable that physicians call the attention of their patients to these broadcasts so as to insure for them the largest possible audience. *THE JOURNAL* here expresses on behalf of the medical profession its deep appreciation to the Columbia Broadcasting System for supplying these facilities without cost to the medical profession.

URINE PROTEINS IN NEPHRITIS

Not many years ago the protein in the urine of nephritic patients was sometimes associated directly with the albuminous constituents of the food intake. The idea that dietary protein can reappear in more than the minutest traces in the secretion of the kidneys had to be abandoned when the modern theory of enzymatic alimentary digestion established itself. On this hypothesis well established now by many facts, the products of absorption are not the dietary proteins, as such, but rather their degradation products. Beyond the alimentary barrier, proteins arise and appear only by resynthesis from nonprotein nitrogenous fragments. It would be almost ridiculous, therefore, to assume that a foreign protein would be reconstituted in the organ-

ism and excreted in its original form. The other direct source of urinary proteins is the blood plasma. It is not necessary to assume that blood proteins traverse the kidneys unchanged in cases of albuminuria of any sort, for it is quite conceivable that somehow they may be changed by the renal structures during the process of excretion. In the case of Bence-Jones proteinuria the protein undoubtedly is unlike the serum proteins. This, however, represents a special case. The nature of the urinary proteins in ordinary albuminuria is now generally regarded as identical with that of serum. Research by Widdowson¹ at the Middlesex Hospital, London, brings added confirmation. Investigations on the nitrogen distribution, racemization, osmotic pressure and specific refraction of urine and serum proteins from nephritic patients indicate that the corresponding urine and serum proteins from any one patient are identical. In ordinary nephritis and in prolonged proteinuria there appears to be no alteration in the structure of the proteins. This fact seems to decide once and for all, Widdowson concludes, that there is no defect in protein synthesis in these cases.

Association News

MEDICAL BROADCAST FOR THE WEEK

Columbia Broadcasting System

A new program arrangement has been concluded through the courtesy of the Columbia Broadcasting System for a weekly broadcast on the Educational Forum from 4:30 to 4:45 p. m. Central standard time, each Thursday, beginning February 1. The program is available to the following stations, subject to station option.

West North Central States		Mountain States	
WCCO	Minneapolis	KLZ	Denver
WNA	Yankton S. D.	KVOR	Colorado Springs
KSCJ	Sioux City, Iowa	KSL	Salt Lake City
KFAB	Lincoln, Neb.	KOH	Reno
WMT	Waterloo, Iowa		
KMBC	Kansas City, Kan.	Pacific States	
WIBW	Topeka	KERN	Bakersfield
KFH	Wichita	KMJ	Fresno
East North Central States		KHJ	Los Angeles
WMBD	Peoria, Ill.	KOIN	Portland
WISN	Milwaukee	KFKB	Sacramento
WBBM	Chicago	KGB	San Diego
West South Central States		KFRG	San Francisco
KOMA	Oklahoma City	KDB	Santa Barbara
KRLD	Fort Worth	KOL	Seattle
WACO	Waco	KFPY	Spokane
KTSA	San Antonio	KWG	Stockton
KTRH	Houston	KVI	Tacoma

The plan of the program is a ten minute health talk, preceded and followed by selections by the studio orchestra. The subject for Thursday, February 8, is "Men's Hearts Fail Them." The speaker will be Dr. W. W. Bauer, director, Bureau of Health and Public Instruction.

National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15 Central standard time (5 o'clock, Eastern standard time, 3 o'clock, Mountain standard time and 2 o'clock, Pacific standard time). The subject for Monday, February 5 is "What About Your Blood Pressure?" The speaker will be Dr. Bauer.

Radio Talk from Station WBBM

The American Medical Association broadcasts on Tuesday mornings from 8:55 to 9 o'clock, Central standard time, over Station WBBM (770 kilocycles, or 389.4 meters). The subject for Tuesday, February 6 is "Foods and Resistance."

⁵ Kolmer J. A. and Rule A. A. Proc. Soc. Exper. Biol. & Med. 71: 50 (Oct.) 1931

¹ Widdowson E. M. A Comparative Investigation of Urine and Serum Proteins in Nephritis. Biochem. J. 27: 1321 1933

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Elimination of Tuberculous Cattle—Recognizing that California has the largest number of tuberculous animals in its dairy herds of any state, a committee representing the Health Officers' Section of the League of California Municipalities recently adopted a resolution urging the secretary of agriculture of the United States to adopt means to eliminate the dairy surplus through the testing and slaughtering of diseased animals. Insufficient funds have restricted California's control and eradication of bovine tuberculosis, and it is hoped that the government's plan to eliminate surpluses of farm commodities will strengthen the state's program begun in 1895. The committee is composed of Drs. John J. Sippy, Stockton, chairman; Arthur Hieronymus, Oakland, and Herbert F. True, Sacramento.

Society News—The Los Angeles Pathological Society was addressed, January 9, among others, by Dr. Paul E. McMaster on "Suppurative Arthritis Associated with Osteomyelitis," and John F. Kessel, Ph.D., "Streptococci of the Intestinal Tract."—The Orange County Medical Society was addressed November 7, by Dr. Norman J. Kilbourne, Los Angeles, on hemorrhoids.—At a recent meeting of the Sacramento Society for Medical Improvement, Drs. Frank B. Reardon and Frederick F. Gunderson discussed "Subarachnoid Hemorrhage."—A symposium on arthritis was presented before the Alameda County Medical Association, January 15, in Oakland, by Drs. Leonard B. Barnard, Gertrude Moore, Dorothy M. Allen, Hugh G. MacLean, and Charles B. Fowler.—At a meeting of the Los Angeles Surgical Society, January 12, the speakers were Drs. Leo J. Adelstein and George O. Berg on "Surgical Treatment of Syringomyelia," and Kenneth E. Smiley, "Pilonidal Sinus."—Chauncey D. Leake, Ph.D., professor of pharmacology, University of California Medical School, Berkeley, discussed "Medical Caricatures" before a joint meeting of the Hollywood Academy of Medicine and the section on internal medicine of the Los Angeles County Medical Association, January 18.

COLORADO

Society News—A symposium on tuberculosis was presented before the Otero County Medical Society at Fort Lyon, December 5, by Drs. Ralph J. Jones, Benjamin F. Jackson, and Franklin C. Cassidy. Dr. Carl W. Maynard, Pueblo, gave a paper before the society, December 19, on "Anemias of Pregnancy."—At a meeting of the Weld County Medical Society, recently, Dr. Cyrus W. Anderson, Denver, spoke on "Optional Motherhood."

Stream Pollution—A survey of stream pollution in the state was recommended in resolutions adopted at a joint meeting of the Colorado Municipal League and state health authorities December 14. At a special session called by Dr. Samuel R. McKelvey, executive officer, state division of public health, information on stream pollution, gathered by a committee of the state medical board, and statistics of deaths resulting from pollution, compiled according to counties, were considered.

CONNECTICUT

Lectures on Venereal Disease—The state health department recently inaugurated a series of illustrated lectures on venereal disease in civilian conservation camps. An average of 200 men has been reached in each of the twelve camps where the lectures have been given. Plans were being made in December for lectures to be presented in two newly organized camps. Dr. Henry P. Talbot, chief of the division of venereal diseases of the state health department, gave the first twelve talks.

Sale of Parrakeets Prohibited—The Public Health Council voted, December 28, to add a regulation to the state sanitary code prohibiting the sale of parrakeets in Connecticut. The text of the regulation, which became effective January 15, reads:

No person, firm or corporation shall buy, sell or transport within the state of Connecticut birds belonging to that branch of the psittacine family known as parrakeets or love birds.

Recent investigations show that a parrakeet sent to Connecticut last summer was found to contain the psittacosis virus

after its death in August and that psittacosis among human beings was traced to infected parrakeets shipped to the state from California during the last summer and fall. The penalty for violation of the new regulation is a fine of not more than \$100 or imprisonment for not more than three months or both.

DISTRICT OF COLUMBIA

Health at Washington—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended January 20 indicate that the highest mortality rate (21.3) appeared for Washington and for the group of cities as a whole, 12.3. The mortality rate for Washington for the corresponding week last year was 18.5, and for the group of cities 12.9. The annual rate for eighty-six cities for the three weeks of 1934 was 12.7, as compared with a rate of 13.3 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Medical Bills in Congress—Bill Introduced H. R. 6952, introduced by Representative Norton (by request), New Jersey, proposes to amend the optometry practice act of the District of Columbia by authorizing the board of optometry to make rules, consistent with the provisions of the optometry act, governing applicants and applications for admission to licensure and to govern the practice of optometry. These rules must be submitted to the commissioners of the District of Columbia for approval. The bill further authorizes the board of optometry to revoke the license of any licensee guilty of violating any rule, order or regulation promulgated by the board, and the right to revoke or suspend a license of a licensee convicted of any criminal offense who is found by the board to be grossly incompetent, afflicted with a contagious disease, a habitual drunkard, or guilty of unprofessional conduct. The board of optometry is to have power to determine what acts constitute unprofessional conduct.

GEORGIA

No Diphtheria Deaths in Savannah in 1933—For the first time in Savannah no deaths were reported from diphtheria during the calendar year 1933. A large number of infants and young children have been immunized in recent years.

Personal—Dr. Charles C. Harrold Macon, has been named chairman of the state committee of the American Society for the Control of Cancer.—Dr. Millard E. Winchester, Atlanta, has been appointed health officer of Glynn County, succeeding the late Dr. Henry L. Akridge.

IDAHO

Society News—Dr. Orval F. Swindell, Boise, has been appointed state tuberculosis adviser under the terms of the tuberculosis hospitalization act. He will supervise diagnosis and treatment in the state wards maintained at Coeur d'Alene and Boise for early cases.—Dr. John H. Einhouse, Moscow, addressed the Nez Perce County Medical Society, Lewiston, Nov. 15, 1933, on "Treatment of Acne Vulgaris."—At a meeting of the Canyon County Medical Society, Nampa, December 15, speakers were Drs. William Wilson, Portland, on obstetrics, Ernest Boyland, Portland, diseases of the heart, and Orval F. Swindell, Boise, tuberculosis.—Drs. Joseph A. Pettit and John H. Fitzgibbon, Portland, Ore., addressed the South Side Medical Society, Rupert, December 8, on "General Surgical Principles of the Oral Cavity and the Medical and Systemic Background of Its Lesions," and "Lesions of the Esophagus," respectively.

ILLINOIS

Tumor Clinic—Dr. Joseph Colt Bloodgood, clinical professor of surgery, Johns Hopkins University School of Medicine, Baltimore, was the guest speaker at Veterans Administration Facility, Hines, January 23, at a tumor clinic. His subject was "The Evolution of the Treatment of Cancer as I Have Observed It." Other speakers included:

Dr. Max Cutler, Chicago, "Indications and Limitations of Radium in the Treatment of Cancer."

Dr. Paul F. Brown, Hines, "Operability and Inoperability of Tumors." Dr. Linnaeus H. Prince, Hines, "Clinical Laboratory and Autopsy Activities, 1933."

Dr. John W. Turner, Hines, "Organization of Tumor Clinic." Dr. S. E. Owen, Ph.D., Chicago, "Biological Diagnosis of Teratomas."

Dr. Gilbert Fitz-Patrick, Chicago, showed the Cantani Cancer Film, and Dr. Thomas Hugh Scott, manager of the facility, introduced the speakers.

Chicago

Dr Oliver to Give Hektoen Lecture—Dr Jean R. Oliver, professor of pathology, Long Island College of Medicine will deliver the tenth Ludvig Hektoen Lecture of the Frank Billings Foundation, February 23, on "The Problem of Architectonics in Terminal Bright's Disease." The lecture will be given in the Chicago Woman's Club at 8 o'clock.

Society News—The Chicago Surgical Society was addressed February 2, among others, by Drs Edward Starr Judd, Rochester, Minn., and Dean Lewis, Baltimore, on "Present Status of the Surgical Treatment of Peptic Ulcer" and "Chronic Cystic Mastitis and Its Relation to Ovarian Hormones," respectively. At a meeting of the Chicago Council of Medical Women, February 2, Drs Marie Wessels spoke on "A Social Problem of Gynecology and Obstetrics" and Mary G. Schroeder, "The Relation of Insanity to Birth Control."

Rush College Presents Program—The department of otolaryngology of Rush Medical College will offer the clinical demonstrations and scientific program of the Chicago Laryngological and Otolological Society, February 5, as follows:

Carcinoma of the Larynx Drs Louis T. Curry and Linden J. Wallner
Surgical Treatment of Dacryocystitis and Primary Skin Grafts in Radical Mastoid Surgery Dr George E. Shambaugh Jr.
Problems in the Surgical Treatment of Septum Irregularities Dr Thomas W. Lewis
Vertigo and Deafness Following Cerebral Concussion Dr Daniel B. Hayden
Electrocautery in the Treatment of Allergic Noses Dr George A. Torrison
Pathology of Otosclerosis Dr Elmer W. Hagens
Diathermy in the Treatment of Some Nose and Throat Conditions Other Than Tonsils Dr Clifford L. Dougherty
Diathermy in the Treatment of Chronic Tonsillitis Dr William J. Yonker

KENTUCKY

University News—The University of Louisville School of Medicine is building an addition to its present plant to give increased space for all laboratory courses, research laboratories in all departments, and special libraries.

Bills Introduced—S 4 proposes to prohibit a physician from testifying "concerning a communication made to him in his professional character, by his patient, or his advice thereon without the patient's consent." H 109 proposes to levy a tax of 10 per cent of the selling price on among other things the sale of proprietary and patent medicines, antiseptics and deodorants and cosmetics. H 189 proposes to abolish the office of state supervisor of chiropractors.

MARYLAND

Free Chest Clinics—The Maryland Tuberculosis Association plans to conduct more than 100 free chest clinics in counties throughout the state during the first six months of its fiscal year, which began on Oct. 1, 1933. The examining physicians include the superintendents of the various tuberculosis sanatoriums of the state, as well as other tuberculosis specialists.

Personal—Dr George Walker, Baltimore has been elected a member of the board of trustees of the Maryland Academy of Sciences, succeeding the late Charles C. Plitt, Sc.D.—Dr George W. H. Hemmeter has been appointed full time medical health officer in the Baltimore Health Department. This appointment is the second of its kind in the department, the position having been created within recent months. Dr Anthony L. Rettaliata was the first appointed.—Dr Lee J. Volenick has been appointed director of the Nursery and Child's Hospital, Baltimore, effective January 1, succeeding Dr Frederick B. Dart, who has resigned to join his father in practice in Connecticut.—Dr Joseph L. Valentini has been appointed coroner at large for Baltimore succeeding the late Dr George C. Blades.

Rare Book Presented to Society—A copy of "An Essay on the Nature Cause and Cure of a Disease Incident to the Liver" by Dr John Crawford who died in Baltimore in 1813 was presented to the Osler Historical Society by Mr Louis H. Dielman at a meeting, January 15. The book was published in London in 1772. Dr Jacob Hall Pleasants sketched the life of Dr Crawford and Dr John Rathbone Oliver reviewed the recent sesquicentennial celebration of the Harvard Medical School Boston. Born in Ireland in 1746, Dr Crawford received his degree in medicine at the University of Leiden. After several years in England and South America he went to Baltimore where he was prominent in the founding of the Baltimore General Hospital in 1801, the penitentiary in 1802 and the Baltimore Library. He conducted courses in natural history at the College of Medicine in 1811 and 1812 of which an

introductory lecture on the "Cause, Seat and Cure of Diseases" is extant. Active in the affairs of the Medical and Chirurgical Faculty of Maryland, he was famed for his research into the cause of disease, conceiving as early as 1790 the idea of a "living contagium." Dr Crawford's library is preserved at the University of Maryland.

MASSACHUSETTS

Society News—Speakers before the Middlesex South District Medical Society in Waltham, February 20, will be Drs Roy D. Halloran, on "Metropolitan State Hospital—Purpose and Development", Malcolm J. Farrell "Demonstration of Two Similar Psychotic Entities Postencephalitis Lethargica and Dementia Praecox, Catatonic Type", Philip F. Hilton, "Demonstration of Injection Treatment of Varicose Veins in a Mental Hospital Population," and Clifford D. Moore, "Mental Disease Occurring in the Course of Physical Disease, with Particular Reference to Pulmonary Tuberculosis."—Dr Alonzo K. Paine, Boston, was elected president of the New England Obstetrical and Gynecological Society at its fifth annual meeting in Boston, November 22.

Sunday Afternoon Lectures—January 7 marked the opening of a series of twelve public medical lectures at Harvard Medical School on Sunday afternoons. Dr Richard M. Smith, assistant professor of child hygiene, spoke on "How Do Your Children Grow?" Other lectures have been delivered by Drs Francis W. Palfrey, assistant professor of medicine, on "Hygiene of Middle Life", Tracy B. Mallory, instructor in pathology "Cancer," and John Homans, assistant professor of surgery "Varicose Veins and Varicose Ulcers." Subsequent speakers will be

Philip Drinker, Ch.E., associate professor of industrial hygiene "The Air We Breathe," February 4.
Dr Frank T. Fulton, Providence, R.I. "How to Budget the Reserve Strength of the Heart," February 11.
Dr Walter Bauer, assistant professor and tutor in medicine "Arthritis," February 18.
Dr Varaztad H. Kazanjian, professor of clinical oral surgery, "Dentistry's Contribution to the Repair of Face and Jaw Deformities," February 25.
Dr Walter L. Mendenhall, professor of pharmacology, Boston University Medical School "Tobacco," March 4.
Dr Alice Hamilton, assistant professor of industrial medicine "Dangerous Trades," March 11.
Dr Frederick C. Irving, professor of obstetrics "The Change of Life," March 18.
Dr G. Philip Grabfield, instructor in pharmacology "Headaches and Headache Remedies," March 25.

Bills Introduced—S 162 proposes to provide for the licensing of chiropractors by the board of registration in medicine, assisted by two chiropractors, and to regulate the practice of chiropractic. Chiropractic is defined to mean the external treatment of the human spine by mechanical or manual means. H 712 proposes a procedure to secure the payment of the charges of any hospital, incorporated as a charitable corporation or under public control, for services arising out of motor vehicle accidents, out of the proceeds of motor vehicle liability policies and bonds. H 755 proposes to amend the medical practice act so as to provide that applicants for licenses not only must have received the degree of doctor of medicine from a legally chartered medical college having the power to confer degrees in medicine but also must have had all of their medical school work in an institution having the power to confer degrees in medicine. H 731 proposes to make it a ground for revoking the certificate of registration of a registered pharmacist for the holder to "display, or advertise for sale, or permit to be displayed or advertised for sale, alcoholic liquors sold by him." H 896 proposes that a child from a household where a person is ill with smallpox, diphtheria, scarlet fever, measles, or any other infectious or contagious disease, shall not attend any public school during such illness or exposure until a physician or the local board of health certifies that the danger of conveying disease by the child is passed. H 1198 proposes to create a board of examination and registration for magnetic healers. Apparently, an applicant for a license to practice magnetic healing need prove no qualifications other than an ability to examine "nerve conditions by his magnetic power." A certificate to practice magnetic healing is to entitle the holder to practice magnetic healing but it shall not authorize its holder to administer drugs or perform surgical operations with the use of instruments provided that nothing in this act shall be construed to prohibit any legally registered magnetic healer from practicing surgery after having passed a satisfactory examination therein before the state board of registration in medicine. The bill states that the system method or science commonly known as magnetic healing is defined to be the science of reviving and producing life and circulation in the nerve system and cells so as to heal all nerve affections.

MINNESOTA

Society News—At a meeting of the Hennepin County Medical Society, Minneapolis, January 17, amebic dysentery was discussed by William A. Riley, Ph.D., and Dr. Harry W. Christman, and agranulocytosis by Drs. Rudolph C. Loge and Frank H. Hacking.—The Minnesota Pathological Society devoted its meeting, December 19, to a discussion of amebic dysentery.

Health Survey—A health survey will be carried on in Minneapolis as a project of the Civil Works Administration. Newspapers announce information will be gathered through a house to house canvass in an effort to determine what proportion of reportable ailments are actually recorded officially. Food handling establishments will also be inspected for sanitary conditions and to ascertain whether they have been properly licensed.

MISSISSIPPI

Bills Introduced—S. 53 proposes to amend the privileged communication statute by providing that it shall not apply to any case in which the mental or physical condition of the patient is put in issue in any civil proceeding by the patient or by his personal representative, heirs or distributees. S. 125 proposes to abolish the Jackson Charity Hospital and to provide for the disposition of all the real and personal property of that hospital.

NEBRASKA

Society News—Drs. Roy W. Fouts and Joseph A. Henske, Omaha, addressed the Madison Six-County Medical Society, December 12, on "Treatment of Superficial Lesions" and "Rheumatic Fever in Children," respectively.—The Fifth Council District Medical Society recently held two meetings, one at Columbus, November 26, and one at Fremont, December 5. Speakers at Columbus were Drs. Anders P. Overgaard and Rodney W. Bliss, Omaha, on "Use and Value of Heavily Filtered X-Rays" and "Complications of Peptic Ulcer," respectively. At Fremont, Dr. John Buis, Pender, discussed "Streptococcus Infection of the Hip Joint" and Dr. George A. Haslam, Fremont, reported a case of intussusception.—Drs. Adolph Sachs and Benjamin Carl Russum, Omaha, conducted a cardiac clinic before the Otoe County Medical Society, Nebraska City, January 8.—Speakers at a meeting of the Omaha-Douglas County Medical Society, January 23, were Drs. Arthur C. Stokes, on "Newer Conceptions of Blood Pressure Readings with Relationship to Body Surface and Weight," Herman F. Johnson, "Artificial Impaction of Fractures in the Neck of the Femur," and Albert P. Condon, Pathology and Treatment of Gallbladder Lesions.

NEW HAMPSHIRE

Second Child Health Conference—The second state conference on child health was held in Concord, January 23, called by Governor Winant. A symposium on physical, mental and social aspects of child health was held in the morning, speakers including Drs. Charles H. Parsons, Concord, and Douglas A. Thom, Boston. The afternoon was devoted to a discussion of malnutrition.

NEW JERSEY

Dr. Joseph Stokes Honored—Dr. Joseph Stokes, Moorestown, was the guest of honor at a banquet given by the Burlington County Medical Society, December 19, marking his completion of fifty years of medical practice. Dr. Joseph M. Kuder, Mount Holly, was toastmaster and speakers included Drs. Alfred Stengel, Philadelphia, Marcus W. Newcomb, Browns Mills, vice president, Medical Society of New Jersey, George E. de Schweinitz, Philadelphia, Joseph E. Roberts, Jr., Camden, Nathan Thorne, Moorestown, and Mr. David Roberts, Moorestown. One hundred and sixty guests were present. Dr. Stokes is the fourth of five generations of his family to be physicians; he has two sons practicing medicine, Dr. Samuel Emlen Stokes, Moorestown, and Dr. Joseph Stokes, Jr., Philadelphia.

Bills Introduced—A. 4 proposes to require a thorough physical examination, including, if necessary, a "stereoscopic x-ray photograph" of the chest, of all students admitted to state normal schools and teachers' colleges and of persons applying for certificates to teach in the public schools. Should the examination reveal evidence of tuberculosis, the diseased person may not attend the normal school or obtain a teachers' certificate until satisfactory proof of recovery is furnished. A. 5 proposes that whenever any board of education shall

have reason to believe that any teacher is in ill health, it shall require the teacher to submit to a thorough physical examination. If the examination reveals the existence of a communicable disease the teacher is to be ineligible for further teaching service until satisfactory proof of recovery is furnished. A. 22 proposes to authorize the department of public health to license persons to practice beauty culture. Such licensees, among other things, are to be permitted to remove superfluous hair "by the use of mechanical or electrical apparatus or appliances." A. 28 proposes that no hospital supported wholly or partly at public expense shall hereafter receive any compensation for medical, dental or pharmaceutical services rendered while operating a clinic to which the public is invited.

Society News—The first scientific meeting of the New Jersey Gastro-Enterological Society was held in October in Newark, with Drs. Sigurd W. Johnsen, Passaic, and Louis L. Perkel, Jersey City, as speakers, on "Clinical and Roentgenological Study of 100 Cases of Constipation" and "Malignancy of the Gastro-Intestinal Tract in Young Adults," respectively.—Dr. William H. Park, director of laboratories, New York City department of health, addressed the Bergen County Medical Society, December 12, on "The Public Health Aspects of Diphtheria" and Dr. Stanley H. Nichols, Long Beach, on the public health program of the state medical society.—A symposium on cancer in the female pelvis was presented before the Camden County Medical Society, December 5, by Drs. Charles F. Hadley, Gordon F. West and Edward A. Y. Schellenger, Jr.—Speakers at the meeting of the Atlantic County Medical Society, December 8, were Drs. George P. Muller, Philadelphia, on acute conditions in the abdomen, and George A. Wyeth, New York, on electrosurgery in cancer.—The staff of Brynmore Hospital presented the program of the Hudson County Medical Society, Jersey City, January 2. Among other subjects presented, Dr. William Antopol and his associates demonstrated with necropsy material the end-results of essential hypertension.

NEW YORK

Bill to Authorize Hospital Insurance—A bill proposing to amend the state insurance laws to permit establishment of group payment plans of hospital care was introduced in the state legislature, January 24. The measure is the outgrowth of a study made by the United Hospital Fund of New York, as a result of which a group plan was proposed to the state commissioner of insurance who held that the existing law does not permit the establishment of such plans (THE JOUR. A. M. A. Aug. 26, 1933, p. 718), and the present bill is designed to remove this obstacle.

Bills Introduced—S. 115 proposes to create a board of hairdressers and cosmetologists and to regulate the practice of hairdressing and cosmetology. S. 155 and A. 128, to amend the medical practice act, proposes to permit the board of regents to restore a license that has been forfeited because of commission of a felony if the former licensee is pardoned by the governor of the state or by the President of the United States of the felony of which he was convicted. The present law does not permit the board to restore such a license if the person has been convicted of a felony committed in his professional capacity. A. 77 to supplement the medical practice act, proposes to prohibit any physician or any other person or corporation from giving away, selling or offering to give away or sell any article bearing on it or annexed thereto any mark or symbol "pertaining in any way to the advertising of medical care or pertaining to any inducement of whatever nature respecting the furnishing or offering of medical care by means of such advertising." The bill proposes too to make it unlawful for any person or corporation other than a duly licensed physician to employ any person other than a licensed physician for the practice of medicine. The latter prohibition however is not to be construed to apply to the practice of medicine in the lawful operation of a hospital, dispensary, or other legally incorporated institution. S. 45, A. 141 and A. 169, to amend the workmen's compensation act propose in effect, to make compensable all occupational diseases contracted in the course of an employment covered by the act.

Report of Committee on Compensation Abuses—A medical committee appointed by Governor Lehman early in 1933 to investigate abuses in connection with workmen's compensation laws submitted its report December 30. The study disclosed that under the present laws the injured workman has often failed to receive adequate medical care, the honest employer has been forced to pay increased insurance costs and the insurance carriers have lost money because they have been unable to estimate actuarial risks accurately. Two kinds of

abuses are distinguished in the report, those due to defects in the law and those chargeable to the medical profession. The report recommends that injured workmen be given the right to choose their own physicians from a roster certified by the county medical society and approved by the industrial commissioner. When the employee exercises this right of free choice, however, the employer or insurance carrier should have the right to have the patient examined periodically by its own physicians and in some cases even to provide different medical care. The report suggests that a medical advisory and appeal board, composed of three physicians, be created in each compensation district, the members to be appointed by the industrial commissioner from nominations made by the medical societies of the district. In addition the committee urged that at least one physician be included on the state industrial board to which compensation cases are appealed. Complete elimination of medical practice by insurance carriers, except for a staff of medical inspectors, is urged as a check on the practice of "undercutting and underbidding." Other recommendations included in the report concerned standardization of minimum fees, creation of an agency to arbitrate disputed bills, licensing of compensation medical bureaus, previously called compensation clinics, and the continuance of a committee to observe the operation of the revised law with a view to recommending correction of faults which may be revealed by subsequent experience. The committee was made up of five physicians representing the New York Academy of Medicine, as follows: Drs Eugene H. Pool, chairman, Frederic W. Bancroft, George Baehr, Adrian V. S. Lambert and Charles A. McKendree, and five representing the Medical Society of the State of New York, as follows: Drs David J. Kaliski, New York, Thomas A. McGoldrick, Brooklyn, Frederick M. Miller, Utica, Harry R. Trick, Buffalo, and Frederick S. Wetherell, Syracuse. Dr Lambert served as chairman of a subcommittee on medical problems of a committee headed by Howard S. Cullman, New York, which made a report on abuses of workmen's compensation laws in 1932 during President Roosevelt's incumbency as governor of New York (THE JOURNAL, March 19, 1932, p. 1000).

New York City

Dr Wynne Accepts Position with Milk Institute—Dr Shirley W. Wynne, formerly health commissioner, has accepted the presidency of the Greater New York-New Jersey Milk Institute, an organization of milk dealers in the metropolitan area, according to the New York Times. Dr Wynne's duties will be largely educational among producers, dealers and consumers and he will represent the institute at hearings of the State Milk Control Board. The announcement stated that Dr Wynne will also engage in medical practice.

Society News—A symposium on plastic surgery was presented before the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists, December 15, by Drs Vilray P. Blair, St. Louis, and Joseph Eastman Sheehan and Victor H. Sears, D.D.S., New York.—Dr Russell M. Wilder, Rochester, Minn., discussed the Role of the Parathyroids in Health and Disease before the Bronx County Medical Society, December 20.—Dr Louis Fischer addressed the New York Society of Orthodontists, November 20, on "Interrelationship Between Orthodontia and Pediatrics".—Dr Karen Horney, Chicago, among others, addressed the New York Neurological Society in a joint meeting with the section of neurology and psychiatry of the New York Academy of Medicine, January 9, on "Concepts and Misconceptions About the Principles of the Psychoanalytic Method".—Among speakers who addressed the Society for Experimental Biology and Medicine, December 20, were Dr Sidney D. Kramer and M. Schaeffer, on "Experimental Poliomyelitis: Active Immunization with Neutralized Mixtures of Virus and Serum." Drs Leslie J. Webster and George L. Fite, "A Contribution to the Etiology of Encephalitis: Differentiation of Encephalitis by Protection Test," and L. N. Ellis, Ph.D., "Experimental Evidence of an Additional Substance Essential to Mammalian Nutrition."—Drs Soma Weiss, Boston, and Hugo Roesler, Philadelphia, addressed the committee on cardiac clinics of the heart committee of the New York Tuberculosis and Health Association at a meeting at the New York Academy of Medicine, January 23, on "The Role of Cardiovascular Reflexes in the Precipitation of Syncope and Some Aspects of Cardiovascular Roentgenology" respectively.—Dr Leonard G. Rowntree, Philadelphia, addressed the Medical Society of the County of Kings, January 16, on "Recent Advances in Our Knowledge of Endocrine Diseases," and Dr John L. Bauer delivered his inaugural address as president of the society on "Medical Problems."—Dr Louise D. Larimore and Walther C. A. Steffen, among others, addressed the

Queensboro Surgical Society, January 15, on "Carcinoma of the Breast: Pathology and Review of Cases" and "Congenital Pyloric Stenosis," respectively.—Dr Russell L. Cecil delivered an afternoon lecture before the Medical Society of the County of Queens, Forest Hills, January 5, on rheumatic fever.

OHIO

Graduate Lectures in Cleveland—Graduate lectures sponsored by the Cleveland Academy of Medicine during February have been announced as follows:

February 2 X-Ray Diagnosis of Diseases of the Gallbladder Dr. Edgar P. McNamee
February 9 Treatment of Diseases of the Gallbladder Dr. Robert S. Dinsmore, Jr.
February 16 Disease of the Pancreas Dr. Vernon C. Rowland
February 23 Diseases of the Appendix Dr. Carl H. Lenhart

Art and Hobby Exhibit—The Cleveland Academy of Medicine held its second art and hobby exhibit, December 15, for members and December 17 for the public. Nearly seventy-five physicians displayed either their own handicraft or collections of interest in various fields. Paintings in oil and water colors, drawings, sculpture, photographs, wood carving, mechanical equipment, furniture design and hand made jewelry were included in the displays of original work. Collections were shown of books, oil paintings, prints and etchings, guns and swords, coins, stamps, photographs, trophies, stethoscopes and terrariums. Several physicians had displays in more than one category. Among the exhibitors were Drs. Henry J. John, Louis J. Karnosh, W. James Gardner, Gerald S. Shibley, Harold V. Cole and Howard Dittick.

OREGON

Dr Weeks Honored—Dr. John Elmer Weeks, Portland, professor emeritus of ophthalmology, New York University, and Bellevue Hospital Medical School, was the guest of a group of medical friends at a dinner, December 5, in honor of his eightieth birthday, which occurred in August 1933. Dr. Frederick A. Kiehle presided and Drs. Hugh Cabot, Rochester, Minn., Ralph F. Davis and Ralph A. Fenton made complimentary addresses.

PENNSYLVANIA

Society News—Dr. Eldridge L. Eliason, Philadelphia, addressed the Luzerne County Medical Society, Wilkes-Barre, January 3, on "Indigestion—Its Surgical Significance." Dr. Peter P. Mayock, Wilkes-Barre, addressed the society, December 21, on "Renal and Ureteral Anomalies."—Speakers who addressed the Pittsburgh Academy of Medicine, January 23, were Drs. Thomas B. McCollough on "Surgical Treatment of Early Meningitis of Otic Origin," Kurt Semsroth, "Leukemic Reticulo-Endotheliosis and Its Relation to Acute Leukemia," and David Ben Martinez, "Use of Sodium Alurate in Obstetrics."—Dr. William D. Stroud, Philadelphia, addressed the Berks County Medical Society, Reading, January 10, on "Coronary Artery Disease."

Philadelphia

The Thomas Lecture—Dr. Henry G. Bugbee, New York, delivered the annual B. A. Thomas Lecture of the Philadelphia Urological Society, January 22, on "Renal Tuberculosis as a Local Manifestation of General Tuberculosis," at the College of Physicians of Philadelphia.

Symposium on Pernicious Anemia—The section on general medicine and the section on medical history of the College of Physicians of Philadelphia presented a symposium on pernicious anemia at a combined meeting, January 24. Dr. Esmond R. Long discussed "Thomas Addison and His Discovery of Idiopathic Anemia," Drs. Harold W. Jones and Leandro M. Locantini, "Evolution of Views Concerning the Bone Marrow Changes in Pernicious Anemia" and Dr. George R. Minot, Boston, "Remarks Concerning the Discovery of Liver Feeding in Pernicious Anemia."

The Medical Profession and the Public—The College of Physicians of Philadelphia and the American Academy of Political and Social Science will hold a joint meeting, February 7, at which the subject of discussion will be "The Medical Profession and the Public: Currents and Countercurrents." The public is invited. At the morning session speakers will be James H. S. Bossard, Ph.D., professor of sociology, University of Pennsylvania, "A Sociologist Looks at the Doctors," Dr. Nathan B. Van Eeten, New York, "Abuses of Medical Charity and the Free Services of Physicians," and Edgar Sidenstricker, New York, "Medical Practice and Public Need."

At the afternoon session the following addresses will be presented

Dr Henry E Sigerist Baltimore Historic Developments European Experience in Medical Organization
Dr Albert Grant Fleming Montreal Que Canadian and British Experience in the Economics of Medical Practice
Dr Roger I Lee Boston The General Practitioner His Place in the Medical Profession
Michael Davis Ph D Chicago, A Physician's View of the Medical Problem

Speakers at the evening session will be

Dr Thomas Parran Jr state health officer of New York Albany Tomorrow's Health Services
Dr Morris Fishbein Chicago editor of THE JOURNAL The Doctor and the State
William Trufant Foster II D Newton Mass Doctors Patients and the Community

RHODE ISLAND

New Low Death Rate—Preliminary reports indicate that the death rate in Rhode Island for 1933 was 11, the lowest recorded since 1855 and believed to be the lowest ever occurring in the state. The birth rate, 14.2 was also the lowest in the history of the state. The actual number of deaths in the state in 1933 was 7,831, as compared with 8,088 in 1932. There were 10,165 births, compared with 11,186 in 1932.

Society News—Dr Lewis B Porter Providence addressed the Rhode Island Ophthalmological and Otolological Society December 14 on 'The Lingual Thyroid'.—Dr Varatid H Kazanjian Boston, addressed the Providence Medical Association, January 1, on 'Injuries of the Face and Jaws'.—Leonard Carmichael, Ph D of Brown University Providence delivered an address at the State Hospital for Mental Diseases Howard, January 29 on 'Development of Behavior Before Birth'.

SOUTH CAROLINA

Bill Introduced—H 1309 proposes to create a board of cosmetic art examiners and to regulate the practice of hair dressing and cosmetology.

SOUTH DAKOTA

Personal—Dr Lottie Grace Bigler Yankton has been appointed director of child hygiene of the state board of health.—Dr Albert H Speers, physician at the Sisseton Wahpeton Indian reservation since 1920 has retired after twenty-five years in the Indian service. His successor will be Dr Harry R Taylor of the Cheyenne Arapaho reservation, Concho Okla.

Society News—Dr James T Priestley Jr Rochester Minn, addressed the Aberdeen District Medical Society Aberdeen, January 9, on modern treatment of prostatic obstruction and Dr Charles N Spratt Minneapolis presented motion pictures on eye operations.—At a meeting of the Seventh District Medical Society, Sioux Falls, January 12, Dr Joseph C Ohlmacher, director of the state laboratory Vermillion discussed control of typhoid epidemics and Charles A Hunter Ph D, assistant director of the laboratory showed motion pictures taken during the epidemic in Chamberlain in 1933.—The Watertown District Medical Society met in Watertown in December with Dr Orwood J Campbell Minneapolis as guest speaker on cancer of the breast.

VIRGINIA

Bill Introduced—A bill introduced in the House of Delegates, January 24 by Representative English proposes to prohibit the sale of bay rum except on the prescription of a licensed physician.

WEST VIRGINIA

Bills Introduced—H 204 XX proposes among other things, that a physician may not prescribe a greater quantity of liquor at one time than, in the judgment of the physician will last the patient for thirty days, when used as directed. S 86 XX and H 225 XX propose to authorize municipalities to levy an annual privilege tax on persons engaged in the practice of any profession.

WYOMING

Society News—At a meeting of the Northwestern Wyoming Medical Society in Lovell, December 7 the speakers were Drs Evald Olson, Meeteetse, on 'Rifle Shot Wound Complicated with Myelitis', Thomas B Croft Lovell 'Compound Fracture Complicated with Tetanus,' and William W Horsley, Lovell, 'Fracture of the Scapula'.—Dr Emmett R Johnson of the staff of the U S Veterans Facility number 86 presented a paper on spinal anesthesia before the Sheridan County Medical Society December 12 and Dr Richard W Soper showed a film on the same subject.

GENERAL

Meeting of Anatomists—The fiftieth session of the American Association of Anatomists will be held at the University of Pennsylvania School of Medicine, March 29-31. Members wishing to present papers and demonstrations must notify the secretary not later than February 17.

News of Epidemics—Scarlet fever was reported to be epidemic in Grand Rapids, Mich. January 14, in addition to widespread influenza and pneumonia.—Twenty one cases of diphtheria occurred in Memorial Hospital, Albany N Y, within about two days in December. The hospital was quarantined for forty eight hours.—Measles was reported to be epidemic in El Paso, Texas, early in January. 114 cases were reported in the first four days of the month.

Special Board Examinations—The American Board of Otolaryngology announces that examinations for its certificate will be held during the annual session of the American Medical Association in Cleveland June 11 during the meeting of the Pacific Coast Oto Ophthalmological Society in Butte, Mont, July 16, and preceding the meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago, September 8. Applicants for certificates should write Dr William P Wherry, 1500 Medical Arts Building Omaha. The American Board for Ophthalmic Examinations announces that if a sufficient number of candidates are interested an examination will be held at the Butte meeting of the Pacific Coast Oto Ophthalmological Society July 16. Applicants should communicate immediately with the secretary Dr William H Wilder 122 South Michigan Avenue, Chicago.

The President's Birthday Parties—More than 5,000 balls were organized throughout the country in celebration of President Roosevelt's birthday January 30 for the benefit of the Warm Springs Foundation Warm Springs Ga. of which he is president. The foundation hopes to extend its work in the treatment of victims of infantile paralysis on a national scale with the endowment which the committees hoped to raise as a tribute of the American people to the President. Begun in 1926 by Mr Roosevelt and a group of associates as a non-profit-making institution Warm Springs has never had provision for nonpaying or part paying patients. The plant centers about a glass enclosed swimming pool for patients and an open pool for the public and Georgia Hall the administration building recently presented by the people of Georgia as a tribute to the President. Around these are cottages, play rooms and a hospital.

Society News—The fifth congress of the Pan American Medical Association will be in the form of a sixteen day cruise to several Latin American countries, leaving New York March 14 on the S S *Pennsylvania*. During the trip from Havana to Caracas scientific sessions will be held and a one day program will be presented in Venezuela. Dr Joseph Jordan Elller, 745 Fifth Avenue New York is executive secretary of the association.—The next annual meeting of the Association of American Physicians will be held at the Chalfonte-Haddon Hall, Atlantic City, N J May 1-2.—Dr Raymond W Bradshaw Oberlin Ohio was elected president of the American Student Health Association at its annual meeting in Chicago December 27-28.—Dr Otis F Lamson Seattle was elected president of the North Pacific Surgical Association at its annual meeting in Victoria B C December 1 and Dr William K Livingston Portland Ore secretary.

Southern Graduate Assembly—The fiftieth annual session of the Mid-South Post Graduate Medical Assembly, formerly the Tri-States Medical Association of Mississippi, Arkansas and Tennessee will be held in Memphis Tenn February 13-16. The following speakers among others will be presented.

Dr Albert C Furstenberg Ann Arbor Mich Acute Suppurations of the Mouth Pharynx and Cervical Regions
Dr Francis M Pottenger Monrovia Calif Management of the Tuberculous Patient Evaluation of the More Recent Methods of Treatment of Tuberculosis
Dr Fred L Adair Chicago Intracranial Injuries of the Fetus
Dr Herman O Mosenthal New York Bright's Disease—Present Day Conception and Management Diabetes Mellitus—Significance and Control of Sugar in Blood and Urine
Dr Douglas Quick New York Radiation and Surgery in Cancer of the Head and Neck
Dr Elliott P Joslin Boston Treatment of Diabetes Mellitus
Dr Frederick A Collier Ann Arbor Mich Mortality Factors in Acute Appendicitis
Dr Joseph Brennemann Chicago Treatment of Empyema in Children
Dr Charles Mazer Philadelphia Relation of Functional and Organic Derangements of the Pituitary Gland to Menstrual Disorders Diagnosis and Treatment of Female Sterility
Dr John M T Finney Baltimore Diverticulitis and Diverticulosis
Dr John C Meakin Montreal Canada Bronchiectasis Its Early Diagnosis and Treatment Rheumatic Fever Considered as a Specific Disease

Medical Bills in Congress—Bills Introduced S 2374, introduced by Senator George, Georgia, proposes to provide additional benefits for veterans. It provides that in cases in which service connection was established for any disability under the provisions of section 200 of the World War Veterans' Act, which service connection was severed by the act approved March 20, 1933, that such service connection be reestablished. It further provides that any World War veteran employed in the active military or naval services between April 6, 1917, and Nov. 11, 1918, not dishonorably discharged, in need of hospitalization or domiciliary care, who is unable to defray the necessary expenses therefor, is to be furnished such hospitalization or domiciliary care in a Veterans' Administration facility within the limitations existing in such facilities, irrespective of whether the disability is due to service. A statement by the veteran that he is unable to pay for the needed services must be accepted by the Administrator of Veterans Affairs as sufficient evidence of that inability. The following bills provide similar benefits: H R 6849 and H R 7134 introduced by Representative Douthett, Pennsylvania; H R 6899 introduced by Representative Disney, Oklahoma; H R 6911 introduced by Representative Moran, Maine; H R 7018 introduced by Representative Chase, Minnesota; H R 7081 introduced by Representative Connolly, Pennsylvania; H R 7093 introduced by Representative Rogers, Oklahoma; H R 7136 introduced by Representative Jenkins, Ohio; H R 7137, introduced by Representative Swick, Pennsylvania; H R 7142, introduced by Representative Jeffers, Alabama; H R 7143 introduced by Representative McKeown, Oklahoma; H R 7154 introduced by Representative Ransley, Pennsylvania; H R 7258, introduced by Representative Johnson, Oklahoma; and H R 7261, introduced by Representative McLeod, Michigan. Senator Reed, Pennsylvania, has also proposed an amendment to H R 6663, the Independent Offices Appropriation Bill, embodying the provisions of the bills discussed above, conferring additional benefits on veterans. S 2244, introduced by Senator Copeland, New York, and H R 7201, introduced by Representative Rankin (by request), Mississippi, propose to amend 'An Act to maintain the credit of the government of the United States' approved March 20, 1933, to continue retirement pay to certain emergency officers disabled in line of duty during the World War. H R 7135, introduced by Representative James, Michigan, and H R 7204, introduced by Representative Jenkins, Ohio, propose to grant pensions and increases of pensions to certain soldiers, sailors and nurses of the war with Spain, the Philippine insurrection or the China relief expedition and their widows and dependents. The bills apparently make no provision for the pensioning of contract surgeons. Senator Dieterich, Illinois, has proposed an amendment to the Independent Offices Appropriation Bill, H R 6663, to provide that when veterans are eligible for hospital treatment or domiciliary care by reason of neuropsychiatric ailments and who are cared for in state institutions a duty shall devolve on the Administrator of Veterans Affairs to contract with the state or in exceptional cases, with private hospitals, for such medical surgical hospital services and supplies as may be required. Such hospital facilities as may be contracted for under the proposed amendment are to be considered as coming "within the limits of existing veterans' facilities." H R 6906 and 6907 introduced by Representative Smith, Washington, propose to reenact the provisions of laws relating to pensions for Spanish-American War veterans including the Philippine insurrection and the Boxer rebellion, and relating to medical, hospital or domiciliary treatment of former members of the military or naval service that were repealed by 'An Act to maintain the credit of the Government of the United States' approved March 20, 1933. H R 7012, introduced by Representative Kelly, Pennsylvania, proposes to repeal all provisions of 'An Act to maintain the credit of the Government of the United States' approved March 20, 1933, relating to veterans of the Spanish-American War including the Boxer rebellion and the Philippine insurrection. H R 7019 introduced by Representative Disney, Oklahoma, proposes to provide old age pensions for citizens of the United States.

ALASKA

Dr. Council Appointed Health Officer—Dr. Walter W. Council, Juneau, has been appointed health commissioner of the Territory of Alaska to succeed Dr. Harry C. DeVighe. Dr. Council was graduated from the University of Virginia Department of Medicine in 1905 and licensed in Alaska in 1910, first having been licensed in Washington. For several years he was superintendent of the Cordova General Hospital, Cordova, and served as president of the Alaska Territorial Medical Association in 1931.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan 6, 1933

The Increasing Population of India

The latest census reveals that the population of India now exceeds that of China, which was formerly regarded as the greatest of the countries of the world. The number is 352,837,778, compared with 318,942,480 in 1921 and more than 10,000,000 in excess of that given for China. This increase of 33,895,298 alone approximates the total population of France or Italy. Dr. J. H. Hutton, who was responsible for the 1931 census, regards the increase as a "cause for alarm rather than for satisfaction." Recent writers have stated that India is already living on the verge of scarcity and that any increase will result in an insufficient food supply. Dr. Hutton thinks that recent experience throws doubt on this theory. The general slump in the price of food and the difficulty of cultivators in selling their produce suggest that scarcity of food is not the most serious aspect of the problem. The area covered by the census was more than 1,800,000 square miles, which gives an average density to the square mile of 195. The actual densities vary; one district, Baluchistan, reaching the surprising figure of 4,000. In Europe, the maximum that can be supported by agriculture is 250 persons to the square mile. Generally the maximum density of population can be far greater in India than in Europe, on account of greater fertility of the land and the smaller necessities of life in a less rigorous climate. Though the food products may be ample for many more, a large increase of population must lead either to excessive subdivision of the areas cultivated or to a floating population that has nothing to exchange with the food producers. A definite movement toward birth control appears to be taking place. In 1930 the government of Mysore sanctioned the establishment of birth control clinics in the four principal state hospitals. A curiosity of the census is an aged wrestler, Siddi Wastad, who is supposed to have passed his one hundred and fiftieth year. He was one of the famous wrestlers at the court of the Maharajah Gaiwar, father of the present ruler of Baroda, and saw the last mogul emperor and his predecessor. The census report says "Even allowing for considerable exaggeration, his age would be about 130."

Instinct in the Choice of Foods

Dr. Leslie Harris, director of the Medical Research Council's laboratories at the Institute of Human Nutrition, Cambridge, has investigated the question whether animals select the best foods offered to them. Little precise work has been done in this field. Osborne and Mendel found that rats tended to choose foods containing a better rather than a worse protein. But Beadles and his associates could find no support for the assumption that the more complete of two rations is consumed in greater amount. Some early work of Hoffman indicated that rats would select wholemeal bread at the expense of white bread, but his work was limited in scope by its mainly commercial objective. Certain pediatricians have suggested that on weaning infants should be given a selection of diets and brought up on what they choose and in whatever amount.

Dr. Harris's experimental animal was the intelligent and highly educable albino rat. He chose for the criterion of goodness or 'badness' in a diet the presence or absence of vitamin B as a whole, or the fraction of it known as B₁. Absence of B₁ from the rat's diet even if the diet is complete in all other respects, produces rapid loss of weight and death in from two to four weeks. There were marked signs of nervous disturbance similar to those of beriberi in man.

Equally definite was the result of restoration of the vitamin, provided the animal had not been allowed to become too ill. Dr. Harris found that rats fed on a diet devoid of vitamin B invariably chose a diet containing it in preference to an identical diet without it, provided the complete diet was distinguishable by taste or smell. He next found that, given a choice of several diets deficient in the vitamin and one containing it, rats always chose the latter. This proves that monotony does not put the rat off the best food. In a further series of tests, rats were ingeniously deceived. They were first taught to choose a vitamin-containing diet easily detected by taste and smell. When the vitamin was removed from this diet, without its organoleptic properties being affected, the animals continued to eat it even though the vitamin was incorporated in an alternative diet that previously contained none of it. But after a time the animals went back gradually to the previously rejected diet, now satisfactory, and helped themselves to it exclusively. The animal does not invariably settle down at once to the best diet, though it generally does so. Presumably it makes a number of shots, for the rat is gifted with variable curiosity. If it strikes the good diet quickly it will stick to it, because of the benefits; if it does not, its health will decline and it will go on trying other diets until it strikes the proper one. Dr. Harris argues that this educability of the rat is solely determined by the rapidity with which it recovers from vitamin B deficiency. Unless it experiences benefit it will be unable to choose, and if it does not choose there arises no association of the particular taste and smell of the diet with its curative properties. This explanation is borne out by experiments with vitamin A. On a diet devoid of it the animals may continue in apparently normal health for many weeks, though growth is diminished and resistance to infection lessened. If vitamin A is restored to their diet while they are living on their reserves, they will not notice its effects and therefore when offered a choice of diets with and without vitamin A they make no selection and it appears impossible to educate them to do so.

The Municipal Hospitals of London

The largest hospital service in the world has been administered by the London County Council since 1930. Previously the municipal hospitals were controlled by local authorities or, in the case of the fever hospitals, by a special authority. These hospitals were largely infirmaries for the aged or the disabled and were supported by the municipalities. Their medical staffs were whole time employees without the standing or distinction of the unpaid staffs of the great voluntary hospitals, who are the teachers of the medical schools. Under the new centralized control a great advance has been made in the staffing and equipment of the municipal hospitals. The opportunity for specializing hospitals as much as is desirable has arisen and a part time specialist and consultant staff, drawn from the staffs of the voluntary hospitals, has been appointed. There are at present seventy-four hospitals with a staff, including nurses, approaching 18,500. The annual cost of maintenance is \$22,500,000. The hospitals are under the management of the Central Public Health Committee of the London County Council. In a review of the events covering the period since the transference from local control, the committee says that it is too soon to state that the task of building up a satisfactory municipal hospital service for London is in sight of completion, nor is the task likely to be achieved for some years. But it can be asserted that the transition from diversified control was achieved smoothly, that substantial progress has been made in three years' work with the strengthening of the hospital arrangements in directions in which this was needed, and that administratively the services have been placed on a basis that renders sound development possible.

Special attention has been paid to maternity work, and owing to the popularity of the council's hospitals the tendency is for prospective mothers to seek admission. Live births in the hospitals have increased by more than 2,300 and in 1932 amounted to 10,974, more than one sixth of the total births of London. As an experiment, light anesthesia has been offered in childbirth. Other new measures are (1) reorganization of the observation wards for mental cases, (2) creation of a modern laboratory service, available for all the hospitals, and a complete consultant and specialist service, (3) reorganization of the ambulance and district medical services, and (4) a scheme for the training of nurses.

PARIS

(From Our Regular Correspondent)

Dec 20, 1933

Typhoid in Paris

The prefect of police issued a bulletin stating that the number of cases of typhoid in Paris at present was above the average, and that it would be a wise precaution to use, for a time, only boiled water for drinking purposes. Dealers in mineral waters took immediate advantage of the announcement to increase their advertising. An inquiry revealed that an accident had occurred in one of the plants supplying drinking water, and that by chance a communication with pipes containing nonpotable water had been established. A double set of pipes is still found in many buildings. There are different faucets for the kinds of water, with precise directions to prevent any confusion. The water termed "potable" is chiefly spring water, which is carefully supervised by the municipal laboratories. But the water system administration, in an emergency, qualifies as drinking water also water pumped from the Seine, filtered in special reservoirs, subjected to sterilization, and then distributed to the urban stations. Such water has a slightly disagreeable taste and is never sufficiently cool in summer. At the same plants, water is pumped from the Seine to be distributed to the pipes containing nonpotable water, used for the cleansing of buildings and the streets. Through an error of a workman, the two systems were brought into communication for a short time, and cases of typhoid developed immediately. The city of Paris is compelled to curtail expenditures for the supplying of spring water. The equipment required for the distribution of spring water represents today a vast sum. Unfortunately the topography of the city increases greatly the difficulties of the water works administration. There are several sections of Paris located on hills (Montmartre, Passy, Le Butte-aux-cailles), with six story buildings. Water pumped from the Seine never attains sufficient pressure to reach these heights, hence it becomes necessary to use solely spring water for all purposes. Nevertheless, typhoid has become rare in Paris, although there are always a few cases. After the war there was a marked decline in the number of cases, owing to the compulsory antityphoid vaccination applied to the mobilized forces and to the nursing personnel, male and female, of the numerous hospitals. Gradually, with the oncoming unvaccinated generations, the number of cases has again increased. There are free vaccination centers in several hospitals, but the public makes no use of them for it has been noised about that vaccination against typhoid may expose a person to considerable discomfort, which is certainly exaggerated. The present menace has however, brought about some activity in these vaccination centers. There are still a few cases of typhoid due to oysters, but these have become more and more rare since the oyster beds have been supervised. However, the baskets of oysters that reach Paris are sometimes contaminated by the retail dealers who to preserve them, leave them secretly in any water that is available whether pure or otherwise.

Administration of Sodium Chloride in Extensive Burns

Research has shown that the blood chlorides are always diminished in case of extensive burns, as was announced by Davidson in 1926. Recent observations by Baur and Boron, army physicians of Nancy, have confirmed this belief, in five persons gravely burned they found the chlorides frankly reduced. Prof. Pierre Duval, in addressing recently the Société de chirurgie, reported some careful observations. The burns of the patient were extensive, seeming, in places, to affect the whole skin. Mr. Duval made studies on azotemia and chloridemia, the urea, the urinary chlorides and the albumoses of the blood. For five days the patient ingested about 15 Gm of salt each day. Examination of the curves revealed the intoxication caused by the burn, and the reaction of the organism. Duval found that the liver transforms into urea the toxic proteins introduced into the blood stream. The defense of the organism is assured by the fixation in the tissues, of blood chlorine, with resulting hypochloridemia and hypochloriduria. He noted also that there is considerable urinary discharge of sodium bicarbonate. It appeared that the sodium chloride of the blood surrenders chlorine to the tissues while the sodium thus liberated unites with the carbon dioxide of the organism and is eliminated as sodium bicarbonate. In this patient the administration of sodium chloride appeared to exert a good effect, for on the seventh day she passed 3 liters of urine with 465 Gm of urea and 1575 Gm of chlorides whereas the elimination on the fifth day had dropped to 200 cc with 295 Gm of urea and 372 Gm of chlorides.

The Weather and Health

The relations between the weather and health, which attracted the attention of Hippocrates, have been the subject of study in France, in recent years. A society was founded recently at Nice, on the initiative of Dr. Maurice Faure, to develop these researches. In a recent communication to the Academy of Medicine, Mouriquand and Charpentier described the symptoms that the wind from the South occasions at Lyons. When this wind blows, all the babies in the Children's Clinic at the Faculté de médecine become restless and cry a great deal. Some show an increase of temperature, others manifest symptoms similar to those of cholera sicca. The explanation is that the winds from the South cause a reduction of the humidity. The extreme dryness of the air is inclined to induce a loss of water, or dehydration. In adults these phenomena produce only slight discomforts but they affect gravely the easily disturbed nutrition of infants, in whom the variations of water balance play a considerable part.

BERLIN

(From Our Regular Correspondent)

Dec 18 1933

The Increase in Medical Students

Of all the faculties at the German universities the medical faculty shows the most peculiar development. Since the pre-war period, and during the first years following the war, the attendance in the medical department changed more than in any other department. In the last prewar semester (1913-1914) there were about 15,000 medical students or 20 per cent of the total number of university students. After the war there was at first a retrograde movement, the total number of medical students in the winter semester 1924-1925 was about 8,500 or only 14 per cent of the total number of students at the universities. The total number of students in all departments had increased slightly at this time. The increases in the departments of law, political science and chemistry were therefore for the most part, at the expense of medicine. In the winter semester 1927-1928 the attendance of medical students was much greater

and in 1929-1930 the attendance reached 15,650 which exceeded the prewar matriculation.

The figures for the women medical students over this period show an entirely different trend. In the prewar period after women were freely admitted to the study of medicine the attendance was slight, but soon there was a slow but steady upturn. In the winter semester 1913-1914 there were only 870 women medical students at German universities which was but 5.7 per cent of the total number of medical students. In 1927-1928 their number had nearly doubled, and in the winter semester 1929-1930 their number had more than trebled (2,700 women medical students). In this semester the total number of medical students equaled 17 per cent of all students, while the women medical students equaled 17 per cent of the total number of medical students. Since this time the number of men and women medical students has steadily increased. The winter semester 1932-1933 showed a further increase. Whereas, during the period under discussion university attendance in general increased but slowly (from 1929-1930 to 1932-1933 by only about 2 per cent), the medical students presented a different aspect. During this period the latter increased from 15,650 to 24,298, or 55 per cent, and the number of women students rose from 2,718 to 4,913, an increase of about 80 per cent. If one views separately the last comparable period (the winter semester 1931-1932 and the winter semester 1932-1933), the different development of the attendance figures of the medical students in contrast with the students of the other faculties stands out even more prominently. During this period the total university attendance dropped from 95,270 to 92,600, a decline of 3 per cent, at the same time, however, the number of medical students rose from 21,780 to 24,300, an increase of 11 per cent, while the women medical students showed the same trend, with an increase of 15 per cent. These figures show the overcrowding of the medical department. What the future developments will be, under the influence of the new regulations, cannot be foreseen.

Relations Between Diseases of Animals and of Man

The internist Prof. P. Krause of Münster and the hygienist Prof. K. Kisskalt of Munich have published some surprising statements concerning the relations between the diseases of animals and the diseases of man. In connection with outbreaks of epidemic poliomyelitis, for instance, a simultaneous occurrence of disease manifestations in animals has been observed. During the widespread epidemic in Westphalia in 1909, Krause observed, in the district of Arnsberg, a simultaneous increased mortality among young chickens and young blooded dogs. An epidemic-like inflammation of the brain and spinal cord occurs also in colts; it appears likewise in summer and in the fall. It affects chiefly horses in the rural districts, being seldom observed in animals in the city. The disease leads in animals to paralysis of a moderate type.

In this connection, reference may be made to the plague and to Weil's disease (icterus infectiousus) the causative agents of which are the producers of an infectious disease in rats. The causative agent of undulant fever is found normally in goats and sheep, also in cows, horses and dogs, and is transmitted to man by the way of the milk. The conditions are similar in Bang's disease. The causative agent of diphtheria is found also in animals. Hence it is possible that diphtheria is transmitted not only from man to man but also by animals, for example, through the milk, through the appearance of sporadic cases. This actually occurs frequently in diphtheria epidemics. Observations on the migration of diphtheria support this assumption for its passage from one section of the country to another is much slower than would seem likely if it is transmitted by man. It is possible that, with the newer knowledge, some of the mysteries concerning the spread of diphtheria epidemics

can be solved. It has been shown that there are germ carriers among the animals. It is important that, in a disease in which only dissemination from man to man has heretofore been considered, the possibility of transmission from animals to man be recognized. To what extent the number of causative agents of infectious disease occurring solely in man may be further limited cannot be foretold.

Stations for the Collection of Human Milk

A number of years has elapsed since the creation of the first centers for the collection of human milk. In the *Munchener medizinische Wochenschrift*, Frau Dr. Krämer reports on the experiences of the Frauenmilch-Sammelstelle (collection station) in Erfurt during the past six years. The following amounts of milk were dispensed: in 1927-1928, 1,900 liters, 1928-1929, 2,000 liters, 1929-1930, 3,100 liters, 1930-1931, 3,000 liters, 1931-1932, 2,900 liters, 1932-1933, 2,700 liters. The decline in the demand for human milk is doubtless the result of the economic depression in Germany, although it is considerably less than the decline in the consumption of so-called certified cow's milk for infants, during this period. For example, in a good-sized infants' department, at the most 4 or 5 liters of human milk are used, which amounts to from 1,500 to 1,800 liters in a year. The consumers are, for the most part members of the *Frankenkassen*, homes for infants and children's hospitals, the institutions finding it difficult at present to secure wetnurses. The Erfurt collection station procures its supply of milk from about fifty women during the course of the year. Their average compensation ranges from 30 to 40 marks per month, which, in many cases, constitutes an important addition to the family income. The milk is sterilized for fifteen minutes in 200 Gm flasks. After the lapse of two months, the milk has been found to be still satisfactory from the standpoint of bacterial content. No marked reduction of vitamins occurs.

MADRID

(From Our Regular Correspondent)

Nov. 29, 1933

International Congress on Cancer

The International Congress on Cancer was held October 25-30, at Madrid under the presidency of Dr. Leon Cardenal, professor of surgery of the Faculty of Medicine of Madrid. The president of the republic welcomed those who attended. There were receptions at the national palace and the city hall, banquets, bull fights and dances. The following official topics were discussed in the scientific section, biology of the cancer cell, early diagnosis of cancer, and treatment of cancer and tumors of the nervous system. In the professional section, occupational cancer, cancer of the races and prevention of cancer. Besides the official topics, more than 450 articles were presented before the more than a thousand persons who attended the congress. Drs. Ewing, Grant and Gendreau represented the government of the United States. Drs. R. S. Ferguson and J. D. Humber of the United States read papers on Intermedin in the treatment of melanoma and research on the cause and treatment of cancer, respectively. Several other American physicians read papers. There were 24 members from the United States, 40 from Germany, 74 from France, 26 from Switzerland, 18 from England, 12 from Austria, 20 from Belgium, 20 from Argentina, 26 from Italy and 6 from Russia.

SCIENTIFIC SECTION

The first topic, "Biology of the Cancer Cell," was discussed by Dr. J. A. Murray of London. The essential nature of cancer remains unknown. Carcinogenic agents applied in a uniform manner to an extensive area result in cancer only in localized areas. Chemical and physical carcinogenic agents act indirectly by determining in the tissues certain conditions which

serve as the starting point for the development of cancerous lesions. It has not been shown from the chemical constitution of those agents how the autonomous type of cellular proliferation takes place. Perhaps the tissues set free substances of more or less chemical similarity to some of the known carcinogenic compounds.

Dr. Gurwitsch of Leningrad spoke on "Stimulation of Cellular Division." A piece of tissue in a proper environment is capable of stimulating proliferation in other cellular complexes when the latter are exposed to the influence of the former. That is what happens, even at a distance. The cornea of rats and frogs placed a few millimeters from a tumor recently removed and triturated, shows more mitosis after a certain time than does the cornea of an eye not thus subjected to the influence of the tumor. The same happens when other tissues, tissue cultures or bacteria are exposed to the influence of the tumor material. The number of cells in the exposed culture is 30, 50 and even 100 per cent greater than that in the control culture. These results prove that the tumor is capable of acting on the cells even at a distance. This action, however, is not an exclusive property of cancer tissue. Any aggregation of proliferating cells has in the element of quartz the carrier of an agent capable of stimulating at a distance the division of cells of other cellular aggregations. This agent is not specific. It is transmissible through quartz and is of the nature of ultraviolet rays of wavelengths between 1,900 and 2,500 angstrom units. This has been proved both by spectrum analysis and by a physical method based on Geiger-Mueller's principle. The first method is simple. Between a tumor and a yeast culture there is interposed a quartz spectrograph provided with a horizontal slit which has a scale of wavelengths instead of a photographic plate. The tumor is placed in front of the slit of the spectrograph. A series of cultures of yeast is placed in front of the different divisions on the spectrograph scale. Stimulation occurs at some wavelengths but not at others. The sensitivity of the cells for ultraviolet rays is of the same order as that of the retina for light rays. The most varied chemical reactions especially those of a fermentative nature (oxidation, peptic processes, the actions of phosphatase, amylase and urease, as well as more simple reactions, such as the neutralization of an acid by a base and even certain processes of dissolution) are sources of ultraviolet radiations, also called mitogenic radiations because of their property of provoking mitosis. It may be supposed that emission of ultraviolet rays occurs as a result of many chemical reactions. Not all the tissues in the body emit mitogenic rays. These can be detected only from the blood, nerves, muscles and mucous membranes of the small intestine. It is necessary that the cells be in a proper condition to react to the stimuli. The Hammetts have proved that the sulphhydryl (SH) group which is a constituent of protoplasm, stimulates cellular proliferation. These authors believe that the role of sulphhydryl in the production of mitosis is proved. The speaker believes that the mitogenic rays are of the same order of activity as sulphhydryl. Can an explanation of carcinomatous proliferation be found in mitogenic irradiation? Experiments have proved that those radiations have not only an influence on the division of the cells but also an accelerative action on the rhythm of mitosis. Not only the beginning of mitosis but its entire course as well proceeds under a mitogenic influence. Secondary irradiation is found in most tissues and in different chemical solutions, which acquire them after having been subjected to the mitogenic rays. It is sufficient to irradiate one end of an aggregation of cells to convert the whole aggregation into a source of secondary radiation. There seem to be two groups of cells in the cultures: one which reacts to the irradiation by an early division and the other, which, having been deprived of the power of multiplication, reacts with the development of a secondary irradiation. Tumors do not lose

their properties of radiation, while the blood of any individual ceases to emit radiations after six or seven hours. The blood of cancer patients does not emit radiations and this is one of the earlier signs of the presence of neoplasms. An eye recently removed from the body and kept in physiologic dextrose solution does not show traces of radiation, while a tumor continues its radiation without diminution in nature or intensity for a long time. The radiation emitted from the cornea appears to represent a secondary phenomenon, probably originating in the blood. Attention has been called to the increased permeability of the cancer cell. It is easy to demonstrate that the intracellular ferments of the cancer cells traverse the cell membranes with ease. If a tumor is kept for thirty minutes in Ringer's solution, the solution acquires the tumor ferments, the presence of which can be proved by the spectral analysis of the mitogenic radiations of the solution. Similar experiments on normal organs instead of tumors give negative results. This is of importance, since those ferments appear to be the source of intense mitogenic radiations. The cancer cells, besides being the origin of radiations, are surrounded by a mitogenic environment, which further increases the permeability of the cell. That is, the mitogenic influences of carcinoma play an important part in the mechanism of proliferation of carcinomatous cells.

Dr Berst of Munich, who spoke on "Histologic Diagnosis of Malignancy," said that the destruction of cells and the formation of metastases are the most certain signs of the malignant character of a tumor. There is no morphologic specificity of the malignant cell. The presence of atypical nuclei and mitosis and of a nuclear variability are important. The stroma of the tumor is less important in the histologic concept of malignancy.

Dr A. Fischer of Copenhagen said that until recently the study of cancer was in the same condition that the study of infections was before the bacterial era. At present by the determination of the respiratory metabolism of the cancer tissues and also by the technic of tissue culture, the physiology of cancer cells can be studied. It has not been proved that there are many qualitative differences between the normal and malignant cells. The cancer cell differs from the normal cell only quantitatively in regard to the power of glycolysis and proteolysis and in its capacity to build new protoplasm with the plasma of the blood as the only source of nutrition. The mechanism of the unlimited development of tumor cells is at present clearly understood. This knowledge is based on the comparative estimation of the growth of normal and of pathologic tissue and also on experiments with cultures of both types of tissue. In tissue cultures the interaction between the normal and cancer cells can be studied. It consists in a mutual stimulation, a reaction of the stroma, infiltration and destruction. The development of cells of tissues is considerably accelerated by subjecting the culture to repeated slight injuries. Tumor cells are less resistant than normal cells to any form of injury, and the duration of their life is short. Malignant tissue cells are continuously being killed in the cultures. This fact explains why more mitosis is observed in cultures of cells of carcinoma than in cultures of normal cells in spite of the fact that the latter grow apparently faster than the former. The conclusion can be drawn that the unlimited proliferation of tumor cells in the body is the physiologic result of the spontaneous death of the cells in the same manner in which the normal regeneration is provoked by the injury to the cell.

Dr Sanchez Covisa of Madrid spoke on precancerous lesions which he divided into two groups. The first group includes certain diseases that often become cancerous spontaneously, such as xeroderma pigmentosum, Paget's disease and Bowen's disease. It has been proved that some diseases in this group are really tumoral processes. The second group includes those lesions which may become cancerous under certain circumstances

and in the development of which physical, chemical and parasitic agents may have had an influence. In this group are lesions caused by either solar or roentgen radiations, as well as cancer developed from scars, and arsenical cancer. The speaker stated that although there is a group of lesions which precede the appearance of cancer, it cannot be said that a definite group of precancerous diseases exists. One cannot speak of a precancerous cell, nor can it be stated in all cases whether the cancerous cell was cancerous from its beginning or is the result of the transformation of a normal cell. In order that a malignant process may arise, a local cellular alteration is necessary and also a general disequilibrium, manifested in metabolic changes that characterize the cancerous 'terrain'.

Dr Keyser of Berlin exhibited a collection of photographs showing the results obtainable with electrosurgery in the treatment of cancer, especially in circumscribed cases, even those which appear to be inoperable.

Drs Roussy and Leroux of Paris commended the biopsy in the diagnosis of cancer and displayed a cinematographic film showing various techniques.

Dr Fischer of Wasel in Frankfurt has experimentally proved the significance of a general predisposition for the development of cancer. The fundamental disturbances that are described as the originators of the predisposition are (1) increased fermentation (glycolysis) and limited respiration, (2) alkalosis of the blood and (3) inhibition of the functions of defense in the reticulo endothelial system. The speaker made reference to methods by which the general predisposition to cancer may be overcome.

Drs Schinz of Zurich, Wintz of Erlangen, Holthusen of Hamburg, Rodriguez Lopez of Santa Cruz de Tenerife and Vicente Carulla of Barcelona spoke on roentgen therapy given in fractional doses in the treatment of cancer. These papers, rich in detail, were of great value. Dr Rodriguez Lopez concluded that in the roentgen treatment of cancer the fractional method has the following advantages over the unisessional method. More roentgen energy, about three times as much, is accumulated in the latent cells, it stimulates the cells to proliferation and consequently to become more sensitive to radiation, and it attacks the cells during their most sensitive period, that is, during the period of nuclear division, and by so doing kills a large number of cells.

SOCIAL SECTION

Dr Luigi Carozzi of Geneva spoke on occupational cancer, the prevention of which should be based on the determination of the cause and the avoidance of contact of workers with toxic products. Workers should be examined either when they start working or at intervals in order to ban those who because of their constitution, may easily become victims of cutaneous cancer, and also in order to make an early diagnosis of precancerous lesions. It is desirable that research on occupational cancer be continued in order to study the causes, especially in those cases which develop under the influence of agents causing chronic irritation.

Dr James Ewing of New York spoke on the prevention of cancer. The campaign against cancer has made progress in the diagnosis and treatment of early cases but not in advanced cases. There is no reasonable basis to expect that any cure can be discovered in the near future which can alter the conditions which at present exist in relation to cancer. The prevention of cancer requires a wide knowledge of the stimulative factors and conditions that bring about cancer. The importance of this problem deserves much more attention than has been given it. Certain forms of cancer (skin, uterus, mouth) are preventable. Certain other forms such as cancer of the gastrointestinal tract can be alleviated by improving the diet, leading a moderate life and improving the general hygiene. One

should teach the average person the prevention of cancer and the practice of temperate and moderate habits. One should enforce the protection of workers in cancerogenic industries. Those agents that are related to the origin of cancer should receive publicity. In spite of campaigns to teach laymen on this subject, physicians cannot be optimistic about the results. Cancer phobia is a necessary phobia in any civilized person.

Dr. Maisin of Louvain spoke on legislation on cancer. He presented the following outline:

I. Contact should be avoided with cancerogenic agents that may injure by contact, ingestion or inhalation.

1. This can be done by:

- (a) Demanding strict hygiene from the workers.
- (b) Removing from the industrial equipment the active cancerogenic tar.
- (c) Prohibiting the use of cancerogenic oils for lubrication.
- (d) Removing toxic hydrocarbons liberated in the combustion of carbon and doing the same with heavy oils.

2. The use of radioactive substances should be declared dangerous.

- (a) The ingestion and the injection of any radioactive agent ought to be prohibited.

3. It is necessary to study the toxicity of stains.

II. It is necessary to suppress parasitism, all foci of chronic infection, syphilis and tuberculosis, since they play an indirect role in carcinogenesis.

III. Trauma may provoke the development of cancer if the individual is predisposed to the disease. There is a certain relation between trauma and cancer.

IV. Cancerogenic substances may be present in some foods and cause cancer a long time after they are ingested. The use in food of artificial agents, such as dyes and stains, should be prohibited until their harmlessness from the cancerogenic point of view has been proved.

The speaker said that there are either favorable or injurious diets for cancerous patients. Mineral substances can have either favorable or injurious effects on the development of cancer. Potassium favors the development of cancer while calcium and magnesium retard it.

Dr. Paulina Luisi of Montevideo, Uruguay, read an extensive exposition on the organization of a crusade against cancer. She said that a center for the cancer campaign should be provided with all the units required by its various aims. There should be units for the prevention of cancer (its investigation, detection and early diagnosis), for treatment for the care of patients in hospitals and in homes and for educating laymen about scientific discoveries, and there should be units for cooperating with other campaigns (international union).

Dr. Pittaluga of Madrid reported on the work done in Spain in the crusade against cancer. The organization published seventy-five articles on cancer from 1923 to 1927. Since 1928 the members of the committee have centered their efforts on the study of roentgen therapy of cervical cancer and on the investigation of occupational cancer.

Dr. Gallenga of Rome discussed instructions for the general practitioner in a crusade against cancer.

Dr. Prochazka of Prague presented a general outline for the education of laymen on matters related to cancer.

Cholesterol and Cancer of the Skin

Dr. A. H. Roffo of Buenos Aires recently lectured in the Academia Nacional de Medicina of Madrid on the role of cholesterol deposits in the skin in the development of cutaneous cancer. He said that the amount of cholesterol in the skin is in inverse proportion to the amount of exposure of the skin

to the sun's rays. In those areas of the skin which are not exposed to sunlight, such as the skin of the abdomen, there is the minimum amount of cholesterol; there is several times as much in the skin of the areas exposed to the sunlight, such as the forehead, the alar nasi and the cheeks. Cholesterol deposited in the skin in the form of the classic yellow spots well known to cancerologists, becomes active under the influence of sunlight and provokes the multiplication and cancerous proliferation of the cells that are immediately near it. Dr. Roffo presented abundant data and a large number of photomicrographs. The number of cases reported by the speaker was large.

Patient Expires During Operation at International Congress

The failures of operations performed during international congresses are rather frequent. The immediate results of the operation sometimes seem wonderful but hours later the family physician has been summoned in haste to find that the patient has died. The cause of these tragedies seems to be related to conditions under which the surgeons operate. They perform an operation on patients not previously known or carefully examined by them and in a strange environment. They are living during the days of the congress differently than they do at home. During one congress a well known surgeon operated to close a fissure in the vault of the palate before a large audience. The operation soon had to be discontinued because the child died from syncope. The surgeon experienced such a terrible shock that it greatly affected his personality. Other tragedies of the same sort have occurred. During the International Congress on Cancer, a famous surgeon performed an operation with the electric knife on a woman who had an extensive tumor of the breast. His instrument entered the thoracic cavity, some say it even reached the myocardium. The patient became weaker and weaker and the operation was finally discontinued, when a Spanish surgeon who was acting as assistant told the visiting surgeon that the patient was dead. All the medical attendants present were with terror, the unfortunate patient expired.

Prize for an Article on Cancer

The late Dr. Recasens devoted his life to the crusade against cancer. He died a victim of cancer. His widow recently founded a prize which represents the interest on \$50,000 for the best article on cancer to be presented in the near future.

Marriages

EDWARD PORCHER BRUNSON, Albemarle, N. C., to Miss Charlotte Wilson Miles of Danville, Va., Dec. 13, 1933.

MARVIN LONGWORTH SLATE, High Point, N. C., to Miss Marion Wolfersberger of Baltimore, Dec. 23, 1933.

WALTER LEE O'NEAL, Henderson, Ky., to Miss Bernice James of Lebanon, Ohio, at Cincinnati, January 12.

JOSEPH PHILIP SKLOCH, Arkadia, Wis., to Miss Mabel Gillons of Grand Rapids, Mich., Dec. 23, 1933.

NATHAN JUDSON BENDER, Poteet, Texas, to Miss Lorelle Causey of Franklinton, La., Dec. 27, 1933.

PAUL ROYSTON SCALLIN, Clark, S. D., to Miss Louise R. Wiggins of Flint, Mich., recently.

FENWICK BELLMAN, New York, to Mrs. Vera Byerley at Greenwich, Conn., Dec. 8, 1933.

DENNIS WHEELER SWEENEY to DR. HILLEN H. OWEN, both of New York, January 6.

ROY ALVIN SCHWACHE, McGregor, Minn., to Miss Viola Cayo of Tamarack, recently.

G. M. GRAHAM STAFFORD, Alexandria, La., to Miss Dorothy Schulze, Dec. 28, 1933.

GRAHAM L. BENNETT to DR. MOSETTA C. WHITE, both of New York, January 1.

Deaths

Joseph Edward Root, Hartford, Conn. College of Physicians and Surgeons, Medical Department of Columbia College New York, 1883, member of the Connecticut State Medical Society, fellow of the American College of Surgeons, orthopedic surgeon to St Francis Hospital, consulting orthopedic surgeon to the Manchester Memorial Hospital, South Manchester, Newington (Conn.) Home for Crippled Children, Municipal Hospital, Hartford and the Shriners Hospital for Crippled Children, Springfield, Mass., aged 79, died, Dec 18, 1933, of cerebral thrombosis

Earl Dean Crutchfield San Antonio, Texas, University of Texas School of Medicine, Galveston, 1918 member of the American Dermatological Association and the Radiological Society of North America, fellow of the American College of Physicians, formerly professor of dermatology and syphilology at his alma mater, on the staffs of the Robert B Green Memorial Hospital and the Santa Rosa Infirmary, aged 43, died, Nov 30, 1933 following a staphylococcal septicemia

Joshua Clapp Hubbard, Wayland, Mass. Harvard University Medical School, Boston 1896 member of the Massachusetts Medical Society, American Surgical Association and the New England Surgical Society, formerly clinical professor of surgery at his alma mater, served during the World War, at one time on the staff of the Boston City and Boston Lying-In hospitals, aged 64, died, January 11

Zebulon Vance Sherrill, Marion Va. University of Louisville (Ky.) School of Medicine, 1888, member of the Medical Society of Virginia, past president of the Smyth County Medical Society, now known as the Southwestern Virginia Medical Association of which he was also president aged 71, died, Dec 11, 1933, in St Elizabeth's Hospital, Richmond, of rectovesical fistula and peritonitis

Walter Sands Mills, Brooklyn New York Homeopathic Medical College and Hospital, 1889, associate professor of medicine at his alma mater, served during the World War author of "Practice of Medicine", aged 68, on the staff of the Metropolitan Hospital, Fifth Avenue Hospital and the Flower Hospital, where he died, January 5, of chronic myocarditis

James Gustavus Eblen, Lenoir City, Tenn., Southern Medical College, Atlanta, 1898, member of the Tennessee State Medical Association, past president and secretary of the Loudon County Medical Society formerly mayor, member of the board of education and board of health, aged 65, died, January 1, in the Fort Sanders Hospital, Knoxville, of sprue

Walter Spaulding Mix Beardstown, Ill. University of Illinois College of Medicine, Chicago, 1915, member of the Colorado State Medical Society, served during the World War, formerly on the staff of the Agnes Memorial Sanatorium, Denver, aged 42, died January 6 in Virginia Ill, of pulmonary tuberculosis

William Nevin Adkins, Atlanta Ga., Atlanta College of Physicians and Surgeons, 1905 member of the Medical Association of Georgia, served during the World War county health officer on the staffs of the Grady and Georgia hospitals, aged 50, died, January 5, in a local hospital, of cirrhosis of the liver

Eli Grimes Des Moines, Iowa State University of Iowa College of Medicine, Iowa City 1897 formerly professor of clinical medicine Drake University College of Medicine, aged 66 on the staff of the Iowa Lutheran Hospital, where he died January 14, of carcinoma of the pancreas

George Smith Condit Warren Pa. University of Maryland School of Medicine, Baltimore, 1910 member of the Radiological Society of North America served during the World War, on the staff of the Warren General Hospital, aged 46, died Dec 10 1933 of bronchiectasis

Alexander Blake MacNab Cassopolis, Mich. Rush Medical College, Chicago, 1907 past president of the Cass County Medical Society, served during the World War aged 54 one of the owners of the McCutcheon Hospital where he died Dec 10 1933, of bronchopneumonia

James J Morony Breese Ill. Marion Sims College of Medicine, St Louis 1895, past president of the Clinton County Medical Society for many years county coroner aged 68 on the staff of St Joseph Hospital where he died January 4 of arteriosclerosis and secondary anemia

George Young Moore Cuthbert, Ga. University of Georgia Medical Department Augusta 1888 past president of

the Medical Association of Georgia, secretary of the Randolph County Medical Society, aged 65 died, Dec 24 1933, of cerebral hemorrhage and coronary disease

Edwin Forrest Bickel Oshkosh, Wis. Medico-Chirurgical College of Philadelphia, 1903, formerly member of the school board, served during the World War, aged 55, on the staff of the Mercy Hospital, where he died, January 10, of carcinoma of the transverse colon

Raymond Kiesling Derr, Pennsburg, Pa., Jefferson Medical College of Philadelphia, 1927, member of the Medical Society of the State of Pennsylvania, on the staff of the Quakertown (Pa.) Hospital, aged 36, died, Dec 25, 1933 in the Jefferson Hospital, Philadelphia

Charles Walker Stewart, Washington, Iowa, Rush Medical College, Chicago, 1891, member of the Iowa State Medical Society, health officer, formerly on the staff of the Washington County Hospital, aged 68, died, Nov 12, 1933, of traumatic ileus

Thomas Emilo Snoddy, Russellville, Ala., Emory University School of Medicine, Atlanta, Ga., 1925, member of the Medical Association of the State of Alabama, aged 32, died, January 5, in the Baptist Hospital, Memphis, Tenn., of pneumonia

Guy Scofield Shugert, Rochester Pa., Western Pennsylvania Medical College, Pittsburgh, 1897 member of the Medical Society of the State of Pennsylvania, on the staff of the Rochester General Hospital, aged 57, died, Oct 5, 1933, of myelitis

Ernest M H Highfield Alma, Mich., Detroit College of Medicine 1904, past president of the Gratiot-Isabella Clare County Medical Society, on the staff of the Carney-Wilcox Hospital aged 56 was found dead, Dec 29, 1933, of heart disease

Charles A C Parker, Dongola, Ill., Marion-Sims College of Medicine, St Louis 1892, member of the Illinois State Medical Society, formerly member of the school board and mayor of Dongola aged 70, died, Nov 26, 1933

Lee Roy Salmons Winston-Salem, N C., North Carolina Medical College, Charlotte, 1912 served during the World War, on the staff of the Winston-Salem Hospital, aged 43 died, January 9, of acute dilatation of the heart

Elmer Ellsworth Shannon, Ivoryton, Conn., Cleveland Homeopathic Medical College, 1898, Hahnemann Medical College and Hospital of Philadelphia, 1900, aged 57, died, Dec 4, 1933, of arteriosclerosis and chronic myocarditis

Jacob Markwood Peters, Camp Hill, Pa., Jefferson Medical College of Philadelphia, 1886, member of the Medical Society of the State of Pennsylvania, aged 71, died, Nov 15, 1933, of coronary embolism and arteriosclerosis

Le Roy Vincent Reilly, Morristown, N J., Georgetown University School of Medicine Washington D C 1933 intern at the All Souls Hospital, aged 26, was found dead Dec 21 1933 as the result of an automobile accident

George Rochefoucauld Plummer Key West, Fla. Southern Medical College Atlanta Ga., 1893, past president of the Monroe County Medical Society, served during the World War, aged 62, died Dec 31, 1933

Augustus Edwin Smith, Warren, Ohio, Jefferson Medical College of Philadelphia, 1911 member of the Ohio State Medical Association on the staff of St Joseph's Hospital, aged 53, died, January 4, of heart disease

Francis Edwin Corey, Alhambra, Calif., University of Michigan Medical School, Ann Arbor, 1868, formerly health officer of Alhambra aged 87, died Dec 2 1933, of arteriosclerosis and cerebral hemorrhage

Luther H Clark, Kyle, W Va., College of Physicians and Surgeons Baltimore, 1892, superintendent of the Welch (W Va.) Emergency Hospital, aged 63, died suddenly, Dec 23, 1933, of cerebral hemorrhage

John Wesley Mosser, McConnellsburg, Pa., Medico-Chirurgical College of Philadelphia, 1899, member of the Medical Society of the State of Pennsylvania, aged 66, died, Oct 13, 1933, of heart disease

Robert Lee Raby, Gatesville, Texas, Tulane University of Louisiana Medical Department, New Orleans, 1891, member of the city council, formerly city and county health officer, aged 65, died Nov 19 1933

Arthur William Hubbard Wyoming N Y, University of Buffalo School of Medicine, 1887 health officer of the consolidated health district of Middlebury-Wyoming aged 69 died, Nov 23 1933

Asa F Goodwin, Louellen, Ky Kentucky School of Medicine, Louisville, 1902, member of the Kentucky State Medical Association, aged 55, died suddenly, Dec 25, 1933, of cerebral hemorrhage

Charles Louis Swan, Stoughton Mass Harvard University Medical School, Boston, 1894 for three years member of the school committee, aged 66, died suddenly Dec 31, 1933, of heart disease

Charles Alonzo Shoemaker, Lincoln Neb University of Nebraska College of Medicine Homeopathic Department, Lincoln, 1886, for many years county coroner, aged 72 died, Nov 29, 1933

Earl Eugene Heath, Advance, Ind Ohio Miami Medical College of the University of Cincinnati, 1910 served during the World War, aged 53, died, January 2, of a self inflicted bullet wound

Everett Henry Butterfield, Milwaukee Rush Medical College, Chicago, 1884 served during the World War aged 71 died, January 2, of hypertension and hypertrophic cirrhosis of the liver

James Elmo Mayne Winchester Mass University of Toronto Faculty of Medicine, 1926 aged 32 on the staff of the Winchester Hospital, where he died, Dec 26 1933, of pneumonia

Frank W Hayden, Pawtucket, R I Baltimore Medical College, 1901, member of the Rhode Island Medical Society aged 61, died, Nov 18, 1933, of lobar pneumonia and heart disease

Paul Richard Hess Reading, Pa, Jefferson Medical College of Philadelphia, 1929, aged 32 died, January 8 in St Joseph's Hospital, of a gunshot wound inflicted by a patient

James W Kincaid Catlettsburg Ky Medical College of Ohio, Cincinnati, 1880, past president of the Kentucky State Medical Association, aged 74, died, Dec 20 1933, of heart disease

Henry Allen King, New Iberia La Tulane University of Louisiana Medical Department, New Orleans 1889 member of the Louisiana State Medical Society aged 67 died Dec 8 1933

Claude Brantley Brookins, Gordon Ga University of Georgia Medical Department, Augusta 1912 served during the World War, aged 47, died recently of angina pectoris

Charles Burdick Cunningham, Warrensburg N Y Albany (N Y) Medical College, 1888 past president of the board of education, aged 73, died, Dec 17, 1933, of pneumonia

John Sherman Darnell, Talking Rock Ga Georgia College of Eclectic Medicine and Surgery, Atlanta 1893 aged 69 died, Oct 26, 1933, of chronic nephritis and cardiac hypertrophy

Judge Corey Kirkpatrick, Roll, Ind Indiana Medical College, School of Medicine of Purdue University Indianapolis 1907 aged 66, died suddenly, January 2 of heart disease

Rufus Maurice Musick, Delbarton, W Va, Eclectic Medical College, Cincinnati, 1916 served during the World War, aged 43, died, in December, 1933 of acute nephritis

George Johnson Rittenhouse, Glendale Calif College of Physicians and Surgeons Medical Department of Columbia College, New York, 1894, aged 60, died Nov 12 1933

Irving Culver Barnes Indianapolis Indiana Medical College, School of Medicine of Purdue University Indianapolis 1906, aged 49, died suddenly, January 8 of heart disease

Robert S Pardue, Riverside, Calif University of Louisville (Ky) School of Medicine, 1888 aged 77 died Nov 19 1933, of bronchopneumonia myocarditis and nephritis

John Tarleton Scollard Milwaukee Rush Medical College, Chicago, 1887, aged 77 died suddenly January 9 in the Columbia Hospital, of chronic nephritis and uremia

Scott Wolford Lau Philadelphia Jefferson Medical College of Philadelphia, 1899, aged 59 died Dec 17 1933, of heart disease at North Wildwood N J

J Francis Dunlap Manheim Pa, Jefferson Medical College of Philadelphia, 1875, aged 80, died, Dec 12 1933 of chronic myocarditis and angina pectoris

Jacob Tobias Pollock, Chelsea, Mass College of Physicians and Surgeons, Boston, 1913, aged 44 died Dec 28 1933, of tuberculosis of the kidneys and bladder

Ernest Spencer Case, Inglewood Calif Omaha Medical College, 1895, formerly member of the state legislature in Nebraska, aged 61 died Nov 25 1933

William Thompson Talbott Calexico, Calif, College of Physicians and Surgeons, Los Angeles, 1918, health officer of Calexico, aged 52, died, Nov 9, 1933

Charles W Hendrickson, Amherst Neb, Ensworth Medical College, St Joseph, 1908, aged 47, died, Nov 21, 1933, of angina pectoris and arteriosclerosis

John H McKibbin, Los Angeles Medical College of Indiana, Indianapolis, 1887 aged 85, died, Dec 19, 1933, of chronic myocarditis and nephritis

George Raymond Wells Monroe Ga, Atlanta Medical College 1892, on the staff of the Walton County Hospital aged 65 died, Nov 26, 1933

William Hutchinson Morse, Seattle, Medizinische Fakultät der Universität Leipzig Leipzig, Saxony, Germany, 1901, aged 59, died Dec 21, 1933

John Henry Groshans, Baltimore, University of Maryland School of Medicine Baltimore, 1894, aged 63, was found dead, January 2, of heart disease

William James Garbutt, Milwaukee (licensed, Wisconsin 1900), aged 86, died, Dec 11, 1933, of gangrene of the lower limbs and arteriosclerosis

Charles Andrew S Sims, Kansas City Mo, St Joseph Hospital Medical College 1882, aged 72, died, Nov 13, 1933 in Long Beach Calif

Wilberforce Clarkson Doy, Boston, Homeopathic Hospital College, Cleveland, 1872, aged 82 died, January 3 of chronic myocarditis

Frederick Boyd Tapley, Marysville Calif Hahnemann Medical College of the Pacific San Francisco, 1906, aged 50, died Nov 27 1933

Cyrus R Cox, Lynn, Ind Medical College of Indiana Indianapolis 1878 aged 80, died, January 6, of myocarditis and arteriosclerosis

Montague J Lowry Meridian Miss Hospital College of Medicine, Louisville, 1879, aged 76 died, Dec 20 1933 of heart disease

Lucy Barney Hall Church, Dedham Mass, Boston University School of Medicine 1893 aged 67, died Dec 28, 1933, of heart disease

Emma Virginia Boone, Philadelphia Woman's Medical College of Pennsylvania, Philadelphia, 1880, aged 72, died, Nov 12, 1933

Orrin Dayton Kingsley, Rochester, N Y New York Homeopathic Medical College, New York, 1874, aged 84, died Dec 9, 1933

John F Dismukes Milton, Tenn University of Georgia Medical Department, Augusta 1889, aged 81, died suddenly, Dec 1, 1933

Ross H Shepler, Green City, Mo, Keokuk (Iowa) Medical College 1898 aged 63 died Dec 16 1933, in a hospital at Kirksville

John Logan Reynolds, Blackford Ky Kentucky School of Medicine Louisville 1898, aged 71, died Dec 20, 1933, of tuberculosis

Richard J Kenna Brooklyn Baltimore University School of Medicine 1901 aged 55 died, Dec 30, 1933, of cancer of the liver

William Bond Winkler, Fort Myers, Fla, Memphis (Tenn) Hospital Medical College, 1881 aged 76, died, Oct 31 1933

John Scott McBride Seattle Detroit College of Medicine, 1897, city health commissioner aged 59, died, Nov 15, 1933

Thomas Cooper Wilson, Glen Ridge, N J, Jefferson Medical College of Philadelphia 1895, aged 63 died, Nov 18 1933

Michael Nolan, Haverhill Mass, Vermont Medical College Rutland, 1889, also a druggist, aged 81, died, Nov 19, 1933

William Franklin Miranda, Walkerton Ind, Medical College of Ohio Cincinnati, 1877 aged 82, died Dec 24, 1933

Oscar John Carlin, Pottsville Pa, Medico-Chirurgical College of Philadelphia 1901 aged 57, died, Dec 31, 1933

Alcinous Smyth, Kingsville Texas, Chaddock School of Medicine, Quincy Ill, 1884 aged 82, died Nov 23, 1933

Samuel Madison Watson, Alton Ill (licensed, Illinois 1883) aged 88 died Nov 24 1933 of hepatic carcinoma

Samuel S Korngut, Elizabeth N J New York University Medical College 1898 aged 62 died Dec 4, 1933

Correspondence

ABORTION OR FETICIDE VS HOMICIDE

To the Editor—I thank you for your fair review of my book "The Law Against Abortion" (THE JOURNAL, January 6, p 71). You have let me off rather easily. Of course, I did not expect the reviewer of THE JOURNAL to agree with my views. There are some points, however, in the review on which I should like to be permitted to offer some comments.

Your reviewer places feticide, infanticide and homicide on exactly the same level. "Why he would tolerate feticide and forbid infanticide and other forms of homicide is not apparent," he writes. May I remind your readers that when I initiated the propaganda for birth control thirty years ago, the same thing exactly was said about the prevention of conception that is now being said about abortion. Many physicians at that time and some physicians even now place prevention on exactly the same level as murder. Perhaps in twenty-five years from now the views on abortion in certain cases will also undergo a radical change.

Your reviewer states that he is in doubt whether my book is intended for the medical or the lay reader. If one wishes certain reforms to be brought about, one must appeal to the laity. During the first years of my birth control propaganda, I appealed to the profession exclusively. The response until I succeeded in converting Dr. Abraham Jacobi to the importance of birth control, was slow. Had the birth control propaganda been limited to the profession alone, the movement would not be as far advanced as it is now. And if a modification of the abortion law is desired, it is necessary to enlist the cooperation of the intelligent laity.

Your reviewer writes, "Laws forbidding the inducing of abortion have not interfered, so far as is known, with the inducing of a therapeutic abortion to save the life of any woman whose life has been endangered by pregnancy, nor are they likely to do so." That is true, and I quite agree with your reviewer. But I claim that there are conditions in which pregnancy is as great a calamity and if unreheved may have as disastrous consequences as are apt to follow tuberculosis, nephritis or acute cardiac disease.

WILLIAM J. ROBINSON, M.D. New York

LOCAL APPLICATION OF HEAT AND COLD

To the Editor—In the editorial on the internal temperature of the body (THE JOURNAL Dec 2, 1933, p 1805) dealing with the studies of Hepburn and his collaborators of Philadelphia, the interesting observation is recorded that the application of heat or cold to the skin does not cause any alteration in the temperature of the corresponding part of the intestine and it is concluded therefore that the production of any reparative benefit by local application of heat or cold is conjectural. While the observation is no doubt correct, the conclusion seems unwarranted. There are effective segmental nervous connections between the skin and the viscera. Wernicke showed that a disease condition of the viscera will give rise not only to hyperesthetic zones in the skin but to changes in vascularization which can be objectively demonstrated and in experiments on fishes in my laboratory he demonstrated the existence both of sympathetic axon reflex paths between the skin and the viscera and of true spinal reflexes. In a segment of the eel with an intact spinal cord strong stimulation of the skin will cause hyperemia of the corresponding part of the intestine, while after destruction of the spinal cord the same stimulus will cause ischemia through the axon reflex path. In

human beings, Ruhmann inserted a laparoscope through a small incision and directly observed that the application of heat (46 C) to the skin of the abdomen brought about after four to six seconds latency a reflex hyperemia of the corresponding part of the intestine. There can be little doubt that this reaction is responsible for the benefit observed in a number of cases after application of thermal stimulation to the skin, even though the increased blood flow in the case of an internal organ cannot produce any rise in temperature.

The reflex mechanisms concerned are discussed and the literature is cited in my book "The Anatomy and Physiology of Capillaries," lecture VII, Yale University Press, 1929.

AUGUST KROGH, Copenhagen

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted, on request.

ARTIFICIAL IMPREGNATION

To the Editor—I am desirous of receiving information concerning the most frequently used and most successful method of artificial impregnation which I have been asked to administer by a patient with the following history: A woman, aged 37 years, in good physical condition had her first pregnancy in 1924. The pregnancy was complicated by eclampsia, pyelitis and nephritis and a stillborn baby was delivered at term causing a complete perineal laceration which was stitched at once. Puerperal infection forced the patient to bed for eight weeks and left a small vaginal rectal fistula. A nephritic condition persisted for about one year. A second pregnancy occurred in 1929 without any complications outside of a small amount of albumin during the last four weeks. One stitch was applied to the old fistula. The baby is living at this time and in good health. The mother has not been ill since that time, menstruates every twenty to twenty-five days (slightly irregular) and is very anxious to have another child. Could the fistula which noticeably discharges only following a laxative or could the lateral cervical laceration yet unrepaired seriously interfere with conception? If not, what artificial methods could be used to promote conception? What is the modern technique of artificial impregnation? How often should it be done? When is the most favorable time for it? What results may be expected? The husband has refused seminal examination. Is this considered necessary in such a case with the history of two previous conceptions? The husband is highly nervous probably as the result of hard mental work. What effect has general nervousness and hard mental work on the quality and secretion of the seminal fluid? Libido and orgasm are apparently normal with both husband and wife. Kindly omit name.

M.D. New Jersey

ANSWER—The rectovaginal fistula most likely plays no part in this patient's sterility and the cervical laceration, unless accompanied by cervicitis, is likewise of little etiologic significance. If however, there are evidences of infection of the cervix or of unusual heaping up of columnar epithelium on the portio accompanied by a profuse discharge this condition of the cervix may be a responsible factor in the patient's infertility. If the cervix is moderately abnormal, it can usually be corrected by means of the electric cautery, but if the damage is extensive a plastic operation may have to be performed. Before artificial impregnation is resorted to, it is highly desirable to examine the husband's semen, even though he was capable of fertilizing two ova previously. Even if the semen specimen shows actively motile spermatozoa, artificial insemination should not be practiced if there are evidences of infection in the semen, such as pus cells, for there is danger of infecting the uterus. Furthermore semen should not be injected into the uterine cavity until it has been ascertained that the patient's fallopian tubes are patent. This can readily be determined by means of the Rubin test.

On empirical grounds it may be advisable to perform a dilation and curettage before resorting to insemination, because not infrequently this operation is followed by pregnancy in previously sterile women. It is simpler and less troublesome than artificial insemination, which must be carried out many times. Both husband and wife must be told that attempts to impregnate the woman artificially will most likely have to be carried out many times over a period of months. Even then there may not be a successful result. The most favorable time to carry out this procedure is the ten days midway between the first day of one menstrual period and the first day of the next expected menses. The ideal time for conception to take place is at the time of ovulation, which usually occurs about

midway between menstrual periods. Since ovulation may occur any time from the tenth to the eighteenth day of the cycle and since the exact day for any particular woman cannot as yet be determined, it is advisable to inseminate three, four or five times during these ten days. The husband should be instructed to wash the penis with soap and water before coitus and the wife should take a sodium bicarbonate or salt water douche. There are four methods of procuring semen: masturbation, coitus interruptus using a small jar, coitus condomatus and natural coitus followed by aspiration from the vagina. The most aseptic method and one that is not too obnoxious is to have a small sterilized jar at hand before intercourse. At the time of the orgasm the semen should be ejaculated into this jar. The latter should be kept moderately warm and immediately brought to the physician's office. The patient is placed in the lithotomy position as for a vaginal examination and the vagina is carefully cleansed. The cervix is exposed with a bivalve speculum and the external os is further cleaned. However, it is not advisable to apply any antiseptic because this may destroy the sperm that are to be injected. The cervix is grasped with a tenaculum, and a uterine cannula is gently inserted into the uterine cavity. The semen in the jar is drawn up into a luer syringe and 1 or 2 cc of it is deposited in the uterine cavity very slowly. If the semen is injected too quickly, it will be expelled by uterine contractions. After the injection is performed the cannula should be removed slowly and the patient should lie quiet on the examining table for about thirty minutes. It is best to examine some of the semen just before each insemination to make certain that it is satisfactory. The results of artificial insemination cannot be stated with any degree of certainty because in this country at least not many individuals have practiced it. Abroad especially in France and Russia artificial impregnation has been practiced with a fair degree of success. Excessive nervousness and worry do play a part in deficient spermatogenesis but probably not enough to produce sterility over a period of years.

DIAGNOSIS OF IFU ULCERS

To the Editor—Please discuss this one. My patient is a happily married matron of 60 years. She has five children living and three dead at 7 years, 4 years and 6 months. None were premature. The Wassermann reaction is negative. She is thin, always slightly sallow and not markedly anemic. There is no pathologic condition except the present complaint and a chronic symptomless and obstinate colon infection of the bladder of five years standing, which might well be etiologic. In 1926 she had a small ulcer on one ankle. This healed slowly and did not return until early in 1931 when a similar one developed. Since then she has never been entirely free from fresh and healing ulcers. At one time these nearly banded both legs. They occur only from the middle part of the leg to the malleolus on both legs indifferently but nowhere else on the body. They recur irregularly, almost always at a new point and anywhere around a leg back or front. The ulcers vary in size from one eighth inch to several square inches and are irregularly rounded involving the whole skin yet not punched out. In the middle of one recently healed ulcer about 2 inches of the anterior tibial tendon sloughed out with the skin. New ulcers occur right beside or even partly superimposed on old healing ones progressing undisturbed to complete healing next to the fresh slough. The sequence of occurrence is as follows: Within a few hours a coalescent group of dark almost black clots about 2 mm in diameter appear under the skin as if the common supply of a group of capillary vessels were thrombosed. In the next few days or weeks this dark area sloughs out and the ulcer remains healing slowly after the manner of a varicose ulcer painful but only during the period of sloughing out. During this period the ulcerations ooze blood slowly not as a hemorrhage. When healing begins bleeding ceases. No pus collects unless there is secondary infection. This is kept in abeyance by constant cleanliness and antiseptic usually wet dressings. The problem is therefore rather prevention of new than healing of old lesions. Sodium iodine and mercury by mouth have been given. Mercury has been applied locally—the whole spectrum of chromatic applications. I have used salves, wet dressings and dry. Rest with elevation, atropine, insulin, light and heat therapy or what have you—nothing to date has made any decisive impression. The patient's general condition declines with imperceptible slowness. The general circulation remains unimpaired. The feet are now and then swollen. There are no varicose veins. I recognize no signs of Raynaud's disease or of endarteritis obliterans. Please omit name.

M D New York

ANSWER—A diagnosis of the condition described cannot be made. One would have to exclude primary or severe secondary anemias, leukemias of all types and other states leading to cachexia, as such patients may show the picture of "malum terebrans," rapidly spreading confluent areas of cutaneous gangrene. One would have to know whether the appearance of these gangrenous patches is preceded by general malaise, nausea and increase in body temperature, as these symptoms might suggest multiple, neurotic gangrene or Kaposi's gangrenous zoster. This lesion is probably on a neurotrophic basis and follows the course of the peripheral nerves. Erythema multiforme, nodosum and induratum are localized patches of

induration, which ulcerate and heal but the element of slough is not recalcitrant. Mycosis fungoides and Kaposi's sarcoma are slowly progressive malignant conditions but may heal locally and recur elsewhere. It is most unlikely that the patient is suffering from any of the peripheral circulatory disturbances or from any type of purpura, as the local lesion would not be apt to slough and heal again.

Multiple areas of gangrene may also occur as a result of infections, such as symbiosis of streptococcus with *B. welchii* or the symbiosis of a spirochete with a vibrio as in Vincent's gangrene. Infection with a diphtheria bacillus may also produce such areas.

Finally, one would want to know whether there is a persistent induration with lymphatic and venous block at these ulcerated areas, and whether or not because of the interference with venous and lymphatic circulation, this condition is self-perpetuating.

It would be futile to speculate on any form of treatment or prevention so long as the diagnosis is not made. The experienced clinical eye may determine more than pages of textbook knowledge could offer.

TONIC NEURONITIS OR MYELITIS OF PREGNANCY

To the Editor—Mrs. D. B. aged 38 after being pregnant six months developed swelling of the lower extremities and slight impairment of vision. At eight months the urine was loaded with albumin, the blood pressure was 210 systolic 130 diastolic and vision was quite markedly impaired. With the usual dietary and general treatment and with rest in bed the patient improved during the following two weeks the albuminuria diminished and the blood pressure came down to 180 but the visual disturbance grew progressively worse. September 1, two weeks before the expected time the patient had an uncomplicated labor and a live baby boy was delivered spontaneously. Forty-eight hours after parturition the patient became almost totally blind, developed a spastic paraplegia of both lower extremities (increased reflexes, Babinski loss of abdominal) and paralysis of both the urinary bladder and the rectum. The upper extremities and face were spared. The blood pressure remained in the vicinity of 180/120 and the urine continued to have a specific gravity between 1.006 and 1.008 with the presence of albumin. No casts were present. The blood examination September 28 revealed hemoglobin 60 per cent, red blood cells 3,310,000, white blood cells 23,200, polymorphonuclears 84 per cent, lymphocytes 11 per cent, mononuclears 5 per cent, nonprotein nitrogen 75 mg per hundred cubic centimeters. The blood Wassermann reaction October 7 was negative. Examination of the fundi showed the optic disks to be clearly defined. The retinal vessels over the remainder of the fundi were more or less obliterated by a grayish white exudate. The pupils were dilated and equal and did not react to light. In the past four or five days vision in the right eye has improved somewhat and the patient is able to move both lower extremities a little. The edema in the lower extremities is quite marked as yet. The patient had two other pregnancies, one eleven years ago but also associated with albuminuria and disturbance of vision and one eight years ago resulting in a stillborn child. I believe the patient has a nephritic type of toxemia resulting in cerebral hemorrhage and spastic paraplegia due to the added strain of labor. What do you believe is the diagnosis and where do you believe is the likely neurologic lesion? Kindly advise also as to prognosis and suggestions in treatment. Please omit name.

M D Michigan

ANSWER—The symptoms described in this case are most likely the direct result of the severe toxemia which the patient had. The syndrome has been called various names, chiefly polyneuritis, toxic myelitis of pregnancy and peripheral neuritis. Berkwitz and Lufkin (*Surg Gynec & Obst* 54:743 [May] 1932) reported four cases of this condition occurring during pregnancy and called it toxic neuronitis of pregnancy, because the nerve cells are involved as well as the peripheral nerves. The syndrome is usually observed in the first trimester of pregnancy after severe vomiting and it is not certain that the toxic symptoms which appear in the nervous system after delivery have the same origin as those which manifest themselves during pregnancy. In most of the cases that occur after delivery, infection and injury to the sacral plexus are noted. However in the present case the labor was uncomplicated and since the symptoms appeared only forty-eight hours after parturition, infection is probably not a factor in the paralysis. It is generally believed that the symptoms are due to auto-intoxication but the exact type of toxin involved is unknown. The mortality of the cases that occur during pregnancy is about 25 per cent, but this can be reduced considerably by interrupting the gestation early. If there is recovery in advanced cases, the paralysis may not clear up completely, because the nerve cells are often destroyed. Since in this case there is some improvement every effort should be made to institute regular active and passive movements to bring about further improvement and to prevent contractures of the extremities.

Whereas the paralysis observed in this case is rare, amaurosis is not uncommon in severe cases of toxemia of pregnancy especially in those with advanced chronic nephritis. The prognosis of the blindness is usually favorable for there is almost com-

plete recovery in most cases. There is, however, no specific way of hastening the recovery of the eyesight.

The diagnosis of cerebral hemorrhage is not correct for this patient. Such a hemorrhage could not produce the symptoms described without involvement of other parts, such as the face or upper extremity. Furthermore, the hemorrhage would have to be bilateral to account for the paralysis of both lower extremities. A type of hemorrhage that could cause the paralysis of the lower extremities with involvement of the bladder and rectum is a hemorrhage or thrombosis in the middorsal region of the cord. This, however, is highly speculative.

An effort should be made to build up the patient's resistance with special care to overcome the secondary anemia. A special diet must be prescribed. Because of the past obstetric history, the patient should be given specific instruction concerning contraception, as another pregnancy would be most hazardous.

UNDESCENDED TESTES

To the Editor—A man aged 25 married one year complains of sterility. Examination shows both testes undescended and situated in the inguinal canals. They are about one third the normal size. The scrotum is very small. The semen shows complete absence of spermatozoa. Sex desire and accomplishment are normal. The secondary sex characters are normal. Kindly discuss the prognosis following operation to bring the testes down into the scrotum with special reference to chances of the testes remaining in the scrotum and chances of securing spermatogenesis. Also discuss the possibility of securing descent of the testes and spermatogenesis through the use of anterior pituitary sex hormone. Kindly omit name.

M D New York

ANSWER—The operation for undescended testicles should be performed before puberty and the chances of causing the appearance of spermatozoa after operation in a man of 25 are slim indeed. It is true that there have been cases in which spermatozoa have been found after operation in an adult but in none of these cases is there any record of the absence of spermatozoa before the operation. In other words, such cases were probably rare cases in which the spermatogenic function persisted in spite of the abnormal position of the organs. In the case under consideration, spermatozoa are not present and it is extremely doubtful whether they will be present after the operation.

The chances of the testicles remaining in the scrotum after operation are good provided the operation is performed by one of experience in this regard. The Torek operation, described by Torek in the *New York Medical Journal*, Nov. 13, 1909, seems to be satisfactory as regards permanent results.

Many attempts have been made to cause the descent of the testicles by the use of injections of various endocrine preparations, but most of these have been unsuccessful.

LUPUS ERYTHEMATOSUS

To the Editor—I have a patient whom I have been treating for lupus erythematosus. I have been giving him bismuth salicylate 2 grains (0.13 Gm.) every four days for thirty-four doses. He has shown no apparent benefit so far. Would there be any value in giving him any more bismuth salicylate? About four years ago he received a course of gold sodium thiosulphate which cleared up his condition entirely but he showed some reaction from the gold. About two months after discontinuance of the gold the condition reappeared. Would he be more apt to show a reaction on repetition of the gold? How long is the usual treatment before any favorable action is shown if any benefit would appear?

A F JENSEN M.D., Rugby N D

ANSWER—The patient has already had more than 4 Gm of bismuth salicylate which exceeds the amount generally considered the maximum for a course. It is not likely that any benefit will be obtained from further use of the drug at this time and no more should be given at any rate for at least a month. If gold therapy is contemplated it should not be started until an opportunity has been given for elimination of the bismuth. A careful check on the condition of the kidneys is particularly important during the treatment of lupus erythematosus with any heavy metal. When gold therapy is begun more than ordinary care should be exercised because of the history of slight intolerance during the previous course but sensitization to the drug is not inevitable. It may be well borne at this time. The dosage in the former course may have been too high.

No statement of the length of treatment necessary before good results appear can be made. Lupus erythematosus is a most capricious disease responding sometimes to a few doses of the gold preparation at other times showing improvement only after a long course or not at all. The general opinion at present favors small dosage 0.1 Gm being considered the maximum even though the results are slow to appear. A course of twenty injections is not unusual.

It should not be forgotten that there are older methods of treatment of this disease that frequently succeed when the heavy metals fail. Application of tincture of iodine until the skin becomes dry and somewhat irritated, application of a mixture of one part phenol to four parts of lactic acid painted on once every five days until irritation appears, freezing with carbon dioxide snow and mild radium exposures, are indicated according to the chronicity of the lesions. Local treatment is indicated during the rest period advised for the case under discussion.

LOSS OF BEARD AFTER BULLET WOUND

To the Editor—I had as a patient about a month ago a white man aged 39 who had been shot through the head with a 0.22 caliber bullet. The bullet entered the left side of the head just below and posterior to the junction of the external angular process of the frontal bone and the zygoma. The bullet crossed downward and to the right fracturing the floor of the bony orbit chipping the posterior wall of the left antrum passing through the throat and lodging in the right side of the neck about the angle of the jaw in which site it was extracted. At the time of the injury some numbness was noticed about the left side of the face this gradually disappeared but sensory sensation has not returned to normal in several areas over the left side of the face which areas can be circumscribed by the use of a pin. The patient also complains of a numbness of the seventh and eighth upper molars. About two weeks ago he noticed that the beard on the left side of his face had practically ceased to grow and that much of it was falling out. The loss of hair extended somewhat up on to the temple and over the left ear. There was a sharp line of demarcation at the chin and upper lip and with a day's growth of beard the difference between the sides of the face were very noticeable. Is it possible that the loss of the beard may be due to the injury of some of the branches of the fifth cranial nerve if not what explanation can you give for its loss? What do you consider the prognosis in this case? There was at no time any motor disturbance of the facial muscles the trouble having been at all times strictly sensory in character.

O J HANSEN M.D. Redding Calif

ANSWER—Growth of hair depends on two factors, the vasomotor activity of the skin and the trophic nerve supply to the skin. The sympathetic nerve supply to the skin of the face passes out from the ram communicantes of the first and second thoracic segments and then along the branches of the external carotid artery. It is inconceivable that these fibers could have been interrupted. The question then is whether the trophic nerve supply to the skin could have been interrupted. The region described as affected by loss of hair is supplied by the maxillary division of the trigeminal nerve except the chin, which is supplied by the mandibular division. If the whole maxillary nerve had been injured, the patient would have complained of numbness in all the upper teeth on that side. Consequently it must be assumed that only certain branches were injured. The numbness of the last two upper molars indicates that the posterior superior alveolar branch was injured. Probably the sphenopalatine ganglion did not escape, and near it the zygomatic nerve leaves the maxillary nerve and divides into two branches, the zygomaticofacial and the zygomaticotemporal which supply the skin over the area in which the patient has lost his hair. It is interesting to note that after section of the sensory root of the trigeminal nerve no difference in the growth of hair on the face has been noted. On the other hand, after removal of the inferior cervical and first thoracic sympathetic ganglions the hair tends to grow more strongly on the side operated on. The prognosis for the return of hair is probably good, as the face is so well supplied with sensory and trophic fibers.

ENDOCRINE IMBALANCE IN MENOPAUSE

To the Editor—A white woman aged 45 who is entering into the menopause, was seen in a state of excitability and almost collapse. Her pulse was 112 blood pressure 160 systolic 150 diastolic. She complained of a feeling of pressure in the chest particularly the pericardium and a paralyzed feeling down the left arm. May the endocrine imbalance of the menopause be responsible for such angina-like circulatory disturbances? Please omit name.

M D Wisconsin

ANSWER—The manifestations exhibited by this patient may all be explained by the changes that take place in the body at the time of the menopause. Tachycardia is not infrequent and this is usually due to some change in the nervous system. It may, however, be due to a mild degree of hyperthyroidism which results from the cessation of ovarian activity. Excitability is common during the menopause especially in those women who were nervous before the change of life took place. In many women there is an elevation of the systolic blood pressure at the menopause caused most likely by instability of the vasomotor system. Usually the diastolic pressure is not increased commensurately with the systolic and hence the pulse pressure is increased. The sensation of pressure in the chest and the paralyzed feeling may be nervous or vasomotor in origin.

SEXUAL FRIGIDITY

To the Editor—Mrs. P. C., aged 34 married four years has never had any children and no serious illness. She had two self-induced abortions about two and three years ago each at about two months. She had no bad after effects and in a few weeks menstruation became normal. She has never had a gonorrheal infection but has had a mild leukorrhea during the last eight or ten years. The patient began menstruating at about the age of 12 and has always been regular although she has had considerable pain during the first day or two. The flow lasts about four to six days. The heart, kidneys and bowels are normal. The appetite is good, the weight is constant at about 165 pounds (75 kg.). She uses alcoholic beverages moderately. About a year ago she had an attack of what she thought was acute appendicitis and went to her doctor who diagnosed it as such and operated on her. He told her that he removed the appendix which was somewhat diseased and that he also had to remove both her tubes which were badly diseased and that her ovaries and other organs were normal. She says that she and her husband who is 44 years old and in good health but with a history of gonorrhea when 18 years old have had sexual intercourse from five to ten times a month until her operation one year ago. She says that she was always passionate and that she frequently experienced from three to seven orgasms during one act of coitus which often lasted from thirty to forty five minutes before her husband would have an orgasm. Following her operation they have had coitus less frequently because she has lost all desire for it. She says that even though the act is prolonged she has not experienced even one orgasm in the last year. She has not told her husband of this loss but pretends to have them as before. She has come to me for treatment and advice. Vaginal and bimanual examination does not show anything abnormal. The clitoris and labia are normal. I have known this condition to exist in a few women after normal confinements but it has gradually disappeared in each case. I should like to know the cause of this condition and what treatment can be recommended. Please omit name.

M. D. North Dakota

ANSWER—If only the tubes and appendix had been removed there is no reason, except perhaps a psychic condition, for the patient to experience any difference in her sexual passion. The query does not state whether or not there has been any menstruation since the operation, if not it may be that the ovaries were also removed and this would account for the lack or diminution in sexual passion. In case menstruation has continued this possible reason may be excluded. It often happens that, after any severe operation on the female genitals, especially when permanent sterility must result there is a temporary loss of sexual desire. Treatment with estrogenic substances may be tried as well as the sensitization of the vaginal mucous membrane with the galvanic-sinusoidal current as described by Huhner (*Medical Times* 60 237 [Aug.] 1932).

MIGRATING PHLEBITIS

To the Editor—A woman aged 64 has been under observation for several months for what appear to be recurrent attacks of phlebitis. Her past history is essentially negative. Her present illness dates back about four months beginning with slight pain in the left arm and followed by great swelling of the entire limb twelve hours later. The swelling subsided in about one week and since that time all her limbs have been involved at various times and at present both lower extremities and the left arm are greatly swollen and tender. All the attacks appear similar. The first inkling of any trouble is that the patient complains of pain along the course of one of the superficial veins in one of her extremities. A few hours later the area about this vein is painful and tender with redness and heat along its course and the vein can be palpated as a hard tender solid cord with occasional nodules on it. About twelve hours later the extremity begins to swell and about twenty four hours after the onset the entire limb is about twice its normal size, extremely tense and very painful. During one attack of phlebitis in the right lower extremity the patient developed a sudden severe pain in the right side of the chest with a friction rub and a few moist rales over the painful area. This was diagnosed as pulmonary infarct. Her temperature during these attacks has usually been normal the highest at any time being 100.6 F. Besides the recurrent involvement of the extremities the patient has complained of constant severe epigastric pain with loss of appetite and some nausea but no vomiting. Physical examination otherwise has been essentially negative. The blood pressure is 108 systolic 70 diastolic. Urinalyses have been negative. The blood count shows a mild secondary anemia, the platelet count averages about 300,000, the coagulation time is four minutes, the bleeding time is three minutes. Repeated blood cultures have been negative and blood chemistry was negative except for a slight rise in nonprotein nitrogen which was 45.1 mg. per hundred cubic centimeters. The stools were repeatedly negative for blood or parasites. Stomach analysis showed a slight decrease in free hydrochloric acid. A gastro-intestinal series was negative except for slight gastroptosis. The patient has been on alkaline powders and given sodium citrate intravenously to the point at which alkalosis was produced but she has gone along having recurrent attacks of this peculiar type of phlebitis. Any suggestions regarding diagnosis and treatment will be appreciated. Kindly omit name and address.

M. D. New Jersey

ANSWER—The description of the case would suggest the diagnosis of a migrating phlebitis, characterized by recurrent attacks of phlebitis in different segments of the venous system.

It is a low grade infection, to which the venous intima is specially sensitized and may affect all veins of the body. Thus it is not too far fetched to suggest that the severe epigastric pain with nausea and loss of appetite may be an identical involvement of certain segments in the portal system. Thrombophlebitis of the splenic vein would manifest itself in a splenomegaly with gastric or esophageal hemorrhages, while mesenteric thrombosis produces severe intestinal colics, with bloody or mucous stools.

Blood cultures are usually sterile between attacks, but during an acute attack, particularly if it is accompanied by a chill a positive blood culture may be obtained. When routine blood cultures fail, a competent bacteriologist may still obtain positive results by eliminating many inhibiting factors. Another possibility is the excision of a small superficial inflamed segment, which should be subjected to competent bacteriologic study. In the possession of a positive culture, a formaldehyde killed autogenous vaccine offers the best therapeutic approach. A large number of intravenous antiseptics, such as gentian violet, mercurochrome and acriflavine base have been suggested. Of these, acriflavine base seems worthy of trial. The dosage is 50 cc. of a 1:1,000 solution and may be repeated every few days. While the process is undoubtedly on an infectious basis, thus necessitating a careful search for initial focus, a definite allergic element that is a hypersensitivity of the intima to this particular infection is quite likely. The treatment of the acute stages may be best accomplished by small doses (from 100 to 125 roentgens) of x-rays with deep filtration. The prognosis of such cases is unpredictable, a pulmonary embolism being often the cause of death. Sometimes however the process gradually subsides, leaving residual symptoms of venous obliteration.

SMALL PENIS

To the Editor—I have under my care a man aged 28 normal in every respect and well developed except for the genitalia. The penis is undersized about 1½ inches long although the testicles are normal. He has developed an inferiority complex to such an extent that it is affecting his general health. He states that he derives no satisfaction from sexual intercourse, because of the psychic mental disturbance that he cannot satisfy the opposite sex. He has tried developers and "messengers" without my recommendation but without any success. He is willing to submit to any kind of a plastic operation if it is possible to alleviate his condition. Kindly inform me of the nature and danger of this operation also of any injection or serum that may be helpful in his case. Kindly omit name and address.

M. D. Pennsylvania

ANSWER—There is no plastic operation which can have the slightest effect on this condition and no injection treatment can help. The penis has two functions, urination and coitus. If both these functions can be accomplished, the patient should not worry. In other words, no matter how small the penis may be in the flaccid state as long as during erection it gets large enough to enter the female to her and his complete satisfaction nothing more should be expected. The trouble with these patients is that when exposed in a male swimming pool or similar institution they are terribly ashamed of the small size of the penis.

PERSISTENT BILIARY FISTULA

To the Editor—I have a case of persistent biliary fistula following a gallbladder drainage for a suppurative cholecystitis. My patient convalesced very nicely after the drainage was done and the wound closed in about six weeks but opened again in a few days and drained a small quantity of bile since which time it has been closing and opening every two or three days emitting a small quantity of bile. Just before it opens each time the patient has a feeling of uneasiness and fullness in the gallbladder region and as soon as the fistulous tract opens and releases the bile drainage there is relief for a few hours. The patient feels fine in every other way there are no clay colored stools and he eats and sleeps and has regular bowel evacuations. I am writing to ask what the latest treatment for this condition is. Several authors are of the opinion according to all I can find on the subject that these conditions should be left alone and that the patient must go through the years wearing a dressing. It would seem to me that an attempt could be made to close this fistulous tract unless the lumen of the common duct will not take care of the biliary secretion. I have found the suggestion that in these suppurative cases there is a fibrosis which takes place that causes a partial obstruction to the flow of bile through the common duct.

E. L. HUSTEAD, M. D. Scribner, Neb.

ANSWER—Failure to obtain spontaneous closure of a gallbladder fistula following cholecystostomy is almost invariably due to obstruction of the cystic duct. The presence of bile in the fistulous drainage indicates partial or intermittent obstruction. Suppurative cholecystitis without stones is rare. Therefore, the presence of a stone impacted in the neck of the gallbladder or in the cystic duct should be assumed. Such a fistula has no relation to pathologic changes of the common

duct It is obvious in this instance that there is no obstruction of the common duct and, since there is no colic, probably no stone Suppurative cholecystitis treated conservatively (cholecystostomy) should in most instances be followed by a cholecystectomy When a fistula persists, nothing but cholecystectomy will effect a certain cure

DETERMINATION OF pH VALUE OF SWEAT

To the Editor—Has the determination of the pH value of the sweat by indicators applied to the skin been accepted as being of scientific value in the diagnosis of disease?

WILLIS P. BAKER M.D. Santa Ana Calif

ANSWER—The determination of the hydrogen ion concentration of sweat has not as yet been shown to be of any practical value in diagnosis The perusal of a dozen current laboratory manuals reveals no consideration given to sweat None of a dozen internists extensively engaged in clinical medicine and investigation when questioned stated that they ever had occasion to desire such information The laboratory connected with a large clinical and research institution reports that such determinations are requested on the rarest occasions, and then only for research purposes

Such determinations are of interest in physiologic studies on water balance and acid base equilibrium of the body and also in certain skin diseases The pH of sweat is reported to be altered at times in certain rheumatic and other diseases

The following references are from recent literature

- Cornbleet Theodore Self Sterilizing Powers of the Skin V Are They Endowed by the Surface Acid? *Arch Dermat & Syph* 28 526 (Oct) 1933
 Marchionini A Hydrogen Ion Concentration of Perspiration *Klin Wchschr* 8 924 (May) 1929
 Mayr J K The Reaction of Human Perspiration *Dermat Ztschr* 60 413 (April) 1931
 Marchionini A Physicochemical Investigations of Eccrine and Apocrine Perspiration *Schweiz med Wchschr* 58 1055 (Oct 27) 1928
 Lusher Barney Human Sweat as a Culture Medium for Bacteria *Arch Dermat & Syph* 18 276 (Aug) 1928
 Whitehouse A G R Further Investigation of Sweat and Sweating *Proc Roy Soc London B* 108 326 (June) 1931

EARLY DIAGNOSIS AND TREATMENT OF SYPHILIS

To the Editor—I wish to protest against the advice given to M.D. New York (THE JOURNAL August 26 p 731) Syphilis can be contracted only through an abrasion and only a small percentage of those exposed ever become infected Therefore your advice to give arsphenamine before any symptoms develop condemns the person to a life of misery and worry thinking he has syphilis with no means of ever being certain Your advice is the same that has been condemned in regard to lesions on the penis in which spirochetes cannot be found It is unfair to the patient to subject him to worry expense and danger of arsphenamine treatment on the mere supposition that he may have contracted the disease

GEORGE R. LIVERMORE M.D. Memphis Tenn

ANSWER—The correspondent is right The statement that the other course waiting for a definite diagnosis before giving any treatment is much the wiser was not emphatic enough Some nervous patients however, are insistent on immediate action and if after having the matter explained to them they still insist maintaining that they will worry less and promising to remain under surveillance for the longer period the treatment may be used It is not to be advised otherwise

NUMBNESS OF ARM AND HAND

To the Editor—A man aged 40 a robust farmer has had numbness (duration of four months) of the left arm and hand occurring when he drives a car or when he is milking and at other times during the day He awakens with the part asleep I have examined him carefully checking every item in the periodic health examination form and the results are negative except that there is atrophy of the right testicle following an attack of mumps and the left ear drum is perforated I have sent the blood for a Wassermann test The patient is taking potassium iodide 10 drops three times a day Please give me an idea as to diagnosis and recommend a treatment Do not publish my name

M.D. Washington

ANSWER—From the history one would judge that this patient in certain positions of his left arm has a pressure on the brachial plexus possibly pressure on the subclavicular artery

One of the things to be considered is the possibility of a cervical rib A picture should be taken of the cervical spine to rule this out and also a roentgenogram of the upper part of the chest to rule out any tumor mass The cervical rib, however, is the most probable cause of this trouble.

PEELING OF SKIN

To the Editor—A young woman who previously had suffered some skin disorder was given a face peel by a plastic surgeon Acid was used Now the patient's skin is very thin and sensitive to sunlight wind and the like What treatment would properly restore the skin texture and eliminate the subjective sensitiveness to sunlight? Please omit name

M.D. Chicago

ANSWER—This case illustrates the difficulty of using the peeling treatment without producing undesirable results For this reason it is little used, even by those skilled in dermatologic work Time will restore the texture and resistance of the skin, but in the interval it should be protected against the effects of light and wind by applications of cold cream and face powder All manipulation should be gentle, and the mildest superfatted soap should be used or oatmeal or bran water used in place of soap

VITILIGO

To the Editor—A patient has heard that Dr. Vilray Blair of St. Louis is having pronounced success in the treatment of leukoderma (vitiligo) and is anxious to learn more about the doctor and his method Can you give me any information concerning this?

H. J. HARRIS M.D. Westport on Lake Champlain N.Y.

ANSWER—The letter was referred to Dr. Blair, who writes Vitiligo is not a disease in itself and therefore any operative procedure such as skin grafting would be out of order No form of treatment is known that influences the condition Rarely cases clear up spontaneously and the skin assumes normal appearance

ABSORBABILITY OF CALCIUM FROM BOWEL

To the Editor—Would you please tell me which of the three calcium salts is absorbed from the intestine in the greatest percentage calcium chloride calcium lactate or calcium gluconate?

M.D. Illinois

ANSWER—There is no essential difference in the degree of absorption of these calcium salts as the first thing that happens when such salts enter the complex chemical mediums of the gastro intestinal tract is that the chemical law is obeyed which postulates that in a mixture of ions the least soluble combination will be formed and thrown out of solution The extent to which the resulting insoluble compound will be absorbed will depend on other conditions such as the prevailing hydrogen ion concentration, rather than on the original combination

CONSTIPATION IN A CHILD

To the Editor—Can you recommend a useful treatment for chronic constipation in a boy aged 6 years? Roentgen examination reveals a hypotonus and dilatation of the sigmoid Nearly all forms of ordinary laxatives have been tried as well as an abdominal belt The child will go several days without a bowel movement until an enema relieves the situation The presence of an anal fissure which becomes painful makes it nearly impossible to allow a long delay in evacuation Please omit name and address

M.D., New Jersey

ANSWER—Oil should be used from below and from above An enema should be used every evening to be retained over night until the oral dose of liquid petrolatum or its emulsion has resulted in the disappearance of all lumps from the stools The use of the oil should be continued until the anal fissure has been healed, if necessary by surgical means Then a constant attempt should be made to wean the boy of the necessity of using the oil by giving him a ballast-rich diet while gradually reducing the quantity and frequency of use of the medicine

EFFECTS OF COID IN BODY

To the Editor—Will you please give me information and references concerning gold poisoning? I am particularly interested in skin manifestations of gold poisoning and also in the possibilities of poisoning from metallic gold What are the possibilities of poisoning resulting from ingestion of pills said to be coated with 23 karat gold? This question has come up in connection with a medicolegal case

WILLIAM W. STRAUB M.D. Huntington W. Va.

ANSWER—Metallic gold such as is used for pill coating is absolutely harmless as none of it is absorbed the body not having aqua regia at its disposal to dissolve it Soluble gold salts such as gold and sodium chloride are much less toxic than the salts of most other heavy metals but are capable of producing gastro-enteritis and spinal paralysis When such salt is injected intravenously the toxic effects suggests arsenic poisoning

TORTICOLLIS DUE TO RUPTURE OF MUSCLE

To the Editor—I have under my care an infant now aged 7 months with a congenital torticollis due to a hemorrhage into or a rupture of the sternocleidomastoid muscle during birth. The tumor was first noticed when the child was 2 weeks old and is still present and about the size of a pigeon's egg. The muscle is still spastic. As yet there is no tipping or twisting of the head. There is no limitation of passive motion of the head but active motion is reduced about one third of the normal range. There is some flattening of the opposite occipital region due to the child's favoring the muscle during sleep. What may be done to correct the condition and when and at what age is surgical intervention indicated? Please omit name.

M D Ohio

ANSWER—"At 7 months or older little can be accomplished by conservative measures. However it may be worth while to give passive exercises to try to overcome the deformity. Most of these cases require surgical intervention. The age of choice is about 3 years. Before this age, the skin is more liable to give trouble from irritation by the orthopedic dressing or appliance. Some favor earlier operative measures to prevent the development of facial asymmetry but the asymmetry that develops in a child up to 3 years gradually disappears after the operative correction."

HEAD ROLLING OF INFANTS

To the Editor—I call attention to a remarkable feature—a feature suggesting a clue to treatment—of the case of head rolling, described in Queries and Minor Notes in THE JOURNAL Nov 18 1933 page 1661. This feature is that the head rolling occurred (1) while the patient was falling asleep (2) when he was incompletely awakened and (3) during the lighter phases of sleep (during uninterrupted sleep it never occurred before midnight and it was worse after 4 a m). The occurrence of the symptom under only these circumstances is reminiscent of a phenomenon observed in some cases of narcolepsy.

In a recent paper (The Pathogenesis of Narcolepsy with a Consideration of Sleep Paralysis and Localized Sleep *J Neurol & Psychopath* 11 1 [July] 1933) I pointed out the comparative frequency in narcolepsy of a phenomenon designated as sleep paralysis. This phenomenon manifests itself in two forms (1) predormital paralysis in which the patient while falling asleep finds himself paralyzed (2) postdormital paralysis in which the paralysis occurs immediately after awakening from sleep the patient being unable to move for an appreciable length of time after having regained full waking consciousness. Clinical and laboratory data justify one in regarding sleep paralysis and certain other phenomena of narcolepsy as instances of what Pavlov called localized sleep—the manifestations of a state in which inhibition is for the moment localized in certain parts of the brain instead of being as it presumably is in the deepest form of sleep generalized.

In the case described by your inquirer the fact that head rolling occurs not during deep uninterrupted sleep but during light sleep as well as during the predormital and the postdormital justifies one in asking whether the mechanism of the symptom is related if only remotely to the mechanism of narcolepsy. The propriety of the question is a little enhanced by the fact that in many cases of narcolepsy there is great motor restlessness during sleep. This restlessness during sleep may be regarded as a special instance of localized sleep the motility substrate being more or less uninhibited while the substrate of consciousness is in a state of relatively deep inhibition.

For these reasons one would in my opinion be justified in recommending to your inquirer that he treat the patient with ephedrine a drug that is virtually a specific in idiopathic narcolepsy. Obviously treatment with ephedrine is in this case only an experiment. Should the head rolling clear up under this treatment one might properly suspect that the mechanism of the symptom is (in this one case) related in some way to the mechanism of narcolepsy. In order to settle the question as decisively as possible it is to be hoped that if the child is given ephedrine he will during the period of this treatment receive no bromides or phenobarbital.

MAX LEVIN, M D Harrisburg State Hospital Harrisburg Pa

PERSISTENCE OF SPERMATOZOA AFTER VASECTOMY

To the Editor—I note that in THE JOURNAL Nov 18 1933 page 1663 a physician of North Dakota asks how long it takes after a bilateral vasectomy for the spermatozoa to disappear from the semen. The answer printed states that in all probability one or two ejaculations should be sufficient to remove the spermatozoa.

I have carefully studied this subject in a series of some 200 vasectomies done to effect sterilization. At first I asked these men to bring in condom specimens for the first two or three ejaculations. Finding living spermatozoa always present I began to lengthen the time at which the ejaculated specimens were to be brought.

I found in brief that spermatozoa are often encountered alive up to the twenty-first day and infrequently as long as the twenty-eighth day. I have no cases in which the vasectomy was proved to be complete in which spermatozoa appeared alive later than the twenty-eighth day.

These data were accumulated in order to advise patients as to when they would be sterile following vasectomy. It was my desire also to obtain some idea as to what the length of life of a spermatozoon actually is. I now believe this length of life to be twenty-eight days. I have asked many patients to do their best to prevent ejaculation in the interval up to twenty-eight days and to bring in an ejaculated specimen on the twenty-eighth day. In such cases I often find occasional live spermatozoa still feebly moving among numbers of dead ones.

A ELMER BELT M D Los Angeles

Council on Medical Education and Hospitals

COMING EXAMINATIONS

- AMERICA BOARD OF DERMATOLOGY AND SYPHILOLOGY Cleveland June Sec Dr C Guy Lane 416 Marlboro St Boston
- AMERICA BOARD OF OBSTETRICS AND GYNECOLOGY Written (Grads B Candidates) The examinations will be held in various cities of the United States and Canada April 7 Oral (all candidates) Cleveland June 12 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh
- AMERICA BOARD OF OPHTHALMOLOGY Cleveland June 11 Sec Dr William H Wilder 122 S Michigan Blvd Chicago
- AMERICA BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha
- CALIFORNIA Los Angeles Feb 26 March 1 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento
- CONNECTICUT Basic Science New Haven Feb 10 Prerequisite to license examination Address State Board of Healing Art 1895 Yale Station New Haven Regular Hartford March 13 14 Erdoswiler Hartford March 27 Sec Dr Thomas P Murdock 147 W Main St Meriden Homeopathic New Haven March 13 Sec Dr Edwin C M Hall 52 Grand Ave New Haven
- IOWA Des Moines Feb 20 22 Dir Division of Licensure and Registration Mr H W Crete Capitol Bldg Des Moines
- MAINE Portland March 13 14 Sec Dr Adam P Leighton Jr 192 State St Portland
- MASSACHUSETTS Boston March 13 15 Sec Dr Stephen Rushmore 144 State House Boston
- NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Feb 14 16 May 7 9 (limited to a few centers) June 25 27 and Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia
- NEW HAMPSHIRE March 15 16 Sec Dr Charles Duncan State House Concord
- OKLAHOMA Oklahoma City March 13 14 Sec Dr J M Byrum Mammoth Bldg Shawnee
- PURTO RICO San Juan March 6 Sec Dr O Costa Maedry Box 536 San Juan
- VERMONT Burlington Feb 7 9 Sec Dr W Scott Nay Underhill
- WEST VIRGINIA Charleston March 12 State Health Commissioner Dr Arthur E McClue Charleston
- WISCONSIN Basic Science Madison March 24 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee
- WYOMING Cheyenne Feb 5 Sec Dr W H Has ed Capitol Bldg Cheyenne

South Carolina November Report

Dr A Earle Boozer, secretary, South Carolina State Board of Medical Examiners, reports the oral examination held in Columbia, Nov 14-15, 1933. The examination covered 17 subjects. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. One physician was licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Georgia College of Eclectic Medicine and Surgery	(1890)	115	
Boston University School of Medicine	(1921)	169	
University of Tennessee College of Medicine	(1932)	181	
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Tulane University of Louisiana School of Medicine	(1931)	Louisiana	

Maine November Report

Dr Adam P Leighton Jr, secretary, Board of Registration of Medicine, reports the written examination held in Portland Nov 14-15, 1933. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Sixteen candidates were examined, all of whom passed. Seven physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Georgetown University School of Medicine	(1933)	847	
Boston University School of Medicine	(1930)	856	
(1932) 88 2 (1933) 82 9 84 8 88 6			
Harvard University Medical School	(1930)	89 6 (1933) 85 4	
Tufts College Medical School	(1928)	83 2	
(1933) 84 3 87 9 88 2			
Hahnemann Medical College and Hosp of Philadelphia	(1932)	87 5	
University of Toronto Faculty of Medicine	(1929)	85 3	
McGill University Faculty of Medicine	(1928) 90 1 (1932)	83 8	
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
George Washington University School of Medicine	(1904) Dist Colum		
State University of Iowa College of Medicine	(1932)	Iowa	
Johns Hopkins University School of Medicine	(1927) Connecticut		
(1931 2) Maryland			
Harvard University Medical School	(1930)	Michigan	
University of Oklahoma School of Medicine	(1932)	Oklahoma	

Kentucky Reciprocity Report

Dr A T McCormack, secretary, State Board of Health of Kentucky, reports 12 physicians licensed by reciprocity and 2 by endorsement from Aug 14 to Dec 29, 1933. The following schools were represented

LICENSED BY RECIPROCITY		Year	Reciprocity
School		Grad	with
Northwestern University Medical School	(1928)	(1913)	Illinois
University of Illinois College of Medicine		(1922)	Illinois
University of Maryland School of Medicine and College of Physicians and Surgeons		(1916)	Virginia
University of Michigan Medical School	(1929)	(1931)	Michigan
Eclectic Medical College Ohio		(1914)	Ohio
University of Cincinnati College of Medicine		(1928)	Ohio
Western Reserve University School of Medicine		(1928)	Ohio
University of Tennessee College of Medicine		(1932)	Tennessee
Vanderbilt University School of Medicine		(1927)	Tennessee
Medical College of Virginia		(1929)	Virginia
LICENSED BY ENDORSEMENT		Year	Endorsement
School		Grad	of
College of Medical Evangelists		(1932)	N B M Ex
University of Louisville School of Medicine		(1929)	N B M Ex

Book Notices

The Eradication of Bovine Tuberculosis By L. Jordan. Medical Research Council Special Report Series No 184. Paper. Price 2s. Pp 104. London His Majesty's Stationery Office 1933

This is a monograph bringing down to date the labors of the royal commission on tuberculosis. It has a historical setting in that the royal commission on tuberculosis 1904-1911, firmly established a finding that had been foreshadowed by the previous royal commission of 1895 and earlier workers with Charles Creighton in 1881. The essential fact is that bovine tuberculosis may readily be communicated to human beings and that tuberculosis is not the only infectious disease conveyed by milk, but it is by far the most important and insidious. This report by Jordan describes the results of a large scale experiment in the southwest of Scotland covering an area of some nine square miles to the northeast of Mauchline, Ayrshire. The area was bounded by good roads and contained thirty-seven farms, thirty of which are included in the scheme. The investigation was carried over a three year period and of the thirty herds participating, twenty-eight made substantial progress, twenty were free from infection at the end of the experiment while eight showed substantial reductions in the number of reactors. The report gives a good example of the way in which a field investigation, carried out under careful scientific control may lead to conclusions of great practical importance. It shows that eradication of tuberculosis from heavily infected herds is by no means an insoluble problem and demonstrates clearly the problem in tuberculosis eradication which can be achieved by providing the relatively small incentives of free tuberculin testing and free expert advice. The author ably covers the subject of the need for eradication pointing out the losses due to bovine tuberculosis approximating £750,000 per annum with 2000 deaths among human beings and at least 4,000 fresh cases annually. The methods of tuberculosis eradication are grouped under Ostertag's method, Bang's method and the slaughter method and the pros and cons for these outlined. In addition, the double intradermal test is interpreted and its reliability evaluated. The entire presentation is couched in simple and understandable language and the data are presented in an elucidating fashion. Four appendices are included, giving valuable details of methods of eradication in the experimental area of individual herds, of cost of eradication and of the measures taken in various countries to combat bovine tuberculosis, including Great Britain, Germany, Denmark, Sweden, the United States and Canada. To those interested in any of the phases of tuberculosis eradication and prevention, this monograph can be highly recommended. It contains the details of an experimental test well worth knowing. It does not fail in elucidating the economic side of the problem as well as the purely scientific. It takes into consideration not only the theoretical but also the practical and although some might wish to be more radical in enforcing eradication it ably defends the stand taken. All in all the author and the Medical Research Council are to be complimented for the high character of this report.

The Treatment of Rheumatism in General Practice By W S C Copeman M A M B B Ch Assistant Physician West London Hospital. With a foreword by Sir William Hale White K B E M D F R C P Consulting Physician to Guy's Hospital. Cloth. Price \$3.25. Pp 215. Baltimore: William Wood & Company 1933.

Life is being prolonged as the control of acute infections becomes more successful. It behooves the profession to make that life happy by keeping it healthy, to save health as well as life. Chronic rheumatism constitutes one of the greatest menaces to an active, happy existence. This group of diseases must not be viewed fatalistically or considered with a defeatist's attitude, as an act of God. The belief that chronic rheumatism is unworthy of the intelligent consideration of medical practitioners must be destroyed. The author is a member of the staff of the British Red Cross Clinic for Rheumatism in London where each year many thousand patients register for treatment. In this book the author has attempted to survey critically the various therapeutic methods from the attitude of the general practitioner and not of the specialist, and to describe in full detail the rationale and technic of those which are most useful and readily available to the busy physician.

General textbooks on the practice of medicine are often niggardly in their presentation of treatment for these conditions. Monographs are considered generous that devote one third of their pages to treatment. The title of the book is well earned, as shown by the fact that 70 per cent of its content is concerned with a discussion, full and detailed, on methods of treatment. The author has thus happily begun where others have generally left off. Prescriptions are given, dosages of vaccines, details of manipulative procedures, dietary outlines, minute directions regarding the various forms of physical therapy available for home and office use and even the technic of a mustard pack and bath. Thereby this book should be most helpful in planning a progressive, rational, curative program and its cost subsequently earned by the purchaser many times over. Though generous in these details, the author has frankly not attempted to do more than outline in briefest detail clinical and etiologic phases of the various diseases discussed. As a handbook of treatment, its clinical descriptions are perhaps adequate and on this ground the absence of all but the most cursory consideration of pathology and etiology are excusable. For the latter details, so necessary to the assured and enlightened physician, reference could well be made to any one of several recent monographs on chronic arthritis and the rheumatic diseases.

In parts I and II chapters are devoted to acute rheumatic fever, chorea, acute muscular rheumatism and fibrositis, sciatica, neuritis, rheumatoid (atrophic or infective) arthritis, hypertrophic (osteo) arthritis, climacteric arthritis and spondylitis. With the discussion of each subject an outline of the author's recommended treatment is given including the indications for his original treatment of intractable rheumatism by repeated transfusions and injections of insulin. In part III, various forms of treatment are more fully considered: medicines, diets and vaccines, nonspecific protein therapy, physical methods such as manipulation, baths, colonic therapy and actinotherapy, endocrine substances, orthopedic methods including the use of splints, treatment given in spas, climatic treatment and other methods. Chapters are also devoted to the relationship necessary between an arthritic patient and his physician, also to osteopathic treatment and nature cures. A few data on prognosis, a subject so rarely considered in most books on the subject, are given in the concluding chapter.

Many readers will not share the author's broadmindedness regarding osteopathy or his optimism concerning the possible value of several forms of treatment advocated, particularly colonic therapy. The case for intestinal therapy is certainly not strengthened and its indications are again but weakly outlined. Nothing new is given to justify the continued use of the term 'climacteric arthritis,' which still remains a vague entity. In deference to its American public the book should include at least an outline of several forms of treatment here widely advocated in the last five years, particularly more details of the newer attempts at desensitization and immunization in rheumatic fever and chronic atrophic arthritis. A consideration of gout, a disease so regularly mistaken for rheumatic fever or chronic arthritis, should certainly be included but is omitted entirely. The occurrence of strange and unexplained English abbreviations is annoying, and the omission of bibliographic

references to the eighty authors mentioned seems inexcusable. It has been said that the best treatment for a patient with rheumatism is for one doctor to send him to another. With this book a physician can with no little assurance at least begin to be that other. It is a useful and practical little volume that one could wish to have written oneself.

L'épiphyse. Étude embryologique, histologique et anatomique clinique. Par le Dr Jean Calvet, professeur agrégé à la Faculté de médecine de Toulouse. Préface du Professeur Christian Champy. Papier. Pp. 149 with 63 illustrations. Paris: I. B. Baillière & Co. 1933.

In no field of medicine are the results of experimentation—well conceived and controlled and under the direction of masters of the art—so paradoxical as in endocrinology, and more particularly in the domain of the pineal gland (epiphysé), and Calvet shows this to perfection. The work contains the orthodox chapters beginning with history, going through embryology, anatomy, histology, physiology, clinical studies and pathology, and including even treatment of diseases of the pineal gland. It is a real satisfaction to read through these chapters of solid material with no padding. The author describes thoroughly the difference between the vestigial eye of the amphibia and the real pineal secretory tissue attached to it. In this tissue many will be interested to know there are smooth muscle fibers, pigment cells and giant cells as well as typical secretory epithelial tissue. The real difficulties arise in the physiologic domain. Here whether it is a matter of extirpation of the gland, grafting or feeding experimentation, the results are contradictory. To illustrate: Male chicks, from 3 to 5 weeks old, were epiphysctomized by Goa. Those that survived grew much faster than the controls and sexual maturity with secondary sex characteristics appeared early. But when the same work was done on females, no changes were apparent. Other investigators found that after epiphysctomy sexual maturity was retarded and growth impeded. In feeding experiments likewise most authors describe a retardation of growth and development, though again others of equal authority show increase of growth and sexual maturity. Even in grafting, fresh glands, one might expect a certain unanimity of result. Mais non! The author gives his results in this field a lack of growth, abeyance of sexual maturity and general retardation. Again other methods in other animals give just the reverse picture. The monograph presents these various views in excellent contrast and without bias. The clinical studies on human beings are excellently presented. In short no one in the field of endocrinology can well be without this exhaustive even though modestly short, treatise on the pineal gland. There is a bibliography of more than thirty pages carefully compiled, which should be a mine of interest and importance to the student. After a complete reading no doubt should remain in the mind of the importance of the pineal as a gland of internal secretion. The language of the text is quite simple and easily understandable by those with only a slight knowledge of French. The entire treatise is admirable, timely, well balanced, with numerous explanatory illustrations, and is well worth adding to one's library.

Practical Anatomy. By Six Teachers. Edited by F. P. Stibbe, F.R.C.S., Senior Demonstrator in Anatomy, London Hospital Medical School. Cloth. Price \$7. Pp. 719 with 337 illustrations. London: Edward Arnold & Company, 1932.

The six teachers collaborating are William Wright, London Hospital Medical School; Thomas Yeates, Middlesex Hospital Medical School; J. S. B. Stopford, University of Manchester; S. E. Whitnall, McGill University; Montreal; Mary F. Lucas Keene, London School of Medicine for Women; and E. P. Stibbe, London Hospital Medical School. The book is a laboratory manual for dissection of the dead body. As such it is thorough and practical. It obviously represents long and faithful work in the dissecting room. The technique of dissection is excellent and the whole method and spirit are practical. The illustrations consist of diagrams and drawings; they are well selected and of great help to the student. It is probably the most thorough of the laboratory manuals of dissection available. The nomenclature used does not conform with that recommended by the International Association of Anatomists (B.N.A.) with that of the later Commission on Nomenclature or with that of English works such as Cunningham's Textbook of

Anatomy. The substitution of English or of any other local nomenclature for the older and international Latin is cause for regret. It leads to logical inconsistencies and confusion in some cases, as when "outer" and "external" are made synonymous with "lateral." The text contains few references to the medical or surgical application of anatomic facts. It leads the student into a study limited strictly to the anatomy of the dead body. However conscientiously anatomists may endeavor to limit the study and thought of students to pure morphology, they set themselves in the effort an almost impossible task. The intelligent student is curious about how these structures come to be and about what they do during life. After all it is the living body in which physicians are interested. The vital processes which these structures serve and represent are the studies of significance for both biologists and physicians. The almost total omission of them from a book on anatomy, although sanctioned by custom is not in accord with the best science or the best pedagogy.

Colour Vision Requirements in the Royal Navy. Reports of the Committee upon the Physiology of Vision. VII. Medical Research Council Special Report Series No. 18. Paper. Price 1s. 1p. 3s. London: His Majesty's Stationery Office, 1933.

This work was originally undertaken at the request of the Admiralty and was completed with the aid of facilities offered by the British navy. Unsatisfactory testing of color vision with too high a percentage of rejections by some tests contrasted with well color perception by many of the men passed by other tests led to the fairly complete study here presented. Various types of occupations called for varying degrees of acuity of color perception so that finally the various grades in the navy were classified according to color perceiving requirements. The conclusions of the committee numbered fifteen of which the following seemed to be the most important. The final examination of the color vision of candidates should be undertaken by ophthalmic surgeons equipped with adequate apparatus. Practical tests at sea or in harbor are dangerously unreliable when used alone. For present use the Ishihara test and the Eldridge Green lantern test are recommended but no one technical test is regarded as being infallible. A great part of the pamphlet does not lend itself to abstract but must be read in the original by any one interested. Only a short bibliography is appended.

Multiple Sklerose und Erbanlage. Von Erich Doz. Dr. Friedrich Curtius. Papier. Price 18 marks. 1p. 21" with 17 illustrations. Leipzig: Georg Thieme, 1933.

No conclusion concerning the cause of multiple sclerosis is possible from the anatomic point of view. Curtius believes that many morphologic data point to a constitutional factor in this disease. A review of the cases reported in the literature shows that in 390 cases of multiple sclerosis reported there were 300 instances of organic nervous disease in the families of these patients and 183 instances of mental disease, 49 lacked exact data. Curtius investigated the families of 106 patients with multiple sclerosis but reports only on the families of 56 patients. Of 2,006 living relatives traced, 1,036 or 51.6 per cent, were examined. A control series of 56 families of fracture patients was used. It was found that nervous and mental diseases were more common in the relatives of patients with multiple sclerosis than in control groups in a ratio of 1.64 to 1. Furthermore, the closer the relation by blood the greater the incidence of these diseases. It is concluded that there is an abnormal genotype which is the deciding factor in the origin of multiple sclerosis. Curtius found what he called micro-heredodegenerations in the families of patients with multiple sclerosis. By this he meant the occurrence of hereditary signs of various sorts such as middle ear deafness, tumor (4 out of 56 families), tremor (3 out of 56 families), stuttering, abducens paralysis and anomalies of the abdominal reflexes. Furthermore the occurrence of psychopathic traits in the families of patients with multiple sclerosis far exceeds that of the control population. A study of patients with multiple sclerosis reveals the fact that many of them show constitutional abnormalities of various sorts. All these facts tend to support the view that the constitution of the patient with multiple sclerosis is abnormal and must be given greater consideration in the etiology and pathogenesis of the disease.

A Manual of Diseases of the Nose Throat and Ear By E B Gleason MD LL D, Professor of Otolaryngology, Medical-Chirurgical College Graduate School of Medicine University of Pennsylvania Seventh edition Cloth Price \$4.50 Pp 651 with 260 illustrations Philadelphia & London W B Saunders Company 1933

The repeated editions of this book testify to its worth. Within the limitations which the author sets for it, it succeeds remarkably well in its purpose. It is well bound and printed. There is a profusion of illustrations, for the most part clear and accurate. The general tone is conservative, and there is an astonishing amount of valuable information supplied within a small compass.

Medicolegal

Workmen's Compensation Acts Mental Deterioration and Death Due to Arteriosclerosis, Not Trauma—Spalding, a blacksmith, about 58 years old was found sitting in a dazed condition in a pit in which he had been working. He was able, however, to climb up the steps leading out of the pit and to take off his overalls. He was taken to Dr Miller's office, and after he was helped out of the car he walked without assistance to the office. Dr Miller made a casual examination in the course of which he found a bruise on the patient's back, in the right lumbar region, but he did not discover an injury to the head that, according to later evidence, was present. Spalding was taken home in a car and was cared for there by his family, without the aid of a physician. About a week or ten days later he called on Dr Miller but Dr Miller did not even then learn of the alleged injury to the head although Spalding's head was said to have been bandaged during his treatment at home.

Spalding who had been injured Jan 31 1925 returned to work within a week. He continued at work through the month of February or nearly so. Then he quit of his own accord, because he could not get his mind on his work. During the two and one-half to three years preceding his injury he had been a competent worker losing no time from sickness or otherwise. After he quit work, mental confusion and physical incoordination were shown in various ways, although as late as Jan 15 16 and 17, 1927 he took, temporarily the place of a regular blacksmith in the establishment where Spalding had been employed, doing his work although not as well as the regular blacksmith would have done it. Generally however he was nervous and agitated he would begin to talk on a subject and before he had finished he would wander off it to some other subject he would wander away from home, he stopped chewing tobacco because he had difficulty in spitting properly, he had difficulty in feeding himself, and various odd jobs some of which he had formerly done well he could not do at all. He grew progressively worse until his death Feb 26, 1928. The cause of death was certified as embolism of the brain. No autopsy was done. No roentgenogram was ever taken.

A claim was filed under the Illinois workmen's compensation act and although arbitrators made awards the industrial commission set them aside holding that Spalding had sustained no disability entitling him to compensation during his lifetime and that his death was not caused by the injury he received. The circuit court reversed the order of the commission and entered an award in favor of the claimant. From this judgment the employer appealed to the Supreme Court of Illinois.

On behalf of the claimant, medical witnesses testified that the injury was a contributing factor in Spalding's death. One witness testified that arteriosclerosis from which the employee seemed to have been suffering might have been a contributing factor but in his opinion it was not a natural inference that a disease caused the condition following the accident in view of the fact that the employee was well to all appearances before the accident and was able to do his work well. A serious result in the opinion of this witness might follow an injury to the head although no fracture resulted. A laceration of the brain might follow gradually causing the brain to deteriorate in relation to its former or natural condition. On behalf of the

employer, other medical witnesses testified that the injury was not a contributing factor to the death. One witness testified that the employee's condition was due to a hardening of the cerebral arteries. Another testified that if an injury is sufficient to produce an embolism, the embolism usually appears immediately, and that he would not expect an embolism to result from an injury occurring two or three years before the patient's death. In his opinion there was no connection between the injury and the death. Another witness testified that a man who had received a bruise on the back of his head from falling backward would not have had such a condition of sclerosis as the employee had in this case as a result of those injuries. If the injury was sufficient to cause a laceration of the brain tissue continued this witness, death would not have ensued after a period of three years from such an injury if the man was up and around during that time. Lacerations of the brain are immediate in their effect. This witness could not conceive of the injury received over the back of the head as producing a laceration, since the back of the head affords the greatest protection for the brain.

The burden is on the claimant, said the Supreme Court of Illinois, to prove that an injury sustained is the proximate result of an accident suffered in the course of and arising out of the injured person's employment. If there is a pre-existing disease compensation is allowable for all the consequences attributable to the injury in the acceleration or aggravation of the disease. The liability cannot rest on imagination, speculation or conjecture but must be based on facts established by a preponderance of the evidence. It cannot rest on a choice between two views equally compatible with the evidence. There was in the present case, continued the court, no serious conflict in the evidence about any fact in the case. There was no disagreement about the law. The solution of the question depends on the conclusion drawn from all the uncontradicted evidence concerning the facts and the divergent opinions of the expert witnesses. From a consideration of the testimony of all the witnesses, continued the court, the industrial commission would have been justified in finding that the employee was suffering from hardening of the arteries, which was the cause of the progressive decay of his mental and physical powers that this disorder was not and could not have been caused or lighted up or made worse by a fall or a blow, that the acts and symptoms shown by the evidence could not have been produced by the fall unless there had been a laceration of the brain or spinal tissue, of which there was no evidence, that the fall and consequent injury, if it had caused a laceration of the tissue of the brain or spinal cord, would have more serious immediate results, as unconsciousness and physical helplessness. There is ample evidence in the record to sustain the findings of the industrial commission, said the court, and unless the judgment of the commission is manifestly contrary to the weight of the evidence, the court has no authority to substitute its judgment, on the facts, for that of the commission. The action of the industrial commission disallowing an award was consequently affirmed.—*Rittler v Industrial Commission (Ill)*, 184 N E 654

Malpractice Failure to Discover Fracture of Radius, Inability of Plaintiff to Obtain Expert Witnesses—The plaintiff a minor, sustained injuries when he fell off a fence. The defendant was called to treat the injuries and discovered a fracture of the ulna of the left arm. He reduced the fracture and placed the arm in splints. In this action there was no complaint that the fracture of the ulna was not properly treated but the plaintiff contended that the defendant failed to discover a 'dislocation' of the radius either at the time of the accident or at a reasonable time thereafter. The jury rendered a verdict for the defendant and, when the trial court denied the plaintiff's motion for a new trial he appealed to the Supreme Court of Rhode Island.

After the defendant reduced the fracture of the ulna, he sent the plaintiff to a clinic to have a roentgenogram taken of the injured arm. This roentgenogram being unsatisfactory another was made. Neither revealed any injury to the radius. When the splints were removed the defendant discovered a condition which caused him to have a third roentgenogram taken and this revealed a fracture of the radius. A specialist in orthopedic surgery was consulted and an operation was performed.

by this specialist. The condition of the arm improved after the operation but at the time of the trial there was considerable limitation of motion in the elbow. In Rhode Island said the Supreme Court, the question as to whether a physician uses proper skill and diligence in treating an injury must be determined by the testimony of experts in medicine and surgery. Counsel for the plaintiff contended, however, that while this rule was correct when it was announced, it should now be modified. This contention was based, counsel stated on his experience in attempting to obtain expert medical testimony to support the charge of negligence on the part of the defendant. He stated that unless the rule be modified there is no possible way for any one who suffers injury at the hands of a negligent physician to recover his just damages. This statement, if true said the court, is a matter of grave concern to those charged with the administration of justice. Notwithstanding the experience of plaintiff's counsel the court was unconvinced that the ethical standards of the medical profession countenance a course so subversive of justice and so opposed to the duty which the profession owes to the public. We are not informed continued the court how far afield plaintiff's counsel went in his search for medical testimony. There might be a natural reluctance on the part of physicians practicing in the same locality to appear as experts against a fellow practitioner. We cannot believe the court said that there are not in the state of Rhode Island many well qualified physicians who would be willing to assist by their testimony a person who was a victim of malpractice. Furthermore the plaintiff's counsel might have had recourse to section 18 chapter 342 General Laws, 1923, where it is provided that "Any justice of the superior court may, in any cause, civil or criminal, on motion of any party therein, at any time before the trial thereof appoint one or more disinterested skilled persons, whether they be residents or nonresidents, to serve as expert witnesses therein." According to the medical testimony, the court concluded the defendant in his treatment of the injury, met the requirements as to skill and care as established in *Bigney v. Fischer*, 26 R. I. 402 59 A 72, where the court said "The implied contract of a physician or surgeon is not to cure—to restore a fractured limb to its natural perfectness," but to treat the case with that degree of diligence and skill which are ordinarily possessed by the average of the members of the profession in good standing, in similar localities regard being always had to the state of the medical profession at the time. And, if he do this, he discharges his full liability." All of the plaintiff's exceptions were overruled and the case remitted to the trial court for the entry of judgment on the verdict for the defendant—*Coleman v. McCarthy* (R. I.), 165 A 900.

Malpractice Joint Liability of Physicians Treating Patient Independently and at Different Times—The plaintiff had been treated, at different times by a number of physicians apparently for the same ailments. Failing to obtain the desired relief, he instituted a suit against these physicians, joining them all as defendants in one action. In his petition, the plaintiff alleged that he engaged the defendant-physicians in the county of their respective residences, where each treated his ailments by virtue of separate and independent engagements, and that their separate treatments afforded him no relief. In an effort to state a joint cause of action against the defendants, the petition further alleged that their separate and successive treatments were not successful, that the plaintiff was not cured of his ailments, and that this was caused directly by the concurrent negligence of the several physicians. The case was dismissed by the trial court, and the plaintiff appealed to the Court of Appeals of Kentucky.

It is very plain, said the Court of Appeals, that the petition states against each of the physicians a distinct and separate cause of action occurring in the several counties of the residences of the physicians. The facts thus appearing, the allegation that the plaintiff's injury was caused directly by the concurrent negligence of the several physicians does not relieve the case of the fact that the pleading states an independent separate and distinct cause of action against each of the named physicians. If the diagnosis and treatment by any one of them was negligently done, continued the court, or was such as to

constitute malpractice, the injury therefrom was complete before the services of the next employed physician were engaged or his services were rendered. Neither the engagements nor the services of the physicians were in any sense concurrent, said the court. The plaintiff contended, however, that although the physicians who treated him acted independently, yet each of them was guilty of negligence at the time of the performance of his separate services and that it was not essential for the maintenance of his joint action against them to allege that they were engaged in a common enterprise or sustained any relation whatever between themselves. The correct rule said the court as stated by Sherman and Redfield on Negligence (ed. 4) sec. 122 is as follows:

Persons who cooperate in an act directly causing injury are jointly liable for its consequences if they acted in concert or united in causing a single injury even though acting independently of each other.

Since therefore, the defendant-physicians did not act in concert nor unite in causing a single injury, the court concluded, the plaintiff had no joint cause of action against them.

Furthermore a physician is not an insurer and is liable only where negligence is the proximate cause of the patient's injury. Negligence will not be inferred from poor results or failure to effect a cure. A physician is liable to his patient only for an injury due to want of requisite knowledge and skill or to failure to use reasonable care and diligence in diagnosis or treatment. The import of these elementary principles continued the court is that when physicians act independently of each other in diagnosing and treating a patient, during distinct and different periods of time, each is liable for his own wrong or negligence but not for the negligence of the other, even though neither of them effects a cure of the patient's ailment. Conceding that the failure of the defendant physicians to effect relief was concurrent such concurrent failure cannot and does not create a joint cause of action against them, simply because none of them cured the patient or achieved the results desired or expected. Finding no error prejudicial to the substantial rights of the plaintiff the Court of Appeals affirmed the judgment of the trial court, dismissing the action—*Rose v. Sprague* (Ky.), 59 S. W. 2d 374.

Liability of Wrongdoer for Malpractice of Physician Who Treats Original Injury—Where a person, says the supreme court, Schoharie county, N. Y., injured through the negligence of another, exercises reasonable care in selecting a physician and his injuries are thereafter aggravated by the malpractice of the physician the negligence of the wrongdoer in causing the original injury is in law regarded as the proximate cause of the damages flowing from the physician's malpractice, and the original wrongdoer is liable therefor. Furthermore, a release by an injured person of the tortfeasor responsible for the injury prevents an action by such injured person against a physician for the negligent treatment of the injury—*Milks v. McLeer* (N. Y.) 263 N. Y. S. 592.

Society Proceedings

COMING MEETINGS

- American Association of Anatomists Philadelphia March 28-30 Dr George W. Corner University of Rochester School of Medicine Rochester N. Y. Secretary
- American Association of Pathologists and Bacteriologists Toronto Canada March 29-30 Dr Howard T. Karsner 2085 Adelbert Road Cleveland Secretary
- American Orthopsychiatric Association Chicago Feb. 22-24 Dr George S. Stevenson 450 Seventh Avenue New York Secretary
- American Physiological Society New York March 28-31 Dr Frank C. Mann, Mayo Clinic Rochester Minn. Secretary
- American Society for Experimental Pathology New York March 28-31 Dr C. Phillip Miller Jr. 950 East 59th Street Chicago Secretary
- American Society of Biological Chemistry New York March 28-31 Dr H. A. Mattill Chemistry Building State University of Iowa Iowa City Secretary
- Annual Congress on Medical Education and Licensure Chicago February 12-13 Dr W. D. Cutter 535 North Dearborn Street Chicago Secretary
- Federation of American Societies for Experimental Biology New York March 28-31 Dr Frank C. Mann Mayo Clinic Rochester Minn. Secretary
- Tri States Medical Association of the Carolinas and Virginia Charlottesville Va. Feb. 12-14 Dr James M. Northington 804 Professional Building Charlotte N. C. Secretary

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

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- The Body Build Factor in Basal Metabolism of Children W P Lucas and Helen Brenton Pryor San Francisco—p 941
Blood Pressure in the New Born J E Bowman Philadelphia—p 949
Nutritional Condition of New Born Infants Statistical Study K A Toverud Oslo Norway—p 954
Basal Metabolism in Asthma and in Epilepsy Anne Topper and Hannah Muller New York—p 963
Resolving Exudates in Pulmonary Tuberculosis of Childhood Study II H S Reichle Cleveland—p 969
The Blood During the First Year of Life I Normal Values for Erythrocytes Hemoglobin Reticulocytes and Platelets and Their Relationship to Neonatal Bleeding and Coagulation Time Katharine K Merritt and L T Davidson with technical assistance of R Bennett, New York—p 990
*Effective Treatment of Grip in Infants and in Young Children G Petranyi Szeged, Hungary—p 1011
Changes in Composition of Fluids Injected into Peritoneal Cavity A J Schechter M Katherine Cary A L Carpentieri and D C Darrow New Haven Conn—p 1015
*Treatment of Congenital Syphilis with Acetarsone (Stovarsol) by Mouth A S Traisman, Chicago—p 1027
Concentration of Calcium and Phosphorus in Serum of Children L Schoenthal and Dorothy K Lurie, New York—p 1038
Retardation of Dental Caries in Outpatients of a Dental Infirmary Preliminary Study P R Howe, Ruth L White and M Rabine Boston—p 1045
Heel Printing in Flat Feet New Method for Recording the Degree of Pronation L Bivings Atlanta Ga—p 1050

46 1175 1236 (Nov.) 1933—Part II

- The Premature Infant Study of Effects of Atmospheric Conditions on Growth and on Development K D Blackfan and C P Yaglou assisted by Katherine MacKenzie Wyman Boston—p 1175

Treatment of Grip in Children—Petranyi states that his own observations and those of others disclosed that the medicine administered was most effective (1) when it contained amidopyrine or derivatives of amidopyrine and (2) when larger doses than usual for babies and young children were given. This experience induced him to administer amidopyrine in unadulterated form in the following dosage day and night until the temperature reached normal from birth to 1 month of age 0.05 Gm, from 3 to 6 months 0.1 Gm from 6 to 12 months, 0.15 Gm and from 2 to 5 years 0.2 Gm. As soon as the temperature had fallen below 37 C (98.6 F) and had remained at this point for at least half a day, the intervals between the doses were lengthened to three hours, and if fever remained absent, to four hours later it was sufficient to administer the amidopyrine three times a day. If the temperature again rose, the intervals between the doses were decreased, this variation in interval continuing as long as necessary. The amidopyrine was prescribed in a 3 to 4 per cent solution, to be taken in a concentrated syrup. By this means an effective concentration of amidopyrine in the organism was reached and maintained. To stop the medicine too soon or too suddenly is an error; the diminishing of the concentration of amidopyrine demands great care or the drug does not have its full effect. The author tried the treatment in more than 100 cases. The most satisfying results were obtained among patients who showed sudden and severe symptoms high fever and occasional delirium. In these patients after the introduction of the treatment the fever generally diminished gradually in from twelve to twenty-four hours, in most cases the great exhaustion and weakness as well as occasional delirium were checked. Most of the good results are obtained in cases in which treatment is given immediately.

Treatment of Congenital Syphilis with Acetarsone—Traisman used acetarsone, administered by mouth in the treat-

ment of fifty-four patients having congenital syphilis. The first week a dosage of 0.005 Gm per kilogram of body weight was administered daily, the second week, 0.01 Gm, the third week, 0.015 Gm, and the fourth week, 0.02 Gm. During the following five weeks the dosage was 0.02 Gm. A rest period of six weeks followed the treatment. The amount of the drug ordered was dissolved in water and given a half hour before feedings. In the group of infants under 1 year of age, 71 per cent showed a reversal of the Wassermann and Kahn reactions. In the children between the ages of 1 and 6 years, the Wassermann reaction became negative in 55 per cent and the Kahn reaction in 33 per cent. In the group between 6 and 12 years of age, the Wassermann reaction became negative in 47 per cent and the Kahn reaction in 19 per cent. In the forty patients completing a second course of acetarsone therapy the Wassermann reaction became negative in 50 per cent and the Kahn reaction in 33 per cent. The clinical symptoms improved rapidly and the physical development showed marked improvement. No serious urinary changes were noted, except in one child who developed a severe arsenical dermatitis and died on the seventeenth day after the onset of symptoms. The blood of the younger infants showing a secondary anemia improved rapidly with acetarsone therapy. Eosinophilia was a frequent observation. Lesions of the bones showed rapid healing in all cases, both clinically and roentgenologically after one course of treatment. Examination of the spinal fluid gave negative results in the thirty-one patients examined.

American Journal of Medical Sciences, Philadelphia

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- Importance of Dealing Quantitatively with Water in the Study of Disease L H Newburgh and F H Lashmet Ann Arbor Mich—p 461
Bacterial Flora Within the Stomach and Small Intestine Effect of Experimental Alterations of Acid Base Balance and of the Age of the Subject L Arnold Chicago—p 471
Standards for Maximal Reticulocyte Values Following Ventriculin and Intravenous Liver Extract Therapy in Pernicious Anemia F H Bethell and S M Goldhamer Ann Arbor Mich—p 480
Effect of Exercise on Leukocyte Count in Pulmonary Tuberculosis J Kaminsky, Waltham Mass—p 484
Spontaneous Cerebral Vascular Accidents in Diabetes W R Jordan and P Watters Boston—p 488
Roentgenographic Demonstration of Arteriovenous Aneurysm by Means of Thorotrast W M Yater and C S White Washington D C—p 493
*Auriculosystolic Murmur in Tricuspid Area During Convalescence from Acute Coronary Occlusion C C Wolferth F C Wood and A Margolies Philadelphia—p 496
Atypical Typhoid Fever Heart Block Myocarditis Posttyphosa (Romberg) Value of Atropine Test R Dassen Buenos Aires Argentina South America—p 499
Anatomy of Chronic Bronchitis and Bronchial Asthma as Disclosed by Lipiodol Examination J B Christopherson London England—p 504
Spontaneous Hyperventilation Tetany J W Scott and M M Cantor Edmonton Alta Canada—p 509
*Direct and Indirect Pneumoperitoneum Incidental to Artificial Pneumothorax A L Banyar Milwaukee—p 513
Electromyographic Records of Muscle Tremors and Phonomyographic Records of Muscle Murmurs in Postencephalitic Parkinson's Disease and Essential Tremor H L Smith E J Baldes and C Sheard, Minneapolis—p 518
Observations on Etiologic Relationship of Severe Alcoholism to Pellagra T D Spies and H F DeWolf Cleveland—p 521
Clinical Picture of Bromide Poisoning E B Craven Jr, Durham N C—p 525
Calcium and Phosphorus Metabolism of an Osteomalacic Patient Vegetarian for Twenty One Years P Schultzer Copenhagen Denmark—p 532
Studies in Pentosuria Report of Twelve Cases M Enklewitz and Margaret Lasker New York—p 539
Experimental Reproduction of Lipemia A C Curtis J M Sheldon and H C Eckstein Ann Arbor Mich—p 548
Hyperpyrexia (110.5 F) in Artificial Fever Therapy E T Hoverson Kankakee Ill—p 557
Amyloidosis and Amyloid Nephrosis M B Roenblatt New York—p 558
A Association of Pituitary Tumor and Peptic Ulcer B I Comroe Philadelphia—p 568

Auriculosystolic Murmur—Wolferth and his associates heard an auriculosystolic murmur over the tricuspid area in two cases of cardiac infarction during convalescence. In one case it was first discovered on the fifteenth day and disappeared on the twenty-third. In the other, it developed on the fifth day and disappeared on the twenty-seventh. In both instances the infarct was probably located in the anterior surface of the left ventricle. In one, the behavior of the sound was observed

during partial heart block and during a paroxysm of auricular fibrillation. The authors' evidence concerning the cause of this murmur is as follows: 1. The place at which it was best heard suggests that it is dependent on some disturbance in the neighborhood of the tricuspid valve. 2. It resembled the presystolic murmur of mitral stenosis with respect to its relation to auricular activity. During normal rhythm and during partial heart block it followed the P wave of the electrocardiogram. During auricular fibrillation it became more difficult to hear; it began in early diastole shortly after the second sound and was audible in the presystolic period. 3. The two cases in which this murmur appeared were probably instances of occlusion of the left anterior descending coronary artery with infarction of the anterior surface of the left ventricle. Neither of them came to necropsy, but the electrocardiographic evidence of location was quite definite. 4. The authors examined a number of pathologic specimens of hearts with anterior infarction to determine whether any structural change could be found that might account for this murmur. A mural thrombus lying beneath one of the tricuspid leaflets might be able to produce such a murmur, but none of the specimens of anterior infarction had a thrombus in this location. Many showed a thinning of the anterior part of the interventricular septum and a bulging of this structure into the right ventricle. Edema of the tissues in and near the infarct was quite constant. One specimen with a posterior infarction from occlusion of the right coronary artery, showed a thrombus lying beneath the posterior leaflet of the tricuspid valve. The authors conclude that this murmur is probably related to convalescence from acute coronary occlusion and that it seems to be produced by the flow of the blood from the right auricle to the right ventricle.

Pneumoperitoneum Incidental to Artificial Pneumothorax.—Banai presents two cases of direct pneumoperitoneum. It occurs when the pneumothorax needle is inserted below instead of above the diaphragm. His manometer readings indicate that the subdiaphragmatic intra-abdominal pressure is negative and that it oscillates parallel with changes of the intrapleural pressure. He reports two cases of indirect pneumoperitoneum and concludes, from the study of the symptoms and roentgenologic observations that in these cases the air found its way from an established pneumothorax into the peritoneal cavity along the structures passing through the diaphragm. The best means for establishing the diagnosis is the roentgenogram taken in the upright position. Immediate symptomatic relief can be obtained by elevating the foot of the bed thus shifting the air from below the diaphragm to the pelvis. Proper orientation as to the position of the diaphragm in relation to the site of injection and avoiding the forcing of air under high pressure will aid in preventing the occurrence of accidental pneumoperitoneum.

Annals of Surgery, Philadelphia

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Study and Teaching and Practice of Surgery. A. D. Bryan. Chicago—p. 481.

Undescribed Technique. Comparison of End Results of Toole's Operation as Contrasted with Former Methods of Operation. C. G. Burdick and B. L. Coley. New York—p. 492.

Ombredanne's Pouch Operation for Hypospadias. H. H. M. Iyle. New York—p. 513.

Principles Versus Details in Treatment of Acute Empyema. F. A. Graham and M. Berch. St. Louis—p. 520.

Tumors of Bony Chest Wall. Study of Twenty-Two Personal and Seventy-Eight Collected Cases Since 1921. C. A. Hedblom. Chicago—p. 528.

Complicated Contractures of Hand. Their Treatment by Freeing Fibrosed Tendons and Replacing Destroyed Tendons with Crisfs. S. L. Koch—p. 546.

Trans thoracic Abdominal Hernia. E. Eliot. New York—p. 581.

Duodenal Stasis. Duodenojejunostomy. E. H. Pool, W. I. Niles and K. A. Martin. New York—p. 587.

Tragedy of Gastric Carcinoma. Study of Two Hundred Surgical Cases. U. Maes, F. F. Boice and Elizabeth M. McFetridge. New Orleans—p. 619.

Ten Year Survivors of Radical Mastectomy. T. S. Mathew. New York—p. 635.

Incidence and Management of Stones in Common and Hepatic Ducts. F. H. Lahey. Boston—p. 644.

*Treatment of Cancerous or Potentially Cancerous Cervical Lymph Nodes. V. I. Blair and J. B. Brown. St. Louis—p. 650.

Use of Silk in Repair of Clean Wounds. A. O. Whipple. New York—p. 662.

Acute Postoperative Obstruction of Bowels Diagnosed by Flat Roentgenogram. D. W. Palmer. Cincinnati—p. 672.

Intravenous Administration of Dextrose in Ringer's Solution with Particular Reference to Its Use in Acute Abdominal Conditions. J. S. Horsley. Richmond, Va.—p. 678.

Subcutaneous Injuries of Abdomen. D. Lewis and I. R. Trimble. Baltimore—p. 685.

Acute Intestinal Obstruction in the Negro. Review of Three Hundred and Forty-Seven Cases. J. K. Boland. Atlanta, Ga.—p. 698.

Acute Intussusception. I. M. Miller. Chicago—p. 706.

Meckel's Diverticulum in Acute Abdominal Emergencies. R. H. Miller and R. H. Wallace. Boston—p. 713.

Wandering Spleen with Torsion of Pedicle. I. Abell. Louisville, Ky.—p. 722.

*Acute Massive Hemorrhage from Duodenal Ulcer. A. W. Allen and I. B. Benedict. Boston—p. 736.

Pancreatic Emergencies. J. M. T. Finney. Baltimore—p. 750.

Acute Gallbladder is a Surgical Emergency. H. B. Stone and J. C. Owings. Baltimore—p. 760.

Treatment of Acute Cholecystitis. M. K. Smith. New York—p. 766.

Acute Cholestatic Disease. E. S. Judd and J. R. Phillips. Rochester, Minn.—p. 771.

Acute Urologic Emergencies. Past and Present. F. Beer. New York—p. 780.

Acute Obstructing and Inflammatory Lesions of Kidneys and Ureters. W. Walters. Rochester, Minn.—p. 785.

Anatomy Eclipsed. D. Cheever. Boston—p. 792.

Treatment of Cancerous Neck Lymph Nodes.—In every case of true squamous carcinoma or adenocarcinoma arising on the lip, mouth, pharynx or anywhere in the lining of the cheek Blair and Brown attempt to eliminate the possibly infected lymph nodes preferably without waiting for their metastatic infection to become evident. Whenever it appears practical the primary growth is controlled before the attempt is made to deal radically with the lymph nodes but radiation is usually given to the areas of the neck in the hope of retarding the development of metastases while waiting the most desirable time to do the operation. In certain advanced growths it may be necessary to destroy the primary growth and remove the related lymph nodes at one sitting. For growths confined to one side of the midline and situated anterior to the foramen cecum or the posterior tracheal pillar the removal of the lymph nodes is limited to that side of the neck unless the other side becomes involved. The most effective way of preventing or eliminating infection of these areas of the neck is by dissection that removes the entire lymph bearing tissues. Inoperable invasion of lymph nodes can frequently be controlled by direct implantation of radon or radium by intensive roentgen therapy after the skin that covers the growth is turned back or by a combination of the two. In the authors' cases of dissection of the neck in which masses of nodes were not fixed directly to the carotid artery and had not eroded the mandible there is but one recorded recurrence in the neck, 2 per cent. In twenty-one of these cases the nodes were found to be positively cancerous and ten patients are known to be well from five to fourteen years after operation. In twenty-six the nodes were reported microscopically negative and eighteen are known to be well from five to eighteen years after operation. In the series of seventy cases of combined operation, there were sixteen cures of five to eighteen years. In twenty-nine the nodes were apparently negative with six cures while forty-one were definitely positive with ten cures. After destruction of squamous cell growths occurring in the lip or mouth below the level of the oral slit whether by radium, cautery or removal and for those occurring in any part of the cheek the authors perform a radical regional block removal of the lymph nodes either at the primary or at a secondary operation if the patient will submit and if the operation looks feasible. For squamous cell lesions above the level of the oral slit with the exception of the lining of the cheek they usually do not urge the removal of the lymph nodes unless cancer-like nodes are present at the time of the treatment of the primary lesion. They treated adenocarcinomas and endotheliomas along the same lines but for the lymphosarcomas and all the primary malignant conditions of the lymph nodes, no matter how named they depend on radiation after the diagnosis is established. All these patients seem to die within four years at the outside regardless of the kind of treatment.

Massive Hemorrhage from Duodenal Ulcer.—From a review of 1804 cases, Allen and Benedict believe that patients suffering from duodenal ulcer who have recovered from a severe hemorrhage should be subjected to surgery in a quiescent state as the possibility of a persistence of symptoms is great and the incidence of future episodes of severe hemorrhage is about

40 per cent. Spontaneous recovery is less likely with increasing age. About one third of all their duodenal ulcer patients requiring hospitalization have gross bleeding. More than 3 per cent died of hemorrhage. The mortality in sudden massive bleeding from duodenal ulcer was 14.5 per cent, regardless of treatment. Age seems to be the most striking single factor in determining the possibility of spontaneous recovery. Death from hemorrhage occurs rarely in patients less than 50. In persons with acute massive hemorrhage beyond middle age and who do not show early evidence of a complete cessation of bleeding, immediate surgery should be contemplated. Matched citrated blood should be kept in the refrigerator, or a donor should stay at the hospital. Transfusion should be done quickly if there is a second collapse and before the systolic pressure falls below 70 mm of mercury. If there is a rapid loss of the benefits of this transfusion, a large transfusion should be given and the patient immediately operated on. The authors describe an operation for patients who continue to bleed owing to a large open vessel situated in an eroded area in the pancreas. In order to control the loss of blood during the operative procedure, the lower third of the stomach down to the ulcer is transected and freed. Then the distal clamp is removed and the anterior wall of the lower segment is opened. The bleeding point is controlled by a finger or tamponade and the resection continued without serious loss of blood. The vessels entering the edge of the ulcer are intercepted as the inflammatory tissue is cut across. When the hemorrhage is controlled, a retractor is placed in the duodenum and the level of the ampulla of Vater is ascertained. If there is room to free the duodenum beyond the bed of the ulcer and to allow a satisfactory turn-in, the operation is easily completed. If there is doubt concerning this or if the erosion in the pancreas is large and sufficiently deep to have opened an accessory pancreatic duct, a modified procedure is done. A part of the elevated distal portion of the stomach is eliminated, leaving a sufficient amount of the prepyloric region for easy suture. The duodenum and the stump of the stomach are sutured in such a way as to enclose the ulcerated area in the pancreas. If one is anxious to destroy the remaining activating area in the antrum and the patient's condition permits the mucosa is removed from this region as suggested by Bancroft before the closure is made. Anastomosis between the stomach and the intestine may be made by the Polya or second method of Billroth.

Archives of Neurology and Psychiatry, Chicago

30 709-936 (Oct.) 1933

- Cerebral Localization of Epileptic Manifestations W. Penfield and L. C. Cairns Montreal—p. 709
*Hypothalamus and Temperature Control H. C. Bazett, B. J. Alpers and W. H. Erb Philadelphia—p. 728
Cerebral Localization in Cerebrovascular Disease C. Davison, S. P. Goodhart and W. Needles New York—p. 749
Cerebral Circulation XVIII Induced Variations in Volume Flow Through the Brain Perfused at Constant Pressure J. Finesinger and T. J. Putnam Boston—p. 775
Megalocephaly with Diffuse Glioblastomatosis of Brain Stem and the Cerebellum A. Weil Chicago—p. 795
Myotonia Atrophica with Cataract Report of Three Cases L. J. Mayer and J. A. Lahan Chicago—p. 810
Verified Tumor of Temporal Lobe Critical Review of Fifty Two Cases S. N. Rowe Philadelphia—p. 824
Akinesia Algida W. G. Spiller Philadelphia—p. 843
Hughlings Jackson's Views on Mentation Their Value for the Psychiatrist M. Levin Harrisburg Pa.—p. 848

Hypothalamus and Temperature Control—Bazett and his associates made a histologic study of the brain stems of cats which were submitted to anterior decerebrations. The animals had the capacity of reacting to cold and of regulating their own body temperature at a normal level (and probably of developing fever) in the absence of the corpus striatum and the thalamus, which were not therefore essential. The presence or absence of temperature control appeared to be associated with the preservation of the hypothalamus just cephalic to the mammillary bodies, the area included the nuclei surrounding the walls of the third ventricle and the infundibular nuclei. Such animals did not however show a normal hyperpnea when exposed to excessive heat.

Megalocephaly with Glioblastomatosis of Brain Stem and Cerebellum—Weil reports a case of megalocephaly which, like Marburg's case, presented a combination of interstitial hyperplasia with diffuse glioblastomatosis and interstitial

hypertrophy, demonstrating the intimate relationship between these processes. This occurred in a boy, aged 7, whose mental development had been normal up to the sixth year and whose brain weighed 1,856 Gm. Hypertrophy of the cerebral hemispheres was combined with diffuse glioblastomatosis of the brain stem and the cerebellum. The author believes that a congenital, familial maldevelopment is suggested by the megalencephaly of the still living brother and by the congenital underdevelopment of the precentral area, the skeletal musculature and the chromaffin tissue of the medulla of the suprarenals.

Archives of Otolaryngology, Chicago

18 413-562 (Oct.) 1933

- Innervation of the Larynx III Experimental Paralysis of the Laryngeal Nerve F. Lemere Denver—p. 413
Chronic Paranasal Sinus Infection Relation to Diseases of Lower Respiratory Tract R. A. Kern and H. P. Schenck Philadelphia—p. 425
Severe Deafness in Adults Clinical Study C. E. Shambaugh assisted by L. J. Wallner, Lois D. Greene and G. E. Shambaugh Jr., Chicago—p. 430
Fractures of the Larynx Report of Case H. O. Cardner Waterloo Iowa—p. 449
Suppuration of Petrosal Pyramid Roentgenologic Problems H. A. Taylor, New York—p. 458
Hemorrhage from Pharyngeal and Peritonsillar Abscesses Report of Cases Resume of the Literature and Discussion of Ligation of Carotid Artery S. Salinger and S. J. Pearlman Chicago—p. 464
*Branchial Fistula Margaret Nojes Klemert Boston—p. 510
Principles Underlying Chlary Activity in Respiratory Tract I Method for Direct Observation of Cilia in Situ and Its Application A. M. Lucas St. Louis—p. 516

Branchial Fistula—Klemert reports a case of complete branchiogenic fistula with external and internal openings and also the cases of the six patients presenting this condition who were operated on at the Massachusetts General Hospital and in the Massachusetts Eye and Ear Infirmary during the years 1926 and 1931. From a study of these cases the author concludes that the true fistula is a complete tract which passes from an external opening just above the clavicle along the border of the sternocleidomastoid muscle and opens into the throat. It is present in the neck from birth. Microscopic examination shows that this fistulous tract is lined with squamous epithelium. These distinctive diagnostic points are all found in the case reported here.

Arch of Physical Therapy, X-Ray, Radium, Chicago

14 577-640 (Oct.) 1933

- Transurethral Electrosurgery in Prostatic Obstruction C. W. Collings New York—p. 581
Recent Developments in Cautey Punch Operation for Prostatic Obstruction J. R. Caulk St. Louis—p. 584
Electroradiotherapy in Basedow's Disease L. Delherm and M. Kahn, Paris France—p. 589
Diathermy as an Aid to Cholecystography S. Weiss, New York—p. 591
Medical Diathermy H. F. Wolf New York—p. 593
Physical Therapy in Some Ear, Nose and Throat Conditions C. R. Brooke Newark, N. J.—p. 595
Surgical Diathermy W. Bierman New York—p. 600
Superiority of Radiation Therapy in Uterine Cervical Cancer H. Swanberg and A. E. Perley Quincy Ill.—p. 604
Colonic Stasis in Chronic Arthritis R. G. Snyder, C. H. Traeger S. Fineman and C. A. Zoll New York—p. 610
*Hyperpyrexia in Mercurial Poisoning B. Billman Cincinnati—p. 618
Simple Slide Rule Method of Roentgen Mensuration Applicable to Female Pelvis, Fetal Heads, Hearts, Foreign Bodies and Other Impalpable Objects J. N. Stewart Stratton, Neb.—p. 620

Hyperpyrexia in Mercurial Poisoning—Billman reports a severe case of mercurial poisoning in which the kidneys were congested to the point of complete inactivity and the mucous membranes of the gastrointestinal tract were necrotic from the mouth to the rectum, with retention of all body fluids. It was obvious that measures should be utilized to carry on the function of the impaired organs. To attempt the precipitation of the mercury into an inert or insoluble form would be futile while the whipping of a nonfunctioning kidney into action was out of the question. Fischer's solution by rectal drip was used for the anuria and preeclamptic state. The kidneys were of momentous concern. Marked diaphoresis would compensate for the dysfunction of the kidneys and a superficial capillary dilatation would relieve the congestion. Both effects might be obtained by hyperpyrexia, and with this line of logic this treatment was initiated six days after the ingestion of the poison and when ordinary measures were of no benefit. Treatment was begun, one hour being allowed for the peak tem-

perature of 101 F to be reached, at which time the current was turned off. The temperature was allowed to rise forty-five minutes, when the blankets were removed and a few drops of urine were obtained by catheter. The next day fever therapy was repeated. The current was turned off at 101.2 F. The following day the patient was feeling better and had passed some urine during the night. Owing to the patient's dislike of diathermy and the fact that a slight improvement was noticed, it was decided to defer treatment to a later date. This was not necessary, as she made a steady improvement until she was discharged from the hospital.

Canadian Medical Association Journal, Montreal

29 349 460 (Oct) 1933

- The Fourth Listerian Oration R Muir Glasgow Scotland—p 349
Surgical Obliteration of Pulmonary Cavities E C Jones Hamilton Ont—p 360
Pulmonary Tuberculosis in Childhood B Chown and H Medow Winnipeg Manit—p 364
Icthen Simplex Chronicus D E H Cleveland Vancouver B C—p 368
*Hemiplegia Due to Tuberculosis of the Corpus Callosum L C Montgomery Montreal—p 375
Position of Circulation in Nephritis H Oertel Montreal—p 378
Treatment of Neurosyphilis with Especial Reference to Malarial Therapy D R Fletcher C Moorehouse and G W Kells Brockville Ont—p 384
*A Ray in Diagnosis of Gallbladder Disease L R Hess Hamilton Ont—p 391
Arthritis Deformans T N Walker Toronto—p 396
Choice of Anesthetic in Complicated Obstetric Cases S Johnston Toronto—p 399
Cancer of the Bladder A I Dean Jr New York—p 402
Chronic Postidiopathic Laryngeal Stenosis J G Strachan Toronto—p 404
Psychiatry in General Practice G H Stevenson Whitby Ont—p 406

Hemiplegia Due to Tuberculosis of the Corpus Callosum—Montgomery reports the case of a man, aged 69 with bilateral cataracts, who was admitted to the hospital complaining of dizziness, headache and weakness of the left side and showing evidence of a progressive left hemiparesis increased spinal fluid pressure presence of globulin and an average of 35 mononuclears per cubic millimeter. The duration of his illness was fifty-two days, the course of the disease was practically afebrile, the blood pressure remained within normal limits and there was only a moderate degree of leukocytosis on admission. The clinical diagnosis was encephalitis, right cerebral thrombosis, left hemiplegia, bilateral cataracts, and hypostatic congestion of the lungs. At postmortem examination the only gross abnormality found was edema and congestion of the lungs and a marked thickening of the corpus callosum. This portion of the brain was soft and friable and presented a necrotic appearance suggesting a possible brain tumor. Microscopic sections taken from the different organs showed 1 Recent miliary tubercles in the lower lobes of both lungs, no primary focus of tuberculous infection was found in either lung. 2 Recent miliary tubercles in both lobes of the liver. 3 No evidence of tuberculosis in the spinal cord or meninges. Sections taken from the corpus callosum on a plane with the Rolandic cortex showed a diffuse lesion in which the structure of the brain was entirely replaced by an irregular cellular mass, in which the blood vessels were markedly engorged and tortuous. Many of these vessels were thrombosed. There were several areas of degeneration scattered throughout this region, and about these degenerated areas there were numerous polymorphonuclear cells, lymphocytes and large mononuclear cells. Throughout the whole lesion the type of the cells varied. There were numerous large eosinophil cells with pigmented nuclei lymphocytes, large rounded mononuclear cells and a dense filled network made up of branching cells with elongated nuclei between which there was a good deal of fibrillar material. In some of the necrotic areas there was frank hemorrhage. In other fields there were some small necrotic areas surrounded by cellular condensation arranged in a radial fashion suggesting a tubercle. The author is convinced that he was dealing with a tuberculoma of the corpus callosum, also that this lesion was definitely older than the miliary tubercles found in the lungs and liver and that the latter were due to an infection of the blood stream.

Roentgenography in Gallbladder Disease—Hess describes a modified intravenous method for the diagnosis of disease of

the gallbladder. The method is effective and practically without reaction, and the result is certain and satisfactory. Sterile physiologic solution of sodium chloride is placed in a large buret suspended from 18 to 24 inches above the site of injection. This is connected to a large-bore hypodermic needle by means of a small-bore rubber tube provided with a stopcock or clamp. About 3 or 4 inches proximal to the needle, a small section of glass tubing is introduced as a window. The needle of the apparatus is introduced into the median basilic vein and the saline solution is allowed to flow until it is quite evident that the point of the needle is within the lumen of the vein and that no extravasation has occurred and that the saline solution flows freely. The solution of tetraiodophthalein sodium has already been prepared by dissolving the necessary amount in about 20 cc of glass distilled water and this is then placed in a large syringe. The surface of the rubber tubing immediately distal to the small glass window is sterilized with alcohol and the injection of the solution of tetraiodophthalein sodium is made directly into the rubber tube. It will then be found impossible to inject faster than the saline solution can flow by gravity through the needle in the vein and any backflow is seen at once by the colored solution of tetraiodophthalein sodium appearing at the window. When the desired total quantity has been introduced, the needle of the syringe is withdrawn from the rubber tubing and the saline solution is allowed to continue to flow from the buret. By this means ample dilution is obtained, there is no possibility of extravasation into the tissues the vein at the site of injection is washed clear of the solution of tetraiodophthalein sodium by means of the saline solution and a slow injection is assured. The first series of roentgenograms is made about fourteen hours after the administration of the dye. A second series is made after a meal of cereal and cream or toast, with plenty of butter and tea in order to observe contraction and concentration of the gallbladder. A third series of roentgenograms is made four hours later in the event satisfactory shadows were not obtained on the first series, further roentgenograms are made with a changed angle of the central ray and the penetration slightly varied until it is shown definitely that no satisfactory gallbladder shadow can be obtained.

Journal of Biological Chemistry, Baltimore

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- Relation of Iron and Copper to Reticulocyte Response in Anemic Rats M O Schultze and C A Elvehjem Madison Wis—p 357
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Id II Methemoglobin and Effect of Cyanide W B Wendel St Louis—p 385
Electrolytes in Human Tissue I Digestion of Tissue and Other Biologic Material and Subsequent Determination of Various Electrolytes G E Cullen Cincinnati and W E Wilkins Nashville Tenn—p 403
Id II Electrolyte Content of Hearts and Other Tissues from Cases with Various Diseases G E Cullen Cincinnati W E Wilkins and T R Harrison Nashville Tenn—p 415
Studies on Heparin I Preparation of Heparin A F Charles and D A Scott Toronto—p 425
Improvements in Manometric Micro Kjeldahl and Blood Urea Methods D D Van Slyke and V H Kugel New York—p 489
Determination of Ammonia in Blood D D Van Slyke and Alma Hiller with technical assistance of J Plazin New York—p 499
The Heat Precipitation of Insulin V du Vigneaud Urbana Ill R H Sifferd and R R Sealock—p 521
The Action of Pyridine on Sugars P A Levene and D R Hill New York—p 563
*New Method for Separating Pressor and Oxytocic Substances from Posterior Lobe of Pituitary Gland R L Stehle Montreal—p 573
Convenient and Accurate Method for Determination and Detection of Carbon Monoxide in Blood A A Christman and E L Randall Ann Arbor Mich—p 595
Manometric Micromethod for Determination of Carbon in Organic Compounds D D Van Slyke I H Page and E Kirk New York—p 635
Buffer Intensities of Milk and Milk Constituents II Buffer Action of Calcium Phosphate E O Whittier Washington D C—p 733
Studies of Phosphorus of Blood I Partition of Phosphorus in Whole Blood and Serum Serum Calcium and Plasma Phosphatase from Birth to Maturity Genevieve Stearns and Edna Warweg Iowa City—p 749
Relation of Thyroid to Conversion of Cyanides to Thiocyanate E J Baumann D B Sprinson and Nannette Metzger New York—p 773

Method for Separating Pressor and Oxytocic Substances from Posterior Lobe of Pituitary—Stehle outlines a procedure for separating pressor and oxytocic substances

from the posterior lobe of the pituitary gland in which inert material is first removed by two successive precipitations through the use of (1) alcohol and (2) barium hydroxide, ferric sulphate and colloidal iron. The concentrate obtained is dissolved in dilute alcohol and the solution is fractionally precipitated with ethyl acetate. This results in a partial separation. The fractions are further purified by a step which utilizes the different distribution of the substances between the two phases of a water-alcohol-ethyl acetate system, the pressor substance concentrating in the aqueous phase and the oxytocic substance in the ethyl acetate phase. The author presents some observations on the chemical properties and pharmacologic actions of the fractions.

Journal of Lab and Clinical Medicine, St Louis

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- The Medicine of the American Indian H Brooks New York —p 1
Functional Studies of Patients on Antiarthritic Medication D Stein and W C Minnich Philadelphia —p 24
Study of Otto Test for Strychnine C F Poe and J F Bailey Boulder Colo —p 40
Studies of Mechanism of Pain in Peptic Ulcer E Granet New York —p 47
Food Allergy as a Common Problem W T Vaughan Richmond Va —p 53
Inactivation of Growth Hormone as a Result of Inadequate Refrigeration H S Rubinstein Baltimore —p 63
*Treatment of Bronchopulmonary Suppuration of Fusospirochetal Etiology with Small Doses of Neosalvarsan H I Spector St Louis —p 66
Growth of Pathogenic Bacteria in Immune Blood F W Shaw Richmond Va —p 77
*Automatic and Graphic Method of Recording Diuresis W E Gower Chicago and J Van de Erve Charleston S C —p 81
Study of Eagle Antigens for Wassermann and Flocculation Tests T B Rice and Virginia P Smith Indianapolis —p 84
Easily Assembled Self Recording Perfusion Apparatus T J Putnam Boston —p 89
Pipet Washing Device T P Nash Jr, and W Krauss Memphis Tenn —p 94
Calibration of White Blood Cell Dilution Pipets F L Dunn Omaha —p 95

Treatment of Bronchopulmonary Suppuration with Neoarsphenamine—Spector investigated the value of small doses of neoarsphenamine in the treatment of three patients suffering from acute suppuration of the lungs, who failed to show improvement and were definitely worse after a reasonable time of treatment with the usual conservative measures. There was a drop in the temperature within twenty-four hours, and the patients improved steadily to complete recovery. In order to confirm these results the author treated twenty-two additional cases of acute and chronic suppuration of the lungs, in the lungs of which sputum spirochetes were found. The initial dose in an adult was usually 0.15 Gm and was repeated every four days until clinical improvement was marked and the sputum became negative for anaerobic organisms. At times the dose was increased to 0.3 Gm, at other times it was decreased to 0.1 Gm, and at other times to 0.05 Gm. The number of injections given to an individual patient varied from one in a case of acute putrid bronchitis to fourteen in a case of tuberculosis complicated by fusospirochetal infection. The total amount of the drug used in each case varied from 0.15 Gm in the former to 27 Gm in the latter case. The best results were obtained when the treatment was started early. Generally it was noticed that the very sick patients responded to the treatment better if smaller doses were used. The author concludes that the possible action of small doses of neoarsphenamine in the treatment of fusospirochetosis is that arsphenamine through its specific spirillicidal action kills the spirochetes and through its nonspecific tonic action stimulates the formation of agglutinins and lysins which in turn destroy the other members of the symbiotic group.

Method of Recording Diuresis—Gower and Van de Erve outline a method of recording diuresis which consists of collecting the urine through a retention catheter into a cylinder containing a float the rise of which is recorded by means of a suitable lever system and writing point on a smoked drum moving about 25 cm per hour. At the top of the excursion the cylinder is automatically emptied returning the writing point to the base line for another trip. The method allows of considerable variation and refinement. The authors arrange

ment consists of three upright parallel cylinders with communication at their bases, one for receiving the urine, one for operating the float and the third for emptying the apparatus intermittently by siphon. Each excursion represents approximately 35 cc of urine.

Journal of Pharmacology & Exper Therap, Baltimore

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- Comparative Study of Antidotal Action of Picrotoxin, Strychnine and Cocaine in Acute Intoxication by Barbiturates A H Maloney Washington D C —p 133
Estrin Content of Sow Ovaries F E D'Amour, Marie C D'Amour and R G Gustafson Denver —p 141
Effects of Estrin and Other Hormones on Pregnancy F E D'Amour, Marie C D'Amour and R G Gustafson Denver —p 146
Excretion of Uric Acid and Urates by the Bird E G Young and N B Dreyer Halifax Nova Scotia —p 162
Artificial Heart for Dogs O S Gibbs Augusta Ga —p 181
*Miscellaneous Actions of Dinitrophenol. Repeated Administrations. Antidotes. Fatal Doses. Antiseptic Tests and Actions of Some Isomers M L Tainter and W C Cutting San Francisco —p 187
*Action of Cocaine on Intestine F Bernheim Durham N C —p 209
Seat of Emetic Action of Pilocarpine N T Knit and R A Hatcher, New York —p 215
Some Effects of Posterior Lobe Pituitary Extract on Serum and Urine of Normal Dogs A R McIntyre and R F Sievers Omaha —p 229
Site of Antidiuretic Action of Pituitary Extract W W Burgess A M Harvey and E K Marshall Jr Baltimore —p 237
Further Studies Concerning the Action of Diuretics on Agglomerular Kidney R N Bieter Minneapolis —p 250

Actions of Dinitrophenol—Tainter and Cutting observed that repeated administration by different routes, of alphanitrophenol (1-2-4) to dogs at intervals of three or more days does not result in tolerance within a period of from two to three months. Studies of the urine, van den Bergh tests and icteric indexes all failed to reveal any evidence of a toxic action during such administrations. There were no significant pathologic alterations in the important organs, aside from some possible injury to the spleen. The fatal doses per kilogram for 50 per cent mortality were: rats 25 mg subcutaneously, dogs, 22 mg subcutaneously, 20 mg intramuscularly, 30 mg intravenously and between 20 and 30 mg orally, rabbits, 30 mg subcutaneously, and pigeons, 7 mg intramuscularly. Excised intestinal strips from rabbits showed response to dinitrophenol in high concentrations only, which depressed the muscle directly. Dinitrophenol may increase the rate and depth of respiration in rabbits previously depressed by toxic doses of morphine, chloral, alcohol or barbital, as does caffeine. The animals may still die, in spite of maintenance of adequate pulmonary ventilation. When the full respiratory stimulation of dinitrophenol has developed morphine promptly reduces it to normal. Dinitrophenol was not successful in preventing death from just fatal doses of sodium barbital. Arterenal, sodium gluconate, dextrose and insulin, monoiodoacetic acid, quinine and salicylate were found ineffective antidotes in rats. The administration of physiologic solution of sodium chloride or cooling by means of tepid baths exerted a partial antidotal (antipyretic and antimortal) effect. Dinitrophenol failed to prevent death from sodium cyanide in pigeons under conditions in which methylene blue is effective and is of no permanent value as an antidote in cyanide poisoning. No antiseptic action was found against *Bacillus coli* or streptococci *in vitro* or against trypanosomiasis in rats. Alphanitrophenol (1-2-4) is more effective in producing fever in pigeons, as far as degree of fever and regularity of response are concerned than are metamonitrophenol and paramonitrophenol. Betadinitrophenol or gammadinitrophenol or trinitrophenol. The authors state that these results taken together with those of their previous reports establish the basis for the use of dinitrophenol in physiologic and pharmacologic experimentation for increasing metabolism and body temperature. They also indicate the possibility of applying this drug in the treatment of various clinical conditions in which an increase in the basal metabolism or a fever might be of benefit. Properly conducted clinical tests are imperative before any clinical applications could be considered.

Action of Cocaine on Intestine—The experiments of Bernheim demonstrate that cocaine in concentrations of from 0.1 to 0.2 per cent causes relaxation of the ileum of the guinea-pig contracted by histamine or pilocarpine. The extent of the

relaxation is a function of the amount of cocaine added and the amount of histamine or pilocarpine. Cocaine causes relaxation of the ileum after contraction by barium. The action of nicotine and cocaine is additive. He concludes that cocaine, like nicotine and atropine, acts both on smooth muscle directly and on the parasympathetic endings.

Journal of Thoracic Surgery, St. Louis

3 1108 (Oct.) 1933

- Experiences with Oleothorax J. N. Hayes and L. Brown Syracuse J. A. N. Y.—p. 1
Oleothorax Therapy W. C. Pollock and R. B. Skinner Denver—p. 12
Intrathoracic Dermoid Cysts and Teratomas Report of Six Personal Cases and One Hundred and Eighty Five Cases Collected from the Literature C. A. Hedblom, Chicago—p. 22
Surgical Treatment in Eleven Cases of Mediastinal and Intrathoracic Teratomas S. W. Harrington Rochester, Minn.—p. 50
Bronchogenic Carcinoma with Especial Reference to Classification, Prognosis and Treatment J. H. Clerf and B. I. Crawford Philadelphia—p. 73
*Experimental Pulmonary Aspergillosis with *Aspergillus Niger* Superimposition of This Fungus on Primary Pulmonary Tuberculosis N. Bethune and W. Moffatt Montreal—p. 86
*Postural Wedge Compression of the Thorax Aid to Maximal Collapse Prevention of Scoliosis and Visualization of Possible Residual Cavity After Thoracoplasty J. D. Bisgard Ann Arbor, Mich.—p. 99

Experimental Pulmonary Aspergillosis with *Aspergillus Niger*—Bethune and Moffatt grew a fungus identified as *Aspergillus niger* from the sputum of a patient having pulmonary tuberculosis with bilateral cavitation, Gaffky V. The spores of this fungus were abundant in the patient's sputum and were grown repeatedly on any ordinary culture mediums. The fungus produced, by inhalation experiments, a chronic pulmonary granulomatous lesion, regressive in nature. It appeared to produce little or no fibrosis in guinea-pigs, rats and rabbits during an observation period of from 7 to 540 days. The spores when inhaled were rapidly engulfed by alveolar phagocytes and became broken up within these cells up to a period of fifty days. By this time the phagocytes had been able to fragment them. No cultures from the lungs were obtained after this period of time. No positive cultures were obtained from the trachea or bronchi after inhalation. Attempts to produce ulceration in the external ear failed. No evidence was found to favor the theory that *Aspergillus niger* may be responsible for the extensive fibrosis and nodular calcification as seen in some roentgenograms of human beings. To produce such fibrosis and calcification one would imagine that the original lesion if caused by the fungus, must have been extremely widespread and of a seriously debilitating nature and produced by the inhalation of large amounts of spores. The fate of the patient is unknown as he left the hospital three weeks after the operation and returned to Nova Scotia. No iodine medication was advised in view of the coexisting pulmonary tuberculosis.

Postural Wedge Compression of the Thorax—Bisgard states that postural wedge compression designates a procedure which applies the simple mechanical principle of leverage to the thorax for the purposes of gaining maximal compression of the thoracic wall after thoracoplasty and of preventing pleural and thoracoplasty scoliosis. The thoracic wall and spine are levered over a fulcrum with the patient lying on the diseased or operated side over a soft compression wedge, such as a rolled pillow. Much of the body weight is suspended on this wedge and exerts not only great localized pressure on the thoracic wall but also a bending force on the spine. The author recommends postural wedge compression during the early plastic period of readjustment of the thoracic wall and spine after thoracoplasty for the following purposes: 1 To mold the thoracic wall so that maximal pulmonary compression will be obtained until the maintenance of compression is assured by costal regeneration and fibrosis. 2 To prevent or correct scoliosis until costal regeneration, scar tissue formation and muscle reinsertion compensate for the spinal imbalance produced by thoracoplasty. 3 To aid in increasing roentgenologic visualization of the collapsed lung after thoracoplasty so that the presence or absence of an uncollapsed cavity in its mesial portion may be determined with greater accuracy to the end that collapse therapy may be more precisely regulated. 4 For the prevention and correction of pleural scoliosis.

Kansas Medical Society Journal, Topeka

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- Relationship of General Practice to Infantile Paralysis C. T. Hinshaw Wichita—p. 375
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Geographic and Experimental Studies on Etiology of Gout C. A. Hellwig Wichita—p. 389
Significance of Nervousness R. W. Robb Olathe—p. 397

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- Constitutional Factors in Neoplastic Diseases T. Abbe Washington—p. 219
New Measurement of Oxygen Absorbing Power E. E. Ziegler, Boise Idaho—p. 225
Modern Concept of Lymph Adenoma I. Jattman Washington—p. 231
Complications of Diabetes Mellitus M. Protta Washington—p. 233

Medical Journal and Record, New York

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- Diverticulitis M. J. Synnott Montclair, N. J.—p. 253
New Adjunct to Treatment of Chronic Infectious Arthritis Preliminary Report B. I. Wyatt and R. A. Hicks Tucson, Ariz.—p. 257
Neoplasms of the Jaw G. I. Miller Brooklyn—p. 259
Insulin Therapy in Certain Disorders of Nutrition Follow Up Report of Thirty Five Patients Treated During the Past Two Years C. W. Lueders Philadelphia—p. 261

New England Journal of Medicine, Boston

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- Neurologic Manifestations of Hypoglycemia W. R. Jordan, Richmond, Va.—p. 715
Accuracy of Death Certificate Diagnoses in Cases of Buccal Carcinoma C. C. Lund and Virginia Hoffman Boston—p. 719
Backache J. E. Goldthwait Boston—p. 722
Plea for More Extended Use of Pneumothorax Therapy in the Home Treatment of Pulmonary Tuberculosis J. B. Hawes 2d and M. J. Stone Boston—p. 729
Clinic and Field Agency Relationships in Syphilis and Gonorrhea Clinics L. V. Langeline H. Morris Boston—p. 735
Pernoxon Hypnosis in Obstetrics Report of One Hundred and Three Cases M. A. Castillo Philadelphia—p. 744

New York State Journal of Medicine, New York

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- Dental Service for Diabetics H. A. Kent Boston—p. 1083
Nutritional Control of Dental Caries E. C. McBeath New York—p. 1086
Pyorrhea Alveolaris Its Relation to Oral and General Health A. H. Merritt, New York—p. 1088
Oral Conditions as Aids in Diagnosis of Systemic Diseases L. R. Cahn New York—p. 1090
Congenital Atresia of Esophagus L. T. Perrault and H. J. Burman New York—p. 1093
*Treatment of Undescended Testes by Injection of Prolan A. Goldman and A. Stern Bronx—p. 1095
*Aspirin Test to Determine Advisability of Removal of Foci in Rheumatic Conditions H. F. Wolf New York—p. 1097
External Examination of Eye in Diagnosis of General Diseases I. Vision Position of the Eye in the Orbit and the Examination of the Eyelids C. Berens and J. Zuckerman New York—p. 1097
Food Hypersensitivity W. C. Sprin New York—p. 1107
*Anatomic Considerations in Radical Phrenic Excision and Scaleneotomy S. A. Thompson New York—p. 1105

Treatment of Undescended Testicles by Injection of Prolan—Goldman and Stern applied Engle's work on monkeys to human beings, that is, the treatment of undescended testicles by the injection of hormones obtained from the urine of pregnant women. They report two cases in which the anterior pituitary-like principle was used. The results obtained were encouraging. Not only was there a descent of the testicles in both of these cases, but there was an increase in the size of the testicles and a definite change in the secondary sexual characteristics. By analogy with Engle's work on monkeys, it seems likely that the increase in the size of the testicle was due to a hypertrophy of the interstitial tissue of the testicle and that the change in the secondary sexual characteristics was a result of the increase in the interstitial gland substance, with an ensuing increase in the male sex hormone.

Acetylsalicylic Acid Test to Determine the Advisability of Removal of Foci in Rheumatic Conditions—Wolf gives any patient complaining of a rheumatic condition from 10 to 15 grains (0.65 to 1 Gm.) of acetylsalicylic acid. If the pain is not relieved within an hour, the extraction of a tooth or a tonsillectomy is not advised, no matter what the oral

condition may be. This does not mean that abscessed teeth should not be extracted as a positive danger, but the patient in such cases should be told that relief of his pain is doubtful. Many physicians advocate the extraction of devitalized teeth without visible pathologic signs as a routine procedure in all cases of arthritis. It is well known, however, that these extractions often prove futile. The author does not advocate an extraction if the patient does not respond to salicylates. If he does, and if a number of teeth are devitalized or show improper fillings of the root without abscesses or rarefactions, he advises the removal of the fillings of the roots and the bacteriologic examination of the roots.

Radical Phrenic Exeresis and Scalenotomy—Thompson presents a technic for radical phrenic exeresis and scalenotomy based on anatomy. A horizontal incision is made approximately 2 cm above the clavicle. It begins over the lateral border of the clavicular head of the sternomastoid muscle, extends laterally for 2 or 3 cm and ends medial to the external jugular vein. The incision is carried to the deep cervical fascia, which is divided by blunt dissection. The omohyoid muscle should be retracted upward. The thin covering of the fat pad is opened and the fat is retracted from the operative field. This exposes the thin prevertebral fascia covering the scalenus anticus and medius muscles, the brachial plexus and phrenic nerve. Whenever possible, the phrenic nerve is found before dividing the prevertebral fascia to avoid its being retracted along with the edges of the fascia. The fascia is divided and a search for accessory roots is made. As the accessory nerve may join the phrenic nerve below the level of the clavicle it is better to divide the nerve to the subclavius even though no accessory fibers are apparent. Roots from the cervical nerves the hypoglossal and the cervical sympathetic should be divided as close to the main stem as possible. The main stem is then cut high up and the distal end is slowly pulled upward, by wrapping it round the forceps or reapplying the forceps at a distance of from 1 to 2 cm. If traction is applied slowly and easily, the entire length of the phrenic nerve with its diaphragm filaments may be removed. There is a distinct thud when the nerve separates from its attachments. Even when pericardial or mediastinal adhesions exist more than 12 cm of the nerve can be avulsed. The traction is somewhat painful but should not be hurried. The cardiac impulse may be felt while applying traction on the nerve if mediastinal adhesions are present. The respiratory tug may also be felt. After traction is applied any remaining accessory fibers may be severed as they appear in the incision. When the scalenus muscles are to be severed this can be done at the same time and the steps of the operation are identical up to this point, with the exception of the incision which is carried laterally 2 or 3 cm more. The external jugular vein is dissected and retracted. The scalenus muscles are exposed elevated and severed near their attachments. The scalenus anticus muscle must be severed below the level of the sixth cervical vertebra. Extreme caution must be taken in cutting this muscle not to wound the pleura or subclavian artery posteriorly. The brachial plexus may be retracted outward or downward and the muscle severed care being taken not to wound the pleura. The scalenus posticus may be severed at the same level as the medius. Following scalenotomy the first and second ribs have a tendency to sag and the first rib drops away from the subclavian vein and artery. For this reason when scalenotomy has been done as a preliminary to thoracoplasty a much greater length of the first rib may be removed. The operation is performed under infiltration anesthesia by the use of from 10 to 15 cc of a 0.5 per cent solution of procaine hydrochloride.

Oklahoma State Medical Assn Journal, Muskogee

26 347-384 (Oct.) 1933

- Upper Respiratory Infections in Children H. Evans Tulsa—p. 347
Prenatal Care W. A. Dean Tulsa—p. 349
Abnormal Uterine Bleeding (Olistetric) E. P. Allen Oklahoma City—p. 352
Ectopic Pregnancy and Its Treatment R. B. Cibon Ponca City—p. 355
Late Refinements in Vaccine Treatment of Chronic Arthritis Non-petecine Type E. Coldfain Oklahoma City—p. 361
Brief Review of Recent Advances in Diagnosis and Treatment of Pernicious Anemia Report of an Unusual Case E. E. Baum Tulsa—p. 364

Philippine Journal of Science, Manila

51 409-660 (Aug.) 1933 Partial Index

- Duration of Serologic Reactions in Monkeys Inoculated with Yaws or Syphilis O. Garcia Manila—p. 409
Effect of Neosalvarsan Treatment on Late Serologic Reactions of Philippine Monkeys Inoculated with Yaws or Both Yaws and Syphilis O. Garcia Manila—p. 425
Effect of Neosalvarsan Treatment on Late Serologic Positive Vernes Wassermann and Kahn Reactions in Philippine Monkeys Inoculated with Yaws or Both Yaws and Syphilis C. Monserrat Manila—p. 435
Cathartic Effects in Man of the Leaves of Wikstroemia Ovata Meyer (Salago Leaves) F. Garcia Manila—p. 485
Terminology Used for Anopheles of Funestus Minimus Subgroup in Recent Papers by Russell and Others P. F. Russell Manila—p. 553
Nutritive Protein Value of Five Varieties of Rice A. J. Hermoso Manila—p. 567
Life History of Human Intestinal Fluke Euparyphium ilocanum (Garrison 1908) M. A. Tubangui and A. M. Pasco Manila—p. 581
Nematodes in Collection of Philippine Bureau of Science I. Oxyuroidea M. A. Tubangui and Rita Villanil Manila—p. 607
Gram Positive Forms of Mycobacterium Lepae from Leprotic Lesions Bacteriologically Negative for Acid Fast Organisms Preliminary Report J. Rodriguez E. Mabalay and J. C. Tolentino Cebu—p. 617
Simple Technic for Isolating Single Trypanosomes T. Topacio Manila—p. 631

52 178 (Sept.) 1933

- Philippine Rice Mill Products with Particular Reference to Nutritive Value and Preservation of Rice Bran A. P. West and A. O. Cruz Manila—p. 1

Gram-Positive Forms of Mycobacterium Lepae—Not being aware of any previous work on the subject, Rodriguez and his associates attempted to demonstrate the presence of non-acid-fast forms of Mycobacterium leprae in leprotic lesions of the skin which were persistently negative for the acid-fast organisms. After smears were prepared from the cutaneous lesions in the ordinary manner and fixed by heat Muc's modification of Gram's stain was followed, step by step. They found that by the use of this method it is possible to demonstrate the presence of gram-positive forms of M. leprae in a considerable proportion of leprotic lesions which do not contain acid-fast bacilli. That many of these non-acid-fast bacilli are not merely degenerated forms may be judged from the fact that they are numerous in many cases of so called closed or incipient cases of leprosy that have not undergone treatment.

Radiology, St. Paul

21 311-410 (Oct.) 1933

- Effect of Radiation Technic and Early Diagnosis of Carcinoma of Uterine Cervix on the Five Year Good End Results Study Based on Four Hundred and Eighty Eight Primary Cases H. Schmitz Chicago—p. 311
*Results of Irradiation in Treatment of Operable Osteogenic Sarcoma of Long Bones W. B. Coley New York—p. 318
Physiologic Interpretation of Duodenal Motility N. S. Zeitlin Chicago—p. 337
Giant Cell Bone Tumor Some Considerations of Treatment C. B. Pearce Ann Arbor Mich.—p. 348
*Chronic Lymphatic Leukemia Involving Gastrointestinal Tract C. H. Mead Minneapolis—p. 351
Progress in Design and Manufacture of X-Ray Tubes M. J. Gross and Z. J. Atlee Chicago—p. 362
New Methods for Determination of High Potentials and High Potential Wave Forms P. Kirkpatrick San Francisco—p. 378
Treatment by Radiation of Cancers of Skin Lip and Breast End Results Three Years Later of Cases Presented in 1929 Barbara Hunt Bangor Maine—p. 384
Roentgen Diagnosis of Massive Atelectasis of the Lung J. B. Johnson Galveston Texas and C. F. Cram Corpus Christi Texas—p. 388

Irradiation in Treatment of Osteogenic Sarcoma—Coley states that the routine treatment of early operable cases of osteogenic sarcoma by irradiation should be abandoned. Preliminary or preoperative irradiation is without justification. The author's present data are insufficient to permit a positive opinion as to the value of postoperative irradiation after amputation but he believes that osteogenic sarcoma is so radio-resistant that it is doubtful whether irradiation would control pulmonary metastasis that might have been present but undetected at the time of the amputation. There is a type of osteogenic sarcoma known as periosteal fibrosarcoma characterized by little involvement of the bone itself and of a much lower malignant degree than is the ordinary osteogenic sarcoma that he has found most responsive to treatment. Three patients with this type of sarcoma have remained well for three years and one for nearly two years one was treated by irradiation alone and three by irradiation combined with Coley's toxins. The

author is of the belief that conservative treatment is justified in this type of bone sarcoma, notwithstanding statements that no case has been found permanently cured with anything short of amputation. For all other types of operable osteogenic sarcoma of the long bones he believes that an amputation as soon as the diagnosis has been made, followed by prolonged treatment with Coley's toxins, is the method of choice. The endothelial myeloma type of bone sarcoma is highly sensitive to both irradiation and Coley's toxins. Under irradiation alone this result has seldom proved to be lasting. In cases of operable endothelial myeloma of the long bones conservative treatment, local irradiation and Coley's toxins should be tried for from four to six weeks before advising amputation. Irradiation is of considerable value in many cases of inoperable osteogenic sarcoma because of the retarding effect on the growth of the tumor and the relief of pain. In certain cases of far-advanced inoperable osteogenic sarcoma that had best be treated without irradiation or toxins, morphine is the method of choice.

Leukemia Involving Intestinal Tract—Mend points out that comparisons of the gastrointestinal manifestations of leukemia, leukemias, lymphogranulomatosis and lymphosarcomatosis show a marked clinical, pathologic and hematologic similarity. None of the diagnostic features of these conditions are characteristic. Because these conditions usually cannot be differentiated from carcinoma of the intestinal tract they assume an important differential diagnostic significance. Accurate diagnosis depends principally on a careful correlation of the clinical, roentgen and laboratory observations. The combination of surgical treatment and roentgenotherapy has been shown to offer the greatest therapeutic benefit in the treatment of lymphoblastomas in general. Intestinal resection in a small series of cases, has shown no immediate operative mortality. Gastric resection, in two relatively small series of cases has shown an immediate operative mortality of approximately 15 per cent. The average duration of life after gastro intestinal resection has been approximately one year, however, a considerable number of five-year cures have been reported. Isolated cases are reported of survival as long as eight, nine and fifteen years after operation without recurrences.

South Carolina Medical Assn Journal, Greenville

29 219 242 (Oct.) 1933

- Practical Treatment of Diabetes Mellitus F E Zemp Columbia—p 223
Management of Roadside Injuries J McLeod Florence—p 227
Appendicitis Is the Mortality Increasing? J S Rhyme Charleston—p 231

Southern Medical Journal, Birmingham, Ala

26 833 908 (Oct.) 1933

- Fractures and Dislocations of Tarsal Bones P D Wilson Boston—p 833
Preliminary Skeletal Traction in the Treatment of Congenital Dislocation of the Hip C H Crego Jr St Louis—p 845
Cutaneous Torulosis Identification of Yeast Cells in General Histologic Sections T D Weidman Philadelphia—p 851
Study of the Spleen in Various Diseases by New Methods Preliminary Report I A Turley Oklahoma City—p 863
Duodenal Diverticulum M K King New Orleans—p 869
Perinephric Abscess Report of Five Cases L Grove and J C Read Atlanta Ga—p 870
Strabismus T H Clements Birmingham Ala—p 873
Primary Malignant Neoplasm of the Pancreas Clinical Study of Eighty Eight Verified Cases Without Jaundice G B Eusterman and D L Wilbur Rochester Minn—p 875
*Tetany Calcipexicus of the New Born Infant Preliminary Report A Blossom and H O Nicholas Houston Texas—p 883
General Remarks on Railroad Surgery S Leigh Norfolk Va—p 887
The Mississippi Plan of Morbidity Reporting H C Ricks Jackson Miss—p 889
Von Recklinghausen's Disease with Unusual Distribution of Neoplastic Nodules J A Lanford and E P Thomas New Orleans—p 892
Importance and Limitation of Teaching of Medicolegal Pathology in the United States H S Thatcher Little Rock Ark—p 894

Tetany Calcipexicus of the New-Born Infant—Blossom and Nicholas report two cases of spasmophilia of the new-born infant with an extremely high diffusible calcium and an apparently low concentration of ionizable calcium in the blood serum of one infant. Introduction of more calcium ions reduced the diffusible calcium concentration, increased the total calcium concentration and resulted in the complete recovery of the infants neuromuscular irritability. The authors call attention to the possible difference in the production of this type of

spasmophilia occurring in new born infants who had symptoms similar to classic tetany and to that producing tetany in older infants. They believe that there is a substance present in the blood serum of the mother and infant preventing ionization of the diffusible calcium in these cases and that this substance is produced in the placenta. Diffusible calcium values must not be interpreted as meaning the total physiologically available calcium for the control of neuromuscular irritability. The authors offer a working hypothesis to explain the mechanism for the production of tetany in all cases and suggest that spasmophilia in the new-born infant associated with an increased diffusible calcium be termed tetany calcipexicus, indicating a binding or making fast of the diffusible calcium ions. This term will serve to differentiate this type of tetany from the tetany of older infants, tetany due to hyperventilation and parathyroparal tetany.

Surgery, Gynecology and Obstetrics, Chicago

57 439 582 (Oct.) 1933

- Carcinoma Arising from Chronic Gastric Ulcer G Gomori Budapest Hungary—p 439
Carcinoma of the Male Breast with Special Reference to Etiology J B Gilbert Schenectady N Y—p 451
*Pathologic and Clinical Data Concerning Polycystic Kidney W F Brunsch and T W Schacht Rochester Minn—p 467
Anatomy of Veins of Cystbladder Their Relation to Impacted Stone. P G Kreider Iarchmont N Y—p 475
Role of External Secretion of Pancreas in Experimental High Intestinal Obstruction P A Johnstone A C Clasen and T G Orr Kansas City Kan—p 483
Intra Abdominal Pressures Created by Voluntary Muscular Effort L Technik of Measurement by Vaginal Balloon D I Murphy and W F Mengert Philadelphia—p 487
*New Method of Repairing Kidney Wounds O S Lowesley and C C Bishop New York—p 494
Benign Tumors of Small Intestine Report of Twenty Four Cases. I W Rankin and C E Newell Rochester Minn—p 501
Injuries of Median Nerve in Fractures of Lower End of the Radius. I C Abbott and J B deC M Saunders San Francisco—p 507
Rupture of Symphysis Pubis Articulation During Delivery B F Boland Boston—p 517
Reestablishment of Normal Leverage of Patella in Knee Flexion Deformity in Spastic Paralysis T A Chaudler, Chicago—p 523
Treatment of Fractures of the Head and Neck of the Radius and Slipped Radial Epiphysis in Children R P Schwartz and F Young Rochester N Y—p 526
*Nephropepy Present Day Status and Description of a New Technique C P Mathe San Francisco—p 539

Polycystic Kidney—In a study of 193 cases of polycystic disease of the kidney, Brunsch and Schacht observed that the average age of the patients at the onset of symptoms was 38.8 years. The average duration of life of the patients reported dead was 50 years. There was definite evidence of a hereditary trend. A systolic blood pressure of 145 mm of mercury or more was found in 61 per cent of the cases, the diastolic blood pressure was more than 90 mm in 55 per cent and more than 95 mm in 47 per cent. Peripheral sclerosis was observed in 15.4 per cent. Retinal sclerosis, with other ocular changes, was noted in 51 per cent. Laboratory evidence of renal insufficiency was present in more than 60 per cent of the cases. Surgical complications occurred in approximately 30 per cent, which is a much greater incidence than is usually recorded. There is frequently a lack of parallelism between the retention and excretory tests for renal function, evidence of reduced renal function is usually greater in the latter. Although a developmental defect probably is primary in the etiology of congenital polycystic kidney, many of the clinical and pathologic manifestations have their origin in an altered condition of the vascular system. Renal polycystic disease is easily overlooked, since there are often no symptoms present that would indicate renal involvement. The renal origin of the patient's symptoms is often recognized only in the course of a routine study of the renal function. The condition may be confused with nephritis unless careful abdominal palpation is made. Failure to discover that renal enlargement is bilateral may lead to the erroneous diagnosis of renal neoplasm. Bilateral urographic studies may be necessary to determine involvement of both kidneys when abdominal palpation reveals unilateral enlargement. The most common symptom is a dull pain, usually referred to either renal region. Urinary symptoms of moderate frequency and dysuria are often observed. Gross hematuria occurs in approximately 33 per cent of cases and may simulate that occurring with neoplasm. The first clinical symptoms are frequently those of renal insufficiency,

although a remarkable degree of tolerance is often noted in the presence of advanced renal destruction. Laboratory evidence of marked reduction in renal function should call attention to the possibility of polycystic renal disease. If renal function remains normal, the prognosis is good. Even moderate reduction of renal function may remain stationary from ten or fifteen years. When the reduction is advanced, the prognosis becomes grave, although several years may elapse before death. The hereditary nature of the disease should discourage the having of progeny, and sterilization should be considered.

Method of Repairing Kidney Wounds—Lowsley and Bishop present the preliminary report of an experimental and clinical study of the repair of wounds of the kidney by a new method of closure which consists in tying broad ribbon gut around the injured part just as one would wrap a parcel with ribbon. The results show that an absorbable gut suture material which is flat and broad like a ribbon can be so placed about the kidney as adequately to approximate the cut surfaces of a nephrotomy incision and to control all bleeding completely. Of twelve animals experimentally operated on, nine have lived in good health up to a period of six weeks. Of the three deaths, one is directly attributable to faulty and imperfect closure of the kidney and the other two resulted from factors not referable directly to the type of operative procedure. Recovery has occurred in all five human cases. Of the specimens observed at necropsy after intervals up to twenty-three days, there has been but one example of imperfect healing and that was due to the fact that too large a pad of hemostatic fat had been added. In all instances the sutures have been found in place and intact. These points emphasize not only that the procedure is possible but that it is permanent in its effect and that the result of such a procedure is compatible with life. Examination of the specimens removed at necropsy demonstrate that renal wounds closed after this manner heal in an entirely satisfactory way with a minimum of reaction as far as can be noted on gross examination. There is no gross alteration of size or consistency in the specimen. It has been noted that the suture material, though absorbable in vitro in from four to five days, has been found unabsorbed at the end of periods up to twenty-three days. Since the material is nonchromicized, this fact strongly suggests that the nephrotomy wounds are tightly closed and do not leak. If there had been seepage, the plain gut would certainly have been absorbed in an interval of this length. Further, the durability of the material offers confidence that an adequate, lasting, supporting structure is afforded until such a time as the healing wound has gained its own strength. The use of fat as a hemostatic adjunct has been satisfactory.

Nephropexy—In a nephropexy Mathe makes the usual curvilinear Albarran incision extending from the costovertebral angle toward the anterior superior spine. The kidney is delivered into the incision and liberated from sclerosing fibrosis or fibrolipomatosis. A triangular twenty-day absorbable chromic catgut suture is taken in the anterior and in the posterior surface of the kidney in the region of the upper pole, in the midregion or in the junction of the midregion and the lower pole, depending on the height of fixation desired. The triangular suture is taken in the renal capsule so as to leave two outer bridges on the surface of the kidney and in the most advantageous position where it would counteract forces tending to bring the kidney to a lower level. The direction of the suture is made so that it is at right angles and not parallel to the framework of the cortex. Suspension at a greater height can be obtained by placing the sutures lower down in the kidney. These sutures are more easily passed through the musculature above the twelfth rib. In cases requiring high suspension the upper anterior and posterior sutures are tied above the eleventh rib. A third suture is taken in the posterior surface of the kidney about 2 cm below the upper posterior suture and is anchored to the musculature below the twelfth rib. The upper portion of the ureter is dissected free from the surrounding structures (ureterolysis) as a routine. In cases presenting an unusual amount of pain denervation or renal sympathectomy is also performed. This consists of severing the sympathetic nerve fibers, which are usually found to course along the superior surface of the renal artery and its main branches. Exposure of the renal artery is facilitated by retracting the renal vein

with a small retractor. In cases in which there is a concomitant perinephritis in which the fibrous capsule consists of a thickened, indurated, sclerotic shell, a small longitudinal incision is made in the capsule on the anterior convex surface of the lower pole of the kidney. The capsule is partially stripped and this is sufficient to release the kidney. A soft rubber tissue drain is placed against the posterior surface of the lower pole of the kidney and is brought out through the upper portion of the skin incision. It is gradually withdrawn about 1 cm each day, in such a way that at the end of a week it is entirely removed. The patient is kept in bed in the Trendelenburg position for three weeks, which assures the adhesion of the kidney to the walls of the renal fossa in a high position. The author states that the results obtained from the use of this method have been satisfactory. Routine postoperative pyelographic study demonstrated that the kidney was permanently fixed in a sufficiently high position by which the ureter was freed from kinks and thus good dependent drainage of urine was definitely established. Relief from symptoms by this method has surpassed the use of all other methods formerly employed by the author.

Texas State Journal of Medicine, Fort Worth

29 357-416 (Oct.) 1933

- Oculoglandular Tularemia T E Fuller Texarkana—p 363
*Treatment of Agranulocytic Angina with Fetal Calf Spleen Report of Case G A Gray Abilene—p 366
Treatment of Food Allergy in Young Infants D Greer, Houston—p 370
Arsphenamine Dermatitis A G Schoch Dallas—p 372
Malaria Eradication C P Coogle Houston—p 375
Abnormal Sequelae in the Puerperium M L Wilbanks, Greenville—p 378
Meckel's Diverticulum and Its Symptomatology L R Talley, Temple—p 380
Putrid Lung Abscess F P Miller El Paso—p 384
Indications and Contraindications for Cesarean Section C A Smith Texarkana—p 387
Venereal Infections of Anus and Rectum C Rosser Dallas—p 390
*Gonococcal Vulvovaginitis Before Puberty P R. Stalnaker Houston—p 395
Dietetic Affections in Otolaryngology C C Cody Jr., Houston—p 400

Treatment of Agranulocytic Angina with Calf Spleen—Gray reports a case of agranulocytic angina with a positive Wassermann test to demonstrate further the value of raw fetal calf spleen in the treatment of agranulocytic angina. The author believes that the extent to which syphilis influenced the patient's condition is a matter of speculation. Because of her so called leukopenic diathesis, which seems to have existed long before she contracted syphilis, the author doubts that it had much part in the causation of the agranulocytosis. While it is entirely possible that this patient may have recovered without any specific treatment and also that she may have a recurrence at any time, he feels as others do who have used it, that raw fetal spleen is of definite, specific value in the treatment of agranulocytic angina. The only objections to its use are the frequent difficulty in obtaining a fresh, adequate supply and the distastefulness for it.

Gonococcal Vulvovaginitis Before Puberty—In treating eight children for gonococcal vulvovaginitis, Stalnaker found that gentle digital rectal stripping of the cervix, vagina and urethra by pressing them anteriorly toward the symphysis pubis is the safest and most beneficial method of treatment. He advocates this treatment in children from the age of 2 upward. In younger patients he gives vaginal douches of potassium permanganate in 1:20,000 dilutions. He stresses the point that natural drainage should be encouraged even to the extent of a tissue diarrhea.

Virginia Medical Monthly, Richmond

60 397-460 (Oct.) 1933

- Economic Trends in Medical Practice A D Hart Jr University—p 397
Diagnosis and Treatment of Diphtheria L E Sutton Richmond—p 400
Causes and Treatment of Uterine Hemorrhage T J Williams University—p 408
Problems in the Education of Nurses in Virginia J B Williams Richmond—p 413
Heart Pain K. D Graves Roanoke—p 416
Myasthenia Gravis Report of Case T N Spessard Roanoke—p 418
Psychogenic Factors in Disease J A Reed Washington D C—p 420

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2 671 716 (Oct. 14) 1933

- Food and Gaster. R. McCarrison—p. 671
 Irradiation Therapy in Treatment of Malignant Disease. F. P. Gould—p. 675
 Radiation Treatment of Malignant Disease. O. Chance—p. 677
 Id. W. M. Levitt—p. 678
 *Treatment and Postoperative Results of Perforated Peptic Ulcers. F. H. Scotson—p. 680

Perforated Peptic Ulcers—Scotson investigated the late results following operations performed for perforated peptic ulcers in a series of 181 cases. In less than 20 per cent there were severe symptoms and in more than 40 per cent there were no symptoms of any sort. Of the duodenal ulcers treated by simple suture 54 per cent of patients who had adhered to the dietary restrictions had no symptoms while of those who had not done so only about 30 per cent were symptomless. None of the duodenal ulcer patients treated by suture and short circuit had any severe postoperative symptoms. In gastric ulcers the effect of dietary restrictions did not seem to reduce the onset of recurrent symptoms.

Indian Medical Gazette, Calcutta

GS 545 604 (Oct.) 1933

- The Anemia of Kala Azar. I. E. Napier and I. R. Sharma—p. 545
 Toxicity of Tetrachlorethylene to Cats. P. A. Maplestone and R. N. Chopra—p. 554
 Colorimetric Method for Determination of Milk Proteins. A. D. Stewart and D. Das Mitra—p. 556
 Action of Some Synthetic Antimalarial Remedies on Uterus. R. N. Chopra, J. C. Gupta and S. K. Ganguli—p. 558
 Biliary Lithiasis. Part I. M. S. Khanna—p. 561
 Chronic Amebic Infection as a Cause of Ill Health. G. T. Burke—p. 565
 Bronchoscopy. Its Usefulness in India. E. H. Evans—p. 567
 Fecal Bacteria in Bengal as Indicators of Sewage Contamination of Water. Preliminary Study. B. B. Brahmachari and C. N. Sen—p. 569

Journal Obst. and Gynec. of Brit. Empire, Manchester

40 957 1124 (Oct.) 1933

- *Endometrial Tumors of Perineum. Report of Case. R. G. Malphrant—p. 957
 Antisepsis in Midwifery. L. Colebrook and W. R. Mayled—p. 966
 Further Investigation into Source of Infection in Puerperal Fever. J. Smith—p. 991
 *Caput Succedaneum. Hindrance to Labor. J. R. Goodall—p. 1021
 Late Effects of Toxemia of Pregnancy. M. D. A. Evans introductory remarks by G. I. Strachan—p. 1024
 Contraction Ring in Labor. W. Gillratt—p. 1036
 Postmaturity and Malformations of Fetus. P. Malpas—p. 1046
 Partial Rupture of Old Cesarean Scars with Intact Fetal Membranes. J. S. Tait—p. 1054

Endometrial Tumors of Perineum—Malphrant describes a case of endometrioma of the perineum and presents three other cases collected from the literature. The case described occurred in a patient operated on for a deficient perineum, next day she menstruated and two years later a tumor developed in the perineal scar which showed the typical structure of uterine mucosa. The author suggests that this tumor was a true implant and that it had grown from a fragment of menstrual exfoliation.

Caput Succedaneum—Goodall states that a caput succedaneum forms only after rupture of the membranes. Its diameter and circumference are proportionate and sequential to the diameter and circumference of the neck of the uterus. Its depth is an indication of the sum total of the uterine contraction and the duration of time after rupture of the membranes. Its absence after rupture, when pains are severe is indicative of uterine muscular spasm instead of rhythmic normal contraction. Its role in the first stage of labor is purely passive. In the second stage, owing to its eccentric position on the fetal head, the bulk of the fetal head is thrown out of the axis of the pelvis. This abnormal position can be overcome only by strong uterine contractions. In the absence of such contractions incomplete or faulty rotation of the head of the child is the rule. When forceps are applied and the head is drawn to the vulva, the caput lies close to one blade out of the pelvic axis.

Journal of Physiology, London

79 239 358 (Oct. 6) 1933

- Effect of Atropine on Adrenaline Hyperglycemia in Rabbits Decerebrated Anterior to the Pons. M. G. Forster assisted by A. K. Chalmers—p. 239
 Alleged Occurrence of Acetylcholine in Ox Blood. H. W. Dudley—p. 249
 Choline Esters in Tissue Extracts. H. C. Chang and J. H. Gaddum—p. 255
 Insulin and Adrenaline. M. W. Goldblatt—p. 286
 Normal Behavior of Isolated Uterus of Guinea Pig and Its Reactions to Isthrin and Oxytocin. W. H. Newton—p. 301
 *Effect of Cardiac Contraction on Coronary Flow. G. V. Anrep and I. von Sarrfeld—p. 317
 Afferent Impulses in Vagus and Their Effect on Respiration. E. D. Adrian—p. 332

Cardiac Contraction and Coronary Flow—Anrep and von Sarrfeld present experiments that lend support to their former observations by showing that 1. Repeated obstructions of the coronary flow of the blood which occur in diastole conspicuously reduce the blood supply through the artery, on the other hand, equal obstructions that occur during systole have almost no effect on the flow of the blood. This result demonstrates that the blood supply to the heart during systole is negligible. 2. Measurements of the blood pressure between the place of clamping and the muscle of the heart show that during systolic clamping there is no change or sometimes even a rise of pressure in the coronary artery, while during diastolic clamping there is a precipitate fall of pressure. This result demonstrates that the muscle of the heart opposes the greatest resistance to the coronary blood supply during systole and the smallest resistance during diastole. 3. These results were obtained in the heart-lung preparation and in the whole animal in artificially perfused coronary arteries and in arteries that remained in connection with the heart.

79 359 518 (Oct. 25) 1933

- Renal Elimination of Injected Urea and Creatinine. W. W. Kay and H. I. Sheehan—p. 359
 Control of Insulin Output of Pancreas. T. Kosaka—p. 416
 Outline Method for Investigating Gastric Motility. B. A. McSwiney and W. R. Spurrell—p. 423
 Influence of Osmotic Pressure on Emptying Time of Stomach. B. A. McSwiney and W. R. Spurrell—p. 437
 *Blood Lactic Acid in Man During Rest. I. C. Cook and R. H. Hurst—p. 443
 Adrenaline in Suprarenal Medulla. H. Schild—p. 455
 Influence of Certain Factors on Volume of Intrathoracic Venae Cavae. K. J. Franklin—p. 470
 Effect of Breathing on Intra Abdominal Pressure. W. H. Wilson—p. 481
 Electrical Resistance of Stimulated Muscle. W. Hartree—p. 487
 Revised Analysis of Initial Heat Production of Muscle. W. Hartree—p. 497
 Effect of Ions on Cutaneous Sensory Endings of Frog. M. Talbot—p. 500
 Respiratory Quotient of Eviscerate Cat. J. McI. Peterson—p. 508

Elimination of Injected Urea and Creatinine—After the intravenous injection of creatinine or urea into rabbits Kay and Sheehan made comparisons of the amounts of these substances reaching the kidney in the arterial blood and leaving it in the venous blood. During the first minute after the injection the mean plasma renal extraction ratio for creatinine was 31 per cent, and for urea 40 per cent. During the next twenty minutes the ratio for creatinine averaged 19 per cent and for urea 2 per cent or negative. Later than fifty minutes after the injection the mean ratio for creatinine at low plasma concentrations was 38 per cent, and that for urea at low plasma concentrations 15 per cent. With increasing concentration of either substance in the plasma, a diminishing proportion was removed by the kidney from the blood. It appears probable that the absolute amount of these substances that the kidney can remove from the blood passing through it is limited by a maximal value of about 20 mg of creatinine or 15 mg of urea per hundred cubic centimeters of blood. Combined experiments indicate that, when the kidney is removing large amounts of creatinine from the blood it removes little or no urea from the blood. When it is removing moderate amounts of urea from the blood it can however still remove its normal amount of creatinine from the blood. To explain all the results by a pure "filtration" theory it is necessary to postulate the filtration of from a third to a half of the plasma in the glomeruli and the reabsorption of various amounts of urea and creatinine by the tubular epithelium. According to a pure "secretion"

theory, the tubular epithelium must absorb various amounts of the creatinine or urea in the plasma directly from the inter-tubular capillaries, under certain circumstances up to about half. Either theory, or a combination of the two may be correct, as no fundamental impossibility is involved in the foregoing explanations. The author definitely establishes that under certain conditions a secondary return of urea from the renal parenchyma to the blood does occur.

Blood Lactic Acid in Man During Rest—Cook and Hurst made an attempt to trace the source of blood lactic acid in man during bodily rest and present experimental evidence in support of the following conclusions: 1 During bodily rest the muscles supply no lactic acid to the blood. In the case of men in good training, walking at speeds up to $4\frac{1}{2}$ miles an hour for thirty minutes produces no increase in the lactic acid concentration of blood drawn from the femoral vein. 2 Activity of the sympathetic nervous system with consequent secretion of epinephrine is an unlikely source. 3 Comparison of blood samples taken in immediate succession from the jugular bulb and from an artery during rest shows that the blood receives no demonstrable amount of lactic acid from the brain. 4 The existence of a threshold value below which lactic acid is not resynthesized by the muscles is a hypothesis which lacks supporting evidence of a practical nature and which would still leave unexplained the wide variations in lactic acid concentration. 5 Conversion of blood sugar (glycolysis) is the most probable source of the blood lactic acid at rest. The evidence of glycolytic activity, shown by previous workers to take place *in vitro* and in heart-lung preparations is supported by experiments *in vivo*, in which an increase in blood pH by means of alkali ingestion is shown to increase the blood lactic acid concentration. These experiments also suggest that the variations in lactic acid concentration during bodily rest are due to stimulation or depression of glycolytic activity and assist the organism in its endeavor to maintain a constant blood reaction.

Journal of State Medicine, London

41 559 620 (Oct.) 1933

- Trend of Modern Research in Bacteriology A Fleming—p 559
Hygiene of the Adolescent Girl and Woman Mabel L Ramsay—p 566
Bacteriology Treatment and Control of Influenza W Crowe—p 581
Environmental Factor in Juvenile Rheumatism Study of Etiologic Factors as Applied to Fountain Hospital for Mentally Defective Children J L Newman—p 590

Journal of Tropical Medicine and Hygiene, London

36 297 328 (Oct 16) 1933

- Observations on Fungi Isolated from Cases of Blastomycosis Cutis and Blastomycosis Pulmonalis in North America and Europe Remarks on Blastomycetin A Castellani and I Jacono—p 297

Lancet, London

2 849 904 (Oct 14) 1933

- Neurologic Emergencies W Harris—p 849
Infection of Nasal Sinuses and Tonsils in Psychoses P K McCowan—p 853
Serum Treatment of Hodgkins Disease Account of Four Cases Treated N R Barrett and I T Bond—p 855
Treatment of Lymphadenoma with Chicken Serum R J A Pulvertaft—p 857
Carbohydrate Metabolism in Cases of Unexplained Miscarriages E Christine Pillman Williams—p 858
Monthly Periodicity in Epilepsy Cwenyon M Griffiths—p 861

Serum Treatment of Hodgkins Disease—As a result of the publication by Utz and Keatinge of a new form of treatment for lymphadenoma, Barrett and Bond treated four cases of this disease. Their technic was as follows: A fresh portion of blood removed from the patient and kept bacteriologically clean, was emulsified in a small quantity of physiologic solution of sodium chloride and injected subcutaneously into the leg of a chicken. After ten days the chicken was bled and serum was prepared subsequent bleedings being done at weekly or fortnightly intervals. The details of the technic as well as the administration and dosage of serum to the patients were those of Utz and Keatinge. The authors state that a study of their four cases reveals no evidence that the treatment with chicken serum was of any avail or that the disease was controlled in any way. In two of the patients the disease was

certainly advanced when treatment was started, but in the others it may be said to have had a fair trial. The injection of a foreign serum into patients is not without danger, and even in these cases it will be seen that, quite apart from the brisk local and general reaction which sometimes occurred as the dose was increased, other complications arose. In one case an extensive thrombosis of the veins of the arm caused the patient much pain and discomfort and in another the attacks of anaphylaxis were sufficiently serious to be an immediate danger to life.

Medical Journal of Australia, Sydney

2 501 534 (Oct 14) 1933

- Some Medical Aspects of Racial Resistance R W Cilento—p 501
The Anemias Modern Views H Ritchie—p 512
Autochthonous Calculi of Posterior Part of the Urethra C Edwards—p 516

Autochthonous Calculi of Urethra—Edwards submits a case of autochthonous urethral uric acid calculus occurring in a patient with uninfected urine. It is impossible to conceive the manner in which such stones could be formed without direct association with the urinary tract. Although no fistulous communication could be found between the urethra and the cavities, undoubtedly one must have existed. As it is an impossibility that true prostatic calculi have no connection with the urinary tract, they cannot be formed of urates or uric acid. The author's specimens must therefore be excluded from that category. The dimensions of the stones are such that it would be impossible for them to have passed through the stenosed internal urinary meatus. There was no history to suggest migration and the shape of the stones can be accounted for only by the exertion of continuous pressure on both sides during the period of formation. Such a condition is found exclusively in the prostatic urethra. Migration may therefore be excluded. The author suggests that his patient had (possibly congenital) bilateral diverticula of the posterior part of the urethra. Within these, urates were deposited and ultimately became calcified. Continual additions were made from the urinary stream but the conditions of growth prevented the stones from assuming the usual spherical or elongated form. Of recent years the increasing enlargement of the prostate added its quota of pressure. The history of loin pain may be reasonably attributed to the passage of uric acid crystals, which probably accelerated the onset of vesical symptoms. Phosphates and carbonates formed the most superficial layer of the calculi owing to the fact that the patient was taking alkaline diuretics for about four months prior to the author's observation.

Practitioner, London

131 325 532 (Oct.) 1933

- The Present Day Therapy of Nervous Disorders in General Practice L Bramwell—p 325
Some Hints on Modern Treatment of Mental Illness T S Cood—p 336
Modern Treatment of Some Gastric and Intestinal Disorders A T Hurst—p 353
Modern Treatment of Diabetes G Graham—p 362
Recent Views on Treatment of Diseases of the Lung and Pleura A J S Pinchin and H V Morlock—p 377
Artificial Pneumothorax L S T Burrell—p 392
Modern Treatment of Diseases of the Heart C Bain—p 400
Modern Treatment of Anemias J F Wilkinson—p 409
Modern Methods in Treatment of Nephritis C Hoyle—p 421
Advances in Gynecologic Treatment A Bourne—p 434
Modern Treatment of Venereal Diseases L W Harrison—p 443
Modern Methods in Treatment of Chronic Arthritis V Coates—p 454
Modern Methods of Treatment in Ophthalmology S Duke Elder—p 466
Some Modern Tendencies in the Treatment of Diseases of the Skin H C Semon—p 474
Modern Methods of Treatment in Otolaryngology R S Stevenson—p 484
The Uses of Radium R Ward—p 499
Modern Methods of Electrical Treatment E P Cumberbatch—p 515

South African Medical Journal, Cape Town

7 675 706 (Oct 28) 1933

- Municipal Health Problems of Non European Population C C P Anning—p 677
The Panel H S V Menko—p 679
Antihemolytic Serum F M Voigt and C Voigt—p 690
Some Observations on Fractures I A Currie—p 687

Presse Medicale, Paris

41 1941 1956 (Dec 2) 1933

Vaccinotherapy of Typhoid F Bezançon Duchon and Duruy—p 1941
 *Continuous Superior Thyroid Murmur Characteristic Sign of Hyperthyroidism C Lian, L Lyon Chen and R Dumery—p 1942

Continuous Superior Thyroid Murmur—Lian and his associates describe a thyroid murmur which they consider characteristic of hyperthyroidism. They designate it as a continuous superior thyroid murmur, because the maximal intensity is found in auscultation not of the body of the thyroid but of the superior thyroid pedicle within the superior pole of the lateral lobe. The stethoscope should be placed at this point, because the murmur, if it is not intense, may not be audible in the body of the thyroid. It is not necessary to exert pressure with the stethoscope but merely to bring it in contact with the skin. The murmur is continuous and is accompanied by a continuous thrill. It is generally soft during diastole and more or less harsh during systole, it may be whining and musical. It may vary in quality and intensity. As it is a manifestation of hypervascularization of the thyroid, it may be accentuated during the menstrual period or as a result of sympathetic stimulation. The continuous murmur is almost a pathognomonic sign of hyperthyroidism, because it can be confused only with the murmur produced by an arteriovenous cervical aneurysm. This confusion would be possible only if such an aneurysm were associated with a simple goiter (which would be a clinical curiosity) and if the murmur of the aneurysm were localized in the superior thyroid pedicle. The authors observed the continuous superior thyroid murmur in only 20 per cent of cases of exophthalmic goiter; it was found only in cases in which the diagnosis was clear and in cases in which the basal metabolic rate (when measured) was above normal. They consider it the most characteristic single clinical sign of hyperthyroidism.

Anales de Medicina Interna, Madrid

2 867 960 (Oct.) 1933

Urticaria Clinical Types and Genetic Factors C Jimenez Diaz B Sánchez Cuencia and J Recitero—p 867
 Aschheim Zondek Test in Diagnosis of Pregnancy Gonzala G Delgado—p 885
 *Electrocardiogram in Myxedema J Carrion and R de la Puerta—p 911
 *Tabes of Pure Granulomatous Type with Normal Cerebrospinal Fluid Four Cases W Lopez Albo—p 925
 Pancreatic Ulcer and Diabetes M Espejo G Avellaneda and J M Romero Martinez—p 941

Electrocardiogram in Myxedema—Carrion and de la Puerta report their observations on the electrocardiograms of two brothers aged 6 months and 2 years, respectively having myxedema, and conclude that the changes in the electrocardiograms of infants presenting congenital myxedema are the same as those observed in the electrocardiograms of adults suffering from the same condition. They discard the hypothesis that the abnormalities of the electrocardiogram are due to alterations of the skin, because they found the same abnormalities in the electrocardiograms taken by means of electrodes with needles hypodermically introduced as in those taken by means of bandage electrodes. They believe unjustified the hypothesis of attributing, in general, the electrocardiographic changes of myxedema to sclerotic lesions of the coronary arteries. In their two patients this hypothesis could not be accepted, owing to the youth of the patients. However, the electrocardiographic changes before treatment were evident, as was also the return of the electrocardiogram to normal after thyroid treatment. The authors believe that there are two periods, representing two phases in the evolution of the myxedematous heart. The first period, of a functional nature, is produced by alterations of the metabolism of the cardiac muscle. In this period the cardiac disturbances are favorably modified by the thyroid treatment. The second period represents a more advanced phase of the disease, in which the organic lesions, consisting of a process of sclerosis due to thyroid insufficiency, are already constituted and developed. In this period thyroid medication does not produce any favorable effect on the disease.

Tabes with Normal Cerebrospinal Fluid—Lopez Albo reports four cases of tabes with normal cerebrospinal fluid. He concludes that the primary lesion in tabes is a productive

chronic granuloma of the posterior roots of the radicular nerves, which sometimes is associated with meningeal inflammation and vascular reaction. In pure granulomatous tabes without complications, the lesions of the radicular nerves are not associated with meningo-vascular reactions. The nerve roots degenerate at the point of location of the granuloma. The motor and sensory cranial nerves show fibroblastic production, while the sensorial cranial nerves, especially the olfactory and optic nerves, are the seat of a process of infiltration. In complicated granulomatous tabes the radicular process coexists with the meningeal inflammation. The reaction is attended by the appearance of plasma cells, fibroblasts and lymphocytes. The cranial nerves show at the same time granulomas and infiltrations of their sheaths and there is also infiltration of the vessels. The granuloma has not a determined localization in the motor cranial nerves. In the cranial ganglions the granulomatous process resides exclusively near the central portion of the root without extending to the peripheral portion. The lesions of the fascicles of the posterior roots and of the columns of Goll and of Burdach are secondary to the fibroblastic granulation. The anatomic alterations of the posterior roots and cranial nerves appear a long time before the clinical symptoms, while in the pure form the clinical symptoms appear before the serologic alterations and, in many cases, the alterations do not appear at all during the entire course of the disease. The recurrent crises of radiculalgia, repeated during several years, are an excellent symptom to diagnose pure granulomatous tabes, even in the presence of normal cerebrospinal fluid. It is of great practical interest to know of these forms of granulomatous tabes with normal cerebrospinal fluid. New investigations are necessary to determine whether the nature of the anatomic process is the cause of the lack of parallelism between the clinical symptoms and the results of the serologic tests.

Beitrage zur Klinik der Tuberkulose, Berlin

83 515 642 (Oct 24) 1933

*Immunization Against Tuberculosis by Inhalation of Killed Tubercle Bacilli N Westenyk—p 515
 *New Method for Cultural Demonstration of Tubercle Bacilli in Feces Chin Iuk Choun and K Krug—p 530
 Culture of Tubercle Bacilli from Feces T Ogawa—p 539
 Significance of Early Microscopic Examination for Cultural Demonstration of Tubercle Bacilli K Meyer—p 549
 Open Pulmonary Tuberculosis with Low or Normal Values of Erythrocyte Sedimentation Occurrence Prognosis and Therapy S Berg—p 551
 Specific Irrame Diseases in Extrapulmonary Tuberculosis K Schubert—p 561
 Primary Cutaneous Tuberculosis During Childhood J Siegl—p 581
 Percutaneous Alleviation of Pain in Tuberculosis F Hornig—p 591
 When Will There Be a Systematic Campaign Against Tuberculosis? M Dugge—p 596
 Influence of Inhaled Epinephrine on Pulmonary Ventilation in Bronchial Asthma and Its General Effect K Lagereder—p 605
 Clinical and Roentgenologic Studies on Pulmonary Sclerosis in Workers in Sulphur Mines A Ferrannini—p 619
 Gas Analytic Studies on Pneumothorax A V von Frisch and I Kugler—p 633
 Critical Remarks on Quotations from Hippocrates Particularly Regarding the Pneumothorax Method P Krause—p 640

Immunization by Inhalation of Killed Tubercle Bacilli—Westenyk shows that the inhalation of killed young tubercle bacilli is readily accomplished and well tolerated by rabbits. This method of immunization seems promising, because it produces a satisfactory immunity against relatively large infectious doses in animals. The nature of the resistance is not explained as yet but it is probable that the power of resistance is increased by way of a cellular immunity. The prophylaxis with killed young bacilli and the subsequent inhalation of living bacilli was meant to imitate the natural process in human subjects. The author thinks that, with a different technique, it may eventually be practical in human subjects, but he admits that further experiments will be necessary before this is possible.

Demonstration of Tubercle Bacilli in Feces—Chin Iuk Choun and Krug tried to devise a method for demonstrating tubercle bacilli in human feces in pure culture. They observed in preliminary experiments that by shaking the specimens of stool for thirty minutes with distilled water the accompanying bacteria could be considerably reduced. The sediment is then triturated with 50 cc of a 10 per cent solution of sulphuric

acid and again shaken for thirty minutes. The sediment remaining after this procedure is inoculated into culture mediums. The authors employed one fluid and three solid mediums. The fluid one was a serum containing mineral medium. The solid mediums were the egg-congo red medium (Lowenstein), the egg-malachite medium (Hohn) and the egg medium according to Lubenan-Hohn. The authors examined forty-eight specimens of stool from eighteen patients having open pulmonary tuberculosis. Of sixteen patients whose sputum contained bacilli, fifteen had tubercle bacilli in the stools. In the solid culture mediums 60 per cent of the examined stool specimens were positive, and in the serum containing mineral culture medium 68 per cent.

Deutsche medizinische Wochenschrift, Leipzig

59 1779 1814 (Dec 1) 1933

- Significance of Suburban Settlements M Gundel—p 1779
Causes and Treatment of Falling Out of Hair C Bruhns—p 1782
*Intravenous Serotherapy of Scarlet Fever E E Joepchen—p 1785
Significance of Slight Tissue Injuries for Metastasis in Bacteremia L Gmelin—p 1788
*First Experiences with Zeller's Acetylene Insufflation in Treatment of Meningitis A Jaurneck—p 1790
Flocculation Reaction According to Henry in Malaria Therapy Danger of Relapse T Koh and K H Vohwinkel—p 1792
Brucellosis (Malta Fever and Bang Infection) C Stein—p 1794
Atrophy of Optic Nerve Visual Disturbances and Duration of Life L Heine—p 1796
Campaign Against Trypanosomiasis in Kamerun E Steudel—p 1798
Schopenhauer and Medicine H Vorwahl—p 1801

Intravenous Serotherapy of Scarlet Fever—Joepchen calls attention to the fact that opinions about the serotherapy of scarlet fever are still divided. Some demand serotherapy for all cases, others advise the use of serum only for the severe and toxic cases, and still others assert that in mild cases serotherapy is fraught with danger in that the number of complications is increased by it. Friedemann is one of those who demand serotherapy for all cases of scarlet fever and he reports favorable results particularly with the intravenous injection of serum. In this mode of application the required amounts of serum are only about one tenth those used in intramuscular injections. Adult require 5 cc, while from 2 to 5 cc is sufficient for children. It was observed that the action is more prompt for fever as well as exanthems disappear much more rapidly than in case in intramuscular administration. Moreover, the incidence of serum disease is considerably reduced. These advantages as well as the small number of complications reported by Friedemann induced Joepchen to investigate the various forms of serotherapy on a larger number of patients suffering from scarlet fever. His observations were made on 220 cases. Of these 100 were treated with intravenous injections of serum 20 with normal horse serum, and the other 100 received no serotherapy. He reaches the conclusion that intravenous serotherapy with small doses may be recommended and that it has advantages over the intramuscular method. However, it influences only the initial toxicosis, the exanthem and the fever and does not prevent complications or reduce their severity. For this reason the author employs serotherapy only in the toxic and severe cases, and he emphasizes that the injection should be made as early as possible.

Acetylene Insufflation in Treatment of Meningitis—Jaurneck considers the use of acetylene gas superior to the use of air in the treatment of meningitis because it is more readily soluble in water as well as in blood and cerebrospinal fluid. Moreover, it is impossible to produce a gas embolism with acetylene, a danger that is not entirely absent in air insufflation. Another advantage of acetylene is its bactericidal and narcotic action. The object of the treatment is to discharge the fluid as completely as possible and to loosen or prevent adhesions. First cerebrospinal fluid is withdrawn until the pressure decreases, and then gas is introduced until resistance is felt. Then more fluid is withdrawn and gas is introduced again. This procedure is continued until the flow of the fluid ceases. The largest quantity withdrawn at one puncture was 200 cc. The patient should be in the sitting position during the intervention so that the gas will ascend to the head. The volume of the gas is generally from four to five times as large

as the discharged fluid. This proves the rapid resorption of the gas. The author performed the lumbar puncture usually under local anesthesia. In two patients the lumbar puncture did not yield fluid and suboccipital puncture was done. Except for a lessened pressure, the procedure was otherwise the same as in the case of lumbar puncture. Following acetylene insufflation, the new formation of cerebrospinal fluid is stimulated. For this reason, cervical stasis is induced by bandaging the neck for several hours and by giving an intravenous injection of from 200 to 300 cc of a 0.2 per cent solution of sodium chloride. The author employed this treatment in eight cases, four patients recovered and four died. The treatment always had a visible, even if only a temporary, effect. The fluid became more clear and profuse, the number of cells and the protein reactions decreased, and the general condition improved. In resorting to acetylene insufflation other treatments, particularly the exclusion of the primary focus, should of course not be neglected.

59 1851 1882 (Dec 15) 1933

- Endogenic Depression Gaupp—p 1851
*Simple and Reliable Method for Controlling Therapeutic Results in Pernicious Anemia R Kruger—p 1855
*Treatment of Impairments Caused by Arsphenamine by Means of Liver Extract K Fulst and M Fellner—p 1856
A New Injectable Liver Tonic E Jissard—p 1859
Determination of Acidity (pH) of Secretions Purulent and Mucous Substances and Saliva and Sputum G Gollnow and J Koch—p 1860
Testing of New Therapeutic Methods of Chronic Gonorrhea of Women L Waldeyer—p 1861
Nutritional Physiologic Significance of Milk Teeth in Oral Prophylaxis A Frenzel—p 1866
Public Care of Health Suggestion for Salaried Physicians W Scheidt—p 1867
Necessity of Medical Supervision of Athletic Activities in National Youth Organizations H Kritzler Kosch—p 1869
Iritis Inflammation of Ciliary Body Visual Disturbances and Duration of Life L Heine—p 1871
Progress of Vitalism in Its Significance for Medical Instruction and Practice G Wolff—p 1873

Controlling Therapeutic Results in Pernicious Anemia—Kruger points out that a noticeable increase in the mean diameter of the erythrocytes is one of the typical symptoms of pernicious anemia and that the determination of the mean diameter is easily accomplished by means of the diffraction micrometry of Pijper. With the help of this method the determination requires only about a minute, and in the hands of the experienced examiner its exactness is greater than that of other methods. The margin of error is only about 0.2 micron. This value is of no practical significance, since the mean diameter of the erythrocytes of untreated pernicious anemia is always from twice to ten times this value greater than the normal mean diameter. Erythrocytometry has diagnostic value (1) in the anisomegalocytosis of pernicious anemia (2) in the isomacrocytosis of many hepatic disorders and (3) in the anisomicrocytosis or anisomicrocytosis of secondary anemia but it is most helpful in pernicious anemia in which it is valuable not only for the diagnosis but also during the treatment. In employing this method of erythrocytometry in a number of patients having pernicious anemia, the author found that the improvement of the blood status is accompanied by a noticeable decrease in the diameter of the erythrocytes, so that normal values may be reached. Unchanged persistence of a large diameter indicates a continuation of pathologic blood formation. The simplicity of Pijper's diffraction micrometry makes it particularly suitable for continuous control of the blood status and thus also for the efficacy of the therapy.

Liver Extract in Treatment of Arsphenamine Toxicoses—Fulst and Fellner admit that the pathogenesis of the arsphenamine toxicoses has not been fully explained but show that a number of investigators have advanced evidence that a dysfunction of the liver is the causal factor. These observations led to the use of liver extracts in the treatment of arsphenamine toxicoses, and the favorable results reported induced the authors to try this method. Immediately after the appearance of the first symptoms of arsphenamine toxicosis they began the intramuscular administration of liver extract. Every second day the patient received an injection into the gluteal muscle. The initial dose was 2 cc which gradually was increased to 5 cc. The total number of injections was from twelve to fifteen. The patients tolerated the injections well and the first effects

of the treatment usually were observed after the third or fourth injection. The efficacy became manifest in rapid improvement of the general condition, reduction of the temperature, improved appetite and betterment of the arsphenamine exanthems. Development of the much feared pyoderma was prevented in many cases. The authors admit that the liver therapy is not the cure all of arsphenamine toxicoses, but in combination with the usual internal and external measures it has given good results, so that they resort to it in all cases of intolerance to arsphenamine. They remark that in the course of injection of liver extracts they dispensed with other parenteral treatments. Immediately after the disappearance of the dermatitis, the arsphenamine treatment could be resumed without further difficulties. The authors resorted to liver treatment also in cases of arsphenamine intolerance without cutaneous manifestations, and again they obtained favorable results.

Deutsche Zeitschrift für Chirurgie, Berlin

241 633 740 (Nov. 15) 1933

*Treatment of Malignant Melanoma G. Miescher and O. Schürch—p. 633

Radiation Treatment of Esophageal Carcinoma C. Blumenrat—p. 654

*Operative Treatment of Mechanical Ileus C. Ravens—p. 668

*Partial and Complete Dislocations and Fractures of Cervical Vertebrae and Their Late Results E. Mackh—p. 695

Mode of Infection in Postoperative Parotitis F. Seifert—p. 729

Results with Freund-Krümmel Intracutaneous Cancer Reaction C. Mirangos—p. 734

Treatment of Malignant Melanoma—Miescher and Schürch present an analysis of results obtained with various methods of treatment of the so-called malignant melanoma. The material consisted of forty-one cases observed in the dermatologic clinic of Bloch and the surgical clinic of Clairmont in Zurich. Twenty-five of the patients were women and sixteen were men. The patients ranged in age from 6 weeks to 83 years. The tumor was located on the face in twenty-five cases, the body in four, the arm in one, the hand in one, the thigh in two, the foot in six, the vulva in one and the mucosa in one. There was one instance of the so-called malignant paraneurium of Hutchinson—a melanoma of the bed of the nail. It ran a characteristic course—involution of the thumb, amputation of the thumb, involvement of the forearm, metastases and death. In twenty-one cases the melanoma developed in a preexisting nevus. History of repeated mechanical or chemical trauma of the nevus was often present. Burning and itching of the nevus were among the earliest symptoms of malignant condition. Biopsy is always contraindicated. The well-known tendency to early metastases and their widespread dissemination find a probable explanation in the existence of thin-walled, easily injured blood vessels as well as in the fact that the malignant cells are held together in a very loose manner. Prognosis depends primarily on the early recognition of the lesion. Localization that subjects the tumor to oft-repeated trauma, such as on the sole of the foot, favors early metastases. The outlook in the presence of metastases is hopeless. Of the thirteen patients presenting themselves for treatment with lymph node metastases, seven were dead a few months after the treatment was begun. Four had a local recurrence and died from metastases. The authors on the other hand do not share the pessimistic opinion entertained with regard to melanoma in general. They point out that in their material as well as in the literature patients presenting themselves for treatment without metastases have not infrequently survived the five and ten year period of cure. Eleven of their twenty-eight patients who had melanoma without metastases were living from one to eleven years after the treatment was begun. The treatment consisted of various methods and combinations of methods such as wide excision of the lesion with the knife, excision followed by irradiation with roentgen rays, irradiation alone, electrocoagulation and amputation of the limb. The authors are not certain as to the best method. They have treated fourteen cases with the method of electrocoagulation and feel that much is to be expected from it. Irradiation alone is not an ideal method in view of the established fact that some melanomas are refractive to roentgen rays. It is to be used only after excision of the tumor. In their experience the act of

operation in itself does not carry the much feared danger of a sudden "explosion" of metastases.

Operative Treatment of Mechanical Ileus—Ravens states that in the matter of operative treatment of mechanical obstruction of the intestine the Kiel clinic is committed to the principle of not opening the intestine for the purpose of emptying it so far as is possible. The opening of the intestine cannot be avoided when existing pathologic conditions demand resection of the intestine or a short circuiting enterostomy or in obturation of the intestine by a malignant tumor. The adherents of enterostomy for the purpose of unloading the intestine after the cause of obstruction or strangulation has been removed argue that distention of the bowel retards the onset of peristalsis and that if permitted to continue the intestine becomes irreversibly paralyzed. To this they add the desirability of ridding the organism of the lethal toxin supposed to exist in the contents of the obstructed loop. On the other hand surgeons opposed to enterostomy argue that the hypothetical lethal toxin has not been definitely demonstrated to exist and that other factors must be taken into account such as (1) irritation of the vasoregulating and visceroregulating central apparatus (reflex theory), (2) profound disturbance of the general circulation with resulting cerebral anemia, (3) dehydration and (4) pathologic contents of the intestine. Performing an enterostomy prolongs the time of the operation while even the slightest spilling of intestinal contents definitely raises the mortality rate. Handling the intestine retards the onset of peristalsis. From 1909 to 1932 439 patients with acute intestinal obstruction were operated on at the Kiel clinic. The mortality amounted to 40.3 per cent. Of these 29 per cent were operated on during the first day of obstruction and 31 per cent during the second and third days. The mortality among those operated on during the first day was 21 per cent. In 100 of these the intestine was not opened and the mortality amounted to only 16 per cent. The mortality rose to 43.5 per cent in the group operated on during the second or third day. In this group the intestine was opened in 54 and the mortality amounted to 68.5 per cent. In eighty-six in whom the intestine was not opened the mortality was 27.7 per cent. Grouping all cases into those in which the intestine was for one reason or another opened (A) and in which it was not opened (B), the author finds that group A is represented by 162 cases with a mortality rate of 63 per cent while group B is represented by 277 cases with a mortality rate of 26.7 per cent. The author admits that the comparison of the results in the two groups is not a fair one for the reason that all cases in group A were far less favorable than those in group B. However the fact that in almost half of the cases the intestine was not opened and that the results were relatively good seems to support his argument that better results are obtained by not operating on the obstructed intestine unless compelled to do so by a definite indication.

Dislocations and Fractures of Cervical Vertebrae—Mackh reports forty-eight cases of fractures and dislocations of cervical vertebrae treated at the Marine Hospital of Hamburg between 1921 and 1932. The material is divided into partial and complete fractures. Under partial are grouped fractures of the spinous processes, the articular processes, the transverse processes and the laminae as well as splitting off from the vertebral body. There were twenty partial fractures and twenty-six complete fractures. Under complete fractures were included (1) dislocation-compression fractures of a vertebra and complete fracture-dislocation, (2) isolated compression fracture of a vertebra and (3) dislocation of a vertebra. Fractures were most frequently the result of an indirect force, such as muscular contraction in a fall on the head, while dislocations most often were the result of application of a direct force. Dislocation may be likewise produced by extreme flexion or extreme extension of the neck. The treatment was conservative along the lines advocated by Magnus. The partial fractures were kept in extension for from two to four weeks. Laminectomy was resorted to only when mild injury or permanent compression of the cord resulted in lesions that were still capable of recovery. The author points out that injury to the cord is produced in most instances by the projecting

posterior fragment, in which case laminectomy does not offer an access to the seat of trouble. The mortality in this group was 5 per cent. Mild neurologic disturbances were present in 15.4 per cent. The second, sixth and seventh vertebrae were most frequently involved. It is not safe to assume that the vertebra is intact on the basis of a single negative roentgen examination. So-called self-reduced subluxation not infrequently resulted in a complete transverse crushing of the cord. Clear cut hemileisions of the cord (Brown-Sequard) are more rare than the individual reports in literature would suggest. Distortion and automatic reduction may occur and lead to residual changes in the cord showing insignificant roentgenologic signs. Death resulting from transverse crushing of the cord is due to a rapidly developing ascending paralysis, which in the course of a few hours reaches the center of respiration. The stiffening operation of Henle-Albee is preferable to the extension treatment of from six to eight months duration to prevent a recurrence in bilateral dislocation with extensive tearing of the suspensory ligaments. For the rest, the conservative treatment of extension in Glisson's apparatus for from four to six weeks followed by a protracted course of physical therapy, was adhered to. The most frequent cause in the group of complete fractures was a fall from a height. Fractures were more frequent than dislocations. The fifth was the most frequently involved vertebra. Involvement of the nervous system was present in 66 per cent of these and complete transverse crushing of the cord in one third of the latter. The mortality in the group amounted to 30 per cent. Callus formation was uniformly satisfactory except in cases of fracture of the posterior portion of the atlas, in which a tendency to pseudarthrosis was noted. Posttraumatic spondylitis deformans was not seen. A mortality of 5 per cent in partial fractures and of 30 per cent in complete fracture-dislocations suggests that the prognosis is not nearly as bad as was formerly held. Neurologic symptoms are capable of further improvement as late as one and one-half years after injury.

Deutsche Zeitschrift für Nervenheilkunde, Berlin

133 1128 (Nov 17) 1933

Roentgenologic Changes in Petrous Bone in Cerebral Disturbances
K. Moser and W. Loewy—p. 1

*Therapeutic Experiences with Spinal Insufflation in Epileptic Attacks
R. Friedmann and J. Scheinker—p. 35

*Clinical Studies on Dermographic Manifestations F. Hoff—p. 98

Spinal Insufflation in Treatment of Epileptic Attacks

—Friedmann and Scheinker report their experiences with spinal insufflation in forty-three cases of epilepsy. They employed the lumbar method, not the direct filling of the cerebral ventricles. About half an hour before the puncture the patient is given an injection of a mixture of anesthetics (pantopon, scopolamine and caffeine). In children, however, other anesthesia is resorted to. As a rule 10 cc of fluid is withdrawn and 5 cc of air is injected. This difference between the withdrawn fluid and the amount of air introduced is retained, in that after the first injection the amount of fluid withdrawn is always replaced by the same quantity of air. Except when the total volume exceeds 50 or 60 cc the difference may be somewhat larger (from 10 to 15 cc). The quantities of fluid that are withdrawn average between 50 and 150 cc and it was found that not less than from 40 to 50 cc of air should be introduced, since smaller amounts do not give the desired results for diagnosis or treatment. The puncture should be performed if possible in the sitting position. The insufflation is followed by roentgenoscopy of the head from various angles. The authors' observations were made on twenty-six patients with genuine epilepsy, five with late epilepsy, ten with symptomatic epilepsy and two with traumatic epilepsy. They state that the results were good in 25 per cent of the cases, and the treatment was partly successful in 28.3 per cent while the other cases were not influenced. Permanent impairments were never observed and temporary discomfort developed only in a small minority of the cases. In the majority of cases of genuine epilepsy that were successfully treated the encephalogram was normal and the same seems to apply to late epilepsy. However the encephalogram of genuine epilepsy may differ at various times in the same patient. Temporary morphologic

changes in the channels and spaces that contain the cerebrospinal fluid cause this phenomenon. The essential requirement for successful treatment is probably an undisturbed circulation of the fluid. Other factors are probably of only secondary importance. Lumbar insufflation is indicated in cases in which other therapeutic methods fail or are not tolerated and when the epileptic attacks increase in frequency. A repetition of the intervention is advisable, when the encephalogram is not satisfactory, in case of a pathologic picture, in genuine and late epilepsy and in all cases in which the favorable results begin to disappear.

Dermographic Manifestations—Hoff defines as dermatography all visible changes in the blood and fluid content of the skin elicited by external mechanical stimuli. On the basis of L. R. Müller's classification, he differentiates between dermatographia alba rubra and elevata, the latter being accompanied by wheal formation. Some investigators seem to believe that dermatography as such has hardly any clinical significance. The author undertook to study this phenomenon when he noted that dermatographia elevata is characteristic of a certain constitutional type, which in turn indicates that connections exist between dermatography and the organism as a whole. He also observed that in certain neurologic disturbances considerable deviations are noticeable in the dermatographic reaction, which seem to be dependent on the localization of the disturbance in the central nervous system. His report on the latent dermatographic periods of 200 persons indicates that the values increase with advancing age. In persons with thyrotoxicosis, the latent dermatographic period is prolonged. But since the latent dermatographic period shows considerable differences even in normal persons, the determination is of little value for the clinical estimation of thyroid disturbances. Hemiplegia is characterized by a prolongation of the latent dermatographic period on the affected side. In other unilateral cerebral disturbances the latent dermatographic period is usually prolonged on the side opposite the cerebral focus. In some unilateral spinal disturbances there is a prolongation of the latent dermatographic period on the same side. In multiple sclerosis the dermatography values show considerable fluctuations. The author stresses that in neurologic disorders the latent dermatographic period is helpful in determining on what side the cerebral disease focus is located. The one-sided cerebral processes are indicated also by unilateral cyanosis and edemas, changes in the capillaries and localized trophic disturbances. The author advances evidence that each cerebral hemisphere has nervous centers and tracts for the vasomotor function and sweat secretion of the opposite side and that the dermatographic disturbances in neurologic diseases are the result of impairments of vasomotor centers and tracts.

Die medizinische Welt, Berlin

7 1737 1772 (Dec 9) 1933

*Determination of Hydrogen Ion Concentration (pH Value) in Organism

New Diagnostic Method W. von Brehmer—p. 1737

Heredity and Tuberculosis H. Scholz—p. 1740

Treatment of Sterility R. Zimmermann—p. 1743

Objective Testing of Pain in Abdomen T. Hausmann—p. 1747

Economic Therapy of Bronchial Asthma H. Kauer—p. 1750

Treatment of Nonspecific Disorders of Oral Mucous Membrane II

Schengel—p. 1752

Therapeutic Hyperemia by Means of Cataplasma Treatment S. Blaschke

—p. 1753

Remarks on Racial Improvement A. Mayer—p. 1759

Professional Secret of Physician W. Schmitz—p. 1762

Determination of Hydrogen Ion Concentration—Von Brehmer says that for years efforts have been made to find a reliable method for the detection of the chemical equilibrium in the blood. The shortcomings of the methods hitherto used, such as the titration and the indicator methods, induced the author to approach the problem from the electrophysical point of view. The reaction of the blood is indicated by its content in free hydrogen ions. A gas cell may be built out of a hydrogen electrode, the blood and an acid of a known degree of dissociation. The electrometric force of this cell permits the computation of the hydrogen and hydroxyl contents of the blood. The higher the hydrogen content of the blood the lesser the rapidity of the hydrogen stream into the blood. The streaming of the hydrogen produces friction and this in turn origi-

nates an electric charge. The tension (potential) of this charge increases with the increase of velocity of the stream, and vice versa. Thus the velocity of the hydrogen stream is measured by the potential (P) between the hydrogen electrode and the blood, that is, the hydrogen potential p_H . In short, the height of the potential is inversely proportional to the quantity of the hydrogen ions in the blood. The acidity of the blood is dependent on the quantity of the hydrogen ions, the basicity on the quantity of the hydroxyl ions. The higher the potential, the lesser the quantity of hydrogen ions and the greater the alkalinity of the blood. The most important part of the apparatus necessary for this method is a special needle capable of storing a quantity of hydrogen 800 times its own volume. The charging of the needle with hydrogen is done by electrolysis. He made tests on normal persons, which revealed that the p_H values of the blood increase with the age of the person and that in young persons there exists an acidosis, while with advancing age there is a change toward alkalinity. He relates the results of his tests on diabetic persons, on patients having gastric ulcer and particularly on cancer patients. As cancer was never detected in persons in whom the p_H value was between 68 and 75, he designates these values as the 'neutral zone.' With few exceptions, all cancer patients had p_H values between 76 and 826. The author hopes that with this new method for the determination of the hydrogen ion concentration it will be possible to detect the predisposition to cancer and its earliest stages and, by control tests after operation or irradiation, the efficacy of the therapy.

Klinsche Wochenschrift, Berlin

12 1793 1824 (Nov. 18) 1933

- Significance of Thyroid for Action of D Vitamin and Pathogenesis of Rickets. A. Nitschke—p. 1793
- *Treatment of Hay Fever by Means of Type Specific Propeptones from Grasses or by Ingestion of Small Quantities of Pollen. E. Urbach—p. 1797
- Remarks on Preliminary Test in Selecting Donors for Blood Transfusion. O. Thomsen—p. 1801
- Investigations on Nature of Bactericidal and Hemolytic Constituents of Pyocyanus Lipoids. H. O. Hettche—p. 1804
- Increased Incidence in Diabetic Patients of Cutaneous Infections Due to Yeasts and Yeastlike Fungi. W. Engelhardt and W. Haupt—p. 1805
- Acceleration of Zondek Aschheim's Pregnancy Reaction. A. von Irtzka—p. 1806
- Intermediate Carbohydrate Protein Fat Metabolism in Relation to Liver Function. W. Gneiting—p. 1807
- Micromethod for Determination of Iron in Blood. F. Rappaport and E. Hohenberg—p. 1810
- Purulent Cerebrospinal Meningitis Caused by Micrococcus Catarrhalis. G. de Toni—p. 1811
- Influence of Alcohol on Pathogenesis of B. Avitaminoses. A. Meyer—p. 1811
- Radiothorium in Leukemias and in Animal Experiments. I. Zidek—p. 1813

Treatment of Hay Fever by Means of Type Specific Propeptones—Urbach states that three years ago he called attention to the possibility of treating, by the oral administration of pollen peptones, patients suffering from pollinosis. He has made further studies on this subject, and his proposal to desensitize hay fever patients by the oral administration of pollen propeptones has been supported by the favorable influence obtained from the ingestion of type specific pollens. Chemical experiments disclosed that in the majority of cases the action is bound to the protein fraction. In further experiments, however, it proved possible to prepare propeptones from the protein of the flowers of plants inducing hay fever. This did away with the expensive production of propeptones from pollen or with the oral intake of pure pollen. In patients with symptoms of asthma, it is best to give pure pollen on the empty stomach. After determining the hypersusceptibility and the most offensive type of pollen by means of the nasal pollen test, a trial is made with rye-bran propeptone. If this proves ineffective, treatment with a propeptone from the flowers of various grasses is tried. The advantages of the oral propeptone method over the formerly employed methods are that the treatment does not have to begin until the actual onset of the attacks of hay fever or perhaps a few days before and it is harmless and painless. In cases of hypersensitivity to odors, the treatment with propeptones fails, of course, but the author points out that nonprotein extracts from flowers may be tried.

12 1893 1924 (Dec. 9) 1933

- Pregnancy as Biologic Contest. H. O. Kleins—p. 1893
- *Experiences with Thyrotropic Hormone of Anterior Lobe of Hypophysis in Pregnancy. Particularly in Renal Disorders of Pregnancy. H. P. Müller—p. 1899
- Pulsus Alternans in Partial Branch Block. R. Fischer—p. 1901
- Central Nervous Regulation of Blood Picture. J. A. Urra and V. Brenner—p. 1903
- Hereditary Disease of Middle Ear in Light of Knowledge on Heredity. V. Hammerschlag—p. 1903
- Use of Sodium Citrate in Hemophilia. W. M. Kremer—p. 1906
- *Modification of Psoriasis by Suprarenal Extract. T. Grüneberg—p. 1908
- New Micromanipulator. F. Himmelweit—p. 1909
- Iodine Content of Blood in Human Rickets and Tetany. A. Nitschke and H. Doering—p. 1910
- Modification of Takata-Ara Reaction and of Coagulation Band by Heparin. C. V. Medvei and K. F. Pischke—p. 1910
- Medical Statistics. K. Freudenberg—p. 1911

Thyrotropic Hormone of Anterior Hypophysis in Pregnancy—Müller points out that the thyrotropic hormone of the hypophysis has been isolated and found to stimulate the thyroid. Attempts to utilize it for therapeutic purposes in conditions in which thyroid medication is generally resorted to revealed that its efficacy cannot be compared with that of thyroxine. On reasoning similar to that which induced Kustner to treat eclampsia with thyroxine, the author decided to employ the thyrotropic hormone instead of thyroxine. His experiments disclosed that the thyrotropic hormone did not produce any noticeable effect in healthy pregnant women or in those whose renal function was impaired. The author finds the cause of this failure in the fact that the efficacy of the thyrotropic hormone is inferior to that of thyroxine and that the pharmacology of the hormone is not fully understood. Thus it is possible that the thyroxine is effective while the thyrotropic hormone fails or it may be that the administered quantities of the thyrotropic hormone were insufficient to produce results by the indirect way through the thyroid. The author thinks that further attempts to employ the thyrotropic hormone in the treatment of disorders of pregnancy are not justified until the aforementioned problems have been completely solved.

Suprarenal Extract in Treatment of Psoriasis—In former reports Grüneberg was able to show that when psoriatic efflorescences tend to disappear, there is an increase in the sulphur content of the skin. Since the suprarenals, particularly their cortex, are the most important organ in the regulation of sulphur metabolism, he decided to determine in what manner psoriatic changes in the skin react to treatment with an extract of the suprarenal cortex. Other investigators, particularly Hauck, had tried medication with epinephrine in drops or in the form of tablets but had obtained no results. The author used an extract of the suprarenal cortex, 1 cc of which corresponded to 50 Gm of fresh substance, but the epinephrine content was not in excess of from 1 to 2 micrograms. The patients were given daily intragluteal injections of from 2 to 3 cc of the extract. In all cases generally a few days after the beginning of the treatment, the psoriatic lesions showed signs of retrogression. Only the cases of psoriasis punctata were more resistant and did not react until from two to three weeks after the injections had been begun. An insufficient supply of the extract necessitated interruptions in the treatment of several patients, but the author nevertheless gained the impression that the extract of the suprarenal cortex is more effective in the treatment of psoriatic exanthems than are the liver extracts that have been used in recent years. In a patient presenting polyarthritides, it was noted that the pains disappeared and that the mobility of the joints improved under the influence of the suprarenal extract. Another observation that the author considers worthy of note is the fact that in five of the twelve patients who were treated with the extract the healing of the psoriatic lesions was accompanied by depigmentation. Although this phenomenon was generally only temporary and although leukoderma psoriaticum is not as rare as is commonly assumed, the increased incidence is nevertheless significant. The author considers it an interesting contribution to the hormonal modification of cutaneous pigmentation, particularly, in view of the pigmentation in Addison's disease.

Medizinische Klinik, Berlin

29 1699 1730 (Dec 15) 1933 Partial Index

- Medicine as Art F Hamburger—p 1699
Work Test in Patients with Normal Electrocardiogram During Rest W Bogard—p 1711
Quantitative Determination of Sugar in the Urine R Korbach—p 1713
*Hormonic Treatment of Arteriosclerosis (Hypertension) O Fellner—p 1713
*Blood Transfusion in Pyemia E Jacobson—p 1714
Ovarian Tumors of Unusual Size H Hauptmann—p 1714
Experiences with Lowenstein's Ointment in Campaign Against Diphtheria V Mayr Weber—p 1715
*Clinical Value of Complement Fixation Reaction for Gonorrhea Gertrud Budlovsky and F Sagher—p 1716

Hormonic Treatment of Arteriosclerosis (Hypertension)—Fellner observed that the female sex hormone effects a considerable dilatation of the vessels of the abdomen, and this led him to believe that this hormone would perhaps reduce the blood pressure. Since experiments on dogs corroborated this assumption, he attempted to treat arteriosclerosis by the administration of the sex hormone. He found that large doses are necessary. In recent times he has treated thirty-seven cases of arteriosclerosis with the sex hormone. He gave daily injections of 1,000 mouse units, but the injections alone were not always effective and so he applied the hormone also in the form of suppositories, containing 2,000 mouse units each, and of which two or three were administered daily. In order to avoid feminization in men, a part of the female sex hormone was replaced by the male sex hormone. An addition of thymus extract, which also has a blood pressure reducing effect, proved helpful in a number of cases. A reduction in the blood pressure usually became manifest from one to three days after the beginning of the treatment, and the sudden reduction was tolerated well by the patients. The anamnesis of several patients indicates that other medicaments had been of slight or no effect. As a rule, the treatment with the sex hormone was continued for from three to four weeks. A number of patients were examined several weeks or months later and, although the blood pressure was not always as low as in the course of the treatment, it was still considerably lower than before the treatment. In two patients the treatment failed completely and in one the effect was only slight, but these patients had refused the injections and had taken only the suppositories. The observations on the other thirty-four patients indicate that large doses of the sex hormone, perhaps with an addition of thymus extract, effect a considerable reduction in the blood pressure of patients with arteriosclerosis.

Blood Transfusion in Pyemia—Jacobson relates his observations on the efficacy of blood transfusion in sepsis. He describes the clinical history of a patient having streptococcal mastitis and a metastasis in the right pleural cavity. After several blood transfusions, the woman finally recovered. The author doubts whether the patient would have recovered without the transfusions, for after the second transfusion a decided change set in. The woman received in all four transfusions, varying in quantity between 150 and 200 cc. The author mentions the various theories on the action mechanism of blood transfusion in septicemia. He himself ascribes its therapeutic value to the increase it effects in bacteriophages, antibodies and immune bodies, and to the fact that it promotes the strength and the resistance of the patient.

Complement Fixation Reaction for Gonorrhea—Budlovsky and Sagher studied 1,050 serum specimens from 900 patients. As antigen they employed a toxin prepared according to the directions of Wolfenstein and Pieper. Their aim was to determine the specificity of the reaction and its value for the differential diagnosis, the prognosis and the establishment of a definite cure. They found that the reaction has a comparatively high degree of specificity and they think that together with the chemical methods it is a valuable aid in the differential diagnosis which in doubtful cases will often help to secure the diagnosis. However they do not feel justified in basing prognostic conclusions on the intensity of the reaction. The relations between clinical cure and the persistence or the negativity of the reaction have not been completely explained as yet. But the authors think that if an

originally positive reaction becomes negative, cure is probable. On the other hand, the persistence of a positive reaction in the presence of the clinical signs of cure should be an inducement for the frequent control of the patient.

Wiener klinische Wochenschrift, Vienna

46 1409 1440 (Nov 24) 1933

- Mechanical Problems in Structure of Human Organism A Hafferl—p 1409
Pellagra in Styria J Monauni—p 1413
Organization of Medical Service and Results of Clinical and Physical Examination of Participants in Innsbruck Ski Matches F Gaisböck—p 1418
Diagnosis of Ulcerating Carcinomas of Gallbladder by Means of Roentgen Rays O Spitzenberger—p 1421
*Treatment of Wounds with Potassium and Calcium Salts K Hilzensauer—p 1423
Therapy of Suppurations of Frontal Sinus M Hajek—p 1423
Circulatory Disturbances in Infectious Diseases A F Hecht—p 1426
Osteogenous General Infection in Nurslings and Children I Hofer—p 1426
Paucal Introduction of Protein Bodies K Stejskal—p 1428

Treatment of Wounds with Potassium and Calcium Salts—Hilzensauer followed the suggestion of Schuck and employed potassium and calcium salts in the treatment of wounds. In observations in a large number of cases he found that a sterile 0.6 per cent solution of potassium chlorate applied to an infected wound twice daily in the form of wet bandages cleans it in a short time and produces light red granulations but does not promote epithelization. As soon as the wound has become clean, the potassium chlorate solution should be replaced by a calcium chlorate solution (from 2 to 5 per cent), for calcium promotes epithelization and cicatrization. The calcium solution must be kept strictly sterile. Good results were obtained in many cases of varicose ulcer, in which the calcium solution proved particularly helpful. The best results were obtained in all superficial dirty wounds that did not respond to other treatments, and in all types of skin defects, burns, necroses, infected excoriations, paronychia and all postoperative suppurations. However, in phlegmons, furuncles, carbuncles, osteomyelitis and abscesses of the sweat glands and of the abdominal wall, the treatment did not prove particularly helpful. The author emphasizes that the method is simple and that the pains are slight and generally disappear within a few days. He recommends the method for use in hospitals as well as by the general practitioner.

46 1473 1504 (Dec 8) 1933

- Clinical Aspect of Pancreatic Disturbances Mild Pancreopathy W Berger—p 1473
Examination of Participants in Innsbruck Ski Matches H Hönlinger—p 1477
Observation of Sonne Kruse E Dysentery in Styria K Ruphius—p 1484
*Nervous Stage of Cystitis N Moro—p 1485
*Different Behavior of Visceral and Parietal Pleura in Pleurisy and Pneumothorax F Fleischner—p 1486
Cerebral Disturbances and Ear T Fremel—p 1488
*Treatment of Pruritus in Chronic Eczema and In Kraurosis Vulvae B Kriss—p 1490
Role of Heart and Vascular System in Diabetic Coma W Falta—p 1491

"Nervous Stage" of Cystitis—Moro shows that the subjective symptoms of cystitis, such as pollakiuria and a burning sensation, frequently persist after the objective changes have disappeared. The measures employed for the treatment of cystitis are not suitable for these functional or nervous disturbances, and the author warns particularly against the use of strong urinary disinfectants. He recommends diathermy, roborants and, in intelligent patients, an explanation of the nature of the disturbances. The patient should avoid exposure to dampness and cold dietary mistakes such as sharp condiments, large amounts of drinks containing carbon dioxide, particularly new beer, and bloating foods. But the patient should not be annoyed with severe dietary restrictions such as abstinence from meat and limitation of the sodium chloride intake, for this is unnecessary and worries the patients. Two cases are reviewed which illustrate the important part of nervous factors in the pathogenesis of these disturbances and the value of psychotherapy in their treatment. The author emphasizes that the symptoms of cystitis may mask grave disorders such

as urinary tuberculosis, calculi and neoplasms of the bladder or the adjoining organs, hypertrophy of the prostate, and misplacement of the bladder as the result of descent or prolapse of the female genitalia

Behavior of Pleura in Pneumothorax—Fleischner observed that fibrin exudation and the formation of adhesions is much more pronounced in the parietal than in the visceral pleura. He reviews cases of internal perforation of old pleural exudates in which the two pleurae showed an entirely different behavior. He also noted that, whenever in the course of exudative pleurisy or of pleural empyema a puncture is made and air enters the cavity, roentgenoscopy reveals that the parietal pleura is covered with a fibrinous layer of considerable thickness while the visceral pleura shows hardly any changes. Such observations are made best on patients undergoing pneumothorax therapy. The exudate does not necessarily have to be large, on the contrary the fibrin deposits are noticeable in cases of small marginal exudates and even in dry pneumothorax. In children and young persons it is frequently noted that the fibrinous layer becomes narrower as the lung unfolds again, however indurations usually develop in adults. The author cites animal experiments by Sorgo corroborating the severe involvement of the parietal pleura and the almost negligible changes on the visceral pleura. Sorgo as well as Fleischner sees the cause of this varying behavior in the different lymphovascular supply of the two pleurae. The author points out that these observations are important for the therapy. Measures inducing hyperemia counteract the lymphatic stasis and prevent, or at least reduce the formation of fibrinous deposits and of indurations. The respiratory gymnastics recommended by Hofbauer are helpful. In patients who have received this treatment the pleural indurations are usually negligible and the author thinks that the early use of active and positive muscular movements promotes the circulation of the lymph and prevents the exudation of larger amounts of fibrin on the parietal pleura.

Treatment of Pruritus in Eczema of Vulva and Anus—To counteract the severe pruritus in cases of vulval and anal eczema, Kriss resorted to subcutaneous infiltration. After disinfecting the skin with benzine he injects either a 0.5 per cent solution of procaine hydrochloride or a 0.2 per cent solution of tutocain. A strong edematization of the region of the labia majora and minora and of the anus is an absolute requirement in this treatment, and therefore it is necessary to inject considerable amounts of fluid. Depending on the extent of the eczema up to 60 cc may be injected. Observations in fifty cases convinced the author that the injections are usually well tolerated. Collapse or other untoward effects were never observed. In many women a single injection was sufficient to counteract the pruritus; in others the infiltration had to be repeated after several weeks. The author's experiences with this method date back seven years and thus he was able to ascertain the permanence of the results in a number of cases.

Bibliotek for Læger, Copenhagen

125 423 460 (Nov.) 1933

*Mechanism of Bacterial Infection J. Ørskov—p. 423

Mechanism of Bacterial Infection—The State Serum Institute studied the mechanism of infection with Breslau, paratyphoid B, ratin, pseudotubercle, and abortion bacilli in mice and tubercle bacilli in guinea-pigs, after administration in various ways, and also abortion bacilli in cattle. Ørskov reports that all investigations on oral infection showed that the infections spread in the same way by the regional lymph tracts of the alimentary canal until the regional glands were reached. Generalization occurred from the regional lymph system by way of the blood to the organs and the peripheral glands, presumably as a rule by the thoracic duct and similar centripetal lymph tracts. A primary direct blood infection was never established. The bacteria quickly disappeared from the intestine, not to return until generalization had set in and the number of bacteria was greatly increased. The upper part of the intestine was then often infected earlier than the lower portion which is believed to indicate that the secondary intestinal invasion was due to infected bile. When the general

infections recede, focal processes in organs and glands often persist if these are localized in the liver, chronic carriers, result. The speed of infection and the extent of the various infections vary greatly. In certain cases the size of the primary infection dose plays a part in the intensity of the infection. Study of the mechanism of infection in actively immunized animals showed all acquired immunity to be relative, manifesting itself by increased ability to hinder generalization of an infection and to shorten the duration of infection.

Hospitalstidende, Copenhagen

76 1097 1124 (Nov. 9) 1933

Hemiplegia and Skin Temperature A. Olsen—p. 1097

Injury of Liver Parenchyma in Long Continued Treatment with Barbitol Preliminary Report J. Ravn—p. 1103

*Relation of Bone Marrow to Agranulocytosis Review of Earlier Investigations Together with Personal Observations on Basis of Three Cases A. S. Ohlsen—p. 1113

Hemiplegia and Skin Temperature—Olsen, like earlier investigators, found that in uncomplicated infantile hemiplegia the skin temperature is lower on the parietic side than on the unaffected side. He says that changes in temperature are independent of the degree of atrophy but appear proportional to the strength of spasticity. The skin temperature on the parietic side seems to show a certain relation to the degree of paresis. In almost all cases the temperature on the parietic side and the well side is below the average temperature for well persons.

Injury of Liver in Treatment with Barbitol—Ravn states that out of fifty psychotic patients given daily doses of from 0.25 to 0.75 Gm of barbitol for from one half to five years the urobilinogen test or the bile acid test, or both were positive in thirty-two, or 64 per cent while out of fifty similar control patients not receiving barbitol treatment one or both tests were positive in only sixteen or 32 per cent.

Relation of Bone Marrow to Agranulocytosis—In the first and third of Ohlsen's cases the cell content was about normal, the more mature and fully mature elements of the myeloblast order were absent. The number of mitoses in the myeloblasts was below normal. The erythropoiesis was histologically unaffected and the number of megakaryocytes was normal. Bacterial emboli were found in some capillaries. The second case however was an example of a septically injured, paralyzed bone marrow. The author says that either the bone marrow was primarily different in these cases of malignant agranulocytosis or the patients died at different stages of the disease.

76 112 1136 (Nov. 16) 1933

*Hereditary Keratosis of Palm and Sole T. Kemp and G. Alsted—p. 1125

Elimination of Paratyphoid Bacilli in Feces Ended After Cholecystectomy P. Brastrup—p. 1132

Hereditary Keratosis of Palm and Sole—Kemp and Alsted describe a family of fifty-one members with eleven cases of keratosis of the palm and the sole inherited as a dominant characteristic dependent on a single gene.

76 1137 1164 (Nov. 23) 1933

Clinical Roentgen Work in Light of Radiogenesis J. O. Christensen—p. 1137

*Investigation on Kidney Function in Diabetes Insipidus (Effect of Solution of Pituitary—Twenty Four Hour Filtration—Effect of Epinephrine) P. Iversen, E. Jacobsen and I. Bing—p. 1156

Kidney Function in Diabetes Insipidus—In their case of diabetes insipidus in which one kidney had been removed because of renal tuberculosis Iversen and his associates found a concentration index of about 10 on free intake of liquids. After injection of solution of pituitary there was (1) an initial effect interpreted as spasms of the blood vessels in the kidney with reduction of filtration and (2) a marked effect on the concentration index interpreted as a specific effect in the tubuli shown by increased reabsorption of water. The phosphorus and calcium elimination corresponded in a certain degree to the filtration. The twenty-four hour filtration for the one kidney was 110.9 liters. Injection of 3 mg of epinephrine in thirty-three minutes had no effect on the filtration and but slight effect on the blood pressure.

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DIAGNOSTIC, PROGNOSTIC AND THERAPEUTIC NERVE BLOCKS

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Through many experimental and clinical studies, both in this country and abroad there has evolved a technic for injecting, without open section, the majority of the important components of the nervous system. With this accepted and definite technic available regional anesthesia became increasingly efficient and popular. Another result has been the application of these practices as a valuable adjunct to the practice of medicine and surgery along diagnostic, prognostic and therapeutic lines. Just now, numerous conditions are being made the recipients of these methods the reported results of which are frequently contradictory and confusing. I shall here attempt, by a review of the literature on the subject, together with personal observations covering two years of its use, to estimate its present status. It is not within the scope of this paper to consider personal or reported statistics, the results shall be considered in a general way alone.

TECHNIC

The technic for injection of peripheral nerve trunks has been well standardized as evidenced by the textbooks published on the subject.

I believe that, especially in private practice, with all types of therapeutic blocking it is a good plan to advise the patient that it may be necessary to repeat the procedure, in case of failure to relieve the desired results. He should also be told of the numbness following therapeutic alcohol injections of sensory nerves of the hyperesthesias that may develop, especially after paravertebral thoracic alcohol block, that local soreness is often encountered with alcohol injection which remains for a few days and that the maximum relief is not always experienced in the immediate interval following the injections. These injections should be performed without the aid of general anesthesia for the paresthesias during injection are important for more accurate localization. In a neurotic or sensitive patient a preliminary hypodermic of morphine and a soluble barbiturate are administered three quarters of an hour prior to the injection. To insure accuracy, an attempt should be made to induce paresthesias which of course with a pure sensory nerve are elicited in the area of its distribution. Paresthesias experienced during

thoracic sympathetic block are felt in the heart or epigastrium, and during lumbar sympathetic block in the abdomen.

PATHOLOGIC CHANGES PRODUCED BY ALCOHOL INJECTION

The object in injecting alcohol in varying percentages is to destroy the nerve fibers by bringing about degeneration and absorption of all except the neurolemma¹ following more or less directly the original investigation of Schlosser² in 1903 and his subsequent observations.³ The injection of from 80 to 95 per cent alcohol into a peripheral nerve causes a destruction of the motor as well as the sensory components of the nerve.⁴ The pathologic change found in sensory nerves and their ganglion cells is the same as though the nerve had been cut, a wallerian degeneration,¹⁰ with perhaps the possible exception that the intervening fibrosis caused by the alcohol produces a greater resistance to regeneration. It has been shown in experimental injection in animals that 5 cc of 85 per cent alcohol produces a zone of necrosis about 2 cm in diameter.⁵ Because of this fact, injections with alcohol must be more accurately placed as compared to the injections of procaine hydrochloride, for the resulting necrosis of alcohol does not embrace as great an area as the area infiltrated by the same amount of procaine.

Labat,¹¹ after reviewing the experimental data already performed¹² has shown the discrepancy of these conclusions concerning the effect of alcohol in varying concentrations on motor filaments. Some investigators feel that the injection of 60 per cent alcohol produces only a slight transitory motor weakness, although the axonal degeneration of the afferent fibers is quite extensive. Others¹³ have reported quite satisfactory clinical results employing approximately

¹ Reichert F I Interruption of Sympathetic Pathways for the Relief of Pain in the Extremities Northwest Med 31 534 (Dec) 1932
² Pickham W S Operative Surgery Philadelphia W B Saunders Company 2 252 1928

³ Schlosser Heilung peripherer Reizzustände sensibler und motorischer Nerven Ophthalmologischen Ges Ber 31 84 1903

⁴ Schlosser Heilung peripherer Reizzustände sensibler und motorischer Nerven Klin Monatschr f Augenh 41 244 1903 Erfahrungen in der Neuralgiebehandlung mit Alkoholeinspritzungen Verhandl d Cong f innere Med 24 49 1907

⁵ Byrne J J J Nerv & Ment Dis 53 433 (June) 1921

¹⁰ Ranson S W Anatomy of the Nervous System ed 2 p 67

¹¹ Labat Gaston The Action of Alcohol on the Living Nerve Experimental and Clinical Observations Proc Am Soc Reg Anesth 1 1 (Oct) 1932

¹² May O The Functional and Histological Effects of Intraneural and Intraganthionic Injections of Alcohol Brit M J 2 465 1912
Finkelburg Experimentelle Untersuchungen über den Einfluss von Alkoholinjektionen und periferische Nerven Verhandl d Cong f innere Med 24 7 1907
Frankelthal I Histologische und experimentelle Untersuchungen über die Wirkungsweise der Injektionstherapie bei Neuralgien Beitr z klin Chir 143 237 1928
Gordon A Experimental Study of Intraneural Injections of Alcohol J Nerv & Ment Dis 41 81 1914
Nasareff Ueber Alkoholinjektionen in Nerven tarme und pathologische anatomische Veränderungen in den Nerven veranlasst durch die Einspritzungen Zentralbl f Chir 52 2777 (Dec 5) 1925

¹³ Labat Gaston and Greene M B Contribution to Modern Method of Diagnosis and Treatment of So-Called Sciatic Neuralgias Am J Surg 11 435 (March) 1931

Owing to lack of space this article is abbreviated as it appears here. The complete article appears in the author's reprints.

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33 $\frac{1}{3}$ per cent alcohol, without obtaining muscular paresis or paralysis. Thus there is a possibility of a clinical basis for the apparent resistance of the motor over the sensory components of a mixed nerve to anesthetic agents.

It has been observed clinically that the immediate anesthetic effects of alcohol, injected intraneurally, are not as pronounced as those which may appear several days later. The foundation for this has been explained by Olmstead and Hodgson,¹⁴ who have produced evidence to show that the effects of alcohol block are due to the progressive narcotization of individual nerve fibers in order of increasing size. Consequently one should learn that a supplemental block should not be instituted until the first has been given time for its maximum effects.

Dorrance¹⁵ particularly points out that the results with alcohol injections of nerve trunks are gratifying if sufficient alcohol is employed to produce the necessary destruction. I believe this to be true, but, on the other hand, an excessive amount will spill over into the surrounding tissues and produce there degenerative processes which are most annoying to the patient. His fact has also captured the interest of McLean,¹⁶ who states that a few drops accurately placed has more effect than several cubic centimeters injected into the surrounding tissues. The operator should elicit both referred pain and a sense of resistance to the plunger of the syringe when injecting a single nerve trunk intraneurally.

DIAGNOSTIC AND PROGNOSTIC BLOCK

It appears that there is an increasing tendency to employ regional anesthetic methods for differential diagnosis and prognosis in medical and surgical conditions. Scholl¹⁷ aptly describes one principle of its application by citing a simple case, a postoperative radical mastoid, with persistent pain just posterior to the scar. By injecting the small occipital nerve, he proved the source of the pain to be neuralgia of this nerve, as the pain promptly ceased.

The pathways of pain from the abdominal viscera are the subject of much observation at the present time, hence more knowledge concerning these tracts are continuously being reported. Especially in Germany has this fact been made use of as an aid in the diagnosis of the obscure case.¹⁸ To be a valuable aid in this instance, pain must be a prominent and consistent feature. When the pain pathway from any certain organ is blocked with procaine and the patient's pain immediately ceases, it is good presumptive evidence that the pathologic basis exists in that organ. (A list of pain pathways is given under the discussion on malignancy.) Thus gallbladder disease may be differentiated from

pneumonia, gastric disease, renal disturbances and appendiceal pathologic changes. The same differential diagnostic possibility is true of the conditions named, each with the other, with the exception of renal and appendiceal pathologic changes, in which the segmental innervation overlaps. Its comparative efficiency is also decreased when the pathologic condition has spread to the surrounding tissues.¹⁹ By this method, it is claimed that subsequent operative procedures may be initiated with a more reasonable assurance of success in these obscure cases. Denk,²⁰ by injecting from 10 to 20 cc of 0.5 per cent procaine hydrochloride into the anterior scalenus muscle, interrupts the conductivity of the descending branch of the phrenic nerve. He thus differentiates acute diseases of the upper part of the abdomen from pathologic changes of the lower lobes of the lung.

With the advent in popularity of upper dorsal and lower lumbar ganglionectomy, because of their efficiency in overcoming arterial spasm in the upper and lower extremities, respectively, there arose a need for a diagnostic measure to differentiate poor circulation due to overactivity of the vasomotor nerves (spasm) from arterial obliteration (occlusion), before operation or destruction by alcohol injection was performed. This was first supplied by Brown's²¹ intravenous protein shock, which causes an elevation of superficial temperature in the extremities affected by impoverished circulation due to vasomotor overactivity. This has been discarded by many because of its disagreeable nature causing nausea and vomiting and general discomfort, because it is qualitative and not quantitative, for the rise in temperature is never as great as that which follows ganglionectomy, and because it gives no information as to the amount of pain relief to be afforded by the subsequent operation. The need for more specific information has been supplied by nerve blocking.

The vasomotor impulses to the upper extremity leave the cord by white rami of the upper thoracic segments and ascend to the first and second thoracic ganglions, from which point they travel through postganglionic gray rami to the nerve supply of the arm. For the lower extremity, these impulses leave the lower thoracic and upper lumbar segments and travel through the lumbar ganglions to the nerve supply of the lower extremity. Thus, these vasomotor impulses may be blocked by injection (a) intradurally (b) at the ganglions, or (c) peripherally. After a complete block the superficial temperature rises or the increased rate of blood flow in the corresponding extremity serves as an index to the part of the peripheral circulation deficiency played by vasomotor overactivity.²²

The changes in temperature of the extremity may be measured by the Sheard²³ electrometric thermometer, the Leeds and Northrop multiple point temperature recorder, or the Tycos dermaterm. Eddy and Taylor²⁴ have evolved the normal temperature for fifty-two points on the body surface, which may be used as a criterion in this type of diagnosis.

14 Olmstead J M D and Hodgson P. An Explanation of the Results of Alcohol Block. *Am J Physiol* 97: 597 (July) 1931.

15 Dorrance G M. Alcoholic Injections into the Gasserian Ganglion. *J A M A* 83: 1678 (Nov 22) 1924.

16 McLean A J. Intractable Facial Pain: Relief by Deep Injections of Alcohol. *Northwest Med* 32: 16 (Jan) 1932.

17 Scholl. Diagnostic Exploitation of Local Anesthesia. *Deutsche med Wochenschr* 47: 1494 (Dec 8) 1921. *abstr Brit M J Epitome* 1: 47 (March 25) 1922.

18 Brunn F and Mandl Felix. Die paravertebrale Injektion zur Bekämpfung visceraler Schmerzen. *Wien Klin Wochenschr* 37: 511 (May 22) 1924. Freude E and Krenn E S. Ueber die Wirkung der segmentären paravertebralen Novocaininjektionen bei intra abdominalen und intrathorakalen Erkrankungen. *Klin Wochenschr* 4: 1597 (Aug 13) 1925. Lawen A. Ueber segmentäre Schmerzaufhebung durch paravertebrale Novocaininjektionen zur Differentialdiagnose intra abdominaler Erkrankungen. *München med Wochenschr* 69: 1423 (Oct 6) 1922. Paravertebrale Novocaininjektionen zur Differentialdiagnose intra abdominaler Erkrankungen. *Zentralbl f Chir* 49: 1510 (1922). Lion K. Ueber den Einfluss paravertebraler Injektionen auf die Nervenstrecke. *Med Klin* 23: 15 (Jan 7) 1927. Mandl Felix. Die Anwendungsbreite der paravertebralen Injektion. *Klin Wochenschr* 4: 2356 (Dec 3) 1925. Woodbridge P D. Therapeutic Use of Regional Anesthesia. *Am J Surg* 9: 264 (Aug) 1930.

19 Woodbridge¹⁵.

20 Denk W. Blocking the Phrenic Nerve in the Differential Diagnosis of Acute Abdominal and Pulmonary Disease. *Wien Klin Wochenschr* 42: 473 (April 11) 1929.

21 Brown C W. Treatment of Peripheral Vascular Disturbances of the Extremities. *J A M A* 87: 379 (Aug 7) 1926.

22 White J C. Diagnostic Blocking of the Sympathetic Nerves to Extremities with Procaine. *J A M A* 94: 1382 (May 3) 1930.

23 Sheard Charles. The Electrometric Thermometer: An Instrument and Method for Measuring Intracutaneous, Intravenous, Superficial and Cavity Temperatures. *Am J Clin Path* 1: 209 (May) 1931.

24 Eddy H C and Taylor H P. Experience with the Dermatherm in Relation to Peripheral Vascular Diseases. 1. Normal Studies. *Am Heart J* 6: 683 (June) 1931.

Morton and Scott²⁶ have formulated a method for standardizing these observations

To block the vasomotor impulses to the lower extremity intradurally, spinal anesthesia²⁶ must be instituted up to the sixth dorsal segment (tip of xiphoid). Any spinal anesthetic agent will yield the same results.²⁷ This is perhaps the simplest form of procedure, but there is some discussion as to whether or not this is a safe procedure for the upper extremity since anesthesia must reach the first thoracic segment. It yields no information concerning the pain-relieving possibilities of a subsequent ganglionectomy, for all pain pathways will be blocked.

Injections of procaine into the thoracic ganglions for study of the upper extremity and the lumbar ganglions for the leg possibly afford the closest comparison to the effects to be produced by the subsequent ganglionectomy. Its effects are more prolonged than with intradural block (from two to four hours) and it obliterates only that portion of pain being transmitted by the sympathetic tracts. I am of the opinion that this form is the most valuable and that with practice it is not technically difficult. The production of Horner's syndrome for the upper sympathetic block and the disappearance of sweating in both upper and lower sympathetic blocks are proofs of the accuracy of the injection.

The Whites³ state that blocking of the sciatic nerve is simple and yields as much information as the two other methods of block. No evidence of pain relief possibilities are given since the main sensory tracts are obliterated. Scott and Morton²⁸ have employed an ingenious form of diagnostic block that may be used in the ambulant patient. By blocking the posterior tibial nerve and observing the temperature change in the sole of the foot, they came to the conclusion that the results were as quantitatively effective as those accomplished by the other types. For a study of the upper extremity, they block the ulnar nerve at the elbow and the median nerve just above the wrist and observe the resultant thermal change in the anesthetized areas. They tested the accuracy of their injections by the inability of the patient to perceive a sharp instrument placed in contact with the anesthetized areas. Lundy employs a technique of his own for the upper extremities by blocking the ulnar nerve and the bases of the fingers.²⁹

AORTIC ANEURYSM

The terrific pain of the terminal stages of aneurysm of the aortic arch has captured the attention of White,³⁰ who has applied paravertebral injections in a limited series with promising results. In each of his three cases he found only the two upper thoracic segments hyperesthetic and consequently injected these two with good results. Therefore as he points out blocking for aneurysm is comparatively simpler than that executed

for angina pectoris, as only two instead of four or five thoracic nerves are to be injected, and the troublesome hyperesthesias have been absent. I have also almost entirely relieved the pain of aneurysm of the abdominal aorta by a bilateral block of the twelfth thoracic and the first and second lumbar nerves with alcohol.

BRONCHIAL ASTHMA

In cases of true bronchial asthma, the literature in general on the subject of relief through interference of the nervous system is quite disappointing. The reports of sympathectomy, however, in the great majority state that cervical and not thoracic sympathectomy was performed.³¹ In two reviews on the literature of the subject, Kern³² mentioned only cervical sympathectomy being executed, and Phillips and Scott³³ in a more extensive review did mention a very few unilateral stellate ganglionectomies but no bilateral sections. Kern³² showed that vagus section caused diminished bronchial motility, a result condemned by bronchoscopists. Heinbecker³⁴ feels that surgery as a form of therapy in asthma has inevitable limitations placed on it by the heterogeneous physiologic functions of the structures available for attack. Since cervical and unilateral stellate ganglionectomy had proved so unsatisfactory in most instances, I felt that possibly bilateral sympathetic block might prove beneficial. Therefore, I have employed procaine hydrochloride and alcohol injections on the lateral aspects of the seventh cervical and first second third and fourth dorsal vertebrae. The results obtained have not been as gratifying as those claimed by DuBose,³⁵ who reports relief in all cases, some for as long as sixteen months. There have been disappointing results in approximately half these cases yet the results in the remainder have been so startlingly successful that I am of the opinion that it is a method to be thought of in all cases that are intractable to the more conservative and accepted lines of treatment.

SYMPATHETIC INJECTIONS FOR VASOSPASTIC CONDITIONS

The autonomic nervous system is exclusively concerned with the involuntary processes associated with the internal economy of the body.³⁶ It has mainly to do with contraction of the blood vessels and inhibiting action of the sweat glands. Leriche³⁷ was the earliest advocate of periarterial sympathectomy for those conditions which possessed an element of arterial spasm. This mode of attack, however, was found to be comparatively inefficient, for the blood vessels were found to receive segmentary innervation from the main nerve trunks and therefore stripping the arterial coat for a few centimeters deprived the vessel of only a portion of its sympathetic innervation.³⁸ Royle³⁸ first demon-

²⁵ Morton J J and Scott W J M. The Measurement of Sympathetic Vasomotor Activity in the Lower Extremities. *J Clin Investigation* 9: 235 (Oct.) 1930.

²⁶ White and White.³ Morton and Scott.²⁶ Brill, Selling and Lawrence. L. B. Changes in the Temperature of the Lower Extremities Following the Induction of Spinal Anesthesia. *Proc Soc Exper Biol & Med* 27: 728 (May) 1930.

²⁷ Telford E. D. and Stopford J. B. S. The Prognostic Value of Spinal Anesthesia in Vasospastic Diseases of the Lower Limbs. *Brit M J* 1: 1116 (June 18) 1932.

²⁸ Scott W J M. and Morton J J. The Differentiation of Peripheral Arterial Spasm and Occlusion in Ambulatory Patients. *J A M A* 97: 1212 (Oct 24) 1931.

²⁹ Aldson W. Brown C. F. and Levy S. S. Raynaud's Disease: Evidence That It Is Type of Vasomotor Neurosis. *Arch Neurol & Psychiat* 26: 687 (Oct.) 1931.

³⁰ White J. C. Painful Aneurysms of the Aortic Arch: Relief by Paravertebral Injections of Procaine and Alcohol. *J A M A* 99: 10 (July 2) 1932.

³¹ Ramirez M. A. and Pool E. H. Sympathectomy in Bronchial Asthma. *J A M A* 84: 2002 (June 27) 1926. Göbbel R. Operations for Asthma. Sympathectomy and Vagus Resection. *Zentralbl f Chir* 55: 2951 (Nov. 24) 1928.

³² Kern R. V. Section of Left Vagus for the Relief of Asthma, *Surg Gynec & Obst* 42: 28 (Jan.) 1926.

³³ Phillips E. W. and Scott W. J. Surgical Treatment of Bronchial Asthma. *Arch Surg* 19: 1425 (Dec. part 2) 1929.

³⁴ Heinbecker Peter. Concerning the Nature and Function of Certain Afferent Pathways from the Thoracic Viscera. *J Thoracic Surg* 2: 181 (Dec.) 1932.

³⁵ DuBose F. G. Therapeutic Paravertebral Alcohol Block. *Am J Surg* 11: 497 (March) 1931. Paravertebral Alcohol Block in Asthma. *South Surgeon* 1: 57 (April) 1932.

³⁶ Hess W. R. The Autonomic Nervous System. *Lancet* 2: 1199 (Dec.) 1932.

³⁷ Leriche Rene. Some Researches on the Periarterial Sympathetics. *Ann Surg* 74: 385 1921. De la sympathectomie peri arterielle et de ses resultats. *Presse med* 25: 513 (Sept 10) 1917 quoted by Adson and Brown.³⁴

³⁸ Royle N. D. A New Operative Procedure in the Treatment of Spastic Paralysis and Its Experimental Basis. *M J Australia* 1: 77 (Jan 26) 1924.

strated temperature change in the lower extremities following ramisection. This led to a mass of experimental and clinical surgery being performed³⁹ from which much can be learned as a basis for performing injections.

It is thought that, if pain is relieved by the diagnostic injection with procaine, either open operation or injection may produce the same results.⁴⁰ An argument that apparently tends to be an argument speaking for injection is the recent work of Brucke⁴¹ and of Tower and Richter⁴² which shows experimental evidence that sympathetic fibers are able to regenerate after sectioning. A reinjection, of course, is of greater ease and facility than a reoperation. Lee⁴³ also believes that either these fibers regenerate or new pathways are formed.

Injections of the sympathetics have been mentioned as being indicated over operation in elderly patients in the poor operative risk types⁴⁴ and in those who cannot afford hospitalization. It should also be employed for the borderline cases in which operative procedures would not be warranted. There have been no fatalities and no severe complications reported with the injection therapy of the sympathetics.

Raynaud's Disease—There is evidence that this condition is a vasomotor neurosis causing a contraction of the blood vessels of the extremities.⁴⁵ Neither injection into the sympathetics nor ganglionectomy is thought of unless other methods of treatment fail. After injection the extremities become warm, pink and dry and pain is usually relieved.

Thrombo-Angitis Obliterans—The rationale of sympathetic injection in this state is based on the fact that there is an element of spasm in the collateral circulation, which becomes dilated through section of the sympathetics to that extremity.⁴⁶ It should not be done unless other methods of treatment fail, trophic ulcers are present, and the disease is progressive. When performed, it is wise to make the injection bilateral for if the disease is present on one side it will occur sometime in the future on the other side. Diagnostic injections should always be performed to establish the knowledge as to whether or not there is sufficient collateral circulation in the limb to indicate a subsequent alcohol injection. Most workers in the field inject the second, third and fourth lumbar ganglions for the lower

limbs, but Stern⁴⁶ blocks the twelfth thoracic, and the first and second lumbar, and uses 8 cc of 95 per cent alcohol in contradistinction to the usual 5 cc for each unit.

Itthritis—This form of therapy is effective only in the so-called nonspecific rheumatoid arthritis or arthritis deformans when associated with vascular changes of pale, cold, clammy extremities and trophic changes,⁴⁷ and before the occurrence of severe bone involvement.

MALIGNANCY

The average patient with inoperable carcinoma has usually experienced the gamut of surgery, radium or roentgenologic therapy or possibly all three. He presents a typical picture which is a cliche of advanced carcinoma. It is a result of dehydration, secondary anemia and autointoxication, the degree of which all too frequently prevents palliative operations. If the course of a sensory nerve becomes involved by the growth an intractable pain is the result. This pain is persistent without remission and often intense preventing normal eating or sleeping and weight and strength are rapidly lost. Without recourse to some manner of nerve sectioning or nerve blocking the patient's medical counsel has no other resort than to the use of morphine in progressively increasing and progressively ineffectual dosages.

General Remarks on Technique—The painful area and its ramifications are carefully studied and mapped out on the skin surface.

If the nerve supply to the growth is entirely sensory, a minimum amount of procaine of 1 or 2 per cent is injected to ease the subsequent injection of from 80 to 95 per cent alcohol. If the nerve supply is both motor and sensory in character, the percentage of alcohol must be diminished by dilution with procaine. I have demonstrated satisfactory results with the use of alcohol diluted to 30 per cent with procaine on these mixed nerves without inducing paresis or paralysis.

Carcinoma of the Face and Neck—Lesions in this location fall under three headings for block purposes:

- A. When the second or third or both of these divisions of the trigeminus are involved.
- B. When the cervical plexus is involved.
- C. When both the trigeminus and the cervical plexus carry pain impulses.

For blocking the branches of the fifth cranial 1 cc of 2 per cent procaine followed by from 1 to 2 cc of alcohol is used. For the cervical plexus 2 cc of 2 per cent procaine and 4 cc of alcohol has been injected for each of the second, third and fourth cervical nerves.

Fay⁴⁸ and Grant⁴⁹ on the other hand both prefer the operative procedures of intracranial neurectomies or posterior rhizotomy following cervical laminectomy. The patients that I have seen however were certainly in no physical condition for such surgical intentions. This seemed to be borne out by one report by Grant in which with operative procedures 20 per cent of the patients died with operative complications. Woodbridge⁵⁰ says it would be logical to reserve operations in case nerve blocking failed. I believe this to be true.

46 Stern E. L. Alcohol Injection of Nerve Roots for Thrombo-Angitis Obliterans. *Am J Surg* 10: 107 (Oct.) 1930.

47 Fay Temple. Surgical Relief of Pain in Extensive Malignant Disease with Special Reference to Section of the Sensory Branches of the Vagus for Deep Pain in the Ear. *J A M A* 91: 375 (Aug. 11) 1928.

48 Grant F. C. Suggestion for the Relief of Pain in Carcinoma of the Mouth and Cheek. *Ann Surg* 81: 494 (Feb.) 1925. Relief of Pain in Carcinoma of Face. *Pennsylvania M J* 32: 348 (May) 1929. Relief of Pain in Carcinoma of the Face. *J A M A* 86: 173 (Jan. 16) 1926.

39 (a) Adson A. W. Cervicothoracic Ganglionectomy. Trunk Resection and Ramisection by the Posterior Intrathoracic Approach. *Am J Surg* 11: 227 (Feb.) 1931. (b) Adson A. W. and Brown G. E. Raynaud's Disease of the Upper Extremities. *J A M A* 92: 445 (Feb. 9) 1929. (c) Treatment of Raynaud's Disease by Resection of Upper Thoracic and Lumbar Sympathetic Ganglions and Trunks. *Surg Gynec & Obst* 48: 577 (May) 1929. (d) Brown C. E. and Adson A. W. Calorimetric Studies of the Extremities Following Lumbar Sympathetic Ramisection and Ganglionectomy. *Am J M Sc* 170: 232 (Aug.) 1925. (e) Adson Brown and Ivy. (f) Flathow P. G. Surgery of the Sympathetic Nervous System. *Am J Surg* 10: 8 (Oct.) 1930. (g) Kuntz Albert. Distribution of the Sympathetic Ramuli to the Brachial Plexus. *Arch Surg* 15: 871 (Dec.) 1927. (h) Kordenat R. A. Lumbar Sympathetic Ramisection for Relief of Pain Due to Carcinoma of the Uterus. *Illinois M J* 62: 503 (Dec.) 1932. (i) Oughterson A. W. Harvey S. C. and Richter H. G. Studies on the Course of Vasomotor Fibers as Measured by the Thermic Changes in the Feet After Arterial Ligation and Section of the Spinal Cord at Various Levels. *J Clin Investigation* 11: 1065 (Nov.) 1932.

40 Flathow P. G. Diagnostic and Therapeutic Injections of the Sympathetic Nerves. *Proc Staff Meet Mayo Clin* 6: 706 (Nov. 25) 1931.

41 Brucke H. The Regeneration of the Cervical Sympathetic After Section and the Restoration of Its Tonic Functions. *Arch f d ges Physiol* 226: 318 1930.

42 Tower S. S. and Richter C. P. Injury and Repair Within the Sympathetic Nervous System. The Preganglionic Neurons. *Arch Neurol & Psychiat* 26: 485 (Sept.) 1931.

43 Lee F. C. Regeneration of Nervous Tissue. *Physiol Rev* 9: 575 (Oct.) 1929.

44 Abbott W. D. Diagnostic and Therapeutic Injection of the Sympathetic Nervous System. *Nebraska M J* 17: 293 (July) 1932.

45 Adson A. W. and Brown G. E. Thrombo-Angitis Obliterans. Results with Sympathectomy. *J A M A* 99: 529 (Aug. 13) 1932.

of any locality in the body, for, while many patients are difficult and present a complex problem, many others are relieved very quickly and simply by nerve blocking.

Any deep-set bone pain, pain deeply laid in the sinuses, and deep pain in the ear are the most difficult to solve. Fay⁴⁷ has attempted a complex nerve section operation on the vagus in order to eliminate the distress deep within the ear but encountered only partial success by so doing.

Thoracic Carcinoma—Hembecke⁴⁸ states that too little is known of innervation of the lung to treat pulmonary carcinoma. I have found however, that blocking the upper five thoracic nerves is of material benefit, but occasionally it is necessary to block the lower thoracic nerves as well. All the fibers from the thorax are supposed to leave through the first to the fifth thoracic nerves, but the outer third of the diaphragmatic pleura is supplied by the lower six intercostals,⁴⁹ which must be considered when relief is not obtained by blocking the upper thoracic nerves. It has been stated that section operations in this locality have high mortalities with nerve block, there are no serious complications and no operative mortality. The relief is usually constant because the point of attack the ram communicantes is probably the final common pathway regardless of the route to this point. White⁵⁰ and Abbott⁵¹ both state that the pain from carcinoma of the lungs and pleura yielded to injections of the first second third and fourth thoracic roots 2 cc of 2 per cent procaine hydrochloride and 5 cc of 95 per cent alcohol being used in each. Even though the resulting anesthesia will last for months there is no objection to repeating a paravertebral alcohol block. This has been done as often as six times.⁵² Careful attention to small details of technic must be exercised in this region to obviate puncturing the dura at the intervertebral foramen, with injury to the cord, such as was reported by Molitsch and Wilson with a Brown-Sequard paralysis resulting.

Carcinosis of Abdominal Viscera—For painful malignant conditions in this region Grant⁵³ particularly extols the advocacy of chordotomy. The theory as set forth by him entails logic, yet the results as tabulated seem discouraging because of the occurrence of complications, fatalities and the rather frequent imperfect results considering the risks involved by the operation. This is true even though only a certain unannounced proportion of his series was composed of conditions of the precarious operative risk of advanced malignancy the remainder being osteo-arthritis, painful stumps, tabetic crises and the like.

For blocking purposes the pathways are demarcated as accurately as possible. The viscerosensory reflex may be employed which reflex means the projection of the pain to the surface. According to McKenzie this is explained by the autonomic fiber transmitting its

impulse to the connecting neuron by a synapse in the cord, which transmits it to the higher centers by way of the spinothalamic tract. This connecting neuron has synaptic contact with the cutaneous sensory nerves as well. The higher centers, being accustomed to receiving through this neuron sensory impulses arising in the skin, interpret as rising in the skin all impulses that arrive over the same neuron, i. e., they project the impulse not from the organ from which it was received but to the skin area supplied by these cutaneous sensory nerves. Wright⁵⁴ explains this more simply by stating that when a pain impulse from a viscus enters a certain posterior nerve root, the pain is referred to the skin area supplied by that particular posterior nerve root. Paravertebral block is supposed to produce a section of the ram communicantes through which the autonomic fiber runs.

As a further check on the pain pathways knowledge of the position of the lesion is of material aid. Alvarez⁵⁵ states that impulses from the upper part of the abdomen reach the spinal cord by means of the splanchnics and the white ram communicantes of the sixth to ninth dorsal nerves, and from the inguinal region by means of the genitofemoral and iliohypogastric through the first to the third lumbar. He also states that although the vagus carries a few sensory fibers, these are of no import, which may be explained by citing cases of injury to the upper portion of the cord, which have experienced painless peritonitis. He cites instances in which the anterior roots have also carried sensory fibers, as well as the nerve filaments carried with blood vessels, which tend to complicate the treatment, but he believes that these instances fortunately are rare.

White⁵⁶ has published more intimate information on the nerve supply of the viscera, which is as follows:

Esophagus fifth to sixth dorsal
Stomach seventh to eighth dorsal
Gallbladder right, tenth dorsal
Small intestine, ninth to tenth dorsal
Kidneys twelfth dorsal to first lumbar
Appendix right first to second lumbar

In addition, Wright⁵⁷ also gives the following:

Rectum, second to fourth sacral
Bladder, twelfth dorsal to first lumbar
Prostate tenth to eleventh dorsal
Testis tenth dorsal
Ovary tenth dorsal

From the foregoing it may be seen that a rather definite method of procedure is outlined for the delineation of pain pathways in this locality, the information as to both the situation of the lesion and the viscerosensory reflex being used. With operative procedures exact and definite knowledge as to the entire extent of the pain pathways must be possessed at the time of operation so as to exenterate all these nerves. If this complete knowledge is lacking as is often the case, the patient will experience the risk suffering and inconvenience of a major operation only to have the continuation of some of his pain. Then, too, an operation other than chordotomy has no control over the subsequent extension of the disease. With the nerve block method, additional nerves may be injected if relief from the first injection is not complete, or if later the disease extends beyond the area of the first injections.

55 Wright-Samson *Applied Physiology* New York Oxford University Press 1931.

56 Alvarez W. C. Abdominal Pain Paths Over Which It Travels and Ways in Which These May Be Blocked *Am J Surg* 24 382 (Nov.) 1931.

49 Capps J. A. An Experimental and Clinical Study of Pain in the Pleura Pericardium and Peritoneum New York Macmillan Company 1932.

50 White J. C. Diagnostic Novocain Block of the Sensory and Sympathetic Nerves *Am J Surg* 9 265 (Aug.) 1930.

51 Abbott W. D. Relief of Intractable Pain by Nerve Block and Section *J Missouri M A* 29 379 (Aug.) 1932.

52 Pietner D. D. and Heslin V. I. Paravertebral Injection in Angina Pectoris *Klin Med* 6 897 (July) 1929 *abstr J A M A* 91 1329 (Oct. 27) 1929.

53 Molitsch Matthew and Wilson George Brown Sequard Paralysis Following a Paravertebral Alcohol Injection for Angina Pectoris *J A M A* 9 247 (July 25) 1931.

54 Grant F. C. Value of Chordotomy for the Relief of Pain *Am Surg* 92 995 (Dec.) 1930. Results with Chordotomy for Relief of Intractable Pain Due to Carcinoma of the Pelvic Organ *Am J Obst Gynec* 24 620 (Oct.) 1932.

Comment—The majority of patients with intractable pain of an inoperable malignant condition experience total or nearly complete relief through alcohol nerve block, carefully and judiciously administered by one experienced in this sort of procedure.⁵⁷ Disappointments do occur, for in the exceptional case no matter what injections are performed satisfactory relief may not be elicited. Nevertheless it is a procedure with sufficient merit to attempt its use in every case of an inoperable malignant condition when the associated pain is sufficiently severe to indicate prescribing opiates.

MISCELLANEOUS CONDITIONS

To complete the subject I should like to add by mere mention alone a variety of conditions in which nerve block has been found to be of value. Harris⁵⁸ particularly, appears to be the most prominent modern advocate for nerve blocking as opposed to open section for major trigeminal neuralgia. The reports of Swetlow⁵⁹ and White⁶⁰ on paravertebral alcohol block to relieve the pains of angina pectoris have probably made this application of the subject the most popular. The employment of alcohol nerve block for the dysphagia of tuberculous laryngitis was numbered among its earliest applications, the course of either the internal laryngeal nerve⁶¹ or the superior laryngeal nerve⁶² being the site of injection. Paravertebral thoracic injections of alcohol have been found advantageous for the treatment of tuberculous pleurisy.⁶³ Labat has written an excellent account of its use for the post-operative pain of thoracoplasties⁶⁴ in which its application appears to be logical. A novel use of alcohol injection has been devised with reported excellent results in a small series of blepharospasm.⁶⁵ Megacolon has been treated efficaciously by injection into the sympathetics.⁶⁶ Sympathectomy for migraine as well as nerve injection⁶⁰ has had little investigation hence its possibilities should be discussed guardedly. A remote application for paravertebral injections has been suggested by

Amorim⁶⁷ for the more rapid and painless healing of fractured ribs and to effect immobilization to a certain extent in patients with pulmonary tuberculosis who cannot withstand thoracoplasties. Injections of various substances always have been prominent in the treatment of sciatica. Weak solutions of antipyrine,⁶⁸ quinine urica hydrochloride⁶⁹ and physiologic solution of sodium chloride⁷⁰ have been used. Both Craig⁷¹ and Stookey⁷² believe together with Labat,⁷³ that it is dangerous to inject the sciatic nerve itself at the sciatic notch because of hemorrhage or damage to the nerve trunk by trauma. Labat and Greene⁷⁴ exploit a novel method of determining the irritable trunks with an electrical percussion hammer and injecting those responsible for the pain with weak solutions (1 part of 95 per cent alcohol and 2 parts of 1 per cent procaine hydrochloride) of alcohol. I have not been able to derive the same degree of success with these injections into the component roots of the sciatic nerve. Epidural injections with weak procaine large quantities of physiologic solution of sodium chloride or a mixture of the two⁷⁵ have received the most credit. Craig⁷⁶ found that the efficacy of one, two three or four injections with an intervening day of from 40 to 60 cc of 1 per cent procaine hydrochloride had the highest percentage of results as an individual procedure and its inclusion with other methods of treatment increased the incidence of relief in every group of procedures employed. I have relieved brachial neuritis by injecting 20 per cent alcohol in procaine into the brachial plexus and intercostal neuritis and neuralgia by means of paravertebral alcohol block of the affected nerves. Injections into the first second and third thoracic ganglions should be considered for brachial neuritis. Since the distribution of sweat fibers to the hands and feet are the same as the vasomotors cervicothoracic ganglionectomy has relieved hyperhidrosis.⁷⁴ Tabetic gastric crises have been relieved by paravertebral block.⁷⁷ Flothow⁷⁸ advocates sympathetic injections for arteriosclerotic pains and trophic ulcers. He also states that they are advantageous in increasing the blood supply before amputation thereby lessening the incidence of nonhealing and painful stumps.

SUMMARY

1 Recent observations have yielded much information on the subject of pain pathways and the therapeutic effect of section of the sympathetics.

2 Major relief from pain and an additional method of therapy has been added by nerve section.

3 Injection of procaine and alcohol into nerve tissue affords an alternative and at the same time a more or less efficacious method of disrupting nerve impulses with possibly a greater field of application.

Spruce Street Medical Building

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Nerve Blocking: A Diagnostic and Therapeutic Procedure. Hahnemann Monthly 68: 188 (March) 1933.

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ABSTRACT OF DISCUSSION

DR PAUL G FLOTHOW, Seattle The neurosurgeon should either do the work or be present when it is done. Often I have found that the results of injection are psychic, and it is necessary for the operator to evaluate the patient in order to come to a proper conclusion as to what measure is to be instituted. Dr Lundy's technic is safer than that of Dr Ruth not only in the dorsal region but also in the lumbar region. I started doing these injections some three years ago and have gained a great deal of experience. My conclusions are as follows: Alcohol injection of the sympathetic nerves should never be employed in any case in which a permanent result is necessary unless there is some contraindication to surgery. The disadvantages of alcohol injection are first that neuritis results, second the injection is not permanent third the injection is a blind procedure and is uncertain. After several hundred injections I have decided that alcohol injection should never be done in the dorsal region except in cases in which surgery is absolutely contraindicated. In this classification I put angina pectoris and some of the malignant conditions. I feel that injection of alcohol can be more freely used in the lumbar region because the neuritis is not as severe and not as constant as it is in the dorsal region. The sympathetic nerves are separated from the somatic nerves by thick musculature making it easier to get a pure sympathetic injection. It is impossible to inject the dorsal sympathetics without bathing the intercostal nerves in alcohol resulting in most cases in a severe neuritis lasting from a few weeks to many months. I wish to emphasize two conditions that are most satisfactorily treated by alcohol injections. My results in angina pectoris have been brilliant. I have had no deaths as a result of injections. Occasionally I find it necessary to inject the right side also. I have had no failures. In this condition the patient is happy to accept the neuritis in lieu of the anginal pain. The other condition I wish to emphasize is arteriosclerotic pain. It is surprising what a great percentage of cases of these old persons suffering with cold, painful feet and intermittent claudication can be relieved by alcohol injection of the lumbar sympathetics. I also use this injection as a preamputative measure and at times amputation has not been necessary as a result of the injection. I do not feel that injection can possibly replace surgery in vascular conditions such as Raynaud's and Buerger's disease, in which permanent maximum vasodilatation is essential. I have tested on the same individual by operating one side and injecting the other. For a few months injection compares favorably with operation, but it does not stand up.

DR GEZA DE TAKATS Chicago I would like to confirm what Dr Flothow said about the alcoholic neuritis particularly in the dorsal region. That is a very serious complication. I remember three patients in whom I made first diagnostic and then therapeutic injections with 30 per cent alcohol for Raynaud's disease. I would never do that again. In the same patients I have had to do sympathectomies. On the other hand in an inoperable carcinoma naturally the alcoholic neuritis is a minor complication. There is one field here which Dr Ruth did not mention although he possibly had some experience with it namely the relief one can offer in inoperable carcinomas of the uterus and cervix. In these patients I have made transsacral alcoholic injections of 30 per cent alcohol into the first second third and fourth foramina and added bilateral alcohol injections at the level of the third lumbar vertebra. This injection of alcohol and procaine hydrochloride will also infiltrate the second and fourth ganglia so that one injection on each side is satisfactory. At the Cook County Hospital in Chicago I had occasion to do many of these and was able to give relief for three or four months. That is about as long as the patients lived. I would strongly recommend this combined method of alcohol injection in the transsacral foramina and an added injection at the third lumbar level to the hypogastric plexus. It is a very valuable method in relieving intractable pain.

DR HENRY S RUTH Philadelphia This has been a rather difficult subject to present within the allotted time in that it has a diversified application as well as because of its controversial character. Some of its applications had to be omitted

and others should have been presented in greater detail. With regard to surgery versus injection, the latter has one aspect of superiority over surgery. Both, of course, when applied to sensory nerves produce numbness in the area of distribution, which at times is quite annoying to the patient. When produced by open section, this numbness is permanent with injection, it is only semipermanent although frequently the pain does not recur concomitantly with the return of sensation. I believe that today the two outstanding applications for this method of treatment are, first, for angina pectoris, and, second, for the intractable pain of inoperable malignant growths.

SUBARACHNOID INJECTIONS OF PROCAINE HYDROCHLORIDE

THE QUANTITATIVE EFFECTS OF CLINICAL DOSES ON SENSORY, SYMPATHETIC AND MOTOR NERVES

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The literature contains very little accurate information about the physiologic events that occur in spinal anesthesia. Many statements are made concerning the action of spinal anesthesia on the various components of the central and peripheral nervous systems, but there is surprisingly little substantial work as a basis.

In recent years, great progress has been made in the diagnosis and treatment of vascular diseases, because of a finer appreciation of the two major types of vascular disease, namely, vascular occlusion and vasospasm. In an effort to distinguish them, methods have been devised to overcome all vasoconstriction, thereby allowing quantitative estimates of the amounts of vasospasm and of vascular occlusion involved. Fever produced by intravenous injection of typhoid vaccine has been successfully used by Adson and by Brown¹ for several years. More recently Morton and Scott² have advocated spinal anesthesia for the same purpose when the lower extremities are under investigation. Local nerve block has also been shown to produce maximal vasodilatation in the region supplied by the nerves that are affected by the injection, while general anesthesia has been demonstrated to produce maximal vasodilatation, as does fever.³ Spinal anesthesia lends itself more readily to determine the amount of the vasoconstrictor element in vascular diseases of the lower extremities than either general anesthesia or local nerve block. Because of this entry of spinal anesthesia into the field of diagnosis, it becomes more apparent that the physiologic action of subarachnoid injection of procaine should be more fully and accurately understood.

Up to the present time it has been felt that the end point of anesthesia is necessary before complete vasodilatation is obtained.⁴ In this paper an attempt will

Work done under the direction of Dr J S Lundy, Section on Anesthesia and Dr G E Brown, Division of Medicine, the Mayo Clinic.

Read before the Section on Miscellaneous Topics, Session on Anesthesia at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

¹ Adson A W and Brown G F. The Treatment of Raynaud's Disease by Resection of the Upper Thoracic and Lumbar Sympathetic Ganglia and Trunks. *Surg Gynec & Obst* 48: 577-603 (May) 1929.

² Morton J J and Scott W J M. The Measurement of Sympathetic Vasoconstrictor Activity in the Lower Extremities. *J Clin Invest* 9: 235-246 (Oct) 1930.

³ Craig W M, Horton B T and Sheard Charles. Thermal Changes in Peripheral Vascular Disease During Sympathetic Ganglionectomy Under General Anesthesia. *J Clin Investigation* 12: 573-581 (May) 1933.

⁴ Lewis Thomas. Experiments Relating to the Peripheral Mechanism Involved in Spasmodic Arrest of the Circulation in the Fingers. A Variety of Raynaud's Disease. *Heart* 15: 7-101 (Aug) 1929. Lewis Thomas and Pickering C W. Vasodilatation in the Limbs in Response to Warming the Body with Evidence for Sympathetic Vasodilator Nerves in Man. *Heart* 16: 31-51 (Oct) 1931.

be made to present graphically the sequence of physiologic events that occur in spinal anesthesia with a wide range of dosage and concentration. The study demonstrates the variable factors that determine the action of the anesthetic drug in individual cases and shows that small doses of procaine, not sufficient to produce anesthesia seem adequate to establish complete vasodilatation.

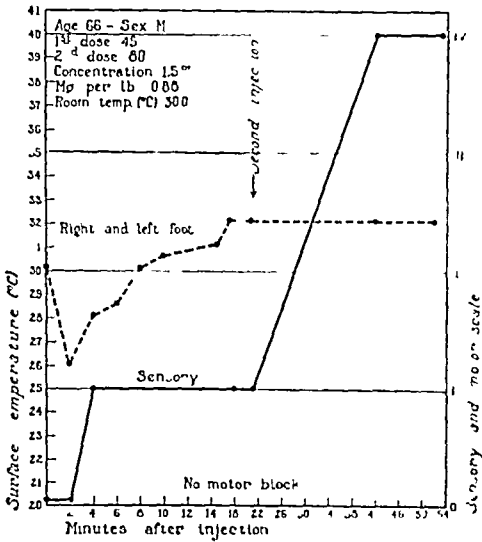


Chart 1—Observations in case 1

MATERIAL AND METHOD

This study was made with the help of Drs. G. E. Brown and J. S. Lundy. The observations were made on unselected surgical patients taken at random and operated on under spinal anesthesia. Patients of a wide range of ages and subjected to various types of operation were included in this series. Patients of one group (cases 2, 3, 4, 8, 9 and 10 in the table) to each of whom a dose of less than 100 mg of procaine was given, were undergoing transurethral prostatectomy or some other cystoscopic procedure. Because of the fact that the temperature of the cystoscopic room was from 27 to 30°C, a control group of patients (cases 5, 6 and 7) were given low doses in a cooler room. One of the latter patients (case 7) was given spinal anesthesia twice two days apart to bring about lowering of blood pressure.

The observations are recorded separately in the table. As can be seen from examining the table the results in the group composed of cases 2, 3, 4, 8, 9 and 10 and in the group composed of cases 5, 6 and 7 averaged nearly the same. For this reason we do not feel that the room temperature, within reasonable limits, has as great an effect on cutaneous temperature for the hour or so during which the patient is observed as has been thought.

A total of thirty-four cases and thirty-five observations are included in the study. Two of the patients were given general anesthesia by inhalation, thirty-one were given spinal anesthesia with procaine, and one was given spinal anesthesia with pantocain. Cases in which there was definite evidence of vascular disturbance are noted in the table in the column headed "complicating pathologic condition." As can be seen many of the patients were of advanced age, among whom arteriosclerosis of some degree is almost always the rule.

The technic used in the induction of spinal anesthesia has been fully described by Lovell. Ampules especially prepared containing crystals of procaine hydrochloride dissolved in physiologic solution of sodium chloride were used. The ampules contained 100 mg of procaine for each cubic centimeter. The solution was taken up into the syringe and the dose estimated from the graduations on the syringe. The additional fluid, to make the desired concentration, was obtained by aspirating spinal fluid into the syringe and then injecting the entire content at the rate of 0.5 cc each second. The bevel of the needle was always toward the head of the patient. The site of the injection was one of the lumbar interspaces.

Three phases of the nervous response were studied and charted according to the arbitrary standards now to be explained.

To determine the sensory response, the patients' lower extremities below the ankles were tested with the point of a pin, and the degree of anesthesia was recorded in four grades as follows: Grade 4 anesthesia—the patient could not tell that he was being touched; Grade 3 analgesia—the patient could feel that he was being touched but a sensation of pain was not produced; He could not distinguish sharp from dull; Grades 2 and 1—the patient could feel that the point of the pin was sharp but could distinguish that it was not quite as painful as it would have been under normal conditions (perception graded 2 was less than that graded 1). Zero—no loss of sensory perception.

To determine the motor response the patient was asked to move the toes, feet and legs, and the degree of motor impairment was recorded in four grades as follows: Grade 4—complete loss of motor function, the patient could not even wiggle the toes; Grade 3, the patient could move the toes slightly and the feet very little; Grade 2, the patient could move the toes and feet freely and could move the legs some but he could raise the legs only slightly and with great difficulty; Grade 1, the patient had good motion in the feet and

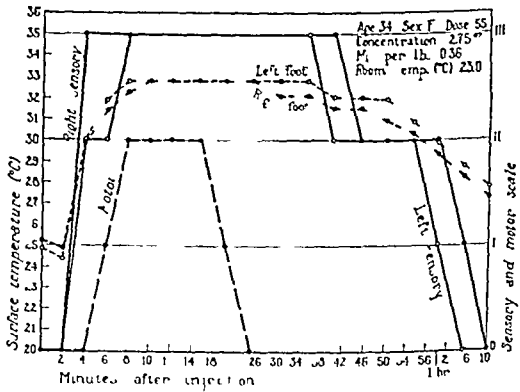


Chart 2—Observations in case 5

only moderate weakness of the legs. Zero, no demonstrable motor involvement.

The sympathetic response was determined indirectly. The consensus at the present time is that the caliber of the arteries is controlled by nerve fibers belonging to the sympathetic system and called vasoconstrictor fibers. Stimulation of these fibers produces narrowing of the vascular lumen while block or severance allows

vasodilatation. These fibers pass by way of the white and gray rami and are distributed by the peripheral nerves to the vessels, thereby giving a more or less segmental distribution.⁶

The early work of Brown⁷ on vascular disease produced the method of fever induced by protein shock to increase the blood supply to the tissues. The rise in surface temperature was interpreted as manifesting

cases with those of other authors observed by means of the same and of different methods that one can come to a conclusion that any given case has attained complete vasodilatation. With this explanation in mind the sympathetic system was studied by means of observing the rise in surface temperature of the lower extremities recorded with a portable machine for determination of cutaneous temperature (dermatherm, Tyco¹⁰).

The temperature of the plantar surface of each great toe was taken in most instances. In a few cases, because of lack of space in the cystoscopic room and because the patient was in the lithotomy position it was impracticable to bare more than one foot for determinations. However, even when both feet were accessible there were only minor differences between the temperatures of the two. In all experiments the patients were in the preparation room from fifteen to thirty minutes before the initial readings were taken, to allow for any adjustment to temperature. The sterile linen on the operating table

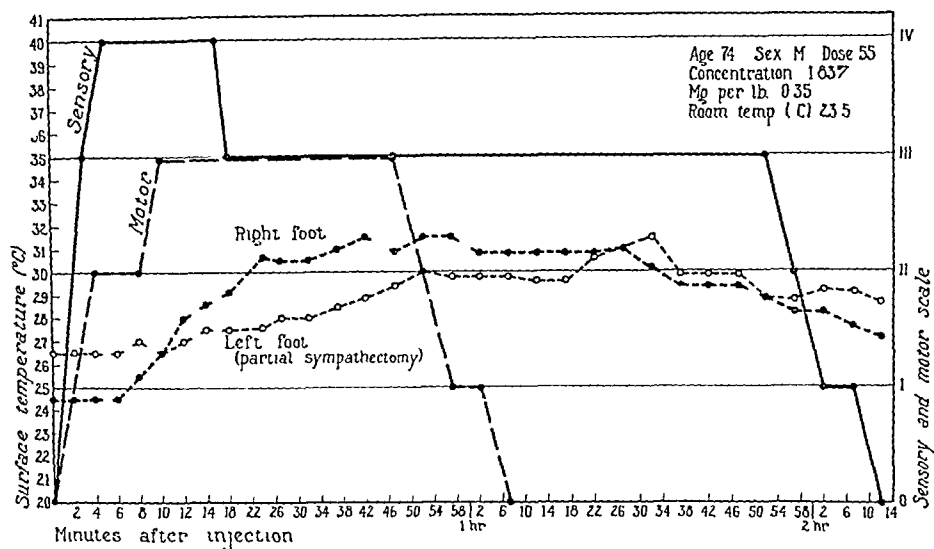


Chart 3—Observations in case 6

vasodilatation, resulting from vasomotor release. Morton and Scott⁸ later, studying spinal anesthesia, local nerve block and general anesthesia, noted the same rise in cutaneous temperature of the part with the augmented blood supply. They also explained the mechanism as a blocking of the sympathetic vasoconstrictor fibers. These temperatures were spoken of as "maximal temperatures" produced by "complete vasodilatation." There may be other factors that enter into this picture, such as the increased rate of blood flow with fever or the fall in blood pressure so common in spinal anesthesia. However, at the present time it seems that the logical explanation is the one in current use, namely, that these various methods of vascular diagnosis all seek to inhibit the impulses passing by way of the vasoconstrictor fibers. Postoperative results from interruption of the sympathetic nerves seem to bear proof of this theory.⁹ Morton and Scott have conducted a series of experiments on young normal persons trying to establish a minimal cutaneous temperature for the lower extremities which must be reached, if the patient's vascular tree is normal when "complete vasomotor release" or "complete vasodilatation" is produced.

From the foregoing discussion it is seen that when the terms maximal temperature and complete vasodilatation are used in this paper they are so used advisedly. This was a clinical and not an experimental study and it is only by comparison of this group of

was draped loosely over the patient's feet, allowing free circulation of air.

It was the object of the experiment to make frequent observations on the sensory, motor and sympathetic systems. Readings were attempted every two minutes after subarachnoid injection of procaine, for the first fifteen to twenty minutes and every five minutes thereafter until the operation was finished. However, because of the work involved in placing the patient on

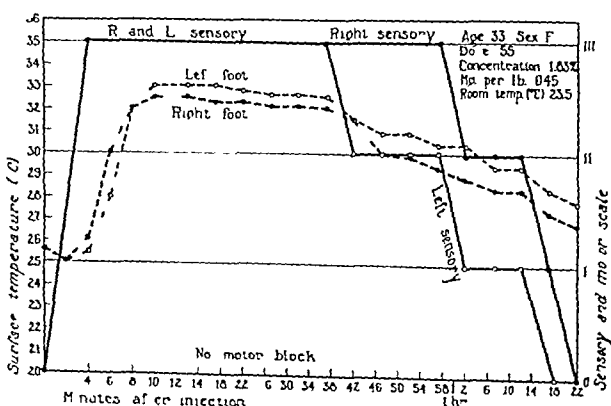


Chart 4—Observations in case 7

the operating table and subsequent maneuvers attendant on preparation for operation, this routine was not always possible. Therefore variable periods of time elapsed between readings. In a few cases (cases 5, 6, 7, 16, 18 and 27, charts 2, 3, 4, 5 and 7) the patient was followed from the operating room to his own room and readings were taken until the patient was

6 Ranson S W. Anatomy of the Sympathetic Nervous System with Reference to Sympathectomy and Ramification. J A M A 86 1886 1900 (June 19) 1926.

7 Brown C F. The Treatment of Peripheral Vascular Disturbances of the Extremities. J A M A 87 379 383 (Aug.) 1926.

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10 Eddy H C and Taylor H P. Experiences with the Dermatherm (Tyco) in Relation to Peripheral Vascular Disease. J Normal Studies Am Heart J 6 683 689 (June) 1931.

free from any sensory involvement and could readily appreciate the prick of a pin. All observations and readings were taken by the same observer. This avoided inaccuracies which would arise from many observers participating especially in interpretation of the arbitrary values used to denote partial sensory and motor block.

RESULTS OF EXPERIMENTS

Results in the thirty-four cases are summarized in the table. They are arranged in order of dosage beginning with the lowest dose given. The graphs shown (charts 1 to 7 inclusive) are representative and have been selected to demonstrate the effects of the anesthetic on the sensory motor and sympathetic nerves of both lower extremities.

The Physiology of Spinal Anesthesia—The usual sequence of events in a spinal anesthetic (cases 5, 6, 7, 16 and 27, charts 2, 3, 4, 5 and 7) is as follows in order of their appearance: 1. Sensory nerve block

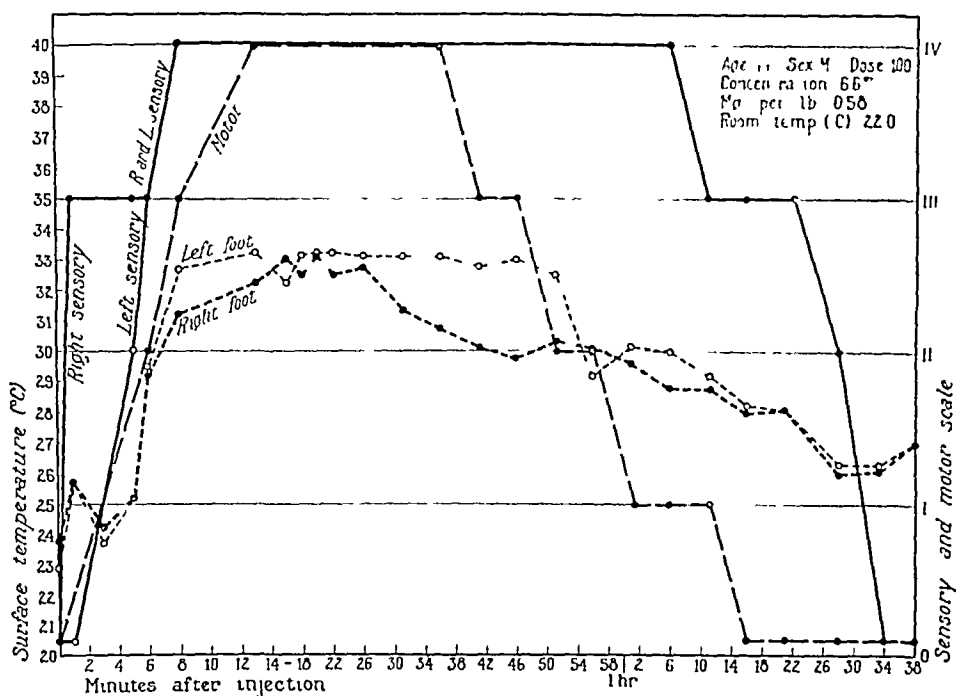


Chart 5—Observations in case 16

with analgesia or anesthesia, depending on the amount of anesthetic given. 2. Sympathetic nerve block determined by the rise of surface temperature of the lower extremities, apparently indicating release of the vasoconstrictor fibers. Among older people and those with arteriosclerosis and other conditions in which arteries are occluded this rise usually lags. It is probable that the sympathetic block occurs before the sensory block but of necessity is detected later because of the indirect means of determining it. It seems logical to assume that a definite period of time is required for the skin and tissues of the extremity to take up heat from the rush of larger amounts of blood when the vessels become of larger caliber. This might be likened to releasing steam into a radiator. After the valve has been opened and the steam admitted several seconds is required before the temperature rises appreciably. 3. Motor nerve block: this does not occur unless the dose of the anesthetic drug is fairly large.

In the order of recovery of normal function after spinal anesthesia the events are as follows: (1) recovery

of function of motor nerves and (2) recovery of function of sympathetic and sensory nerves. Return to normal of the sympathetic and sensory nerves is almost simultaneous although one may be slightly in advance usually the sympathetic, as determined by readings of cutaneous temperature. The surgeon nearly always can be warned a few minutes in advance that the anesthesia will soon be insufficient for his patient by observing that the temperature in the extremities begins to fall. The temperature of the digits does not fall to the original level at once but usually stays a little higher than the initial reading for a few hours.

The personal equation is very important in spinal anesthesia and one patient will not react exactly the same as another to the same dose. In general it has seemed in this study that aged patients with arteriosclerosis and debilitating disease obtain a more profound effect and retain it for a longer period of time than younger patients who are in good health (compare cases 5 and 6, charts 2 and 3).

Fractional Block and Its Relation to Dose and Concentration—To the reader who is not acquainted with the doses of procaine ordinarily used throughout the country in spinal anesthesia a word on accepted dosage will be useful. One of the common rules heard is that a milligram of procaine should be given for each pound of body weight. This would result in giving a person of average weight about 150 mg. At the Mayo Clinic very conservative doses of procaine are used. The large majority of patients receive from 100 to 150 mg. Occasionally as large a dose as 200 mg is used but rarely one any larger. Babcock¹¹ has stated that a dose of 120 mg in 8 per cent solution

is an average dose for an adult. Many physicians in this country do not hesitate to use much larger doses.

The following questions arise: Is it possible to produce block of one type of nerve independent of the other two types? Can varying degrees of block be produced in each type of nerve by regulation of the dose? This study allows certain conclusions to be drawn relative to the effect on sympathetic sensory and motor nerves.

First sympathetic nerves will be considered. In case 1 (chart 1) a dose of 45 mg of procaine was given for transurethral prostatic resection. Within seventeen minutes maximal (qualified as has been said) vasodilatation had been obtained but no sensory or motor block whatever. A second injection of 80 mg was then given with complete sensory anesthesia but no increase in the temperature of the digits of the lower extremities. This was the only case in which vasodilatation was obtained with practically no sensory

¹¹ Babcock, W. W. A Textbook of Surgery for Students and Physicians. Philadelphia: W. B. Saunders Company, 1928.

involvement To interpret these phenomena is difficult, for no other doses as low as this, or lower, were given for comparison Doses of from 50 to 60 mg (cases 2, 4, 5 and 7, charts 2 and 4) regularly caused sensory analgesia without anesthesia and produced maximal cutaneous temperatures equal to those obtained by large doses This does not correspond with the statements of several authors that anesthesia is the end point necessary to secure complete vasodilatation Whether it would be possible to lower the dose still further and obtain complete or incomplete vasodilatation without any sensory involvement I am not prepared to say, for no opportunity was afforded to subject patients to such low doses However, from these observations it may be assumed that a dose as low as 55 or 60 mg of procaine in 3 cc of fluid (a concentration of about 18 per cent) injected into the lumbar region, will produce sympathetic block with resulting complete vasodilatation of the vessels of the lower extremities This dose usually gives sensory analgesia but may rarely produce anesthesia (cases 3 and 6) Motor block rarely occurs, and if it does occur it is extremely mild Such doses are therefore all that are needed in diagnosis of vascular diseases to determine the amount of vasospasm, caused by overactivity of the sympathetic nerves, or the amount of arterial occlusion, caused by organic disease Because of the mild sensory and motor effect, this low dose is much safer than the doses usually employed in spinal anesthesia

It will be noticed from the table that maximal temperatures as high as 35.5 C are recorded The average for the series is 32.7 ± 0.155 C In eight cases the maximal temperatures were less than 32.7 C Patient 9 whose maximal temperature was 31.9 C was 67 years of age, had marked arteriosclerosis, and the Wassermann test was positive Patient 11, whose maximal temperature was 28.2 C, was 59 years of age and had marked peripheral sclerosis with calcification of the vessels, but without occlusion Patient 24 was 61 years of age and had undergone extensive resection of the bladder for carcinoma She was in poor general condition and went into a state of shock a marked drop in blood pressure developed, and the patient left the operating room in poor condition Patient 13 was 22 years of age and the maximal temperature was 31.7 C, but observations were made for only twenty-two minutes If this patient had been observed for a longer period the temperature might have been higher In the remaining four of the eight cases (cases 12, 18, 19 and 31) the maximal temperatures were 31.6, 31.9, 30.0 and 32.3 C respectively No explanation for these lower temperatures can be given with the exception that all except patient 31 were considerably more than 60 years of age and no doubt their blood vessels had undergone considerable pathologic change although evidence of it was not noted grossly

Morton and Scott postulated a value based on examination of young, normal persons of 31.5 C as the minimal temperature consistent with complete normal vasodilatation from spinal anesthesia with the room temperature at 20 C They gave a correction of 0.3 degree C to be added for each degree of rise in room temperature in excess of 20 C This value would be approximately 32.4 C with room temperature at 23 C

The foregoing as has been said applies to sympathetic nerves The effect on sensory and motor nerves will now be considered It has been seen that analgesia can be produced without anesthesia and that varying

amounts of motor block can be obtained, depending mostly on dose and concentration of the anesthetic drug and, in minor part, on the individual response of the patient Case 16 (chart 5) represents complete motor block (grade 4) produced by 100 mg of procaine in a concentration of 6.6 per cent, this was the highest concentration used in this series of cases In the two cases in which this high concentration was employed, injection was between lumbar vertebrae 3 and 4 and 4 and 5, respectively The result is to be contrasted with that in case 26 (chart 6), in which there was only partial motor block (grade 3) after 150 mg of procaine in a concentration of 3 per cent had been given between lumbar vertebrae 1 and 2 From these examples it may be seen that dosage and concentration of the fluid bathing the nerve roots is of paramount importance in determining the amount of nerve block that will be produced It therefore follows that no stereotyped rule can be given for production of exactly similar effects in all cases, the wise anesthetist will take concentration into consideration as well as dose weight and age of

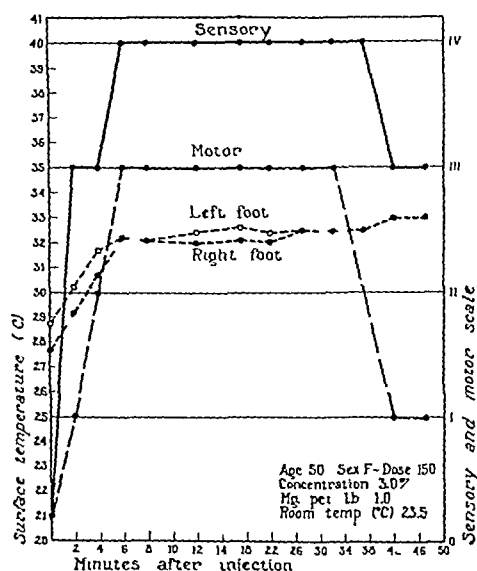


Chart 6—Observations in case 26

the patient, and site of injection This point has been consistently advocated by Lundy¹²

Fractional Block and Its Relation to the Factor of Time—Sensory block always occurs rapidly, arriving at its maximum usually within about four minutes, or sooner after the injection However, in occasional cases from two to eight minutes is required

As regards sympathetic block, two columns of the table have been devoted to the time required for the digits of the extremities to attain their maximal temperature after injection For practical purposes the 'practical maximum' would give the information desired in vascular diagnosis From this it is seen that for all useful purposes an interval of thirty minutes after injection probably would suffice However, a few older patients have a slight rise later on to the 'absolute maximum' In most cases there is little or no difference in time between the practical and the absolute maximum but in an occasional case (cases 10, 20, 21 and 25) a difference of ten minutes or more is noted

¹² Es ex H E and Lundy, J S Spinal Anesthesia Laboratory and Clinical Observations S Clin North America 12 10:33 10:37 (Aug) 1932

In case 24, sixty minutes was required to reach the maximal rise in temperature, but the difficulties in this case have been pointed out elsewhere, the sudden, early fall in blood pressure reached a systolic value of 85 mm of mercury and epinephrine was required.

The factor of time in motor block is quite variable. The interval that elapsed between injection and maximal motor effect varied from three or four minutes to twenty or twenty-three minutes, depending on the size of the dose and the concentration. The greater the dose and concentration, the more rapid the motor effect. Debilitated, aged patients seemed to be more quickly and profoundly affected.

COMMENT

It has long been known that the various components of a mixed nerve are not equally blocked in conduction anesthesia. Many workers among whom are Pereles and Sachs¹³ Ioteyko and Stefanowska¹⁴ Hufemann¹⁵ Ostlund, Hodges and Dawson¹⁶ Dixon¹⁷ and Regnier and Desgrez¹⁸ have conducted experiments on nerve

and physical principles involved in nerve block. Niwa,²⁰ Pawlisch,²¹ McGuigan, Cohen and Heinckamp, and Schulz²³ have made contributions with experimental studies. Some men have suggested that sensory fibers are situated more peripherally in a mixed nerve trunk and therefore are more easily reached by the anesthetic drug. Kraus and Ingham²⁴ have disproved this by demonstrating that motor fibers are not any more centrally placed than sensory fibers.

The most logical explanation seems to come from the recent work of Gasser and Erlanger.²⁵ They examined the anterior and posterior roots of the ninth peripheral nerve of a frog and found that the motor fibers averaged about 14 microns in diameter, whereas the sensory fibers averaged about 9 microns. In the motor root they found small fibers that were less than 5 microns in diameter which they felt were the sympathetic fibers. By experiment they further showed that, in cocaine block of a mixed nerve, sensory fibers are blocked first, while, with pressure, motor fibers are blocked first. This work may offer an explanation of our results that, the smaller the nerve fiber, the more quickly it becomes infiltrated with the anesthetic solution.

SUMMARY

The series presented here consisted of thirty-four cases, comprising persons of both sexes and a wide variety of age groups. Thirty-one of these patients were subjected to spinal anesthesia with procaine, one to spinal anesthesia with prilocaine and two to general anesthesia by inhalation. Observations were made at short intervals on the amount of block produced in the sympathetic, sensory and motor nerves with a wide range of doses and concentrations.

The physiologic sequence of nerves blocked in spinal anesthesia was found to be in order of appearance: (1) sensory nerves, (2) sympathetic nerves and (3) motor nerves. However, it is likely that the sympathetic nerves are actually the first to be blocked. The means of measuring sympathetic block is necessarily indirect, depending on the rise of surface temperature of the area supplied by the blocked nerves and because of this delay is recorded after sensory block. The order of recovery is (1) motor nerves and (2) sensory and sympathetic nerves at about the same time.

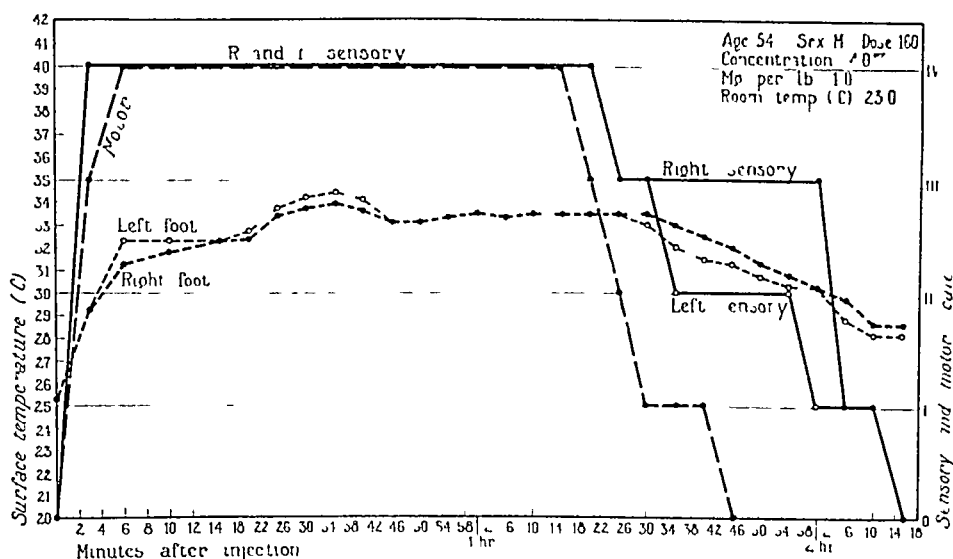


Chart 1. Observations in case 27.

block using a wide variety of anesthetic agents including alcohol, chloroform, ether, cocaine and heat. They all reported that sensory fibers were more easily blocked than motor fibers. Wiedhopf¹⁹ in 1924 extended his studies to include sympathetic block and reported that the "vessel nerves" were blocked first, the sensory nerves second, and the motor nerves third, which agree with results of this study.

The reason for the results obtained is not entirely clear, for as yet observers are not sure of the chemical

13 Pereles H and Sachs M. Ueber die Wirkung von Aether, Chloroform und Alkohol auf das Leitungsvermögen motorischer und sensibler Nervenfasern des Frosches. Arch f d ges Physiol 52: 526 (July 28) 1892.

14 Ioteyko I and Stefanowska M. De l'anesthésie successive par l'anesthésie des fibres nerveuses sensibles et motrices. Compt rend Soc de biol 53: 1113-1115 (Dec 21) 1901.

15 Hufemann Max. Erlischt das Leitungsvermögen motorischer und sensibler Froschnerven bei derselben Temperaturerhöhung? Arch f d ges Physiol 122: 484-500 (May 7) 1908.

16 Ostlund E O, Hodges P C and Dawson P M. Heat Block of Sensory Fibers in the Sciatic Nerve. Am J Physiol 57: 470-477 (Oct) 1921.

17 Dixon W E. The Selective Action of Cocaine on Nerve Fibers. J Physiol 32: 87-94 (Dec 30) 1905.

18 Regnier J and Desgrez A. Mesures de l'activité du chlorhydrate de cocaine sur différents troncs nerveux. Compt rend Acad d sc 189: 264-266 (July 29) 1929.

19 Wiedhopf O. Mechanism of Nerve Blocking. Beitr z klin Chir 132: 191-199 1924. abstr J A M A 83: 722 (Aug 30) 1924.

20 Niwa Shunichi. The Effect of Cocaine Hydrochloride on the CO Production of the Mixed Nerve Fiber. J Pharmacol & Exper Therap 12: 323-342 (Jan) 1919.

21 Pawlisch O V. The Relation between the Time for Paralysis of the Sensory and Motor Fibers of a Nerve by Various Local Anesthetics as Determined by Their Action on the Sciatic Nerve of the Frog. J Lab & Clin Med 11: 180-182 (Nov) 1925.

22 McGuigan H, Cohen S J and Heinckamp W J R. Studies in Local Anesthesia. II. The Pharmacology of Some Para-Aminobenzoate Compounds. J Lab & Clin Med 11: 173-174 (Nov) 1925.

23 Schulz L W. The Standardization of Local Anesthetics by Their Application to the Sciatic Nerve Trunk of a Frog. J Lab & Clin Med 11: 176-179 (Nov) 1925.

24 Kraus W M and Ingham S D. Electrical Stimulation of Peripheral Nerves Exposed at Operation. J A M A 74: 586-589 (Feb 28) 1920.

25 Gasser H S and Erlanger Joseph. The Role Played by the Sizes of the Constituent Fibers of a Nerve Trunk in Determining the Form of Its Action Potential Wave. Am J Physiol 80: 522-547 (May) 1927. The Role of Fiber Size in the Establishment of Nerve Block by Pressure or Cocaine. ibid 88: 581-591 (May) 1929.

Fractional block is possible. Production of block in one system and not in another by variation of dose and concentration, is feasible. Procaine, 60 mg in a concentration of about 1.5 to 2 per cent is adequate to produce a rise in cutaneous temperature to a level assumed at the present time to indicate complete vasodilatation. Complete anesthesia is not necessary to secure this vasodilatation.

Complete sensory effect is usually had in from four to eight minutes. For practical purposes an interval of thirty minutes after injection should be sufficient to produce maximal rise in surface temperature due to

is an indirect one, namely, by the rise in skin temperature, it is difficult to be sure just when complete vasodilatation takes place. Since the skin temperature is normally in a state of flux, the demonstration of a rise and then a plateau with a fairly high level of about 31 C, or certainly above 32 C, as Dr Emmett has shown in his charts is rather conclusive evidence that complete vasodilatation has been secured.

One should consider what effect the fall in blood pressure coincident with spinal anesthesia may have on the skin temperature since the latter is really a measurement of rate of flow of blood in which vasodilatation is only one factor. The fall of blood pressure seems to be greater from spinal anesthesia than from most other methods of vasodilation. In the

Summary of Results

Response of Different Types of Nerves													
Sympathetic													
Anesthetic Agent (Procaine Hydrochloride Unless Other Stated)					Site of Injection Lumbar Inter- space	Sen- sory Grade (See Text)	Motor Grade (See Text)	Temperature Degrees C		Minutes After Injection		Complicating Pathologic Condition	
Case	Age Years	Amount, Mg	Concen- tration per Cent	Milligrams per Pound of Body Weight				Maximal Skin Tem- perature of Warmest Digit Examined	Initial Tem- perature Before Injection	Room	Practical Maximal Temper- ature Attained		Absolute Maximal Temper- ature Attained
1	66	40	1.50	0.88	3.4	0	0	32.1	30.0	30.0	17	17	Marked peripheral arteriosclerosis
2	57	50	1.66	0.24	2.3	3	0	33.3	26.8	27.5	16	26	
3	66	50	1.66	0.76	3.4	4	0	33.3	26.8	30.0	20	20	
4	78	50	3.30	0.38	2.3	3	0	33.0	27.8	28.5	17	2	
5	34	55	2.75	0.36	1.2	3	2	32.8	24.9	23.0	8	8	
6	74	55	1.83	0.30	3.4	4	3	31.9	24.5	20.0	37	42	
7	20	50	1.80	0.40	3.4	3	0	33.0	20.6	27.5	10	10	Marked peripheral arteriosclerosis post- ive Wassermann reaction
8	57	60	1.70	0.30	1.2	3	0	33.0	24.7	23.0	8	13	
9	67	75	2.00	0.41	3.4	4	2	30.3	27.1	27.5	21	21	
			2.00	0.44	1.2	4	1	31.9	27.2	27.5	21	27	
10	51	90	3.00	0.54	3.4	3	0	32.7	27.2	20.0	20	30	Marked peripheral arteriosclerosis with calcification
11	59	100	3.30	1.38	3.4	4	2	28.2	20.9	28.5	11	36	
12	62	100	3.70	0.58	2.3	4	4	31.6	27.5	27.5	46	46	
13	22	100	6.60	0.67	3.4	4	4	31.7	26.2	23.5	10	12	Marked peripheral arteriosclerosis
14	68	100	2.80	0.36	1.2	4	4	33.1	20.0	23.5	12	12	
15	55	100	2.00	0.70	1.2	4	4	32.9	30.5	24.0	16	20	
16	44	100	6.10	0.35	4.5	4	4	33.2	22.8	22.0	16	20	
17	66	100	3.30	0.40	3.4	4	4	32.7	20.0	20.5	40	48	
18	70	100	2.00	0.86	1.2	4	3	31.9	20.1	23.5	18	18	
19	64	120	3.00	0.60	3.4			30.0	24.0	24.0	8	8	Shock, systolic blood pressure, 80
20	33	120	4.00	1.30	2			34.4	24.0	24.0	20	40	
21	45	120	3.00	0.62	2	4	3	34.0	26.0	24.0	10	20	
22	27	120	4.0	1.10	2.3			30.5	27.4	20.5	20	40	
23	43	150	3.00	1.10	1.2	4	4	32.8	28.2	24.0	5	13	
24	61	150	4.28	0.91	3.4			31.8	20.0	28.0	60	60	
25	51	150	3.00	0.87	1.2	4	4	34.2	26.6	23.5	15	20	Positive Wassermann reaction
26	50	150	3.00	1.00	1.2	4	3	33.0	27.7	27.5	6	42	
27	54	160	4.00	1.00	1.2	4	4	34.4	20.0	28.0	20	30	
28	33	170	2.00	1.60	3.4	4	4	37.8	28.2	27.5	20	30	
29	44	200	3.70	1.30	1.2	4	4	32.1	30.3	20.0		17	
30	54	200	4.00	0.93	2.3	4	4	32.7	26.5	23.5	10	27	
31	30	200	4.00	1.70	1.2	4	4	32.3	23.0	24.0	14	19	Positive Wassermann reaction
32	16	15	(pantocerin)	0.12	2.3	4	4	30.0	30.0	23.5	12	27	
33	32		(general anesthesia)					34.5	28.0	23.5	15	21	
34	37		(general anesthesia)					27.7	26.5	23.5	10	18	
Mean = 32.7, 1.9, 50, 2.3, 0.25, 3.2, 2.7													

Mean = 32.7 ± 0.10 20.03 ± 0.27
Standard deviation = 1.34 ± 0.109 2.03 ± 0.191
Correlation coefficient between skin and room temperatures = 0.4 ± 0.009

Time required after injection to reach practical maximal temperature (within 0.8 degree of absolute maximum)
† Ethylene and ether
‡ Ethylene nitrous oxide and ether

block of the sympathetic vasoconstrictor nerves. The time between injection and production of motor block is variable, ranging from three to twenty-three minutes. All these figures vary greatly according to dosage and concentration used.

ABSTRACT OF DISCUSSION

DR NELSON W. BARKER, Rochester, Minn. One question that will immediately arise is whether Dr Emmett has secured complete vasodilatation. Definite vasodilatation has been demonstrated following general anesthesia, application of external heat and diathermy, ingestion of ethyl alcohol and fever induced by the intravenous injection of foreign protein. However, because the method of measurement of vasodilatation in man

present state of knowledge an arbitrary normal skin temperature representing full vasodilatation cannot be established until more is known about the influence of age and nonocclusive rigidity of the arterial system. It would be valuable to have data concerning complete vasodilatation produced in a single person by a variety of methods finally compared with sympathetic ganglionectomy. It is probable that spinal anesthesia is one of the most accurate methods for producing complete vasodilatation. Its chief disadvantage to the present time has been that it is too great a procedure to be used as a single test. However, with increasing improvement in technique and reduction in the amount of the anesthetic agent necessary, I believe it will be of greater use as an accurate diagnostic method to distinguish the vasospastic and vaso-occlusive factors in peripheral arterial disease.

DR FRANK A KELLY, Detroit In regard to the cases under discussion in which there is a vascular disturbance in the extremities similar to thrombo angitis obliterans or Raynaud's disease and the question as to whether there is an actual plugging of the vessels or whether there is some form of vascular spasm, I have been able to determine the pathology to some extent in the following manner. A saline disappearance test was done in each of these cases showing a gradual diminishing circulation toward the foot with a complete loss of circulation in the foot. The temperatures were then taken by the thermocouple apparatus when the same condition of circulation was evident. I then administered in each of these cases a spinal anesthetic and repeated the tests, both the saline disappearance and the temperature. In one case the circulation showed no alteration under spinal anesthesia, and I considered this evidence of a complete block in the circulation. Operation proved that to be true and proved that ganglionectomy or sympathectomy would do no good. In the other case the same test was made under spinal anesthesia. Some improvement took place, as evidenced by both tests. A lumbar ganglionectomy was done and so far the results have been fine.

DR JOHN L FULTT Rochester Minn. As Dr Barker has suggested final proof of complete vasodilatation by the method here advocated will await a study of cases subjected to surgical interruption of the sympathetic nerves after having been studied by means of subarachnoid block with these low doses of procaine hydrochloride. I hope to be able to report a series of such cases in the near future. Dr Brown has a large series of cases studied by his method of induction of fever in which complete vasodilatation has been proved subsequently by lumbar ganglionectomy. Because of the fact that the maximum temperatures in my cases compare so favorably with those of his studies I feel that maximum vasodilatation has most likely been attained in my cases.

THE ROENTGEN DIAGNOSIS OF CARDIAC ANEURYSMS

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Aneurysmal dilatation of the heart is by no means a rare lesion pathologically. The signs are so indefinite that relatively few cases have been recognized clinically. A still smaller number have been recognized roentgenologically because they often do not produce any change in the silhouette. However, the silhouette is pathognomonic when well marked and it would appear that with care a greater percentage could be diagnosed, or at least suspected, when the changes are minimal.

The earliest reports include an aneurysm of the right auricle by the Dane Olaus Borrich in 1676, one of the right ventricle by the Frenchman Pierre Dionis in Paris in 1696 and one of the left ventricle by the Italian Dominic Galeati in 1757. Since these cases many have been reported. Usually the lesion is single but several aneurysms can be present in one patient as for instance, the case reported by Fujimami in 1900 with three—one at the apex, one in the posterior wall below the mitral orifice and one in the septum, and the case reported by Thuman in 1838, in which there were four in the left ventricle.

In 1926 Pletnew¹ reviewed 300 reported cases of cardiac aneurysms and stated that only six had been diagnosed *intra vitam*. In only one of these six (that of Christian and Erik²) was the lesion visualized by

x-rays, but at autopsy the aneurysm was not at the assumed point. Pletnew added the seventh and eighth cases correctly diagnosed and described the lesion pathologically but he did not show roentgenogram. He considered the roentgen examination of help but not of decisive importance.

Kraus,³ in 1919, reported a case of aneurysm of the sinus of Valsalva. This was described roentgenologically and clinically and verified at autopsy. The first case of cardiac aneurysm of the type discussed in this paper, diagnosed by means of roentgenograms, was reported in 1922 by Szary and Albert.⁴ Here the typical manifestations were present, and there is no doubt that the diagnosis was correct, but the final outcome and autopsy results are absent. Lenk reports a similarly characteristic case but again final proof is lacking. There are other such examples, and therefore it seems advisable to report new cases with roentgen studies and pathologic changes, at the same time reviewing the literature and applying it to the present cases.

Cardiac aneurysms have been variously classified. Kraus divided them into three types as follows:

- 1 Those of the right sinus of Valsalva which perforate into the right ventricle including (a) congenital and (b) acquired. The acquired includes ulcerating processes near the sinus developed subsequent to malignant endocarditis.
- 2 Intraventricular aneurysms in the sinus of Valsalva.
- 3 Partial cardiac aneurysms for the most part due to coronary sclerosis.

The cases presented in this paper fall entirely in the last group, and discussion is therefore limited to this group.

PATHOLOGY

The development of cardiac aneurysms is logically explained on the basis of the pathologic changes and a knowledge of the vascular supply of the myocardium. The coronary arteries are not always constant in their mode of origin and branching but in the average case arise from the root of the aorta, one to the right and one to the left passing inferiorly beneath the aortic valves. The right coronary supplies the anterior portion of the interventricular septum, a portion of the anterior wall of the right ventricle and also part of the left ventricle. From this point of view the left coronary artery is more important. It arises in the left sinus of Valsalva, is usually larger than the right and just below its origin divides into the anterior descending ramus (which gives off large branches to the ventricular septum, the left ventricle and smaller branches to the right ventricle) and the circumflex ramus (which gives large branches to the left ventricle and small branches to the left atrium). Anastomoses are common throughout, not only between the right and left coronary arteries in their capillary and precapillary distribution but also between coronary arteries and vessels of adjacent and attached organs and between branches of each coronary. These anastomoses involve the fine peripheral branches in the subendocardial and subpericardial layers. It is clear therefore that in the anatomic sense of Cohnheim there is no end artery in the heart. In spite of this fact however it has been shown by many workers that the cardiac vascular system is not capable of preventing infarctions when

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Read before the Section on Radiology at the Eighty Fourth Annual Session of the American Medical Association Milwaukee June 14, 1933.

¹ Pletnew, D. D. Is It Possible to Diagnose an Aneurysm of the Ventricle in Vivo? *Ztschr. f. klin. Med.* 104: 378, 1926.

² Christian and Erik. Aneurysm Klin. Wehnschr. 1: 582 (March 18) 1922.

³ Kraus, F. The Possibility of Clinical Diagnosis of Intracardiac Aneurysm. *Berl. Klin. Wehnschr.* 56: 529, 1919.

⁴ Szary, A. and Albert, J. Ventricular Aneurysm. *Bull. et mem. Soc. med. d. hop. de Paris* 46: 172 (Jan. 27) 1922, quoted by Heitz and Corone.

⁵ Lenk, R. Roentgen Diagnosis of Coronary Sclerosis Intra Vitam. *Fortschr. a. d. Geb. d. Roentgenstrahlen* 35: 1265, 1926.

the larger vessels are occluded. Much detailed work has been done experimentally on the effects of coronary occlusion, and it suffices merely to summarize the valid conclusion drawn by several authors after experimental ligation of the coronaries in dogs.

1 Either coronary can be ligated without necessarily causing immediate cardiac standstill.

2 When one coronary is obstructed in the presence of an existing closure of the other, death ensues either immediately or within a few hours.

3 Obstruction of both the left circumflex and the ramus descendens practically always leads to death, the ventricle stopping first.

4 Occlusion of the entire left coronary⁶ leads to stoppage, the ventricle going into fibrillation. The animal may recover from the immediate effects, but when the area of infarction is large, heart failure takes place from one to three months later.

Conditions are somewhat different in the human being because here there is often an associated myocardial lesion or disease of the coronary elsewhere, and hence occlusion of smaller branches might be of far more serious import. Such lesions are not apt to occur in the average young adult, and if obliteration does take place there is a good possibility that the heart muscle might be spared wholly or in part, at least sufficient for active function due to an adequate collateral blood supply. That the collateral blood supply does take place is evidenced by the fact that the infarcted area is sometimes smaller than the area supplied by the occluded vessel. In an older individual infarction is more common. Experimentally the size of the occluded vessel, its site and the duration and rapidity of the obliteration are important factors in determining the outcome. In the human being there are three added factors, namely, (1) the age of the patient, (2) the condition of the cardiac musculature and (3) the presence or absence of coronary disease in vessels other than the one occluded.

Pathologically, cardiac infarcts show no essential variation from similar lesions in other organs. They have roughly a triangular outline with the base toward the endocardium and the apex toward the epicardium.

Early there is hyperemia and coagulation necrosis. If death does not take place, fibrosis, first appearing in the margins extends throughout. The fibrous tissue arises from preexisting connective tissue. Abundant elastic tissue is present. Muscle fibers become hypertrophic but do not regenerate. As healing progresses the wall

of the infarct near the epicardium becomes thinner, the end-result being a white scar. If this scar is strong enough to resist the intraventricular pressure, no bulging beyond the line of the epicardium will take place. Such a lesion is termed a partial cardiac aneurysm. Even though the wall may be weak its strength may be enhanced by (1) thickening of the

epicardium, (2) adhesions joining the pericardial surfaces or (3) thrombus formation within the sac. Hence bulging may be prevented. In the absence of bulging, the lesion cannot be diagnosed roentgenologically because no change in the cardiac silhouette takes place. If the wall either with or without these enhancing factors, is too weak to resist the intraventricular pressure, bulging beyond the line of the epicardium takes place and a chronic cardiac aneurysm is formed. This is the type of lesion which produces roentgenologic signs and is the type to be discussed. In the cases presented, the aneurysms involved the left ventricle and were caused by infarcts. Actual bulging beyond the line of the epicardium was not marked in any case, as seen at the autopsy, but, since pressure conditions after death are so different from those before death, it is quite logical to assume that bulging was more marked during life than was seen at autopsy.

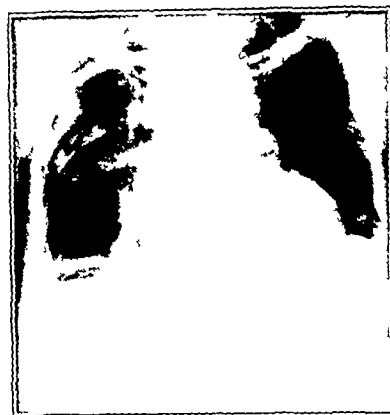


Fig 2 (case 2)—A large localized bulging is seen in the upper portion of the silhouette of the left ventricle proved at autopsy.

REPORT OF CASES

CASE 1—History—C R, a white man, admitted to the Cleveland City Hospital, Jan 30, 1929, had an indefinite history. His general physical examination showed a few rales at both bases, a faint systolic blow with faint heart sounds and a blood pressure of 115 systolic and a questionable diastolic. His course in the hospital was gradually downhill and he died April 25. A teleroentgenogram (fig 1), taken Feb 1 1929, showed no evidence of any localized bulgings. Oblique views and fluoroscopic notes are lacking.

Autopsy—The heart weighed 600 Gm. When the left ventricle was opened there was a large dilated area involving the anterior wall of the ventricle. It extended to the interventricular septum and measured from 6 to 8 cm in diameter. It was lined by a markedly thickened, pearly white endocardium. The myocardium was entirely replaced by firm scar tissue. In addition there was another dilated area just below the mitral valve. This one measured from 3 to 4 cm and showed similar myocardial changes. Throughout their course both coronary vessels showed many areas of intimal thickening, hyalinization and calcification. Calcification was found mainly in the left descending branch starting just beyond its mouth and extending over an area of from 3 to 4 cm. About 3 cm from its mouth the descending branch of the left coronary was almost completely occluded by an organized thrombus which was gray and very firmly attached to the wall. The circumflex branch of the right coronary artery showed a well marked calcified plaque about 4 cm from its mouth. This almost occluded the lumen. In this region there was a small friable and recent thrombus. The myocardium on cut section showed in addition diffuse scar tissue throughout.

This case showed two large cardiac aneurysms at autopsy but no roentgen evidence in a teleroentgenogram taken in the postero-anterior view. One of these aneurysms was quite favorably located in the left ventricle. It was not visualized in this view, probably because of a lack of bulging beyond the line of the epicardium. Aneurysm can be present, therefore, and give no roentgen signs in such an examination.



Fig 1 (case 1)—Teleroentgenogram showing no evidence of an aneurysm, although two large aneurysms were found at autopsy.

CASE 2—History—E. H., a white man, aged 76, was admitted to the Cleveland City Hospital in a confused state. He thought he had been sick for about three weeks. For the preceding three or four days he had passed no urine. A rupture of the bladder was diagnosed, and air was injected into the bladder and later visualized as free abdominal air beneath the dome of the right diaphragm. He died shortly after admission. Fortunately, a film of the diaphragm was taken so that the cardiac shadow was included (fig 2). It shows a well marked and localized bulging of the upper portion of the left ventricle, quite diagnostic of an aneurysm which bulges beyond the line of the epicardium. This corresponded to the condition found at the autopsy.

Autopsy—The bladder was found ruptured. The pericardial cavity was obliterated. Over the upper posterior half of the left ventricle was a globular bulge. On section there was a defect in the wall measuring 5 cm in diameter at this point. Its upper margin was at the mitral ring, its medial border was at the interventricular septum. The lining, endocardial surface was dense and white except at the bottom where there was a partially organized adherent thrombus. The descending and transverse branches of the left coronary were moderately thickened, sclerotic and slightly narrowed. The proximal 6 cm of the right coronary was sclerotic and for a distance of about 2 cm appeared to be completely occluded by an atherosclerotic plaque except for a pin-point-sized lumen.

The radius of the upper portion of the arch of the left ventricle was smaller than that of the lower. This bulging had increased at the time of discharge from the hospital. A view in the first oblique showed the bulging unusually well and proved its anterior position (fig 4). This proves the importance of this view.

The patient was readmitted the following September. Pulmonary edema developed and the night before death a right-sided hemiplegia was seen. An electrocardiogram showed a delayed intraventricular conduction. At this time a roentgenogram showed the previously demonstrated bulging to have markedly increased in prominence (fig 5).

Autopsy—The heart weighed 500 Gm. The pericardium was smooth and not attached. Both ventricles showed marked hypertrophy. The right was 0.7 cm and the left 2 cm in thickness. At the apex of the left ventricle there was a large, adherent thrombus 8 by 6 by 2 cm. Beneath this thrombus the myocardium was only about 0.5 cm in thickness and appeared yellow, soft and friable. The tip of the septal papillary muscle was involved in a hemorrhagic infarct and separation of its chordae tendineae took place during the examination of the heart. The diagnoses of interest are:

- 1 Myocardial infarction old and recent
- 2 Arteriosclerosis
- 3 Tuberculous pericarditis
- 4 Tuberculous mediastinal lymphadenitis



Fig 3 (case 3)—Taken just before first admission, March 18, 1930. Bulging of the upper portion of the silhouette of the left ventricle is very slight and easily overlooked.



Fig 4 (case 3)—First oblique view taken the same date as figure 3. The localized bulging is easily visualized in this view and is seen to be anterior.



Fig 5 (case 3)—Taken six months after figures 3 and 4, showing the enormous increase in the size of the aneurysm.

CASE 3—History—W. B., a Negro laborer, was admitted to the Lakeside Hospital, March 26, 1930, for the removal of a small lump on the right side of the chest. He had noticed a cardiac palpitation associated with shortness of breath before, and on the day of admission he had an attack during which his pulse varied from 160 to 190. It was regular and associated with no other symptoms save mild dyspnea. The blood pressure was 140 systolic and 85 diastolic. About two months later he was readmitted because of dyspnea. Two weeks previously he was awakened about 5 o'clock in the morning, gasping for breath and with severe "distress" centered over the upper half of the sternum and radiating to the neck. He had no marked pain. His heart was racing and he was too short of breath to talk. He presented the clinical manifestations of chronic bronchitis, emphysema and generalized arteriosclerosis. He improved on rest and digitalis and was discharged improved. At this time an electrocardiogram showed sufficient variation in the PR interval to suggest disease of the conducting system.

Figure 3 is the teleoroentgenogram taken just before the patient's first admission. In retrospect this shows a localized bulging of the upper portion of the left ventricular silhouette. It is important to note that at this time the bulging consisted of only a slight increase in the upper portion of the ventricular

This case is important because it shows an early stage of what later turned out to be a large ventricular aneurysm. It is important also to note that in the early stage the bulging is very slight.

CASE 4—C. M., a white physician, aged 50, seen as a private patient of Dr. R. W. Scott, presented himself with a typical story of coronary thrombosis. He had had attacks of pain in the region of the heart and this pain radiated down the left arm. He had been seen off and on for the preceding four years and at times had attacks of severe shortness of breath and pain. He recently died in one of these attacks. An autopsy was not performed. No proof is needed to explain the silhouette seen in figure 6. The aneurysm is unusually well marked. This plate was taken three years before his death.

CASE 5—H. R., a white man, aged 48, was first seen at St. Luke's Hospital of Cleveland following a severe attack of pain in the left shoulder and heart while swinging a sledge. He remained in the hospital for four weeks, gradually regaining his strength. His second attack occurred, Feb. 8, 1931, and he was admitted to the Cleveland City Hospital. At this time his blood pressure was low, 90 systolic, 60 diastolic. There was nothing striking otherwise in his physical examination. He made a fair recovery and was discharged with a diagnosis

of coronary thrombosis. A teleroentgenogram was taken at this time (June 24) (fig 7). The same type of bulging is seen as in the other cases. The patient has since died, an autopsy was not performed.

CASE 6—History—M. C., a Negro housewife, aged 42, who had been admitted twice to the surgical service of Lakeside Hospital, was admitted to the medical service in June, 1931. She had had a hypertension since 1924. She was admitted to the medical service because of dyspnea of three months' duration. She had never had pain, but on several occasions she had vomited. Her physical signs and history led to a diagnosis of severe myocardial damage and an electrocardiogram suggested a myocardial infarct. She was discharged improved, but had two subsequent admissions, and each time she was in a little worse physical condition than before. Hers was considered a case of coronary thrombosis from the start, and in this case the roentgen examination was of considerable interest.

Her first roentgen examination was on April 17, 1931. The teleroentgenogram, reproduced in figure 8, shows a slight bulging of the upper portion of the left ventricle. The diagnosis was made fluoroscopically. This region of the ventricle showed a slight increase in the amplitude of its pulsations, and these pulsations did not follow in orderly sequence with the remaining portions of the ventricle. They were not definitely expansile when the other portions were contractile. It was quite apparent from watching the screen that pulsations were different in the two portions of the same chamber. The examination was repeated two months later, but the pulsations

The aorta was of average diameter but of reduced elasticity. Its intimal surface was thickened in places by raised, yellow, gray plaques which on section were seen to be intimal thickenings. Some longitudinal wrinkles were present, but these disappeared with tension on the aorta.

ROENTGENOLOGIC DIAGNOSIS

It is evident from a summary of these cases that the lesion can be present (as in case 1) and yet give no roentgen signs. When the lesion is well developed, it appears as a sharply defined bulging of the upper portion of the left ventricular silhouette. This bulging might amount to only a very slight increase in the curving of this portion of the ventricle, but it can be so well marked that an incisura is formed between it and the lower or normal portion of the ventricle (figs 5 and 6). In either case the radius for the upper or aneurysmal portion is smaller than the radius for the lower or nonaneurysmal portion.

It is stated in the literature that the pulsations are quite characteristic. When systole starts in the ventricle, the intraventricular pressure is naturally increased. It is this pressure that the aneurysm has been unable to withstand, and it shows this weakness fluoro-



Fig 6 (case 4) — Unusually well marked localized bulging in the upper portion of the left ventricle.



Fig 7 (case 5) — Undoubted case of aneurysm of the left ventricle.

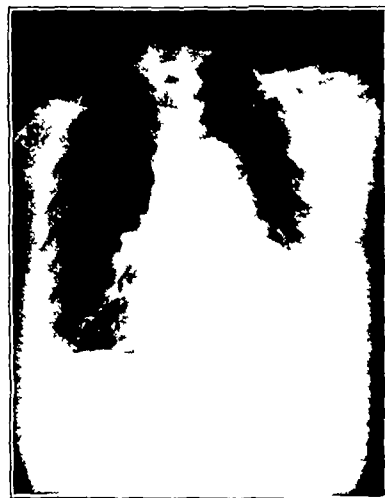


Fig 8 (case 6) — Minimal bulging in the upper portion of the left ventricle.

could not be demonstrated. Examinations were repeated on July 1, 1932 and November 12, and again the pulsations first described could not be made out, nor was there any roentgen evidence of a cardiac aneurysm.

Autopsy—The heart weighed 612 Gm. Both the right and the left side were dilated and the walls relatively increased in thickness, measuring 1 cm and 3 cm. in thickness, respectively. The visceral pericardium was thickened over an area near the apex of the left ventricle measuring approximately 2.5 cm. in diameter. Beneath this area the wall of the ventricle was thinned to 1 cm. and was soft. On section it was seen to be made up of strands of grayish-white, fibrous tissue. The atria were normal in size and showed no gross pathologic changes except hypertrophy of the pectinate muscle. The valvular mechanism was intact. The pulmonic valve showed no gross pathologic changes. The edges of the mitral aortic and tricuspid valves were irregularly thickened by raised, yellow, firm plaques, which on section were seen to be endocardial thickening. The endocardium was smooth and glistening. The papillary muscle and chordae tendineae were larger than usual but rounded throughout. The coronary vessels were normal in distribution but showed narrowing of their lumens, owing to yellow, raised firm plaques beneath their intima. The descending branch of the left coronary was lost in the soft area described.

scopically during systole. When the other portions of the ventricle are in systole, the weakened wall of the aneurysm dilates, and hence during ventricular systole the aneurysm shows expansion. This phenomenon is spoken of as "systolic movements of systolic expansion."⁴ It was this type of pulsation which might have been present in case 6, but the pulsations could not be definitely timed. It will be remembered that in this case unusual pulsations were seen at the first fluoroscopic examination only and that these pulsations could not be made out subsequently. It seems quite probable that these pulsations were present only during the early stage of the infarction and that, as organization took place, the wall of fibrous tissue seen at autopsy was strong enough to withstand the intraventricular pressure and hence destroy the pulsatory phenomenon. It seems possible, therefore, that careful examination of the pulsatory phenomenon early in the course of the disease might give supporting or actual diagnostic evidence. In this case it was the only roentgenologic evidence elicited. It seems more than likely that the changes in pulsations were due to aneurysm with little

if any bulging beyond the line of the epicardium. It might be possible to diagnose infarction when the process is new and favorably situated in the silhouette.

There are a number of other signs that might be of importance but they are all secondary to the two just mentioned. For instance it is quite apparent that the aneurysm must always form a part of the cardiac silhouette no matter how the patient is rotated. The shadow has the density of the cardiac silhouette in general but in the cases reported in the literature the shadow is variously described as denser and lighter than the heart shadow. In the case reported by Bianchi⁷ the coarser features of the lung tissue could be made out through the aneurysmal sac. Homogeneity also varies. For the most part this is even but in the case reported by Savary and Albert the periphery of the aneurysm was denser than the central portions. By the aid of the Bucky diaphragm Lenk was able to make out two parallel lines of calcium within the shadow of the heart and these were interpreted as changes in the coronary arteries. Since similar changes in the aortic ring have recently been demonstrated it is not unlikely that with further refinement of technic streaking due to calcification will become more common. It is also possible that small flakes of calcium will be demonstrated in the walls of the aneurysm but with the present technic these are not visualized. This is not difficult to understand when large pericardial calcifications are often obliterated by motion. Wiberg⁸ describes fixation of the apex which he ascribes to pericardial adhesions. This was not demonstrated in any of the present cases.

SUMMARY

Six new cases of chronic cardiac aneurysms are presented and the silhouettes are shown. The absence of roentgenologic evidence of an aneurysm does not rule out the latter. It is quite evident that a careful fluoroscopic examination in the various degrees of rotation is most essential and it seems probable that with more careful search the cases will be more commonly diagnosed. Judging from case 6 it seems likely that cardiac infarction when large enough and favorably situated can be suspected roentgenologically. Since the autopsy in this case was done so long after the observation of the unusual pulsatory phenomenon, no certain conclusions can be drawn. When the cardiac aneurysm is well developed the roentgenologic method is the only means of positive diagnosis, especially in those cases in which the history is not available.

Lakeside Hospital

ABSTRACT OF DISCUSSION

DR FRED J. HODGES, Ann Arbor, Mich.: Dr. Steels' reference to the roentgenologic recognition of cardiac infarcts is particularly interesting and in view of the increasing importance of coronary occlusion as the cause of sudden death any method of its recognition will bear thorough exploitation. During the past year at Ann Arbor Wilson and his associates have made exhaustive experimental studies of cardiac infarction in dogs producing all manner of coronary occlusions and making detailed electrocardiographic studies followed by detailed post mortem observations. They feel as the result of this work that in the large majority of cases the location, extent and duration of myocardial damage can be determined with considerable accuracy from the electrocardiographic curves.

⁷ Bianchi, G. Contribution to the Roentgen Diagnosis of Cardiac Aneurysm. *Liguria med.* 12: 1922 quoted by Heitz and Corone. *X-Ray Diagnosis of Cardiac Aneurysm*. *Arch. d. mal. du cœur* 16: 494 (July) 1923.

⁸ Wiberg, Gunnar. A Case of Aneurysm of the Heart. *Acta radiol.* 12: 562, 1931.

Although a number of myocardial infarcts have been recognized clinically and post mortem in the University Hospital roentgen studies have not been of any assistance in localizing or, in fact, even recognizing the infarcts. There is only one recorded case of true cardiac aneurysm in our hospital records for the past three years. In that one case roentgen studies were limited to a single exposure in the anteroposterior projection because of the patient's critical condition. That one exposure was made with bedside apparatus. Had it been possible to make lateral views, the aneurysm would certainly have been clearly visible. For at autopsy it appeared as a rounded mass about 3 cm. in diameter projecting from the posterior wall of the heart. Since cases of cardiac infarction frequently come under observation only when the patient's condition will not permit of exhaustive roentgen study it stands to reason that even readily demonstrable lesions will frequently be missed. Of all cases admitted to the University Hospital since 1923, only three ventricular aneurysms have been demonstrated at autopsy. I cannot share Dr. Steels' enthusiasm to the extent of believing that roentgenology will be of any considerable assistance to the clinician in localizing or even recognizing cardiac infarct. He has outlined however an interesting field of endeavor wherein any scrap of information that can be placed at the clinician's disposal is distinctly worth the effort required.

DR DAVID STEEL, Cleveland: I do not mean to leave the impression that cardiac infarcts can be diagnosed roentgenologically. I meant to leave the impression that at the time of the acute attack when infarction might well have taken place pulsations were seen in the region of the ventricle and a diagnosis of localized destructive process in the myocardium was made. That phenomenon was not seen in my subsequent examination but at autopsy the aneurysm occupied the place where the pulsations were found and I think that the pulsations of the infarct, rather than of the aneurysm itself, were seen.

GANGRENE DUE TO THROMBO-ANGIITIS OBLITERANS

FURTHER EXPERIENCES WITH TREATMENT

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In March 1931 I¹ made a preliminary report of a new method of treating gangrene of the extremities in thrombo-angitis obliterans. Since that time I have had the opportunity of treating a larger number of these cases and have followed the progress of some previously reported. In this communication I shall describe additional details that are important in the successful treatment of gangrene.

I must at first reiterate my previous conclusion to the effect that extreme conservatism in thrombo-angitis obliterans is not only desirable but obligatory. The unnecessary mutilation of young men suffering with this disease must be considered a relic of medieval surgery, having no place in the modern treatment of this malady. During the past eight years I have examined and treated more than 300 cases of thrombo-angitis obliterans and in only one instance was it necessary to perform an amputation of the leg. This brings my percentage of amputation in thrombo-angitis obliterans to less than 1 in comparison with percentages of 14 and higher quoted by the sponsors of other methods of treatment. This single amputation occurred in a patient aged 57 in whom the gangrene had spread upward from the plantar surface of the foot to the ankle and heel. This very unusual location of the gangrenous process had destroyed the entire weight-bearing portion of the extremity and had thus removed every possible

From the Manhattan Polyclinic of the City of New York.
¹ Samuels, S. S. Treatment of Gangrene Due to Thrombo-Angitis Obliterans. *J. A. M. A.* 96: 751 (March 7) 1931.

chance of healing into a stump of any value to the patient. The unusual severity of this isolated case may be explained by the presence of superimposed arteriosclerosis, which is common in patients over the age of 50. At this point it is important to state that the youth of the majority of patients suffering with this disease is one of the greatest assets in the healing of ulceration and gangrene. The recuperative power of these young individuals is amazing and should not be underestimated.

REPORT OF CASES

Case 1 was described in my previous communication. At that time, however, complete healing had not yet occurred. As the foot is now healed and has remained so for the past two years, I shall describe this case in greater detail.

CASE 1—E M, a man, aged 43, Jewish, born in America, was originally observed by me in 1928, at which time he complained of intermittent claudication and coldness of the right lower extremity. The diagnosis of thrombo-angitis obliterans was made, and the patient was advised to stop smoking and to take intravenous injections of hypertonic sodium chloride solution. The patient, however, did not cooperate. He continued to smoke excessively and neglected treatment entirely. In June 1930, two years later, he reappeared with massive gangrene of the right foot (fig 1). The oscillometric index² at the right ankle was 0. Amputation of the leg was advised at one hospital as the only means of relief. The patient fled in terror and took to his bed at home. At this point I took charge of the case and instituted the course of treatment that I shall describe later. Within a short time a line of demarcation was established and



Fig 1 (case 1)—Massive gangrene of right foot

within five months the gangrenous portion had separated spontaneously (fig 2) leaving a clean, granulating ulcer. After a few weeks the ulcer healed (fig 3) and the patient resumed his work as fireman in a boiler room. At present he can walk without discomfort, has gained weight and requires no orthopedic appliance in the shoe of the amputated foot.

Treatment applied in this case was rest in bed, cessation of smoking, intravenous saline injections and wet dressings of chloramine solution to the foot.

CASE 2—J H, a man aged 40, Jewish, born in Russia, examined by me in October 1930, had two brothers who had been affected with thrombo-angitis obliterans.³ They had died of coronary attacks before the age of 40, most likely caused by lesions of thrombo-angitis obliterans in the coronary arteries.⁴ Up to the time of my treatment the patient had been smoking cigarettes excessively and came to me with deep cyanosis of the left foot and gangrenous ulcers of the second and third toes. The oscillometric index at the left ankle was 0. In spite of intense treatment the gangrenous process spread rapidly so that within six weeks all the toes of the left foot including a

part of the dorsum of the foot, were completely involved (fig 4). A short time later a line of demarcation became evident on the dorsum of the foot, and healthy granulations appeared along the proximal border of the gangrenous area. This was soon followed by sloughing of the dead tissues, including bones and tendons. A clean granulating ulcer remained, which was completely healed six months after the initial treatment (fig 5). The patient is able to walk without



Fig 2 (case 1)—Gangrenous portion after sloughing

the use of any orthopedic appliance. The treatment in this case consisted of rest in bed, cessation of smoking, intravenous saline injections, chloramine foot baths and anesthetic ointments.

CASE 3—M H, a man, aged 38, Jewish, born in America, had had his left leg amputated elsewhere eight years previously for extensive gangrene. Following the operation he continued smoking, and seven years later gangrene of the first two toes of the right foot developed (fig 6). At this stage of the disease I was called to see the patient. The oscillometric index at the right ankle was 0.25. The circulation in the limb had



Fig 3 (case 1)—Appearance of feet after healing of ulcer

apparently been so greatly impaired that all efforts to check the spread of the gangrene were futile. Within two months all the toes were involved and a line of demarcation was finally established in the region of the tarsometatarsal joints. As can be seen in figure 7, the unusually severe case of sloughing of dead tissue including all the metatarsals, tendons and part of the internal cuneiform was eventually followed by the formation of healthy granulations and epithelium. The patient has gained considerable weight and will soon attempt to walk.

² Samuels S S. The Value of Oscillometry in the Study of the Circulatory Disturbances of the Extremities. *J A M A* 55:1780 (June 4) 1927.

³ Samuels S S. The Incidence of Thrombo-angitis Obliterans in Brothers. *Am J M Sc* 153:463 (April) 1922.

⁴ Samuels S S and Feinberg S C. The Heart in Thrombo-angitis Obliterans. *Am Heart J* 6:253 (Dec) 1930.

Treatment in this instance followed the usual routine of rest in bed, cessation of smoking, intravenous saline (5 per cent) injections, chloramine foot baths and anesthetic ointments. At no time during the course of treatment was the patient receiving more than 1 grain (0.06 Gm) of codeine a day. Most of the time, acetylsalicylic acid was sufficient to control the slight pain and discomfort.

CASE 4—H B, a man, aged 47, Jewish, born in Austria, whose history was given in my previous communication as an example of the healing process in thrombo-angiitis obliterans, has now a completely healed ulcer. The patient has been a



Fig 4 (case 2)—Gangrenous involvement



Fig 5 (case 2)—Healing after sloughing of dead tissues

bartender for the past two years. He can walk long distances with no discomfort and has gained considerable weight. He has not resumed smoking. The only deviation from the routine treatment in this case was the patient's insistence on getting out of bed before the ulcer was completely healed. This prolonged the healing time.

CASE 5—M P, a man, aged 40, Jewish, born in Russia, observed in February, 1930, was suffering with a large gangrenous ulcer of the left heel, extending down to the os calcis (fig 8). The usual treatment was instituted with the exception of the strength of the saline solution. Because of the tendency to local thrombosis of the arm veins at the site of injection with 5 per cent sodium chloride, it was necessary to change to 2 per cent solutions. After nine months the ulcer was healed except for a small opening in the center, about 1 cm in diameter, which appeared to lead to the os calcis (fig 9). A roentgenogram of this bone showed no gross changes and no osteomyelitis. In spite of this small opening,



Fig 6 (case 3)—Gangrene of first two toes

the patient can stand and walk without discomfort. His general condition is excellent and he has gained considerable weight. The location of the gangrene in this case is extremely unusual.

CASE 6—B S, a man, aged 33, Jewish, born in America, had had symptoms of thrombo-angiitis obliterans for four years prior to the formation of an ulcer on the left big toe. He had always been a heavy smoker having consumed as many as fifty cigarettes in a day since early boyhood. When seen in April, 1931, he was in extreme pain caused by a foul necrotic ulcer of the left big toe. Previous physicians had performed periarterial sympathectomy on the leg and had prescribed morphine in large quantities, all to no avail. The oscillometric

index at the left ankle was 0.3, which offered hope of a good outcome. The usual treatment was instituted, with strong accent on immediate cessation of smoking. Spontaneous amputation of the necrotic toe soon occurred and after thirteen months the foot was completely healed. At present the patient is working at his usual occupation, has no complaints and has gained considerable weight. Surreptitious smoking probably accounted for the unusual duration of healing time in this case.

CASE 7—H T, a man, aged 28, Jewish, born in Austria, was first seen by me in August, 1931, when there was complete gangrene of the left big toe and a sloughing ulcer about 3 cm in diameter on the dorsum of the left foot. The left foot and leg were markedly edematous as high as the knee. The pain was excruciating, and in order to obtain relief the patient had found it necessary to sit up in a chair day and night continuously for over four months. The dependent position of the extremities accounted for the edema. He had been a heavy smoker since boyhood. The oscillometric index at the left ankle was 0.2. The patient was put to bed at once and the dependent position of the legs was forbidden. After twenty-four hours in the horizontal position the edema of the legs and feet disappeared. The gangrenous member was bathed in chloramine solution and soothing ointments were applied. Every other day 300 cc of 5 per cent sodium chloride solution was given intravenously. Smoking was stopped immediately.

As the big toe healed, the adjacent toe became gangrenous and sloughed off after a few weeks. Eight months later the foot was completely healed and the patient was able to walk at least a mile without discomfort. At his last visit a few days ago he was in excellent condition, having gained about 30 pounds (13.6 Kg). The foot remains healed (fig 10) and presents an excellent appearance.

CASE 8—M A, a man, aged 50, Jewish, born in Russia, first presented symptoms of thrombo-angiitis obliterans at the age of 41. At that time he showed migrating phlebitis of the legs and symptoms of intermittent claudication. When seen by me in May, 1930, he presented foul gangrenous ulcerations, involving the toe and dorsum of the left foot. The oscillometric index at the left ankle was 1.0. The pain was severe and the patient had lost considerable weight. Treatment was instituted with the usual routine and six months later the foot was completely healed with the exception of a pin-point opening, which has since healed. Spontaneous amputation of all toes occurred.

The fairly rapid healing of this extensive ulceration may perhaps be explained by the oscillometric index of 1.0, which signifies the establishment of good collateral circulation in the extremity. The patient has gained weight and is back at his usual occupation of storekeeper. He can walk long distances and does not require a special shoe.

CASE 9—F W, a man, aged 42, a Russian, not Jewish, consulted me in September, 1929, because of a gangrenous ulcer of the dorsum of the left big toe which he had had for the past eight months (fig 11). This was a typical instance of thrombo-angiitis obliterans, with a history of migrating phlebitis, heavy smoking and intermittent claudication. The oscillometric index at the left ankle was 0.3. The patient refused to remain in bed and received ambulatory treatment. This, no doubt, accounts for the fact that a period of one year was required to secure complete healing of the ulcer (fig 12). The usual local treatment was applied in addition to the intravenous



Fig 7 (case 3)—Complete healing of stump after sloughing

injection of 2 per cent sodium chloride solution three times a week.

CASE 10—G K, a man, aged 34, an American of German extraction, not Jewish, first showed symptoms of thrombo-angitis obliterans at the age of 29. For the next few years he had recurrent attacks of migrating phlebitis of both legs. He had been smoking about twenty cigars a day since boyhood. Six weeks prior to my first visit, in January, 1932, the patient had sustained an abrasion of the left middle toe. Within a few days an ulcer formed at the site of the injury, followed after a short time by gangrene of the major portion of the toe. The pain became intolerable and local physicians advised amputation of the leg as the only means of relief. This advice was, of course, not followed, and the patient placed himself under my care. He was ordered to bed with his legs in the horizontal position. Smoking was discontinued and intravenous injections of 5 per cent sodium chloride solution were started. The gangrenous, sloughing toe was irrigated with chloramine solution and a soothing ointment was applied liberally. The pain was relieved within six hours and the patient was able to sleep for the first time in five weeks without the use of any opiate. A line of demarcation was soon established, the gangrenous portion of the toe sloughed off, and six months after the treatment was started complete healing had occurred (fig 13). At present the patient is working and can walk long distances without intermittent claudication. He has gained about 20 pounds (9 Kg). The oscillographic index remains 0 at the left ankle.



Fig 8 (case 5)—Gangrenous ulcer of left heel

In spite of intensive treatment, gangrene of varying degree developed in all toes of the right foot. Irregular lines of demarcation soon formed, and after a total period of eight months the foot was completely healed. At present the patient has resumed his regular occupation of plumbing and has gained about 30 pounds (13.6 Kg). The usual treatment was carried out except for the use of 2 per cent sodium chloride solution instead of 5 per cent. This change was necessary because of the venous thromboses induced by the stronger solutions. During the entire course of treatment the intravenous injections were given by way of the external jugular vein. This was necessitated by the lack of suitable veins in the arms. Contrary to popular opinion there is no danger in using the external jugular vein for intravenous injections.

CASE 12—M MacM, a man, aged 49, an American of Scotch descent not Jewish first noticed migrating phlebitis of the right leg in 1929 at the age of 44. He had been treated for syphilis twenty-six years previously, but repeated Wassermann tests since then were negative. About a year prior to my first examination a gangrenous ulcer of the distal part of the right big toe had developed (fig 14). The oscillographic index at the right ankle was 0. The ulcer was painful interfering with sleep and the patient had lost considerable weight because of his rigid adherence to a salt-free diet. This diet had been prescribed by a local physician because of the possible presence of arteriosclerosis. Considerable improvement and

gain in weight were noted when the diet was discontinued. Three months after the institution of routine treatment the ulcer was completely healed. The patient can walk long distances without discomfort. The presence of syphilis in this case probably exerted no influence on the course of the disease.

DETAILS OF TREATMENT

Because of the great importance of the minute details of therapy in the handling of these cases, I shall describe carefully all the points I have learned in the past ten years which I believe are of value in the



Fig 9 (case 5)—Appearance after nine months

successful healing of gangrene. It must be remembered that no single remedy or procedure is advocated in these cases. It is, on the contrary, the intelligent combination of various fundamental factors that I wish to emphasize in this discussion.

1 *Rest in Bed*—Physiologic rest is well recognized in surgery as an essential factor in the healing of wounds and ulcers. It is equally important in the treatment of thrombo-angitis obliterans with ulceration or gangrene. It is of additional importance in these cases that the principle of physiologic rest be extended to the lower extremities by maintaining these members constantly in the horizontal position. I have often been astonished at the appearance of some cases of gangrene when the physician in charge had allowed, and in some instances ordered the patient to sit either on the edge of the bed or in a chair, day and night, in order to obtain some relief of pain. As a result of this continued



Fig 10 (case 7)—Appearance of foot after healing

dependence of the lower limbs, the venous and lymphatic return is obstructed and an intense edema of the feet, legs and thighs is produced. In some instances this edema has been wrongly interpreted as a sign of deep seated infection and ill advised amputations have been hurriedly performed. The maintenance of such swollen extremities in the horizontal position for twenty-four hours or more causes a rapid disappearance of the edema. This positional swelling, even if confined to a single toe, retards the healing process and may be the only factor responsible for the chronicity of

many ulcers. I feel sure that this is one of the reasons for the unsuccessful results obtained in outpatient departments in which ambulatory treatment of these cases is the rule. A striking instance of this observation is evident in a case seen recently wherein the patient had been shopping around at various clinics in the city over a period of two years in a vain attempt to heal a small ulcer of the toe. I insisted that he remain in bed and within two weeks the ulcer was completely healed. Such cases are common and illustrate the importance of the maintenance of the horizontal position of the extremities throughout all phases of ulceration and gangrene.

2 Smoking—Michels⁵ in 1909, was apparently the first to observe the importance of smoking as an aggravating factor in thrombo-angitis obliterans. He named the disease "nikotin-arteritis" and emphasized the importance of prohibition of smoking in the successful treatment of these cases. Schlesinger,⁶ in 1913 reported clinical improvement in two cases of thrombo-angitis obliterans after complete cessation of smoking. Whether the bad effects are due to the vasoconstricting action of nicotine or to tobacco sensitization of the endothelium of the arteries and veins, as suggested by Sulzberger,⁷ is as yet uncertain. Clinical experience has convinced me that smoking is unquestionably harmful in all stages of this disease.

Maddock and Collier⁸ have demonstrated, by skin temperature changes in the extremities the peripheral vasoconstrictor action of smoking. The clinical effects of smoking are demonstrable in all stages of thrombo-angitis obliterans. In cases without ulceration or gangrene, persistent smoking produces progressive intensification of symptoms. Walking becomes increasingly painful and difficult. The toes and feet become colder, even in warm weather. Crops of migrating

in these stages, is intensified to such an extent that even the most potent local anesthetic ointments become ineffectual. A healthy granulating ulcer may change its appearance over night if smoking is resumed. A demarcating area of gangrene may spread with alarming rapidity with the resumption of smoking. On the other hand, a very favorable influence is exerted by complete cessation of the use of tobacco. There is usually a spectacular decrease in the intensity of pain. This includes the so-called rest pain as well as the local burning pain present in ulcerated or gangrenous areas.



Fig. 13 (case 10)—Healing after gangrenous portion of foot had sloughed off.

Healing of ulcers is favored and the establishment of a line of demarcation in gangrene is encouraged. From these clinical facts it is essential to learn the importance of "no smoking" in the treatment of this disease.

3 Intravenous Saline Injections—Mavesum⁹ in 1911 while engaged in the study of blood viscosity, observed an increase in the viscosity of the blood in cases of thrombo-angitis obliterans. Koga,¹⁰ an assistant of Ito in the surgical clinic at Kyoto, Japan, was the first in 1913 to introduce intravenous therapy in the treatment of thrombo-angitis obliterans in the attempt to lower the blood viscosity and thus improve the circulation in the extremities. Koga used physiologic solution of sodium chloride in some of his cases and Ringer's solution in others. He administered 400 cc of solution daily and noted definite and striking clinical improvement in all cases treated. Willy Meyer¹¹ in 1916 was the first American investigator to adopt Koga's method of treatment. Meyer at first used physiologic solution of sodium chloride by hypodermoclysis but later changed to Ringer's solution. He also noted remarkable improvement in his treated patients. Ginsburg¹² in 1917 suggested the use of 2 per cent sodium citrate solution intravenously. Steel¹³ in 1921 reported good results with the use of this solution. Jablons¹⁴ added isotonic salts to the citrate solution to diminish its toxicity and was favorably impressed with the results. Silbert,¹⁵ in 1926 recom-



Fig. 11 (case 9)—Gangrenous ulcer on big toe.

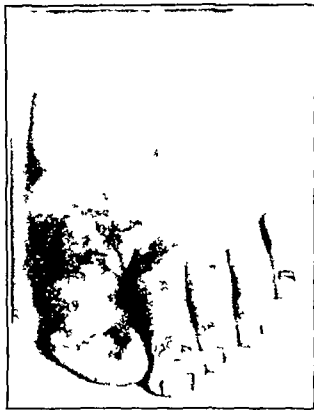


Fig. 12 (case 9)—Ulcer completely healed.

phlebitis appear with greater frequency. Ulceration or gangrene usually ends the picture in these cases in which smoking is persistent, and thus the time-worn mistaken idea is created that the disease is progressive and hopeless.

In the ulcerative or gangrenous phases of the malady, smoking produces its most destructive effects. Pain,

5 Michels, E. Ueber angiosklerotische Gangran bei jugendlichen Individuen. *Klin. Jahrb.* **21**: 557, 1909.
6 Schlesinger. Thrombo-angitis Obliterans. *Mitt. d. Gesellsch. f. inn. Med. u. Kinderh.* **44**: 12, 1913.
7 Sulzberger, M. B. Studies in Tobacco Hypersensitivity. *J. Immunol.* **24**: 85 (Jan.) 1933.
8 Maddock, W. G. and Collier, F. A. Peripheral Vasoconstriction by Tobacco. Demonstrated by Skin Temperature Changes. *Proc. Soc. Exper. Biol. & Med.* **29**: 487 (Jan.) 1932.

9 Mavesum. Klinische und experimentelle Untersuchungen ueber die Viskosität des Blutes. *Mitt. d. Cienzgeb. d. Med. u. Chir.* **24**: 413, 1911, 1912.

10 Koga. Zur Therapie der Spontanangraen an den Extremitäten. *Deutsche Ztschr. f. Chir.* **121**: 371, 1913.

11 Meyer, Willy. The Conservative Treatment of Gangrene of the Extremities Due to Thrombo-Angitis Obliterans. *Ann. Surg.* **63**: 280 (March) 1916.

12 Ginsburg, N. A Consideration of the Treatment of Peripheral Gangrene Due to Thrombo-Angitis Obliterans. *Am. J. M. Sc.* **154**: 328 (Sept.) 1917.

13 Steel, W. A. Sodium Citrate Treatment of Thrombo-Angitis Obliterans. *J. A. M. A.* **76**: 429 (Feb. 12) 1921.

14 Jablons, B. Thrombo-Angitis Obliterans. *M. J. & Rec.* **120**: 270 (Sept. 17) 1924.

15 Silbert, Silbert. The Treatment of Thrombo-Angitis Obliterans by Intravenous Injection of Hypertonic Salt Solution. *J. A. M. A.* **56**: 1759 (June 1) 1926.

mended the use of hypertonic (5 per cent) sodium chloride solution. I have found that in some cases it is preferable to employ a solution of less hypertonicity in order to avoid annoying thromboses in the veins of the arm at the site of injection. In such cases I have reduced the sodium chloride solution to 3 or 2 per cent. Elderly patients are also best treated with the weaker concentrations. In any case, the solution must be hypertonic.

The action of intravenous injections of hypertonic salt solutions has been the subject of study in my clinic with the assistance of Drs. Weichsel and Ferber. We have made oscillometric tracings of the extremities in cases of thrombo-angitis obliterans before and after the intravenous injections. This work will be reported in greater detail in a future communication. At this time I can say that a consistent increase in pulse amplitude and pressure was observed following the intravenous injections. Figure 15 shows an oscillometric tracing of the peripheral pulse in a case of thrombo-angitis obliterans before and after an intravenous injection of 300 cc of hypertonic sodium chloride solution. The resultant increase in pulse amplitude undoubtedly accounts for the beneficial effects of this form of therapy.

Saline therapy should be started as soon as the diagnosis of thrombo-angitis obliterans is made. It is not to be considered as a specific for the disease but as a mechanical aid in the enhancement of collateral circulation in the extremities. Three hundred cubic centimeters is given every other day until gangrene and ulceration are healed. Later the injections may be given at longer intervals, depending on the severity of the case. In cases without ulceration, clinical improvement is noted in improved nail growth, increased warmth of the extremities and cessation of intermittent claudication.

4 Local Treatment of Ulceration and Gangrene—Success in the treatment of ulceration and gangrene in this disease requires adherence at all times to correct surgical principles. It must be remembered that, since the gangrene has formed only because the blood supply to that particular area has become insufficient, a line of demarcation will form at a point at which the blood supply is adequate. The eventual line is usually clear cut and marks the site of spontaneous amputation of

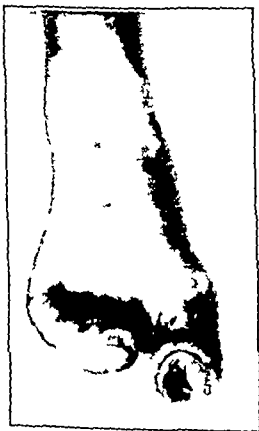


Fig. 14 (case 12)—Gangrenous ulcer on toe

dead tissue whether it be soft parts alone, or soft parts plus tendons, bones or other deep structures.

The aim of local treatment is to aid in the development of the line of demarcation, to maintain the dead and dying tissue as aseptic as possible and to control the pain. At this point it seems advisable to disregard the traditional distinction between "dry" and "wet" gangrene. In my experience, all forms of gangrene in thrombo-angitis obliterans are "wet." They are all masses of dead infected tissue that should be encouraged to slough off as soon as possible. Careful surgical attention to the sloughing tissues is extremely important.

At the first sign of gangrene, active measures for cleanliness of the parts and relief of pain should be instituted. Foot baths of a mild antiseptic solution such as 0.5 per cent chloramine or boric acid are most beneficial. The baths are usually given once a day or more often in severe cases. The parts should be immersed for ten minutes or more. Following the bath,

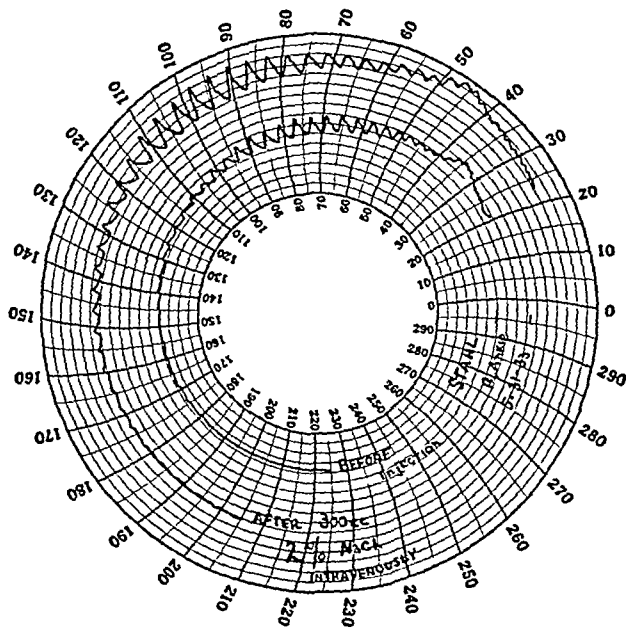


Fig. 15—Oscillometric tracing at ankle level to show increase in amplitude of pulse following intravenous injection of hypertonic sodium chloride solution

an anesthetic ointment is liberally applied to all exposed areas. Considerable patience is necessary in the selection of the proper ointment for each case. The following, alone or in various combinations, have proved satisfactory: Ethylaminobenzoate ointment, 10 per cent; nupercaine ointment, 1 per cent; camphor-phenol ointment, 1 per cent of each. Following the application of the ointment, a protective gauze dressing is applied. Dressings may be changed once or twice a day, depending on the severity of the case.

The control of pain in these cases is of the greatest importance and merits careful study. It should never serve as an excuse for an amputation. The most severe pain is encountered in the acute stage of spreading gangrene. It is a constant, deep agonizing pain caused by dying tissue and subsides usually after the line of demarcation has been established. In other words, this most severe pain usually lasts only a few weeks. For this reason it is essential that the physician does not "lose his head" and advise an unnecessary amputation. He should, on the contrary, attempt to alleviate the pain until the acute process is over. The liberal application of anesthetic ointments to the dying tissues is helpful. In some cases the temporary administration of small doses of opiates may be necessary. This is the exception rather than the rule. In my cases I have rarely found it necessary to use anything stronger than codeine. Patient 3 never received or required more than 1 gram (0.65 Gm.) of codeine in twenty-four hours.

In this acute stage there is a great temptation to resort to peripheral nerve section for the relief of pain. In my opinion this procedure is unnecessary and dangerous. The anesthesia of the foot that is obtained after this operation is of long duration and may be the cause of future serious trouble. The patient may burn

or traumatize his foot because of the loss of protective sensation. The possibility of later trophic ulcers must also be considered.

Another type of pain is sometimes encountered in the healing stages of ulceration. It is described as a burning sensation out of all proportion to the size of the ulcer. This pain usually is easily controlled by the application of an anesthetic ointment to the exposed parts and by the cessation of smoking. It is gratifying to observe the instant relief one can give these patients after they have been suffering for months. Rest in bed is also necessary in these cases.

In the granulating stages of ulceration it is sometimes possible to apply wet dressings of boric acid or chloramine solution and thus stimulate granulation and epithelization. If these are too painful, soothing ointments, such as boric acid or chloramine surgical cream may be applied.

Sympathectomy and Ganglionectomy.—In my experience these operations have no place whatever in the treatment of gangrene or in any phase of thrombo-angitis obliterans. The spastic element in this disease plays such a minor role as to be negligible in the consideration of therapy. As is apparent from the results shown in this communication, much more can be accomplished by the employment of comparatively simple procedures based on recognized surgical principles. The sponsors of the various sympathetic operations have reported no cases of massive gangrene healed by this method. The minor cases of small ulcers or small areas of gangrene that have been reported as healed after such operative procedures have, in my opinion, healed only because the patients have been confined to bed during the postoperative period. Furthermore, the risk attached to the operation of lumbar sympathectomy is unwarranted in any case of thrombo-angitis obliterans.

SUMMARY

Additional experience with the treatment of gangrene in thrombo-angitis obliterans reemphasizes the fact that the process is self limited. The only indication for amputation in this disease is total destruction of the foot, so that a weight-bearing stump is unattainable.

In twelve cases of gangrene and ulceration here reported, healing was accomplished by simple measures, without the use of any operative procedure. Sympathectomy is unnecessary in the treatment of thrombo-angitis obliterans.

Treatment consists of a careful coordination of the following factors: (1) rest in bed, (2) prohibition of smoking, (3) intravenous injections of hypertonic saline solution and (4) surgical cleanliness of ulceration and of gangrenous areas.

151 East Eighty-Third Street

Signs of Vitamin A Deficiency.—The signs of gross deficiency of vitamin A in human beings most frequently recognized are xerophthalmia and acquired night-blindness, which are not uncommonly associated in the same individual. Such cases are met with in our own country, and it is of importance that this fact should be recognized because they respond very quickly to appropriate treatment in their early stages and can be completely cured. There is also evidence that deprivation of vitamin A leads to a variety of nervous lesions caused by degeneration of peripheral nerves and tracts in the central nervous system. Such degenerations are intensified at least in experimental animals by certain common food principles, of which one is a substance of unknown composition present in the germ of cereals—Colwell, S. J. *Vitamins in Clinical Medicine, Practitioner* 132:15 (Jan.) 1934.

GENERALIZED ANGIOMATOSIS (TELANGIECTASIA)

JOHN F. MADDEN, MD

ST. LOUIS

Generalized telangiectasia may be an important sign of constitutional disease or the small lesions may be only blemishes of cosmetic importance. During the past year a number of cases of generalized angiomatosis were referred to the dermatologic division for an opinion and the information gained from the investigation of these cases has served as the basis for this report.

The cases of hereditary hemorrhagic telangiectasia are by far the more important because of a higher percentage of fatal terminations. The condition may be defined as a hereditary disease of the small blood vessels characterized by the formation of multiple permanent localized dilatations of the capillaries and venules which may give rise to apparently spontaneous and often recurrent hemorrhages. The telangiectasia has been most frequently noted in the skin of the face and in the mucosa of the mouth and nose. The hemorrhages occur most commonly in the form of recurrent epistaxis.

The angiomatosis associated with constitutional disease is not serious in itself although the disease which it accompanies may cause death.

The nevus type of telangiectasia may be the site of hemorrhage but this is almost always secondary to trauma. The patients of this group are not related to angiomatosis.

HISTORY

The literature on angiomatosis is quite extensive, but most of it is concerned with the hereditary hemorrhagic type. For a more detailed bibliography the reader is referred to Goldstein's article published in 1932.

Hereditary hemorrhagic telangiectasia was first reported by Sutton¹ in 1864 as internal hemorrhages and telangiectasias of the skin. Erasmus Wilson² in 1869 called the condition eruptive angiomatosis. Charri³ in 1883 regarded it as a hemophilia of slight degree. Rendu⁴ in 1896 as juvenile hereditary epistaxis associated with multiple hemorrhagic telangiectasias of the skin and mucous membranes. Ullmann⁵ in 1900, as angiomatosis, and Osler⁶ in 1901 as a familial form of recurring epistaxis associated with multiple telangiectasias of the skin and mucous membranes.

In 1865 hereditary epistaxis was described in five generations of one family by Babington.⁷ He made no mention of lesions of the skin in his patients.

Eigler⁸ regarded generalized angiomatosis as a "system disease" of vascular-forming mesenchyme and

From the Division of Dermatology and Syphilology, University of Minnesota Medical School. Dr. H. E. Michelson, director. Read before the Section on Dermatology and Syphilology at the Eighty-fourth Annual Session of the American Medical Association, Milwaukee, June 16, 1933.

1 Sutton H. G. Epistaxis as an Indication of Impaired Nutrition and of Degeneration of the Vascular System, *M. Mirror* London 1 769 1864.

2 Wilson Erasmus. Clinical Memoranda. *J. Cutan. Med.* 3 198 1869.

3 Charri, Ottokar. Habituellen Nasenbluten. *Allg. Wien. med. Ztg.* 28 250 and 358 1883.

4 Rendu. Bull. et mem. Soc. med. d. hop. de Paris 13 131 (Oct. 23) 1896.

5 Ullmann K. Ueber einen Fall von Angiomatosis. *Festschrift zu Ehren von Moritz Kaposi* Vienna. Wilhelm Braumüller 1900 p. 559.

6 Osler William. On a Family Form of Recurring Epistaxis Associated with Multiple Telangiectasies of the Skin and Mucous Membrane. *Bull. Johns Hopkins Hosp.* 12 333 (Dec.) 1901.

7 Babington B. G. *Lancet* 2 362 1865.

8 Eigler G. Zur Frage der generalisierten Angiomatose. *Zt. chr. f. Kreislaufforsch.* 22 249 (April 15) 1930.

thought that it was parallel with tumor-like disease of the blood-forming organs. He stated that the disease did not occur through endothelial branching, but rose from perivascular mesenchymal tissue with slow new vessel formation.

Curschmann⁹ believed in the thromboembolic origin of hereditary hemorrhagic telangiectasia. He considered familial epistaxis as a hemorrhagic diathesis because of the familial character, the duration throughout the patient's entire life, and its pernicious character. He called the disease pseudohemophilia and stated that familial epistaxis is seen in female members of hemophilic families (abortive).

Ebert,¹⁰ Pautrier¹¹ and Weber have described cases under the following respective titles: *livedo reticularis*, a new form of cicatricial atrophic angiomatous telangiectasia and telangiectasia macularis eruptiva perstans. Although similar in general character to my cases, these conditions are not closely enough related to be discussed in detail here.

The chief contributors to the literature have been Becker,¹² Fitz-Hugh, Jr.,¹³ Goldstein,¹⁴ Osler,¹⁵ Ullmann¹⁶ and Weber.¹⁷

CLASSIFICATION

In classifying multiple telangiectasia, the following subdivisions are quite distinct although there are numerous borderline cases which might fall in no one group.

1 *Primary Telangiectasia*—This class can include hereditary hemorrhagic telangiectasia, certain cases of familial hematuria and epistaxis, not due to disease of the blood, in which no obvious telangiectasias have been seen, also familial cases of telangiectasia without hemorrhage and certain possible examples of atavism without a family history.

2 *Secondary Telangiectasia*—This group includes generalized telangiectasia dependent on constitutional diseases, such as disease of the liver and leukemia and angiomatosis occurring in pregnancy.

All of the types of generalized telangiectasia under Becker's etiologic classification are included here: those of an infectious origin such as are seen in syphilis,

those of endocrinous origin as seen in dysfunction of the endocrine glands, especially the thyroid and pituitary glands, those found in cardiovascular disease such as myocarditis and the angiomatosis occurring in diseases affecting the nervous system, such as syphilis and lead poisoning.

Lanceplaine's¹⁸ three classes based on his pathologic-anatomic classification also are included in this subdivision: the neurogenous type presumably caused by damage to the vasomotor nerves, the mechanical type seen when an inflammatory process causes narrowing of the lumen of the vessel by endarteritis or compression caused by perivascular fibrosis, and the angiomatosis caused by toxic factors which are thought to destroy the strength of the wall of the vessel. Heredity plays no role in this type.

3 *Nevoid Telangiectasia*—This type may be present at birth, it may appear early in life, or it may occur even in old age. Generalized, punctiform, capillary ectasias which occur in people beyond middle life and spider telangiectasias which appear at any age may be included in this subdivision.

Weber summed up the difficulties in classification in the following manner:

First, in some cases lesions that have developed ("been acquired") in adult life are associated with more or less similar lesions that were present at birth and are therefore vascular nevi.

Second, lesions that morphologically belong to different classes of telangiectasia and hemangiomas may occur simultaneously in the same person.

Third, it is probable that lesions caused or excited by the same factors (traumatic, toxic) may differ structurally or in form (morphologically) in different persons according to the inherited constitutional predisposition, and that different causal factors may sometimes give rise to the same structural and morphologic type of lesion.

The exact cause of generalized angiomatosis is speculative and not based on fact. Many authors expressed widely divergent opinions. Although it is often difficult to separate the constitutional factors from the exciting factors, both must exist in every case of generalized angiomatosis. The underlying constitutional factor of heredity is present in most cases of primary angiomatosis in addition to various exciting factors such as trauma, irritation and congestion. The patients with other types of angiomatosis also must have some hidden constitutional predisposition as well as the more apparent exciting cause.

These theories are not only borne out in generalized angiomatosis, but apparently hold true in localized telangiectasia as well.

REPORT OF CASES

CASE 1—*Hereditary hemorrhagic telangiectasia illustrating the primary type of generalized angiomatosis.*

History—Mrs M. T. aged 64 was seen in the dermatologic department because of lesions on the skin and tongue. The eruption had been present as long as she could remember. New lesions appeared from time to time but none had disappeared. The eruption was generalized but there were only a few scattered lesions below the neck.

The lesions were located particularly on the face and mucous membranes of the nose and mouth. The telangiectasias become more numerous near the midline of the face and were most marked on the nose lips and malar eminences. There was an extensive telangiectatic network covering the nasal septum.

18 Lanceplaine R. Etude sur les telangiectasies essentielles. These de Paris 1904 no 236.

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10 Ebert M. H. Livedo Reticularis. Arch Dermat & Syph 16 426 (Oct) 1927.
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18 Lanceplaine R. Etude sur les telangiectasies essentielles. These de Paris 1904 no 236.
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20 Quart J. Med 1 53 (Oct) 1907.
21 Riforma med 27 57 1911.
22 Ullmann H. Ueber einen Fall von multiplem eruptivem Angiom. Abhandl. in Gesicht Arch f Dermat u Syph 35 195 1896.
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24 Ein Fall von multiplem eruptivem Hautangiom. Allg Wien med Ztg 44 130 1899.
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26 Leber das Wesen der Angiomatosis. Monatsschr f Ohrenh 65 1147 (Oct) 1931 footnote 5.
27 Weir T. P. Proc Soc Med (Sect Larvng) 1 43 1907.
28 Developmental Telangiectatic Hemorrhage and So-Called Telangiectasia Familial and Non-Familial. Brit J Child Dis 21 198 1924.
29 Note on a case of Extensive Haemangiomatous Naevus of the Skin with Cerebral (Meningeal) Haemangioma. Proc Roy Soc Med (Sect Neurol) 22 25 (Feb) 1929.
30 Capillary Haemangiectatic Naevus and Naevus Anemicus. Relation to Nervous System. Brit J Dermat 41 129 (June) 1929.
31 Note on Osler's Telangiectasia. Circumscripta. Universal. ibid 42 574 (Dec) 1930.
32 Telangiectasia Macularis Eruptiva. Perianth. ibid 42 44 (Aug) 1930.
33 Osler's Telangiectasia Circumscripta. Universalis and Urticaria Pigmentosa of Adults. Internat Clin 2 131 (June) 1911.

The tongue was larger than normal and was painful on palpation. The entire surface was beefy red and was studded at frequent intervals with telangiectatic vessels varying in size from that of a pinhead to that of a pea. The buccal mucous membrane and pharynx were also involved. The lesions consisted of superficial telangiectasias occurring singly and in groups.

Both sides of the nasal septum were almost covered with telangiectasias. The size of a single lesion varied from that of a millet seed to that of a split pea. The lesions were dark red. The color disappeared under diascopic pressure except where there had been recent hemorrhage. There was an accompanying pigmentation around the lesions that had bled recently.

The patient had complained of severe nosebleeds at frequent intervals for years. The hemorrhages seemed to start spontaneously and often lasted for from fifteen minutes to an hour. There were times when she had from ten to fifteen nasal hemorrhages in one day. The bleeding usually stopped spontaneously or on the application of pressure. It was never neces-

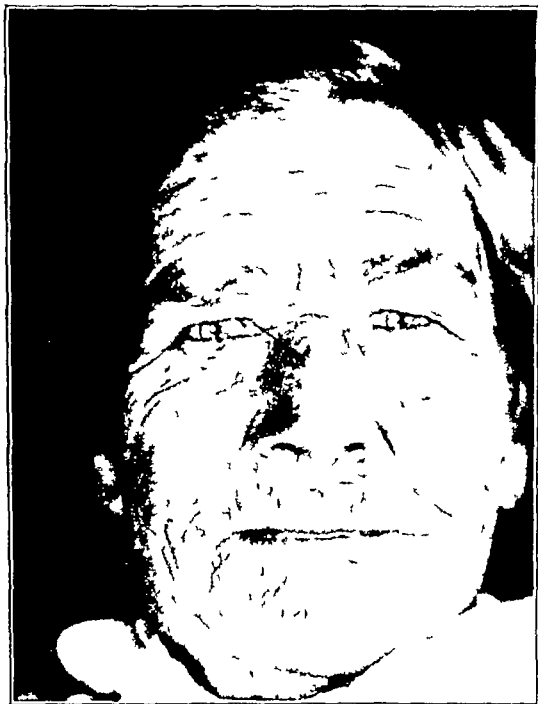


Fig. 1 (case 1)—Hereditary hemorrhagic telangiectasia showing lesions on the face.

sary to call a physician to stop a hemorrhage. The epistaxis had become more frequent in recent years.

The patient had a burning sensation in her tongue which varied in severity from time to time. Occasionally the tongue became swollen and acutely painful. The pain and swelling subsided gradually. She thought that hemorrhage followed accidental biting of the tongue.

The patient noticed blood streaked sputum almost every time she coughed.

Her past health had been good except for a toxic goiter, which was removed surgically. The rest of the physical examination gave essentially negative results. The patient apparently had not been seriously affected by the disease itself.

She stated that her father and one sister had frequent nosebleeds and similar spots on the face. One brother died of epilepsy. The patient had eight children. One daughter had had the same type of eruption and frequent nasal hemorrhages since childhood.

Laboratory Examination—Examination of the blood showed hemoglobin 97 per cent, red cells 4,900,000, white cells 5,650. A differential count showed polymorphonuclear neutrophils 38 per cent, lymphocytes 58 per cent, and monocytes 4 per cent, platelets 145,000. The bleeding time was

two minutes and fifty seconds, the clotting time, two minutes, and twenty seconds. The Wassermann and Mantoux tests of the blood were negative.

Biopsy showed only dilated blood vessels and new blood vessel formation in the upper part of the cutis without any change of the overlying epidermis or surrounding connective tissue. There was complete absence of infiltrate.

CASE 2—*Generalized telangiectasia occurring in a patient with chronic myelogenous leukemia, illustrating the secondary type of generalized angiomatosis.*

Miss N. P., aged 20, a schoolgirl, was seen by the staff of the dermatologic department because of a generalized redness of the skin. Her mother stated that she first noticed telangiectasias on the right forearm when the patient was 7 years old (1919). The eruption progressed slowly, apparently spreading from the affected part of the skin. In February, 1932, the right arm, the face, the neck, and the right side of the thorax were involved. During the past year the eruption had spread much more rapidly and at the time of examination involved most of the cutaneous surface. The accompanying leukemia had been effectively controlled, but the telangiectasia continued to increase.

The eruption was a generalized, fine network of telangiectasias. The lesions were larger and more marked on the neck, face, and right arm. The mucous membranes were not involved. The telangiectasias disappeared completely under diascopic pressure. The size of the lesions varied from barely discernible lines to those the size of a coarse horsehair. The new, fine telangiectasias were closely knit, while the old, larger lesions formed a looser meshwork. They did not disappear spontaneously but continued to grow in size and number. The color was the bright red of arterial blood. There had never been hemorrhages from any of the lesions. The telangiectasias did not appear more rapidly or in greater numbers in the areas that received roentgen treatments.

The rest of the physical examination was essentially irrelevant.

The family history was negative for any disease of the blood or similar eruption.

Laboratory Examination—On Feb. 27, 1932, examination of the blood showed hemoglobin 38 per cent, white cells 750,000, red cells 1,990,000. A differential count showed polymorphonuclear neutrophils 27 per cent, promyelocytes 40 per cent, myelocytes 13 per cent, metamyelocytes 7 per cent, monocytes 3 per cent, lymphocytes 3 per cent, eosinophils 5 per cent, basophils 1 per cent, and platelets 472,000.

In order to demonstrate how well the leukemia was controlled by roentgen treatment, the blood count made on September 14 showed hemoglobin 89 per cent, white cells 13,000, red cells 4,050,000, platelets 210,000. Fragility began at 0.44 and was complete at 0.38. The bleeding time was three minutes, the clotting time four minutes. The Wassermann and Mantoux tests of the blood were negative.

Biopsy showed the same findings that were noted in case 1.

CASE 3—*Generalized telangiectasia, illustrating the new type of generalized angiomatosis.*

Mr. W. W., aged 23, a senior medical student at the University of Minnesota, consulted the staff of the dermatologic department regarding what he called hemorrhages in the skin. The patient first noticed an irregular patch of blood vessels appearing on the lateral surface of the right hip when he was about 12 years of age. During the next five years new lesions appeared around the umbilicus on the back on both thighs and over the knees. The eruption became more marked, until most of the surface of the skin was involved.

There were lesions on the palpebral and bulbar conjunctiva, the mucous membrane of the mouth, and the glans penis. The patient thought that the eruption had remained stationary for about two years. None of the lesions had disappeared or enlarged after they had been discovered.

The lesions were generalized but they were far more numerous on the genitalia and thighs about the umbilicus and over the scapulae. The telangiectasias were nearly all discrete and dark red. The dilated vessels were uniformly about the size of the head of a common pin. The lesions disappeared

under diascopy, and there had been no associated hemorrhage. Numerous, various sized, brown, macular nevi were scattered over the entire body. There was an irregular, dark brown elevated, solid, hairy nevus about 1 inch (2.5 cm) wide and 3 inches (7.6 cm) long to the right of the twelfth dorsal spine. A marked left-sided varicocele was present.

The patient had complained of frequent headaches since childhood. He was partially color blind.

The rest of the examination, including neurologic and ophthalmologic examinations, gave negative findings. There was no history of a similar eruption or any cutaneous or vascular disease in the family for three generations.

Laboratory Examinations—X-ray pictures of the skull showed a possible slight increase in intracranial pressure and some erosions of the inner table of the skull. A calcified pineal gland was shown directly in the midline. Head¹⁰ reported two cases of generalized angiomas which he thought were associated with dyspituitarism. The pictures of his cases resembled this patient very much. The calcified pineal gland found in this case and the dyspituitarism noted in Head's patients were probably coincidental findings. The reader is urged to review Head's article, because the colored plates are exceptionally good.

Examination of the blood showed hemoglobin, 80 per cent, red cells, 5,300,000, white cells, 7,600. A differential count showed polymorphonuclear neutrophils, 58 per cent, lymphocytes, 36 per cent, monocytes, 6 per cent, and platelets, 340,000.

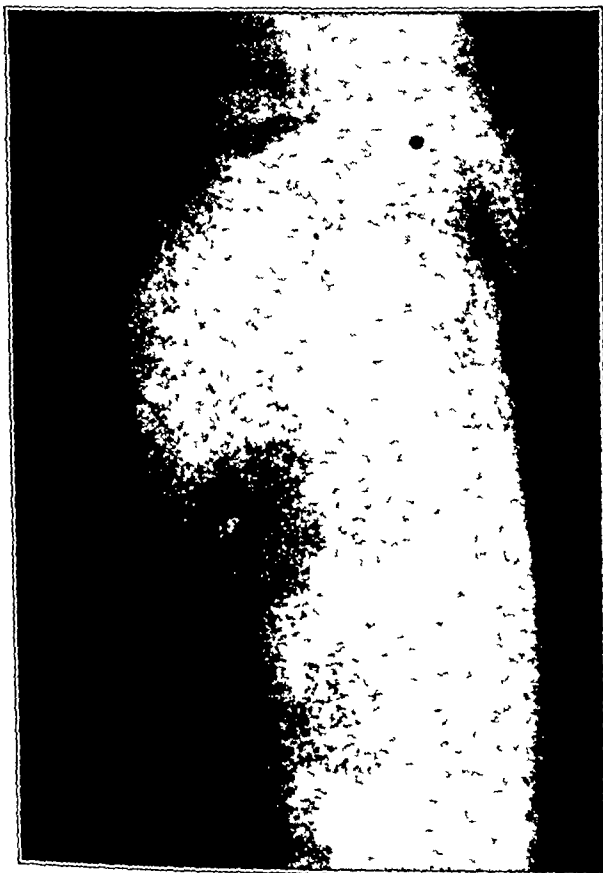


Fig. 2 (case 3)—Nevoid type of generalized angiomas showing grouping of telangiectases and association with pigmented nevi.

The bleeding time was one minute and thirty seconds, the clotting time 5 minutes. Fragility began at 0.44 and was complete at 0.36. The Wassermann and Mantoux tests of the blood were negative.

The microscopic study revealed the same findings that were noted in case 1.

¹⁰ Head G D. Multiple Hemangioma of the Skin Associated with Dyspituitarism. Arch. Int. Med. 20:24 (July) 1917.

CASE 4 (Dr H E Michelson's case)—Generalized telangiectasia occurring in a pregnant woman, illustrating the secondary type of generalized angiomas.

Mrs M M, aged 30, consulted Dr Michelson regarding a generalized eruption. She stated that she had had a similar, but less marked, eruption during her one previous pregnancy.



Fig. 3 (case 3)—Nevoid type of generalized angiomas showing telangiectases in the bulbar conjunctiva.

three years prior to examination. Lesions began to appear about the third month of pregnancy. They increased in number up to the seventh month. After that no new lesions appeared. They were scattered over the entire surface of the body, but the mucous membranes were not involved. The lesions were discrete and showed no tendency toward configuration. The telangiectases were of the spiderweb type, showing a central, pinhead-sized dilatation with numerous spokelike vessels radiating from it. The color was bright red and disappeared under diascopic pressure. There was no hemorrhage. All the lesions disappeared about two months after pregnancy was terminated.

The pregnancy was normal in all respects. The blood findings, the Wassermann test and all other laboratory tests were normal. The baby was normal. There was no history of a similar eruption in any members of the family.

CASE 5 (Dr H E Michelson's case)—Generalized telangiectasia occurring in a pregnant woman, illustrating the secondary type of angiomas.

Mrs W A, aged 28, showed an eruption similar to that in case 4, except that the lesions appeared during the fifth month of her first pregnancy.

This is undoubtedly a more common finding than the literature would indicate. Gougerot and Meyer²⁰ reported a similar case recently in the French bulletin of dermatology.

SIGNS AND SYMPTOMS

Heridity—This factor is noted in most cases of the primary type of angiomas, but does not occur in the other groups. There are some cases which have all the classic signs and symptoms of hereditary hemorrhagic telangiectasia except that no hereditary factor can be found. Fitz-Hugh explained this on the basis of atavism, the inheritance of a characteristic or disease from remote but not from the more immediate, ancestors. A typical family history can be obtained in the great majority of cases of hereditary hemorrhagic telangiectasia. Several members of each family for as

²⁰ Gougerot M M and Meyer Jean. Telangiectases periodiques paroxysmiques et familiales apparaissant et disparaissant avec la grossesse. Bull. Soc. franc. de dermat. et syph. 26:1032 (Nov.) 1929.

many generations as can be traced are often involved. Both sexes transmit the disease, and both are equally affected.

Telangiectasia—This, of course, is present in all types of angiomas. The number of telangiectatic vessels in the skin is no indication of the extent of the lesions in other organs of the body.

Pressure is an important factor in all vascular dilatations. This force is opposed by the elastic and contractile character of the vessel and the resistance of the surrounding tissue. Virchow²¹ stated that any chronic inflammation can produce dilatation and enlargement of vessels. The changes are not limited to any certain type of vessel and are not characteristic of inflammation but can be produced by most different disease processes. All parts of the vascular system undergo similar changes in ectasia. General and partial aneurysmal and varicose dilatation takes place in both large and small vessels. Any chronic dilatation produces changes in the wall of the vessel. All these processes belong to no specific change but are the result of definite disturbances of nutrition. No studies with the capillary microscope were made to determine whether the ectasias were arterial or venous.

Bonmer²² demonstrated stereoscopic pictures of capillaries taken with a new capillary camera in a case of hereditary hemorrhagic telangiectasia shown before a Berlin dermatologic society in December, 1932. Further work along this line may be of great value in determining the exact nature of the telangiectasias.

Ullmann regarded generalized angiomas as a pathologic character chiefly of the connective tissue elements of the skin and mucous membranes producing multiple telangiectasias spontaneously or following irritation. He found considerable endothelial proliferation in the numerous new vessels. The microscopic picture differs from that of endothelioma and endothelial sarcoma in that there are no intravascular papillomas. There is no unusual increase in the layers of cells in the endothelium of the new vessels. The connective tissue in the cutis is normal. Angiomas are not a new growth but is a passive process.

In hereditary hemorrhagic telangiectasia the lesions are usually present at birth but they become more numerous and more noticeable as the patient grows older. In mild cases the eruption often escapes the patient's notice until sometime during the second decade of life. The lesions are always multiple and are usually more numerous in the skin of the face and the mucous membranes of the mouth and nose. They may occur in any organ of the body. The telangiectasias generally grow to the size of a millet seed or that of a split pea and remain stationary. The lesions are permanent and are not obliterated even after repeated hemorrhages. The telangiectasia disappears under diascopic pressure.

Lindau²³ described cases in which trigeminal nevi, homolateral pial angiomas showing calcification in roentgenograms and a unilateral glaucoma form a characteristic syndrome. The disease is often seen in children, and in a few cases there is a family history. Calcareous deposits may be in the walls of the angiectatic vessels or in their thrombosed channels, or they may be extravascular and a result of hemorrhages or

thrombotic necroses. The relationship between hereditary hemorrhagic telangiectasia and familial cases of Lindau's syndrome is speculative.

The secondary type of telangiectasias associated with constitutional disease has no site of predilection. The mucous membranes are less apt to be involved in this group. The lesions may appear as discrete points or as a general telangiectatic veil spread over the entire skin. Small, spider telangiectasias are especially associated with chronic jaundice. The lesions are bright red and completely disappear under diascopic pressure. They usually become more numerous as the accompanying constitutional disease progresses. The telangiectasias generally disappear when the associated disease is cured. This is particularly true in chronic jaundice and pregnancy. Because leukemia is a fatal disease, the associated telangiectasias are permanent.

The telangiectasias in the nevus group may appear on any part of the body. The mucous membranes are commonly involved. The lesions are always discrete but are often seen in groups. Various types of nevi are frequently associated with these telangiectasias. The lesions are permanent and increase in number as the patient grows older. They are usually about the size of the head of a common pin and do not enlarge after that size has been reached. The lesions disappear on pressure and vary in color from bright to dark red.

Hemorrhage—This is one of the most important symptoms in the primary type. There seems to be very little evidence favoring the view that there is an underlying hemorrhagic diathesis or blood dyscrasia causing the hemorrhages. The bleeding apparently may be spontaneous or may be caused by trauma, irritation or mechanical or vasomotor congestion. Hemorrhages may appear at any time in the course of hereditary hemorrhagic telangiectasia but it is generally agreed that the hemorrhages become progressively more severe and occur more frequently as the patient's age advances. Hemorrhages can take place in any organ of the body but most commonly occur as recurrent epistaxis. Bleeding from the nose, lips, tongue, tonsils, pharynx, larynx and gastro-enteric tract, uterine or vaginal bleeding, hematuria, hemoptysis and rectal intra-ocular, cerebral or meningeal hemorrhage have been reported. The bleeding may appear at several points in one particular part of the body at the same time but it is unusual for two distinct regions to have simultaneous hemorrhages. There is no subcutaneous oozing and the hemorrhage usually appears at the most superficial point of the telangiectasia. The bleeding is often more steady and regular than sudden and spurting. The size of the hemorrhage depends chiefly on the extent of injury to the vessel. The usual history is that of repeated small hemorrhages but occasionally single hemorrhages result in death. The bleeding can always be stopped if the source can be found and is accessible.

Certain cases of "essential hematuria" seem to be examples of primary angiomas. Urologists have reported a number of cases of essential hematuria found at operation to be caused by small varices and angiomas of the renal pelvis. The group of cases of "hereditary hematuria" reported by Aitken²⁴ and Conner and Bumpus²⁵ of the Mayo Clinic and Pearson²⁶

21 Virchow, R. Ueber die Erweiterung kleinerer Gefässe. Virchows Arch. f. path. Anat. 3: 427, 1851.

22 Bonmer, S. Hereditary Hemorrhagic Telangiectasia. Dermat. Ztschr. 66: 177, 1933.

23 Lindau, A. Discussion on Vascular Tumors of the Brain and Spinal Cord. Proc. Roy. Soc. Med. (Sect. Neurol. & Sect. Ophth.) 24: 363 (Jan.) 1931.

24 Aitken, John. Congenital Hereditary and Family Haematuria. Lancet 2: 444, 1909.

25 Conner, H. M. and Bumpus, H. C. Jr. Essential Haematuria and Its Possible Relationship to Purpura Hemorrhagica. Am. J. Sc. 173: 176 (Feb.) 1927.

26 Pearson, H. B. A. Note of a Case of Hematuria Due to Hemorrhagic Diathesis. Lancet 1: 91, 1904.

probably are examples of hereditary hemorrhagic telangiectasia

Hemophilia has been confused with hereditary hemorrhagic telangiectasia to such an extent that some authors have called the latter condition "pseudohemophilia" and "hemophilia of slight degree." Hemophilia is confined to the male sex and transmitted by the female alone. Hemophilic persons bleed at any injured point from apparently normal tissue while the other patients' hemorrhages are confined to the telangiectatic points. The coagulation time is delayed in hemophilia and normal in primary angiomatosis.

The blood platelets are greatly reduced in purpuric hemorrhagic telangiectasia and normal in hereditary hemorrhagic telangiectasia. The telangiectasias disappear under diascopic pressure, while purpuric spots do not.

Hemorrhage is rare in the secondary or nevus types of angiomatosis. When it occurs, it is almost always caused by direct trauma to the telangiectatic vessel. There is no spontaneous bleeding and no history of repeated hemorrhages. The amount, size and treatment of each hemorrhage depend on the factors mentioned, but when hemorrhage occurs in the secondary type associated with chronic jaundice and diseases of the liver, it may be more difficult to stop.

Blood—The findings are normal in the primary types of generalized angiomatosis except when there is a secondary anemia from repeated hemorrhages. There is no temporary or transitory thrombocytopenia or qualitative disturbance of the blood such as one would expect to find where there apparently is spontaneous bleeding. The changes in the blood in the secondary group are those found in the associated disease such as leukemia. One of the most striking features in a case of polycythemia vera seen at the University Hospital in March 1933, was the intense mottled purplish color of the face and buccal mucosa associated with many telangiectatic points similar to the conditions emphasized by Gans.²⁷ Clough²⁸ stated that the discoloration of the skin may be the first sign of the disease and may antedate by years any actual discomfort. The individual vessels are distended and far more capillaries are patent and contain blood than in normal persons. The skin of the trunk is ordinarily free from telangiectasias. When the disease accompanying the telangiectasia has no changes in the blood, the blood findings are normal. The blood in the nevus type is normal.

Splenomegaly—Fitz-Hugh reported four cases of splenomegaly in patients with hereditary hemorrhagic telangiectasia. This association is rare in primary angiomatosis, it occurs in secondary angiomatosis only as a sign of the accompanying constitutional disease and it has not been noted in the nevus type. Fitz-Hugh thought that splenomegaly occurred relatively late in hereditary hemorrhagic telangiectasias and only in the more severe cases. In these cases splenomegaly follows repeated hemorrhages and probably is the result of long-standing stimulation and demands on a blood-forming organ.

The most important step in making a diagnosis is to classify properly a case in which angiomatosis is the presenting sign. After a case has been properly grouped the diagnosis is comparatively easy.

COMPLICATIONS AND PROGNOSIS

Complications are very rare in the secondary and nevus types of generalized angiomatosis, but they are common in the primary type. Nearly all of the complications are caused by hemorrhage. Death was caused by gastro-enteric hemorrhages (Osler) hemorrhages of the throat (Fitz-Hugh), epistaxis, convulsions from cerebral hemorrhage, intracranial hemorrhage and bleeding from other parts of the body in certain cases of hereditary hemorrhagic telangiectasia.

The prognosis in secondary and nevus angiomatosis is good. The prognosis in primary angiomatosis must be guarded, because a fatal hemorrhage or hemorrhages leading to a fatal complication may occur at any time. Four per cent of Fitz-Hugh's patients with hereditary hemorrhagic telangiectasia died of the disease itself.

TREATMENT

The treatment of the primary type of generalized telangiectasia deals with the prevention of hemorrhage and the stopping of immediate hemorrhage. The method of choice is actual cautery and if it is repeated often enough, all of the telangiectatic vessels can be destroyed. This is obviously impossible when certain parts of the body such as the meninges are involved. In such cases there is no known treatment. In the nevus and secondary types bleeding is rare. However, the usual methods of treatment, such as cautery or the application of pressure are effective in stopping the bleeding.

The use of calcium horse serum and the like presupposes an abnormality in the blood which does not exist. Hence these measures are of no value.

The cosmetic features of generalized angiomatosis cannot be disregarded. If the eruption is not too extensive the lesions on the face can be removed satisfactorily by actual cautery.

SUMMARY

1 Generalized angiomatosis is an important clinical sign, and patients with this condition should not be dismissed without a careful investigation.

2 A classification of types of generalized angiomatosis is offered. It is based on the relationship of the condition to constitutional disease, hereditary factors or a purely nevus source.

3 Cases from all three groups are reported.

ABSTRACT OF DISCUSSION

DR MICHAEL H. EBERT, Chicago. Generalized telangiectasia, like purpura, urticaria and multiple erythema, is often simply a manifestation of some deeper disease, and it requires a thorough investigation to determine where any particular case should be placed. The etiology is still speculative but one point Dr. Madden brought out is very interesting. In cases of generalized telangiectasia due to some form of intoxication in this particular instance a pregnancy the telangiectasia disappeared when the cause of the intoxication was removed. I wonder whether Dr. Madden made histologic studies in that case and how he explains the disappearance of new blood vessels. One can conceive of telangiectasia disappearing with tonus restored to the vessels but I wonder how the new formed vessels were absorbed.

DR S. WILLIAM BECKER, Chicago. The term angiomatosis versus telangiectasia might give rise to some misunderstanding because other cases of generalized angiomatosis affect not only the skin but also the internal organs with which these cases did not have much in common. Angiomatosis indicates a disturbance of development or perhaps a true neoplasm so I would

²⁷ Gans, Oscar. Ueber perzische Hautveränderungen bei Erythraemie. Virchow's Arch. f. path. Anat. 263: 515, 1927.
²⁸ Clough, Paul W. Diseases of the Blood. New York: Harper & Brothers, 1929. p. 174.

suggest that the author insert the term generalized telangiectasis merely for the purpose of cataloguing the cases. These cases, which I had occasion to study some years ago, bring up interesting questions in dermatology. With the exception of infectious infestations and neoplasms, dermatoses are confined almost entirely to the human race, so it is impossible to do much animal experimentation in the field of dermatology. Man differs from animals in his central nervous system and there is evidence that many dermatoses other than telangiectasis are definitely influenced by the nervous system. I should like to mention one case that was treated in Professor Bloch's clinic and which I reported some years ago, the agent used being thorium X. This gives a very prompt thrombosis of the external vessels and a good result. Some years ago I corresponded with the Welsbach people, who had thorium at their disposal, but they did not feel able to make thorium X available. Dr Sulzberger tells me that an effort is now being made to have thorium X available in this country.

DR SAMUEL M. PECK, New York. In the group of telangiectases which Dr Madden discussed, one of the most important and the most difficult therapeutically is the hereditary telangiectasis of Osler. These patients often have severe hemorrhages especially from the nose and mouth with marked secondary anemias. For three years I have been treating bleeding symptoms of various types with snake venom. Among this group there were a number of cases of Osler's disease. If these patients are injected over a long enough period the bleeding symptoms are definitely controlled. After about six weeks with two injections weekly the hemoglobin rose markedly and the bleeding symptoms either disappeared or were markedly diminished in amount and in frequency. Much to my surprise in two cases the telangiectasis disappeared entirely or almost entirely from the mucous membranes. In the group of functional nasal bleedings the preparation was almost specific. Only a few injections were needed to stop the bleeding and in most of the cases there was no recurrence after the treatment was stopped. This was in contradistinction to the Osler cases in which a maintenance dose had to be determined. Very good therapeutic results were also obtained by the use of snake venom in purpuras of various sorts as well as in uterine bleeding.

DR JAMES HERBERT MITCHELL, Chicago. I have seen three instances of telangiectasia in pregnancy. The first patient was 25 and it was her first pregnancy. When told that there would probably be complete clearing after delivery, she did not wish to submit to any further investigative work. The second patient is to be delivered in July and the third is now six and a half months pregnant. The first case I saw in the literature was that of Gougerot, he mentions the cases of Brocq and one other. These I have not looked up. The lesions were not generalized but were limited to exposed areas of the skin. A startling finding in my third patient, a woman aged 31, was that she was exposed to very bright sunlight ten days before observation. She was wearing sleeves that reached to the elbow and the telangiectasia appears there and over the face, the nucha and the upper portion of the chest. This third patient, who has promised to do anything in the way of investigative work, I wish, tells me that her father had no telangiectasia. She had a German mother with a very fair skin. I happen to know the parents of both of the first two patients and there is no telangiectasia. These cases all clear up following delivery and there is no tendency toward bleeding so far as I know.

DR FRED D. WEIDMAN, Philadelphia. I wish to suggest that there are "formes frustes" in this condition and that sometimes they may point in a rather roundabout way to serious internal medical states. A young woman told me some time ago that she had had eight miscarriages and yet was extremely eager to have children. I noticed a few telangiectases on the face and it developed that when she becomes heated or excited marked rosacea occurs and an ordinarily inconspicuous angiectasis of the face becomes marked. Her mother also has rosacea. I have gone over her carefully and could find no evidence of generalized telangiectasia, nasal or otherwise. However, she also had a rather pasty anemic color. Blood studies have not been completed but I feel that she may have a certain degree of fragility of the red blood cells. She has achlorhydria and

gastro enterologists tell me that the present trend of thought is that all the primary erythrocytic anemias probably originate in disturbance in gastric function, notably with lack of hydrochloric acid. In short, this young woman has a number of vague maladies, some of which can be associated with those mentioned this afternoon. One of Dr Madden's patients had myelogenous leukemia. Of course, it is a long step from myelogenous leukemia to primary pernicious anemia, but in any event there is a message to internists as well as to dermatologists that in connection with anemias one of the features to receive study is lesions on the skin as well as on the mucous membrane and not alone as to purpura but also other more or less allied disturbances of the capillaries.

DR JOHN F. MADDEN, St Paul. Answering Dr Ebert's question, no biopsies were made in the cases with pregnancy. Dr Mitchell said that the patient he has under observation is willing to have a certain amount of investigative work undertaken and I think he will undoubtedly answer that question in the future. As to Dr Becker's suggestion, I think too that telangiectasis is generally considered as the dilatation of existing blood vessels, and angiomas as the formation of new blood vessels. In the cases reported both of these conditions existed, therefore I am including both terms in the title of my paper. Dr Peck's use of snake venom is interesting. Most observers believed that the use of horse serum, snake venom and the like in hereditary hemorrhagic telangiectasia presupposes some abnormality in the blood that no one has been able to find. Hence they have found such medication of no value. However, I shall certainly try Dr Peck's therapy.

TRANSFERENCE OF INGUINAL GLANDS IN HUMAN SYPHILIS

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During the last decade a great deal of work has been done in intratesticular inoculation of rabbits with material from human lymph nodes infected with *Spirochaeta pallida*. Brown and Pearce¹ and Ebersson, among others in their work with experimental animals established the fact that *Spirochaeta pallida* has a predilection for lymphoid tissue and rapidly disseminates therein. Engman and Ebersson² studied the problem of infectivity in fifteen cases of latent syphilis and demonstrated the presence of *Spirochaeta pallida* in 20 per cent of the inguinal glands transplanted. Chesney and Kemp,⁴ in an attempt to utilize the method as a biologic criterion of cure in cases of three thoroughly treated patients with early syphilis obtained completely negative results in all. The authors comment that negative results are interesting but do not solve the curability of syphilis. They further suggest that such "negative results must be controlled by a study of the infectiousness of the nodes of a series of untreated patients whose syphilis dates back at least several years." Greenbaum's⁵ studies, published in

The information contained in this paper is based on studies of the inmates of Folsom Prison.

Read before the Section on Dermatology and Syphilology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 15, 1933.

1. Brown, W. H. and Pearce, Louise. A Note on the Dissemination of *Spirochaeta pallida* from the Primary Focus of Infection. Arch. Dermat. & Syph. 2: 470 (Oct.) 1920.

2. Ebersson, Frederick. Dissemination of *Spirochaeta pallida* in Experimental Syphilis. Arch. Dermat. & Syph. 3: 111 (Feb.) 1921.

3. Engman, Martin F. and Ebersson, Frederick. A Biologic Study of Latency in Syphilis. Arch. Dermat. & Syph. 3: 347 (April) 1921.

4. Chesney, A. M. and Kemp, J. E. The Curability of Syphilis. J. A. M. A. 88: 905 (March 19) 1927.

5. Greenbaum, Sigmund S. Tissue Transplants in the Diagnosis of the Cure of Syphilis. J. A. M. A. 94: 1464 (May 10) 1930.

May, 1930, indicated that transference of inguinal glands into the testes of rabbits could not be utilized as a criterion of cure in chronic syphilis, because transference of the glands of 60 per cent of untreated patients into rabbits gave a negative result. All of these studies have a distinct interest in relation to the study we have conducted.

Among the inmates at Folsom Prison are many persons infected with syphilis. Such a circumstance offered a ready means for the use of human material in an attempt to verify some of the modern teaching relating to the proper management of cases of syphilis.

The studies on which this paper is based were begun in January, 1930, and have continued to date as new material became available. We studied 100 cases, in all there was a 4 plus Wassermann reaction. With the exception of the 8 patients with primary syphilis, all were free from signs or symptoms of syphilis.

For purposes of analysis, the cases are classified into the following groups (table 1).

- 1 Patients with primary syphilis with a positive result of dark field examination
- 2 Patients with late or chronic syphilis
 - (a) Those under active treatment at the time of operation
 - (b) Those with a record of treatment before operation
 - (c) Those without previous treatment (latent syphilis)
 - (d) Those untreated with a 4 plus Wassermann reaction of the spinal fluid and a paretic curve
 - (e) Those whose glands produced a positive result in rabbits, who were treated and later operated on

TECHNIC

The technic of transferring the inguinal gland tissue from the syphilitic patients to the rabbits was as follows:

Procaine hydrochloride was injected around the most prominent lymph node without infiltrating the glandular tissue. The node was removed and immediately emulsified in approximately 0.5 cc of physiologic solution of sodium chloride. A drop of this emulsified tissue was subjected to dark-field examination, and about 0.5 cc was injected into the testes of a healthy full grown rabbit. The injection was always carried out within ten minutes after the gland was excised, and a notation was entered of the testes into which the injection was made.

Each inoculated rabbit was confined separately in a well ventilated cage from six to ten weeks before autopsy, at which time the testes were removed and treated in a similar manner to the nodes removed from the patients. If they were found to be negative on dark-field examination they were reinoculated into a second healthy rabbit.

The second group of rabbits was in turn autopsied after an incubation period of from six to ten weeks. Often gravish nodules and marked edema of the testes could be seen grossly at autopsy, and the lymph glands in the inguinal region were seen to be enlarged and injected. Those that showed live *Spirochaeta pallida* on dark-field examination were recorded for purposes of analysis.

RESULTS

1 *Primary Syphilis* (table 1).—Study was made of eight cases of primary syphilis. All showed a positive result on dark-field examination of material from the chancre as well as from the inguinal gland at the time of operation. Of the animals given injections one died in a few days and autopsy was not performed. When the remaining seven animals were killed the testes showed active virile *Spirochaeta pallida*. The percentage of positives in live rabbits was 100. Greenbaum's studies had proved beyond doubt that primary syphilis could be transmitted to rabbits in 100 per cent

of cases. Our study of this particular stage of syphilis was undertaken in order to prove the efficiency of our technic.

TABLE 1—Cases of Primary Syphilis

Classification	Number of Cases	Wassermann Reaction of Blood	Treatment	Results in Rabbits	
				Positive	Negative
Primary	8	Negative	None	7	
Late syphilis	19	4+	Under treatment		19
Late syphilis	1	4+	Previous treatment but none for two years	12, or 31.5%	26
Late syphilis	29	4+	No previous treatment	11, or 35%	13
Dementia paralytica 4 plus Wassermann reaction of spinal, fluid and paretic curve	6	4+	No previous treatment		6
Total	100				

2 *Cases of Late or Chronic Syphilis*.—Patients Under Treatment at the Time of Operation (table 2). We were able to obtain the cooperation of nineteen patients under active treatment. At the time of operation each was receiving weekly injections of 0.6 Gm of neoarsphenamine. Fourteen of these had shown a reversal of the Wassermann reactions of the blood.

TABLE 2—Chronic Cases. Inguinal Glands Transferred to Rabbits During Period of Treatment

Number	Wassermann Reaction of Blood	Treatment	Spinal Fluid	Rabbits
19 receiving 0.6 Gm of neoarsphenamine	4+	118 2.0 injections of neoarsphenamine Wassermann fast 14 70 91 injections of mercury	6 positive 11 negative 2 not done	All negative

at previous times, and were regarded as being Wassermann-fast. Six of these Wassermann-fast cases showed a positive reaction of the spinal fluid. The patients had received from 118 to 230 injections of neoarsphenamine and from 70 to 91 injections of mercury. Eleven of the remaining 13 patients had a negative reaction of the spinal fluid. In 2 cases examinations of the spinal fluid

TABLE 3—Cases of Late or Chronic Syphilis

Previously treated patients 33 (none within 2 years)	Positive 12 or 31.5%	Began treatment	
		3 primary	3 early secondary
		6 late secondary	
		6 had had intensive treatment	52 injections of neoarsphenamine average
		1 had had as many as 300 injections of anti-syphilitic therapy before 1923	46 injections of mercury average
		Negative 26	

had never been made. The patients who were not regarded as Wassermann-fast had been undertreated. They had received an average of 16 injections of neoarsphenamine and 13 of mercury or bismuth. In no case were we able to obtain a positive result in rabbits.

Patients with a Record of Treatment Before Operation (table 3). Rabbits were inoculated with the glands from thirty-eight patients with syphilis who

cases of chronic syphilis in which the patients were under active treatment. In no case were we able to obtain a positive result in rabbits. From the standpoint of public health, the study offers biologic support to the idea that at least during the time patients are under active treatment the threshold of their infectivity has been reduced to a level where it would appear to be difficult to transmit the infection to other persons.

TABLE 5—Patients Under Active Treatment

	Cases	Rabbits
Previously studied	19	Negative
Cases formerly showing positive results in rabbits	5 (treated for — 2 years)	Negative
Total	24	

SUMMARY

The results obtained from the intratesticular inoculation of rabbits with human material from 100 cases of syphilis with a 4 plus Wassermann reaction are as follows:

1 In eight cases of primary syphilis 100 per cent of the gland transplants caused positive results in live rabbits.

2 The glands of twenty-four patients with chronic syphilis who were under treatment caused negative results in rabbits.

3 In 38 per cent of twenty-nine cases of untreated latent syphilis, the results in rabbits were positive.

4 For six patients with untreated dementia paralytica inoculations into rabbits gave negative results.

5 The glands of twelve of thirty-eight patients previously treated for chronic syphilis gave positive results. Six of the twelve patients had received intensive treatment, averaging fifty-two injections of neosphenamine and forty-six of mercury.

6 Three patients with acute syphilis who were adequately treated according to present standards showed live *Spirochaeta pallida* in their inguinal glands after a lapse from treatment extending from three to five years. The conditions were diagnosed early, the patients were treated intensively and later were pronounced cured on the evidence of completely negative clinical and serologic findings.

CONCLUSIONS

1 The diagnosis of primary syphilis by means of gland puncture can be made in 100 per cent of cases.

2 It is probable that patients with late syphilis are not a menace to others while undergoing active treatment.

3 A comparison of the 31.5 per cent positive results obtained in previously treated patients with syphilis with the 38 per cent positive results obtained in untreated patients indicates that, from the standpoint of the biologic cure of the patient, inadequate treatment is very little better than none at all.

4 According to our findings *Spirochaeta pallida* is not present in the cerebrospinal fluid.

5 There is a necessity for frequent reexamination of patients with syphilis even though it appears that they have been adequately treated according to modern standards.

6 The clinical and serologic tests used as criteria of cure in syphilis are inaccurate and must be revised with increasing knowledge of the disease.

ABSTRACT OF DISCUSSION

DR M F ENGMAN, JR, St Louis. It is very difficult to discuss this type of work. In the first place not much is known about syphilis. Clinical experience and laboratory evidence result in some impressions, which should not become fixed. The authors take out one small bit of tissue from an entire body and this, of course, is the main objection to drawing conclusions from this type of work. They find in many cases negative rabbit inoculations. They find no evidence of spirochetes, that being the only basis on which they can declare that no spirochetes are there. However, the value of it lies in the positive evidence. The fact that they found no spirochetes in this bit of tissue does not mean that there are none in the body or, as Warthin pointed out, a large percentage of patients who have had syphilis in active form still have it although it is quiescent. I think that the authors have been conservative in their conclusions. They have 100 cases. They get different results from cases of different type and that requires study. Probably such work as theirs can be better digested after a few years, when it is hoped that more information will be available. The fundamentals of the disease are really not known. The authors report 100 per cent of cases of primary syphilis. It would be interesting to have some cases presenting no lesions on the genitalia or in the glands. It would be expected that they would have 100 per cent in those for at least the greater part of the body is invaded by the organism at some time in the course of the disease, and since the glands are prone to retain the spirochetes they should find them in 100 per cent. The authors show, and Dr Greenbaum and my father showed some years ago, that, although the disease is still present in a latent form there are no symptoms. In latent syphilis one is dealing with a different problem. Is the spirochete present? It is. Where is it present? No one knows. The authors found them in a certain percentage of the glands in their patients. It is known that there is an immunity and that Chesley and others have produced immunity in rabbits and then injected spirochetes into the skin and yet produced no allergy. In the same way the authors find spirochetes in the glands by biologic methods and still there is no reaction.

DR J GARDNER HOPKINS, New York. I rise to express my admiration for an excellent and informative piece of work. I doubt very much whether any one can obtain 100 per cent takes in passing strains from man to the rabbit. It is very different in passing from rabbit to rabbit. I doubt, too, whether the authors' percentage in chance cases can be taken as an index of what would be expected in cases presenting positive glands for the dose of spirochetes is important. If one finds in 30 per cent of gland cases a positive rabbit take one cannot assume that the remaining 70 per cent are negative. I think a great many would be positive. The positive results would suggest that with intensive methods and using a larger amount of tissue one might get a higher percentage of takes.

DR P W DAY, Represa, Calif. Dr Lunsford and I have not had any patients with treated syphilis serologically negative who have had gland tissue transferred to rabbits. Such a series of cases would add much to the value of our work if any were found positive. It might be well to mention something of the technique we used in transferring this tissue from the human being to the rabbit. The most prominent inguinal gland present was removed under procaine infiltration, without injection of the gland. It was emulsified with saline solution and immediately subjected to dark field examination, and within ten minutes 0.5 cc. was injected into the testicles of rabbits. These rabbits were allowed to live for from six to ten weeks and were then killed and examined. Then the testicular tissue was subjected to dark field examination. If any enlarged glands developed these also were examined. If negative, a second injection into rabbit was made and this group allowed to go through the same incubation period. The cases of primary syphilis were examined to check our technique and all showed *Spirochaeta pallida*. All late cases of syphilis were institutional cases of prisoners who could be kept under close observation over a long period. We appreciate their willingness to cooperate in this work.

TWO IMPORTANT BIOLOGIC FACTORS
IN FERTILITY AND STERILITY

- (a) IS THERE A "SAFE PERIOD"?
(b) ANOVULATORY MENSTRUATION AS A
POSSIBLE CAUSE OF STERILITY

EMIL NOVAK, M.D.
BALTIMORE

Whether right or wrong, the birth control movement has moved forward from the shadows of guarded discussion into the limelight of medical social and even religious publicity. Some of our profession are enthusiastic supporters of the movement, some are apathetic, some opposed, and many, though recognizing the justifiability of contraception in many instances, deplore the fact that a problem so individual should have assumed the proportions of a mass propaganda. With many patients the undesirability of further pregnancies is inextricably complicated by the factor of religion. With such patients continence alone has heretofore appeared to be the price demanded for safety from the possibility of pregnancy, and no one could be so religiously blind as to believe that this price has always been paid.

The first purpose of this paper is to evaluate briefly, with a minimum of citation from the now voluminous literature, the status of a biologic means of contraception to which, I believe, no church finds objection. Many medical men have become familiar with the general principles of this question, as have some of the laity, through a number of lay publications on the subject. However, there is still a rather heavy haze surrounding the subject, and still much lack of unanimity as to the practical value of "biologic contraception," so that it would seem worth while to evaluate its present status.

There are a number of fundamental considerations on which the discussion of this question rests. The egg is extruded from the ovary practically always at some time varying from the eighth or ninth to the eighteenth or twentieth day of the usual twenty-eight day cycle exhibited by most women. Most often ovulation occurs at about the twelfth to the fourteenth day. The life of the ovum after its extrusion from the follicle is very short, probably not more than a day or so, and, according to some, only a few hours. This is contrary to the older view, now definitely disproved, that the life span of the ovum is about two weeks. From the standpoint of the female alone, therefore, the time at which ovulation occurs is for practical purposes the only time at which fertilization can occur. The problem, therefore, is to determine at what time ovulation occurs. Were it possible to do this in the individual patient, the question would be greatly simplified.

From the standpoint of the male, the chief factor to be considered is as to how long the spermatozoa retain their potency after injection into the genital canal. Here again views have changed. Whereas it was formerly thought that in man, as in some lower animals, spermatozoa may retain their potency for many days, the evidence now seems quite clear that, while they may retain their motility longer, they lose their capacity to fertilize the ovum in two (Knaus) or three (Ogino) days. Combining the male and female factors, therefore, it would seem that the time at which fertilization can occur is the ovulation phase plus about three days

to allow for the possibility of survival of previously injected spermatozoa, plus perhaps a day or so to allow for the possibility of survival of the ovum for that period after ovulation.

These, in bare outline, are the principles governing the various precepts of biologic birth control which are now being so widely discussed. How are they applied, and what is their value?

The first to suggest the possibility of a "safe period" in the cycle was Capellman¹ in 1883, although his recommendations were quite different from those now given, and according to newer knowledge, very incorrect. Interest in the subject was apparently abandoned until the publication by a number of German authors (Siegel² and others) of the results of studies in a large number of German women whose husbands returned home for short furloughs during the World War. These studies were purely clinical, and the results cannot, for obvious reasons, such as lack of precision as to the dates of menstruation and coitus and the presupposition of chastity in all these patients, be considered as above scientific criticism. I shall not review these results in this short paper, the purpose of which is rather to discuss briefly the more important observations that have been made more recently by a group of investigators who have attempted to correlate the physiologic and clinical points of view in the study of this question.

In 1924, and in several other papers since then, Ogino³ has presented evidence to indicate that the possibility of fertilization is limited to a definite phase of the cycle. In the woman with a twenty-eight day cycle, ovulation occurs from twelve to sixteen days before the next menstrual period, and the conception period is limited to the eight days between the twelfth and nineteenth days before the next period. The latter, therefore, is taken as the point of departure, in the view that the postovulatory or corpus luteum phase of the cycle is the one of fixed duration, an assumption that does not agree with the results obtained by Hartman in the far more scientifically controllable study of the monkey cycle. Ogino admits the possibility of fertilization in the five day period preceding the span indicated but considers this very remote.

The difficulty that it once suggests itself is as to the application of this rule in women with cycles of other than the common four-weekly type. It is a well known fact that women vary much in this respect, and that in the individual woman there may be frequent and perhaps wide variations in the length of the cycles. Ogino stresses the importance of careful chronological study of many menstrual cycles whenever possible. The beginning of the eight day "conception period" he puts at ten days plus or minus the difference in days between twenty-eight and the minimal length of the cycle. The end of the dangerous phase he places at seventeen days plus or minus the difference between twenty-eight and the maximal length of the cycle. To put it another way, the woman determines her "safe period" on the basis of her shortest cycle, and also of her longest cycle. The overlapping "safe days" constitute her "safe period." As already emphasized, the reckoning is from the expected period back, the nondangerous span being that embraced between the twelfth and nineteenth days, inclusive.

1 Capellman. *Die fakultative Sterilität*. Limburg 1883.
2 Siegel. *Zentralbl. f. Gynak.* 28:984 (July 16) 1921, *Deutsche med. Wchnschr.* 42:3 1915.
3 Ogino K. *Zentralbl. f. Gynak.* 56:721-732 (March 19) 1932.
This paper contains references to previous publications by the author.

Knaus,⁴ another indefatigable worker in this field, has contributed what is apparently the only test method for ovulation in the human being, through a study of the sensibility of the uterine musculature to the action of posterior pituitary extract under the influence of the follicle and corpus luteum hormones. The latter render the uterus refractory to the action of the pituitary principle. By the study of the time of onset of this unresponsiveness he arrives at conclusions not unlike those of Knaus, stating that fertilization always occurs in the period between the eleventh and seventeenth days of the cycles, if the latter is of the usual four-weekly type. Both writers have made clinical reports of results by this method which appear to bear out their contentions.

As opposed to these, Grosser,⁵ Bolaffio,⁶ Niedermeyer,⁷ and others deny the infallibility of the Ogino-Knaus doctrine, and with what appear to be weighty reasons. Grosser, for example, urges that the careful study of the age of twenty-four early embryos indicates that in ten of these conception occurred between the second and tenth days of the cycle, in ten at from the eighteenth to the twenty-fourth, and in only four in the period emphasized by Knaus as the conception phase, i. e., the eleventh to seventeenth days. Grosser is a strong believer in the view that coitus in itself may be an important determiner of ovulation, as it is in the case of such animals as the rabbit. There is no proof of this occurrence in the human being, but its possibility cannot be denied, even if one accepts the usual doctrine that spontaneous ovulation is the rule and that it occurs at fairly stated periods. Bolaffio and Niedermeyer likewise, and on essentially the same grounds, object to the general applicability of the Ogino-Knaus doctrines.

The problem has been merely outlined in these paragraphs, and only a fraction of the literature touched on. What may the present status of the question be considered to be? In spite of the possible, though not proved, occurrence of coital ovulation, there would seem to be no doubt on mere a priori grounds that the optimal conception period is in the span that embraces most ovulations, i. e., from the eighth or tenth to the eighteenth or twentieth day of the cycle, with the maximum at about the twelfth to the fourteenth day. This conforms to the results noted by Hartman⁸ in his mating experiments with monkeys. The foregoing statement would apply to the most common cycle, varying from twenty-six to thirty days in length, while for irregular cycles some such adjustment of calculations as that suggested by Ogino is probably a serviceable one.

This, however, is quite different from saying that conception is absolutely impossible at other times as has been claimed. Too little is known as yet about several of the possible factors in fertilization to justify such a claim. As already stated the possibility of coital ovulation must be borne in mind, even though its occurrence in the human being has not been demonstrated. The survival time of the ovum is generally accepted as short but the evidence for the period of survival of the spermatozoon is not yet quite as clear as might be hoped though it is probably not as long as formerly thought. Again there is still considerable uncertainty in women with irregular cycles, as to the part played in

this irregularity by the preovulatory and the post-ovulatory phases of the cycle.

To sum up, in women with cycles approximating the four weekly type, there is every reason to believe that the immediately postmenstrual period (up to the eighth day of the cycle) and even more the immediately premenstrual period (after the twentieth day) are almost entirely, though perhaps not absolutely, "safe periods" for those anxious to avoid conception. In women with irregular cycles the problem is more difficult and less certain, though probably a great measure of protection may be given by following the suggestions of Ogino, as described.

For those who, because of religious or other reasons, are not willing to resort to other forms of contraception, the Ogino-Knaus method is a great boon and is certainly the one that should be recommended by the physician. To avoid embarrassment, however, especially in women with irregular cycles, it would seem wise to emphasize the fact that not a sufficient time has elapsed as yet to demonstrate clearly how great or how slight a degree of fallibility pertains to this method and how this fallibility compares to the recognized fallibility of practically all other methods of contraception.

From what has been said, it is obvious that in the opposite case of women very desirous of having children the optimal time for coitus is that extending from the tenth to the eighteenth day of the cycle, and especially from the twelfth to the fourteenth day. This advice I have for many years considered an important part of the management of cases of sterility.

ANOVLATORY MENSTRUATION AS A CAUSE OF STERILITY

A problem antithetical to the one just discussed is that of sterility. No type of patient elicits the sympathy and cooperation of the gynecologist so fully as does the woman with high maternal ideals who is willing to make any sacrifice for the possibility of bearing a child. Many possible factors must be considered in both the partners, and in most instances a careful study will reveal one or more logical causes for the sterility. In many instances a rational plan of treatment will thus be indicated, with some measure of optimism as to results. In other cases, unfortunately, such studies reveal causative factors that must be considered hopeless.

There is, however, a not inconsiderable group of cases in which the most thorough studies of both partners—general physical examination, examination of the pelvic organs, basal metabolism studies, tubal insufflation tests, hormone tests of various sorts—all reveal no demonstrable abnormality, and yet pregnancy does not occur. In instances of this sort there is always the temptation to explain the sterility as due to an incompatibility of the germ cells of the couple, and at times this appears to be confirmed by the ready occurrence of pregnancy with a new partner. Such an explanation, however, if it can be called an explanation, can apply to only a small proportion of cases and most often such observations are open to scientific objection on one ground or another. They would obviously be of no significance unless both partners in a sterile union later demonstrated their fertility with new mates.

It is in this small group of otherwise unexplainable cases that I believe that the sterility may at times be due to the fact that the woman, who perhaps is menstruating normally and regularly and who is presumably normal in every other way, is not giving off eggs

4 Knaus H. Zentralbl f Gynak. 53: 2193-2203 (Aug. 31) 1929
Arch f Gynak. 146: 343 (1931) 171: 302-329 (1932)
5 Grosser O. Zentralbl f Gynak. 56: 705-710 (March 19) 1912
6 Bolaffio M. Zentralbl f Gynak. 56: 1510-1520 (June 18) 1932
7 Niedermeyer A. Zentralbl f Gynak. 56: 2350-2360 (Sept. 24) 1932
8 Hartman C. C. Am J Obst & Gynec. 26: 600 (Oct.) 1933

I have in several previous papers⁹ urged that anovulatory menstruation, so common in monkeys, is not nearly so rare in women as was once believed. That it occurs in some women is beyond dispute. Functional menorrhagia, at times not very excessive, is characteristically associated with an anovulatory mechanism and undoubtedly it occurs in some cases in which the menstrual flow is within normal limits. I believe the same mechanism occurs in a certain proportion of women for a time after puberty and for a time before the actual menopause though it may occur at any age in the reproductive epoch.

It need scarcely be said that the anovulatory type of cycle is the unusual one in the human female and that ovulation and corpus luteum formation are the rule. It is idle in the present state of knowledge to speculate about the numerical frequency of anovulatory menstruation. It probably occurs in only a small proportion of menstruating women but the proportion in the cases of unexplainable sterility may prove to be not inconsiderable.

Is there any way of determining whether or not a sterile woman is ovulating? This question can be answered in the affirmative. The most direct and logical method is through study of the endometrium just before an expected menstrual flow assuming that the periods recur regularly. If ovulation has occurred the endometrium will show the characteristic secretory changes evoked by the corpus luteum hormone (progesterone). If, on the other hand, there is a complete absence of secretory changes it may be assumed that there is no corpus luteum, i. e. that ovulation has not occurred.

The tissue for examination can often though not always be obtained without anesthesia by using a very small curet. It is not necessary to perform a complete curettage. Even if dilation of the canal under light anesthesia is necessary in order to secure the tissue the value of the information gained makes this well worth while. The suction method suggested by Klingler and Burch¹⁰ has been employed with success though I prefer the curet as it gives larger pieces of tissue.

I have employed the method thus far in only a small series of cases for the patients in whom it is indicated are not very numerous. Even this small experience however has demonstrated that some of the patients have been sterile presumably for the simple reason that they are not giving off eggs. Even if this in itself were not an obvious factor the absence of the corpus luteum would prevent pregnancy for on the corpus luteum secretion depends the preparatory preparation of the endometrium so necessary for implantation of the egg.

Can anything be done in a therapeutic way in cases of sterility due to failure of ovulation? In some of the lower animals such as the rabbit ovulation can be induced by the injection of pregnant urine a principle on which the well known Friedman test is based. The injection of the piolan-containing principles obtained from the urine of pregnant women would therefore seem to be logical although how great are the species differences in hormone reactions and how much less the human ovary reacts to the principles contained in the pregnant woman's urine than do the ovaries of some of the lower species are already well known. And yet

this is, so far as I see, the only plan of organotherapy that seems open at the present time.

Since the ovaries of these patients probably contain follicles which reach maturity, but which, instead of rupturing, undergo a gradual desiccation, the temptation presents itself in such cases to attempt rupture of the follicles by gentle manual pressure over the ovaries. Unfortunately it is not usually possible to determine by bimanual palpation which ovary is the seat of an impending ovulation as Hartman has shown can be done by rectal palpation in the monkey. Furthermore, there is always the theoretical chance of causing troublesome intraperitoneal bleeding though I think that this would be relatively slight. While, therefore, I have not employed this method myself as yet, I do feel that in the properly selected case gentle pressure over both ovaries at the proper time in the cycle would be justified if the patient can be properly watched for a time after the procedure. However, with the rapid progress which is being made in reproductive endocrinology it would seem certain that before long some safer endocrinotherapeutic means of inducing ovulation in these cases will be evolved.

26 East Preston Street

Clinical Notes, Suggestions and New Instruments

SPONGE HOLDING FORCEPS WITH BUILT IN BOTTLE STOPPER

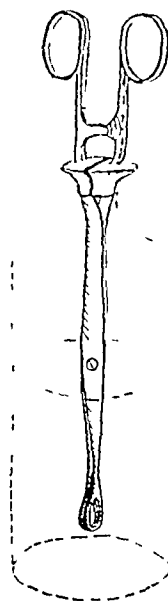
PAUL R. FARRINGTON, M.D., BOULDER, COLO.

This forceps is designed to be kept constantly in a bottle of volatile antiseptic solution but to be ready for instant use. Incorporating a stopper in the handle prevents evaporation of the solution.

An ordinary ring sponge holding forceps is selected and thoroughly cleaned. A bottle is then chosen which is of sufficient size to allow the forceps to rest in it as far as the ratchet. Cotton is firmly packed in the neck of the bottle about the forceps to prevent the wax from running into the bottle. A thin piece of sheet brass is trimmed to fit and inserted between the handles of the forceps in the neck of the bottle as a partition. Melted dental wax is then poured into the neck of the bottle and molded to make a stopper for the bottle surrounding the handles. The neck of the bottle is then carefully warmed in the Bunsen flame and the wax stopper and forceps are removed together. The projecting upper part of the brass partition is then carefully warmed and the forceps opened dividing the stopper into halves one of which surrounds each of the handles. A sprue wire is attached to each half of the wax and the opened forceps is embedded in plaster of paris, dried in an oven for eight hours at 350 F and the wax boiled out. A casting is then made with bearing metal after which the plaster is carefully chipped away and the work polished.

This makes a snug fitting stopper for the bottle, which prevents evaporation and does not interfere at all with the operation of the forceps.

2010 Twelfth Street



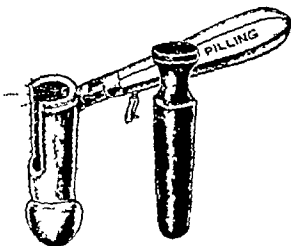
Sponge holding forceps with built in bottle stopper

⁹ Novak, Fmil. Recent Advances in the Physiology of Menstruation J. A. M. A. 94: 833-839 (March 22) 1930.
¹⁰ Klingler, H. H. and Burch, J. C. Am. J. Obst. & Gynec. 26: 17 (July) 1933.

ANOSCOPE

HARRY E. BACON, M.D. PHILADELPHIA

Many anorectal disorders are present immediately above and below the anorectal or pectinate line, yet, because of inadequate illumination and the use of the ordinary conical speculums thorough examination is often difficult and most unsatisfactory. But good illumination and inspection of the diseased area are essential in making a correct diagnosis. The treatment of many lesions at this site are office or clinic procedures, but not infrequently a nurse or an assistant is not at hand which necessitates removal of the patient to the hospital. For this reason a self-retaining device is a helpful adjunct. With the patient in the left lateral, or Sims position this procedure may be accomplished by means of the illuminated anoscope shown in the illustration. The instrument is self retaining and may be easily introduced after the anus has been smeared with a water-soluble lubricant. The light, located



Anoscope

in the head of the detachable handle is directed diagonally to the opposite side where the scope is slit. On rotation of the instrument the anal canal and lower rectum are visualized permitting digital and instrumental examination. Aside from diagnosis, topical applications are more easily accomplished and hyperplastic papillae, inflamed crypts, and small or moderate-sized thrombic hemorrhoids may be readily excised following the injection of a few minims of a local anesthetic into the base of the area to be treated.

1527 West Girard Avenue

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
H. A. CARTER, Secretary

HEMP MASSAGER NOT ACCEPTABLE

The Hemp Massager is manufactured by the Conley Company, Inc., Rochester, Minn. Briefly, this device consists of two rubber balls mounted on spindles at right angles to each other. At right angles to the plane of these spindles the handle is attached. Three sets of rubber balls are supplied with a complete outfit and are interchangeable. As this device is pulled along over the body the rubber balls pinch the skin and by friction lift it and underlying superficial tissues above the contour of the body or limbs. The angle at which the handle is raised with respect to the body surface determines the firmness, the vigor of the massaging action.

One unit was investigated by the Council. The Council declared that it did exactly what, in practicing good massage a masseur tries to avoid: it pinches the superficial tissues instead of picking up and kneading deep tissues as well as the superficial.

Even if the massager faithfully duplicated hand massage there are certain statements recorded in the booklet *How to Use Your Hemp Massager* which the Council regarded as exaggerated. For example on page two under *The Only Device that Massages Like Human Hands*, it reads: "The Hemp Massager used as directed in this booklet brings to you in your own room the benefits of a trained masseur." This statement is interpreted by the Council as misleading.

On page four under *Reducing*, "Massage assists in reducing that fatty tissue which accumulates due to lack of proper exercise. Sometimes excessive fat is the result of an organic disorder and in such a case a physician should be consulted as it may not be advisable to attempt to reduce this form of fatty tissue by massage alone." Generally it is advisable to use the small sphericals for reducing. On hips or

abdomen, stroke in all directions, finishing up with a few strokes toward the heart, using the large sphericals. Do not massage any one part of the body more than five minutes. Be consistent and massage every day." The firm has not submitted evidence to substantiate the foregoing statement.

On page eight, under "Massage for the Face," "Massage stimulates circulation of the blood and tends to improve the complexion. At the same time, it firms the muscles, removes superfluous flesh and smooths out wrinkles. Consistent massage is one of the best ways to remove double chins." This statement is considered misleading.

On page nine, under "Scalp Massage," "One of the most effective ways of keeping hair strong and healthy is to keep the scalp clean and free from scale by massage. Massage will often check falling hair." If this outfit is employed the firm has not submitted critical evidence to substantiate the foregoing statement.

On page ten, under "Headaches," "Properly applied massage will usually relieve the discomfort of simple headaches."

Do this along the heavy cords down the back of the neck, as well as along the hollow in the center. Stroke gently and slowly, always down and away from the head. Continue the massage for about two minutes, and repeat after an hour or so until relieved. The statement concerning headaches is regarded as misleading.

On page eleven under "Constipation," "This is a cause of much discomfort, headaches, loss of pep and energy. It may also lead to more serious ailments. Proper massage by stimulating and strengthening the muscles of the abdomen and along the large intestine, is frequently effective in relieving constipation in a natural safe manner."

Starting at the lower right of the abdomen, stroke along the course of the large intestine, up the right side, across above the navel and down the left side. Lie on your back, knees up with abdominal muscles relaxed. Massage for five minutes. Also massage the small of the back night and morning." The Council does not agree with the contents of this statement. Critical evidence is needed to substantiate the claims.

In fairness to the manufacturer there is recorded on the back of the cover, "Caution: Use very lightly if at all over varicose veins. Do not use in cases of ulcers, fevers, bleeding, tuberculosis, infections, broken bones, diabetes or on the breasts unless by the consent of a physician. We recommend that before using the massager for any specific bodily ailment, you first get competent medical advice."

On a folder entitled *Would You Like a Trim Healthy Body?*, the following is recorded: "Enjoy the Grace of a New Slender Figure. The benefits of a professional masseur at your convenience. Massage, to be effective must be properly and consistently administered. But few can afford the services of a professional masseur over a period of weeks. Now, however, with the aid of the Hemp Body-Massager you can give yourself a thorough complete massage in 15 minutes in the privacy of your own home."

In another place, one reads: "Massage Relieves Many Bodily Ailments. Valuable for Athletes and Dancers. Massage properly administered, stimulates circulation, thus helping the blood in its natural process of feeding the muscles and tissues of the body, and carrying away impurities. Athletes and dancers are well acquainted with the effectiveness of massage in relieving stiff sore muscles, charley-horse, etc. Massage is frequently effective in relieving the discomfort of headache, rheumatism, nervousness, constipation and other troubles. However, if you are not well, we recommend that you consult your physician. It will benefit you, he will advise you how it should be applied to produce the desired results. Do not attempt treatment for specialized ailments without first getting competent medical advice."

Promotional advertising matter of this kind containing the aforementioned objectionable phrases or statements is bound to be misleading and in effect constitutes an appeal to the public for arguments that are unscientific and may harmfully enhance a feeling of false security on the part of the public.

The Council declared that if hand massage is given by a technician or masseur and used properly, it may stimulate the circulation, speed up metabolism, relieve stiff and painful joints and sore muscles. The Council objected to the claims made

for the relief of headache, nervousness and constipation. In reality, these conditions might be caused by some impaired function other than that for which massage is justly indicated. The aforementioned statement taken from the advertising matter for the Hemp Messenger the Council regards as objectionable, because satisfactory evidence is not in its possession to substantiate the efficacy of massage with this unit in the conditions mentioned. Owing to the foregoing inconsistencies with the Official Rules, the Council declares the Hemp Messenger ineligible for inclusion in the list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS IFFCH, Secretary

METYCAINE—Benzoyl γ (2-methylpiperidino)-propanol hydrochloride— γ -(2-methylpiperidino) propylbenzoate hydrochloride— $C_6H_5COO(CH_2)_3NC_6H_5 \cdot HCl$ —The base of metycaïne differs from the base of procaine hydrochloride in having the basic nitrogen in a methylpiperidino ring instead of the dimethylamine γ propanol group in place of the ethanol group and in not having an amino group attached to the benzene ring. In addition, it possesses an asymmetrical carbon atom and is optically inactive. Metycaïne is therefore a racemic mixture of the hydrochlorides.

Actions and Uses—Metycaïne is a local anesthetic which produces prompt anesthesia either by subcutaneous injection or topical application to mucous membranes and similar surfaces. Pharmacologic studies on animals indicate that the toxicity of metycaïne following subcutaneous injection is lower than that of cocaine and comparable to that of procaine, intravenously it was found to be approximately three times as toxic as procaine.

Dosage—For application to the eye metycaïne is used in 2 per cent solutions, for nose and throat 2 to 10 per cent solutions are used, 1 to 4 per cent solutions have been used for urethral anesthesia, for infiltrative anesthesia in small areas solutions of 0.5 to 1 per cent are generally used.

Manufactured by Eli Lilly & Co. Indianapolis, Ind. U. S. patent 1,784,903 (Dec. 16, 1930; expires 1947). No U. S. trademark.

Ampoules Metycaïne 1% 1 cc. Each cubic centimeter contains metycaïne 0.01 Gm. ($\frac{1}{10}$ gr.) in physiological solution of sodium chloride.

Ampoules Metycaïne 2% and Epinephrine (1:25,000) 1 cc. Each cubic centimeter contains metycaïne 0.02 Gm. ($\frac{1}{50}$ gr.) epinephrine 0.04 mg. ($\frac{1}{2500}$ gr.) and thiourea 0.3% in Ringer's solution. The thiourea which is added to the dosage forms containing epinephrine in order to prevent oxidation complies with the following standards. It is a white, crystalline, almost odorless solid, soluble in water and hot alcohol and slightly soluble in cold alcohol, chloroform and ether. When 0.05 Gm. is dissolved in 10 cc. of water to which 2 drops of ferric chloride solution have been added, the color is only slightly augmented (*sulphocyanates*). Warm 0.05 Gm. of thiourea in a test tube until it melts, cool, add 10 cc. of water and 2 drops of ferric chloride solution; a blood red color results. Add 10 cc. of water and 4 cc. of diluted nitric acid to a mixture of 0.1 Gm. bismuth nitrate and 0.3 Gm. of thiourea and warm in orange colored solution results, which on evaporation yields crystals of an orange color. The melting point of thiourea ranges from 176 to 180 C.

Ampoules Metycaïne 2% and Epinephrine (1:50,000) 2.5 cc. Each cubic centimeter contains metycaïne 0.02 Gm. ($\frac{1}{50}$ gr.) epinephrine 0.02 mg. ($\frac{1}{5000}$ gr.) and thiourea 0.15% in Ringer's solution.

Solution Metycaïne 2% Metycaïne 2% in physiological solution of sodium chloride containing chlorbutanol 0.5% as preservative.

Tablets Metycaïne 0.15 Gm.

Metycaïne occurs as a fine white crystalline odorless powder. When applied to the tongue it possesses a slightly bitter taste followed by a sense of numbness permanent in the air, freely soluble in water about 1 in 1, soluble in alcohol and chloroform, insoluble in ether and olive oil. Its aqueous solution (1 in 10) is faintly acid to litmus. It is optically inactive. Metycaïne melts at from 171 to 173 C. From aqueous solutions alkali carbonates and hydroxides precipitate the free base as a water white to light yellowish oil which does not solidify at ordinary temperatures.

Dissolve about 1 Gm. of metycaïne in 10 cc. of water, separate portions of 2 cc. each, discharge the color of 1 cc. of diluted sulphuric acid and 1 cc. of potassium permanganate solution (distinction from *allylin* which gives a violet crystalline precipitate and soon disappears) gives a yellow precipitate with 1 cc. of gold chloride solution (distinction from *apofesine* which gives a lemon yellow precipitate) imparts a white changing to a yellowish and finally greenish yellow coloration

on the addition of 2 drops of diluted hydrochloric acid, 2 drops of a 10 per cent sodium nitrate solution and on gradually mixing with a solution of 0.2 Gm. of beta naphthol in 10 cc. of a 10 per cent sodium hydroxide solution, the color increasing in intensity as the concentration of the beta naphthol becomes greater (distinction from the *anesthetics responding to the diazo reaction* Warren, L. E. The Identification of Some Local Anesthetics, *J. A. Pharm.* 4, 12, 512). Dissolve about 0.1 Gm. of metycaïne in 1 cc. of sulphuric acid, the solution is colorless (*readily carbonizable substances*). Dissolve about 0.5 Gm. of metycaïne in 50 cc. of water, separate portions of 5 cc. each, yield no turbidity with 1 cc. of diluted hydrochloric acid and 1 cc. of barium chloride solution (*sulphate*), no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Dry about 0.5 Gm. of metycaïne accurately weighed over sulphuric acid in a desiccator for forty-eight hours, the loss does not exceed 0.25 per cent. Incinerate about 0.5 Gm. of metycaïne accurately weighed, the residue is not more than 0.2 per cent. Transfer about 0.25 Gm. of metycaïne to a 400 cc. beaker, add 100 cc. of water, followed by the addition of 25 cc. of tenth normal silver nitrate solution and 10 cc. of nitric acid, boil with continuous stirring and allow to cool in a dark place. Collect the precipitate of silver chloride on a Gooch crucible, wash with nitric acid and water followed by alcohol and ether, finally dry to constant weight at 105 C. The amount of hydrogen chloride calculated from the silver chloride found corresponds to not less than 12 per cent nor more than 12.35 per cent calculated to the dried substance. Transfer about 0.5 Gm. of metycaïne accurately weighed to a suitable Squibb separatory funnel, add 50 cc. of water, followed by the addition of 5 cc. of ammonium water, extract with seven successive portions of chloroform, using 35 cc., 30 cc., 25 cc., 20 cc., 15 cc., 10 cc. and 10 cc. respectively, wash the combined chloroformic solution with 15 cc. of water, filter through a pledget of cotton and evaporate to a thick oil in a stream of warm air, expose over sulphuric acid in a partially exhausted desiccator, dissolve the oily residue in about 10 cc. of previously neutralized alcohol, warm slightly, add 10 cc. of tenth normal hydrochloric acid solution, followed by the addition of an equal volume of water, determine the excess of acid by titration with twentieth normal sodium hydroxide solution using methyl red as an indicator, the amount of tenth normal hydrochloric acid solution consumed corresponds to not less than 86.5 per cent nor more than 88 per cent benzoyl γ (2-methylpiperidino) propanol.

Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
RAYMOND HERTWIG, Secretary

BOOKLETS 'GENERAL COMMITTEE DECISIONS ON FOODS AND FOOD ADVERTISING' AND 'RULES AND REGULATIONS (REVISED)'

Copies of the November, 1933, editions of the booklets General Committee Decisions on Foods and Food Advertising including all decisions adopted by the Committee up to date of issue, and the revised 'Rules and Regulations' will be furnished without charge on request addressed to the Secretary.

NOT ACCEPTABLE

NUTRO A HIGHLY NOURISHING NUT AND GRAIN FOOD

The Nutraventa Company, Battle Creek, Mich., submitted to the Committee on Foods a cooked mixture of roasted peanuts, wheat gluten, and sodium chloride (proportions not known) called "Nutro A Highly Nourishing Nut and Grain Food."

Analysis (submitted by manufacturer) —

	per cent
Moisture	61.5
Ash	1.2
Fat (ether extract)	8.4
Protein (N \times 6.25)	17.1
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	11.0

Discussion of Label and Advertising—The label states that Nutro is 'A Healthful food' 'Good Food for Good Health' 'Nutro is a nut-grain food'.

Submitted advertising includes such claims as

The new health food prepared from choice nut meats and full cereal grains by a special process of intense cooking, 25 per cent more nourishing than meat, you may eat [it] to your heart's content and you will experience none of the harmful after effects caused by eating too much meat, you may eat all you want and still have no pimples or facial blemishes usually caused by over indulgence of your favorite meat, healthier than meat for it contains no poisonous bacteria, no uric acid, no ptomaine poison, it can't spoil, contains none of the tissue waste and uric acid found in meat, it is rich in vitamins, iron and all body building essentials and contains seven times as much lime as meat.

The advertising unjustifiably ascribes special health values to this ordinary peanut and wheat gluten mixture and falsely alleges that it is more nourishing and "healthier" than meat and that meat is harmful, producing "pimples or facial blemishes" containing "poisonous bacteria" uric acid and ptomaine poison." Meat is a wholesome food, just as wholesome as this product. It is incorrectly described as containing "choice nut meats and full cereal grains." "Full cereal grains" incorrectly imply the presence of whole grains. The product is not "rich in vitamins" (implying all the vitamins) or "all body-building essentials."

The company, in a letter of Aug 14, 1933 advises in a general way that new advertising will conform to requirements of the Committee and that it is not its "desire to put misleading advertising out to take advantage of the gullible and uninformed." The new label for the product, however carries the claims given above, which still indicate the intention of the company to promote the product as a special "health food." No one food provides or assures health or has special health values as implied by the designation "health food." Special "health food" advertising is thoroughly deceptive. No descriptive statement identifying the ingredients of the product accompanies the trade name, as required for accepted foods with fanciful trade names to prevent misleading advertising. The public is entitled to know the ingredients of the foods it consumes. The company did not respond to requests for copy of new advertising to demonstrate that former objectionable, deceptive advertising was no longer being used.

The company has ignored requests that it demonstrate that its present advertising complies with the requirements of the Committee for good advertising in the interest of the public as defined in the published Rules and Regulations and General Decisions of the Committee. The new label does not meet requirements for accepted food labels. This product will therefore not be listed among the Committee's accepted foods.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION. RAYMOND HERTWIG Secretary



CELLULOSE WAFERS

(SWEETENED WITH SACCHARIN)

Manufacturer—Chicago Dietetic Supply House, Inc., Chicago

Description—Wafers prepared from washed bran, commercially pure powdered cellulose mineral oil, India gum, sodium chloride, baking powder, sodium bicarbonate and saccharin (except when sold in states prohibiting the sale of saccharin in food).

Manufacture—Bran is washed with cold water until absence of starch is indicated by the iodine test. It is centrifuged to remove excess water and completely dried yielding coarse washed bran, which is ground and screened to produce fine washed bran.

The ingredients are mixed with the mineral oil in definite proportions. Boiling water is added to produce a soft dough which is rolled cut into wafers and lightly baked at moderate temperature until dry. The wafers are packed in wax paper in wax paper lined packages.

Analysis (submitted by manufacturer) —

	per cent
Moisture	3.4
Ash	4.4
Fat (essentially mineral oil) (ether extract)	28.8
Protein (N X 6.25)	4.0
Crude fiber	22.1
Available carbohydrates (calculated as starch—diastase method)	2.0
Unavailable carbohydrates other than crude fiber (by difference)	20.3
Calories—0.2 per gram 6 per ounce	

Claims of Manufacturer—For adding bulky indigestible residue to low carbohydrate diets.

- (a) ROSE OF TEXAS FLOUR (BLEACHED)
- (b) ROYAL FLOUR (BLEACHED)
- (c) SIN-RIVAL FLOUR (BLEACHED)

Manufacturer—Liberty Mills, San Antonio, Texas

Description—(a) and (b) Hard red winter wheat—blend of standard patent and first clear flours, bleached. (c) Hard red winter wheat first clear flour, bleached.

Manufacture—Selected wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, p 2210. Chosen flour streams, such as are commonly used in standard patent and first clear flours, are blended and bleached with nitrogen trichloride (one-ninth ounce per 196 pounds).

CHILOCCO BRAND WHITE TABLE SYRUP

Distributor—Oklahoma-Kansas Wholesale Grocery Company, Arkansas City, Ark.

Packer—D B Scully Syrup Company, Chicago

Description—Table syrup, corn syrup base (85 per cent) with rock candy syrup (15 per cent) flavored with vanilla and coumarin the same as the accepted D B Scully White Crystal Table Syrup (THE JOURNAL, April 15 1933, p 1174).

BEECH-NUT STRAINED APPLE SAUCE

Manufacturer—Beech-Nut Packing Company, Canajoharie, N Y

Description—Sieved apple sauce retaining in high degree the natural vitamin and mineral values.

Manufacture—Spitzenburg and Red Spä apples are thoroughly washed, quartered and cored, and the stem and blossom ends removed. Weighed quantities in an air-exhausted glass-lined vacuum kettle with a small quantity of water are cooked in their own steam for fifty minutes, strained, processed and packed as described for Beech-Nut Strained Carrots (THE JOURNAL, Nov 11, 1933, p 1562). The processing is at 100 C for thirty minutes. Precautions are taken that the product does not contain significant quantities of lead and arsenic from arsenical spray residues on the apples used.

Analysis (submitted by manufacturer) —

	per cent
Moisture	87.1
Total solids	12.9
Ash	0.2
Fat (ether extract)	0.2
Protein (N X 6.25)	0.2
Reducing sugars as invert	9.3
Sucrose (copper reduction method)	0.3
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	11.8

Calories—0.5 per gram 14 per ounce

Vitamins and Claims of Manufacturer—See Beech-Nut Strained Carrots (THE JOURNAL, Nov 11 1933, p 1562).

PLEE-ZING FREE RUNNING TABLE SALT PLEE-ZING TABLE SALT

WITH 1 PER CENT CALCIUM CARBONATE OR WITH
0.7 PER CENT MAGNESIUM CARBONATE

Distributor—Plee-Zing, Incorporated, Chicago

Packers—International Salt Company, New York
Morton Salt Company, Chicago

Description—A table salt containing 1 per cent added calcium carbonate or 0.7 per cent magnesium carbonate which tends to preserve its free running quality the same as International Free Running Salt (THE JOURNAL, July 2, 1932, p 34) and Morton's Free Running Salt (THE JOURNAL, May 14 1932 p 1745).

NATIONAL BRAND UNSWEETENED EVAPORATED MILK

Distributor—The National Tea Company, Chicago

Packer—Dean Milk Company, Chicago

Description—Canned unsweetened evaporated milk, the same as Dean's Quality Evaporated Milk (THE JOURNAL Aug 6, 1932 p 477).

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SATURDAY FEBRUARY 10 1934

INTERRELATIONS OF HORMONES AND VITAMINS

Biochemistry has directed attention to a growing number of substances which though present in or elaborated by the body in small amounts nevertheless may initiate striking changes. In activity they may outrank some of the most potent drugs such as still act on the body when they are administered in quantities as small as 0.3 mg. The potency of these types is such that measurements are being expressed in micrograms, that is thousandths of a milligram. The components of the internal secretions of the endocrine glands, often designated as hormones or autacoids, belong in this new category of superpotent substances as do the vitamins and the enzymes. Until recently knowledge of the structural chemistry of all these substances has been scanty, information as to the chemical mechanisms whereby they function in their varied specific ways is still slighter. When the chemical structure of each product is once firmly established, as it lately has been for vitamin C or ascorbic acid it will become possible and presumably customary to classify these substances according to their chemical make up.

For the present it is sometimes pointed out that vitamins as a class differ from hormones in that the former cannot be generated or synthesized by the animal organism. For its vitamins the body under normal conditions is dependent on extraneous sources, that is, food. The hormones may be endogenous as well as exogenous in origin. As hormones and vitamins have specific effects on the organism, the question has repeatedly been asked whether there is any interrelation between the two kinds of active substances. One answer is afforded by recent investigations of Aberle¹ at the Yale University School of Medicine. In common with earlier observers, she has noted the continued appearance of keratinized epithelial cells in the vaginal tract of several species that are subjected to a deficiency in vitamin A. This phenomenon is now familiar in the "cornified" vaginal smear.

One of the newly discovered gonotropic hormones that stimulate parts of the genital tract directly (rather than through the ovaries, as do the gonadotropic hormones) produces cells in the vaginas of spayed animals which are similar to those found in pregnancy. Both of these substances affect epithelial tissue in a definite manner but in each instance a different cell type is produced. Questions arise as to the interaction of the two: whether vitamin A and a gonotropic hormone each act directly and without regard to the presence or absence of the other or whether a gonotropic hormone can produce its characteristic action in an environment altered by the absence of vitamin A. Aberle has found that a placental extract standardized for its production of mucoid vaginal cells was incapable of producing any effect on the vaginal cells of rats subjected to A-avitaminosis. Control animals kept under identical environmental conditions and fed the same purified diet except for the addition of vitamin A invariably responded to the hormone by the production of mucoid vaginal cells. This shows that avitaminosis of A was responsible for preventing the characteristic action of a hormone. A unique interrelation of vitamin A and a gonotropic hormone has thus been established. Other instances in which avitaminosis of one sort or another interferes with the effectiveness of normal endocrine functions as expressed through hormone activity may be anticipated.

MENSTRUATION AND THE "SAFE PERIOD"

The biologic method of contraception, popularly known as the 'safe period' has been more or less generally discussed in newspapers and periodicals and is apparently the one technique short of complete abstinence that has thus far been free from criticism on religious and social grounds. From the point of view of medicine, psychology and esthetics there have been fairly well sustained criticisms against all the techniques thus far made available in various scientific works on the subject.

In this issue of THE JOURNAL (p. 452) Novak analyzes the scientific data offered in support of the idea that women with menstrual cycles approximating the four weekly type are not likely to conceive following exposures during a period up to eight days after menstruation begins and in the ten days preceding menstruation. To state the matter conversely, the maximum likelihood of conception is the period from the eighth or tenth to the eighteenth or twentieth day of the menstrual cycle with the maximum at about the twelfth to fourteenth days. In women with irregular cycles the problem is more difficult and less certain. The new evidence it would seem offers practical advice not only to those who wish to avoid conception but also to those who wish to overcome sterility, since it sets forth for them the optimal time in relationship to conception.

¹ Aberle, Sophie B. D. The Interrelation of a Gonotropic Hormone and Vitamin A. *Am. J. Physiol.* 106: 267 (Nov.) 1933.

Coincidentally with the publication of this article by Novak the *British Medical Journal* publishes the results of investigations by Wilfred Shaw,¹ who has made some interesting observations on this subject. The normal menstrual cycle is regarded as twenty-eight days, the first day of the period being considered the first day of the cycle. Dr Shaw studied the ovaries in thirty-six cases in which women with a twenty-eight day cycle were submitted to operation for various causes. In addition, he has collected forty-nine cases in which the uterus alone was removed. In twenty-one of the patients in whom the ovaries were examined, the uterus was studied histologically. In practically all of the cases examined for the presence of a ruptured follicle or a corpus luteum the evidence was clear that ovulation occurs on the fourteenth day of the menstrual cycle. There has been a belief among embryologists that ovulation can be provoked by coitus. Apparently most authorities are unwilling to accept this belief so far as it relates to the human being, although conceding its possibilities in animals in a lower scale.

The views of Novak, it seems, are in conflict with those of Shaw on the subject of anovulatory menstruation. Novak insists that sterility may at times be due to the fact that the woman who perhaps is menstruating normally and regularly and who is presumably normal in every other way is not giving off eggs. Shaw on the other hand, says

Much has been written in the last two years—in America—on so called anovular bleeding in women. It is not an exaggeration to say that almost all these publications are valueless with the evidence unreliable, discussion uncritical, and usually with the author's enthusiasm for the macaque's anovular bleeding outrunning his gynaecological discretion. Recently Novak has stated that, although he believes cyclical anovular bleeding in women to be more frequent than is generally believed he cannot yet produce the evidence. A more scientific method of approach would be first to produce the evidence and afterwards to judge the frequency of this form of haemorrhage.

Thus there is being developed scientific evidence to warrant the possibility that this method for the prevention of conception or birth control is sufficiently accurate to be dependable and at the same time psychologically, socially and esthetically sound. It calls obviously for a certain amount of civilized restraint. Conceding that complete abstinence is difficult to recommend and even more difficult to sustain the possibility of a brief period of abstinence should not be alarming. In view of the nature of the evidence now brought forward and rather well confirmed, it would seem to be desirable that large clinics especially interested in studying the prevention of conception might concentrate their efforts temporarily on a study of this method from all the different points of view that have been mentioned. The possibilities seem more promising than promoting the sale of various mechanical devices, chemical substances and other forms of intricate manipulation which have not met

any of the critical criterions that have been mentioned. The newer observations do not signify complete triumph. They do indicate the value of biologic and medical research and the necessity for further scientific study.

CONSERVATISM IN THE TREATMENT OF THROMBO-ANGIITIS OBLITERANS

The impression that the ultimate outcome in most cases of thrombo-angitis obliterans is the amputation of an extremity is rather prevalent. Indeed, the disease is described in some books as a progressive series of amputations. Many family physicians have thus come to believe that once the diagnosis is made a surgeon should be called to amputate the affected limb. That such an impression is erroneous is abundantly illustrated in the article by Samuels¹ in this issue of *THE JOURNAL*. In the last eight years he has treated by conservative methods more than 300 cases of thrombo-angitis obliterans and in only one was it necessary to amputate the leg. His percentage of amputation, therefore, is less than 1, whereas sponsors of other methods of treatment quote percentages many times larger. This article illustrates to what extent the gangrenous process may proceed and yet the life and limb be saved. In the conservative treatment of thrombo-angitis obliterans, attention to the minutest details are important. The affected limb must be maintained constantly in the horizontal position. Smoking must be prohibited. Injection of hypertonic sodium chloride solution intravenously should be started when the diagnosis is made and 300 cc given every other day until the gangrene and ulceration are healed. The dead tissue must be kept aseptic if possible and encouraged to slough. Pain should never serve as a valid excuse for amputation. Small doses of opiates may be necessary, but this is the exception. Sympathectomy and ganglionectomy, Samuels believes, have no place whatever in the treatment. The gangrene in thrombo-angitis obliterans is self limited and the only indication for amputation is total destruction of the foot, so that a weight-bearing stump is unattainable.

In doing physical examinations for peripheral arterial disease, the family physician should bear in mind that thrombo-angitis obliterans predominates in men between 18 and 45 years of age and rarely occurs in women and the victim is usually a smoker. Arteriosclerosis as a cause of arterial obstruction should be suspected in either men or women more than 45 years of age although if the patient also has diabetes he may be younger and the obstruction more extensive. Peripheral arterial obstruction should be suspected when there is fatigue of the lower extremities, coldness of the toes, burning in the sole of the foot after walking, and sharp pain in the buttock, which may simulate sciatica. Slight cyanosis of the toes may be observed, the nails

¹ Shaw, Wilfred. Ovulation and Menstruation. *Brit. M. J.* 1: 7 (Jan. 6) 1934.

¹ Samuels, S. S. Gangrene Due to Thrombo-Angitis Obliterans. *this issue* p. 436.

may be extremely brittle, and a difference may be noted in the hair growth. When the patient with both legs raised rapidly flexes and extends the feet, using the ankles as pivots, pallor of the plantar surface of the foot will soon be noted if there is arterial obstruction.

The diagnosis may be confirmed by the use of the oscillometer, an instrument that has been adapted to the use of general practitioners in conjunction with the sphygmomanometer. Conclusive signs of peripheral arterial obstruction are plantar ischemia, diminished temperature of the extremity and decreased amplitude of arterial pulses in the extremity as shown by the oscillometer. When complete health examinations include a survey of the extremities with reference to the condition of the arteries, many cases of incipient arterial disease will be recognized at a time when proper treatment will prevent the development of gangrene at some subsequent period.

EPIDEMIC MYALGIA, OR PLEURODYNIA

In 1856 and again in 1863 Finsen¹ in Iceland observed outbreaks of an epidemic disease, which he reported in 1874 as muscular rheumatism of the chest or pleurodynia. In the meantime a similar disease had been described in Norway by Daae² as an epidemic of acute muscular rheumatism spread by contagion. To Daae and then to Homann³ in Norway must be given credit for their early if not the first description in medical literature of this disease. In Norway the disease has been called the Bamle disease, from the place where the first case occurred. Daae's reports deal with 290 cases, all apparently transmitted by contact. A guest to a wedding came down with the disease and in a few days it appeared simultaneously in most of the homes of the other guests. The principal symptom was acute pain in the muscles of the chest, back and in some cases, the abdomen, with more or less marked febrile disturbances but with no indications of acute respiratory infection or of cutaneous eruption. The attack might last only two or three days. Relapses were common.

Since then the disease has been observed in other countries, including the United States, but the reports from this country show that the authors did not know anything about reports of outbreaks elsewhere. Dabney⁴ in 1888 described an outbreak in Virginia on the basis of the first twenty-nine cases, sixteen in students that came under his care. These cases all developed in the course of ten days. The sharp pain on inspiration or

movement gave rise to the term "devil's grip," which passed into popular use and even found its way into medical literature. Thirty-five years later a similar outbreak took place in the northeastern part of Virginia, which the newspapers called "devil's grip" and which is recorded by Payne and Armstrong⁵ as epidemic transient diaphragmatic spasm. Since then epidemics have been reported from New York,⁶ Philadelphia, Cape Cod⁷ and Tennessee.⁸ In a recent article, Small⁹ states that Dabney was the first to describe the disease and that the disease is not known outside this country. But epidemics have been recorded not only in Iceland and Norway¹¹ but also in England, Denmark, Sweden, Finland, Germany and Portugal. In Norway no less than 4,158 cases were reported in 1897.¹²

The latest and most extensive contribution to the description of the disease comes from Denmark. In 1930 Sylvest studied the disease on the Danish island of Bornholm, in some districts of which 10 per cent of the people were attacked. In current Danish literature the disease commonly is called "the Bornholm disease," but it has occurred elsewhere in Denmark, and 4,736 cases were reported to the health authorities in 1932. So far, knowledge of the disease has been based wholly on clinical observation. No reports have been published of postmortem examinations or of microscopic or bacteriologic study of the affected tissues. The clinical nosography, however, leaves hardly any doubt that the reports referred to in the foregoing deal with the same disease. In general the various epidemics seem to have been alike and to have differed from other epidemics. The epidemics occur almost exclusively in summer and early autumn, no age is exempt, though children between 5 and 15 years of age appear most susceptible, in adults the two sexes suffer alike. The disease seems to spread by contact but just how is not known. Insect transfer has not been established. Many authors, from Daae on, cite striking examples of spread by contact. Josephson,¹³ who describes a carefully studied outbreak on a training ship, tells that after a visit of the ship to an island several cases developed there, particularly in a restaurant frequented by the cadets. In families with several children, most of the children may be attacked, mildly or severely, at the same time. After a latent period of from two to four

² Samuels S. S. The Diagnosis of Incipient Arterial Disease in the Extremities. *Health Examiner* October 1933.

¹ Finsen, Jón. *Iagttagelser angaaende sygdomsforholdene i Island* Copenhagen 1874. There are also earlier records indicating the presence of this disease in Iceland outbreaks have occurred quite recently also.

² Daae A. Epidemien i Drangedal af akut muskelreumatisme udbredt ved smitte. *Norsk mag f lægevidensk* 2 408, 529 1872 4 551 1874.

³ Homann Christian. Om en i Kragerø krigedistrikt herskende smitsom fibersydom. *Norsk. mag f lægevidensk* 2 542 1872.

⁴ Dabney W. C. Account of an Epidemic Resembling Dengue Which Occurred In and Around Charlottesville and the University of Virginia in June 1888. *Am. J. M. Sc* 96 488 1888.

⁵ Payne G. C. and Armstrong Charles. Epidemic Transient Diaphragmatic Spasm. *J. A. M. A.* 81 746 (Sept. 1) 1923.

⁶ Hanger T. M. McCoy C. C. and Frantz A. M. An Epidemic of Mild Fever of Unknown Nature. *J. A. M. A.* 81 826 (Sept. 8) 1923.

⁷ Greene D. Epidemic Pleurodynia (?) *Arch. Pediat* 41 377 (May) 1924.

⁸ Torrey R. G. Epidemic Diaphragmatic Pleurodynia or Devil's Grip. *Am. J. M. Sc* 168 564 (Oct.) 1924.

⁹ Churchill T. S. Landis E. M. and Glusker S. D. An Epidemic of Undetermined Nature. *Dengue (?) J. A. M. A.* 87 821 (Sept. 11) 1926.

¹⁰ Wood R. B. An Epidemic of Acute Pleurodynia in Tennessee. *J. Tennessee M. A.* 18 255 (Jan.) 1926.

¹¹ Small J. C. Epidemic Pleurodynia in Cecil's Text Book of Medicine by American Authors ed 3, Philadelphia W. B. Saunders Company 1933.

¹² Backer A. Epidemien av akut muskelreumatisme i Norge mag f lægevidensk 11 1334 1896. Tjøtta T. and Salvesen H. A. En epidemien av Bamlesyke blandt kadetter. *Nordisk hygienisk tidsskrift* 4 243 1923.

¹³ Sylvest Ejnar. Den Bornholmske syge Myalgi epidemica. Copenhagen Levin and Munksgaard 1933.

¹⁴ Josephson Bertil. Myalgi acuta epidemica. *Svenska hsk tidning* 28 1578 1931.

days, pain on inspiration or other movements sets in abruptly in certain muscles, most frequently those in one or both hypogastric regions, or in the epigastrium, less frequently in the muscles of the chest, the back, the loins or the shoulders. The painful, aching muscles are tender on pressure. Sylvest particularly mentions that there may be definite, localized swelling and firmness in the affected muscles. When the muscles in the hypochondriac regions are involved, the upper abdominal reflex may disappear. On account of the pain on inspiration, breathing may be shallow and hurried. On walking, the patient may bend forward and toward the affected side. Hiccup may be present, suggesting involvement of the diaphragm. The attack is accompanied by comparatively mild febrile disturbances. The rule is that there are no pharyngeal or respiratory disturbances, no cutaneous eruptions, and "nothing abnormal in the internal organs." The only change in the blood is leukocytosis (with many eosinophils) in convalescence. The protozoan (*Plasmodium pleurodyniae*) described by Small¹⁴ could not be found by Wood, Sylvest or Josephson. The acute muscular pain may last from a few hours to twenty-four or more, but tenderness may remain for some time. Relapses are common (in one fourth of the cases, according to Sylvest), and one attack does not protect against a second attack later in all cases. In uncomplicated cases, recovery is usually prompt. Orchitis, otitis media, pneumonia and dry pleuritis may occur as complications. Petren¹⁵ reports twenty cases of orchitis in an outbreak of about 500 cases in Malmö, Sweden. In the diagnosis of the single case acute intra-abdominal conditions (especially when the pain is on the right side), acute coronary disease, influenza and herpes come into consideration, perhaps also dengue and pappataci (sandfly) fever where these diseases prevail. In the Malmö epidemic¹⁵ many patients were sent to hospitals as cases of appendicitis.

The true nature of the disease is unknown, and much remains to be done that may help to solve the problem. Examination of the affected muscular tissue by morphologic and microbiologic methods is still to be made. The question whether the disease spreads by direct contact or by insects demands close epidemiologic observation and perhaps also experimental investigation. In the meantime what shall the disease be called? Because it is epidemic and because muscular pain is the chief symptom, epidemic myalgia seems quite appropriate. The tenderness of the painful muscles, coupled with swelling at least in some cases, suggests an acute myositis, and if this proves to be the case on morphologic examination of suitable material epidemic myositis would be a still better name, pending the discovery of the cause of the infection.

¹⁴ Small J. C. A Protozoan Organism Within the Erythrocytes of Patients Suffering from Epidemic Pleurodynia (Devil's Grip). *Am J Hyg.* 168: 570 (Oct. 24) 1924.
¹⁵ Petren E. En i Sverige tidigare ej iakttagen infektion sjukdom. *Sver. Läkartidning* 28: 1620 1931.

Current Comment

BENZENE AS A CARDIAC AND VASOMOTOR POISON

Among the substances used in industry that carry serious hazards to health and life, benzene takes a more and more important place. In the rubber industry and in paints the properties of benzene as a solvent render its use extremely advantageous. But the volatility and toxicity of the substance render it, second only to lead, the most important of all modern industrial poisons. The effects of chronic benzene poisoning are well known: profound anemia due to destruction of red cells and injury to the hematopoietic system, hemorrhages due to decrease of clotting power, and loss of leukocytes with increase of liability to bacterial infection. In addition, acute poisoning by benzene vapor may induce convulsions. Now for the first time evidence has been brought forward by Dautrebande¹ showing that heart failure from ventricular fibrillation and collapse from paralysis of the vasomotor mechanism may also be induced by acute benzene poisoning. In his experiments Dautrebande has analyzed the problem of the acute effects of benzene on the circulation and has shown clearly that in addition to whatever influence benzene may have on the vasomotor centers it also exerts a paralyzing effect on the peripheral vasomotor apparatus, especially the nonstriated fibers in the walls of the smaller blood vessels. These observations throw the light of experiment on such fatalities as occur sometimes in painters who have used a benzene paint in a small unventilated chamber.

TRANSMISSIBLE LYMPHOMATOSIS (LYMPHATIC LEUKEMIA, LYMPHOSARCOMA) IN MICE

In mice, various forms of hyperplasia of the lymphocytes are not uncommon. Besides lymphocytic leukemia, neoplastic growths of lymphocytes, or lymphosarcoma, occur, frequently associated with blood involvement. These lymphocytic diseases in mice correspond closely to lymphatic leukemia and lymphosarcoma in man and certain other species. Furth, Seibold and Rathbone² recently published a report of their studies on the nature and transmissibility of the mouse disease. They conveniently designate all the forms of the disease as lymphomatosis. The disease is inoculable in healthy mice. Suspensions of lymphocytes from the blood or from lymphocytic tissue of lymphomatous mice are injected into the circulation or the subcutaneous tissue. In susceptible animals the same lymphocytes may produce leukemia or lymphosarcoma or both, depending on the place of inoculation and other variable factors. Apparently healthy mice vary in resistance to such inoculations. Roentgen radiation may destroy this

¹ Dautrebande L. La paralysie périphérique du système vasomoteur par le benzol. *Arch. internationales de pharmacol. et de therap.* 44: 394 1933, republished in lecture form in the *Yale Journal of Biology and Medicine* 6: 111 (Dec.) 1933.

² Furth Jacob, Seibold H. R. and Rathbone R. R. Experimental Studies on Lymphomatosis of Mice. *Am J Cancer* 10: 521 (Nov.) 1933.

resistance, which seems to depend in some degree on hereditary factors. The search for a filtrable agent to account for the transmissibility of lymphomatosis has been unsuccessful. Cell-free plasma does not transmit the disease. Destruction of the lymphocytes by methods that do not affect viruses of various sorts prevents transmission of lymphomatosis. In other words, transmission is dependent on the transfer of intact lymphocytes. In this respect lymphomatosis of mice is different from leukosis of chickens, which like certain other tumors in chickens is caused by filtrable agents. The lymphocytes that transmit lymphomatosis are not merely immature lymphocytes but lymphocytes that in some manner not now understood have acquired the power of continuous multiplication far beyond physiologic control. This demonstration of the malignant nature of the lymphocytes in mouse leukemia lends support to the view that lymphocytic leukemia and allied processes in man are neoplasms in the strict sense. Further results from the valuable work by Furth and his associates will be awaited with interest.

Association News

THE CLEVELAND SESSION

Railroad Transportation to Cleveland

Information has been received that the Central the New England, the Southwestern the Western and the Transcontinental passenger associations have granted a rate of one and one third fares for the benefit of members of the Association who will attend the annual session to be held in Cleveland June 11 to 15.

In order to secure the reduced rate it will be necessary for members to have a CERTIFICATE to be endorsed by the Secretary of the Association and validated by a representative of the railroads at the Registration Bureau. These CERTIFICATES must be secured from railroad ticket agents at the time tickets to Cleveland are purchased. The CERTIFICATES when properly certified by the Secretary of the Association and validated by the agent of the railroads will entitle the holders to purchase return tickets, over the same route traveled to Cleveland at one third the regular fare. The reduced rate cannot be secured without a properly certified and validated CERTIFICATE.

MEDICAL BROADCAST FOR THE WEEK

National Broadcasting Company

The American Medical Association broadcasts on a coast to coast network each Monday afternoon from 4 to 4:15, Central standard time (5 o'clock, Eastern standard time 3 o'clock Mountain standard time and 2 o'clock Pacific standard time). There will be no broadcast on February 12 but the program will be resumed on February 19.

Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45. The subject for Thursday February 15, is "The Modern Doctor." The speaker will be Dr. Walter L. Bierring, President-Elect of the American Medical Association.

Radio Talk from Station WBBM

The American Medical Association broadcasts on Tuesday mornings from 8:55 to 9 o'clock, Central standard time over Station WBBM (770 kilocycles or 389.4 meters). The subject for Tuesday February 13, is "The Health Examination."

Medical News

(THIS SECTION WILL CO-OPERATE BY SEND-
ING TO THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GEN-
ERAL INTEREST SUCH AS REFERENCE TO SOCIETY ACTIVITIES,
NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Society News—At a meeting of the Ouachita County Medical Society in Camden, December 7, Drs. Herman W. Hundling and Lee Vallette, Parmer, Little Rock, spoke on "Acute Conditions of the Abdomen" and "Electric Shock," respectively. The Sebastian County Medical Society was addressed, December 12, by Drs. William R. Brooksher, Fort Smith, on "Radium Therapy in Medicine: Its Functions and Application," and Herbert Moulton, "Mikulicz's Disease." Speakers before the Sevier County Medical Society at DeQueen in December were Drs. Francis Walter Carruthers and Robert Caldwell, Little Rock, on "Diagnosis and Treatment of Otitis myelitis" and "Eye Injuries," respectively. The Saline County Medical Society sponsored a tonsil clinic, December 14, as a part of the county school health program.

CALIFORNIA

Los Angeles County Hospital Starts Operation—With the admission of a group of patients to the obstetric service December 12 the "acute unit" of the new Los Angeles County General Hospital began functioning. Nineteen stories high the building was constructed at a cost of \$12,000,000. Its bed capacity is 3,500. The maternity service is on the eighth floor.

Diphtheria Immunization Campaign—The health units of San Jose and Palo Alto and the Santa Clara County Health Department are cooperating with the public health committee of the Santa Clara County Medical Society in a "physicians' diphtheria prevention campaign." Material is provided without cost and the physician is making a charge of \$1 for its administration. No fee is charged for children of parents unable to pay. This is an attempt to abolish free immunization clinics it was stated.

Society News—A recent meeting of the Santa Cruz County Medical Society was addressed in Watsonville by Dr. Merrill C. Mensor, San Francisco, on industrial injuries. Dr. Henry A. R. Krutzmann, San Francisco, spoke on hypertrophy of the prostate before the Solano County Medical Society, December 5. Speakers before the Stanislaus County Medical Society recently were Drs. John H. Woolsey and Earl H. Gray, Woodland, on "Lesions of the Colon" and "Radiologic Studies of Fractures," respectively. The Tulare County Medical Society was addressed among others, December 10, by Dr. Frederic C. Bost, San Francisco, on "Practical Considerations in Fracture Dislocations of the Ankle."

DISTRICT OF COLUMBIA

University News—Dr. Arthur J. Cramp, director Bureau of Investigation, American Medical Association, Chicago, gave the fifth lecture in the series sponsored by the Smith Reed Russell Society of George Washington University School of Medicine, January 11, on "Patent Medicine and the Public or Pink Pills and Panaceas." Charles J. Stucky, Ph.D., research assistant in chemistry, New York State Psychiatric Institute and Hospital, New York, has been named professor of biochemistry at Georgetown University School of Medicine.

Anniversary of Carlos Finlay—Exercises commemorating the one hundredth anniversary of the birth of Dr. Carlos J. Finlay, who first advanced the theory that mosquitoes were carriers of yellow fever, were held in the Cuban embassy, December 3, under the auspices of the Washington chapter of the Pan American Medical Association, with Dr. Manuel Marquez Sterling, envoy of the Cuban government, acting as host. The program included addresses by Dr. Sterling, Senor Don Luis M. de Irujo, Spanish charge d'affaires, Col. Roger Brooke of the medical department, U. S. Army, Dr. Leland O. Howard, Brig. Gen. Jefferson R. Kean and Dr. Victor R. Alfaro.

FLORIDA

Personal—Dr. Robert L. Hughes, Bartow, was recently appointed a member of the state board of health, succeeding Dr. Leland H. Dame, Inverness, who became health officer of the Inverness district. Dr. Jorge A. Trelles, Tampa, has been appointed Cuban consul.

Society News—At a meeting of the Escambia County Medical Society in Pensacola, December 5, Drs Russell A Hennessey and Alfred D Mason, Jr, Memphis Tenn, spoke on "Nonsurgical Relief of Prostatic Obstruction," and James S Speed, Memphis, "Fractures of the Elbow Joints"—Dr Rosco G Leland director, Bureau of Economics, American Medical Association, Chicago spoke on medical economics before the Duval County Medical Society, Jacksonville, December 13

Public Health Meeting—Dr James R McEachern, Tampa, was elected president of the Florida Public Health Association, December 6 at its annual meeting in St Petersburg Jacksonville has been designated the place for the next annual session Speakers included the following

Dr Walter T Harrison U S Public Health Service Diphtheria Prophylaxis
Dr Estella Ford Warner, U S Public Health Service Child Hygiene
Carl E Buck Dr PH, New York American Public Health Association, American Conservation
Henry F Vaughan Dr PH, Detroit health commissioner Preventive Medicine from the Family Physician

ILLINOIS

Hospital News—Contract has been let for the construction of twenty one buildings at the Manteno State Hospital at an estimated cost of \$1,161,608 The new buildings will add 1700 beds to the capacity of the hospital, it was reported

Society News—At a meeting of the Stephenson County Medical Society in Freeport, February 12, the speakers will be Drs Harold S Diehl, Minneapolis, and Hugh Cabot Rochester, Minn on 'The Common Cold' and 'An Historical Survey of the Development of Operations for Prostate Obstruction' respectively—Speakers before the LaSalle County Medical Society in Streator, January 18, were Drs Carl B Davis and Frederick H Falls, Chicago, on "Anatomy, Symptoms and Treatment of Cervical Rib" and 'Premature Detachment of the Normally Implanted Placenta,' respectively—Dr Herman L Kretschmer, Chicago, gave a paper before the Peoria City Medical Society, January 16 on 'Modern Treatment of Prostatic Obstruction'—Dr Robert H Woodruff was among the speakers before the Sangamon County Medical Society in Springfield January 4, on "The Doctor and Vital Statistics"—Dr Thomas B Knox, Quincy addressed the Madison County Medical Society, Edwardsville, January 9 on 'The Doctor in the Medical Care of the Unemployed'

Chicago

Personal—Dr Eugene J Chesrow was decorated with the Order of the Crown of Italy, December 21 in recognition of his benevolent and charitable work among the Italians' of the city

Discussion on Medical Education—The General Trend of Medical Education and Practice will be discussed at a meeting of the Chicago Medical Society, February 14 Speakers will be Drs Walter L Bierring Des Moines, Iowa President Elect, American Medical Association Charles B Wright, associate professor of medicine University of Minnesota Medical School, Dean Lewis Baltimore and John H J Upham, Columbus Ohio, President and chairman of the Board of Trustees, American Medical Association, respectively Members of the faculty of Loyola University School of Medicine presented the program at the society's meeting February 7 Speakers included Drs Louis D Moorhead dean, Italo T Volini head of the department of medicine, Thomas P Foley clinical professor of medicine, Ralph C Sullivan, clinical professor of surgery, and Fred M Drennan clinical professor of medicine The society will not hold a meeting February 21

INDIANA

Cancer Meeting—Cancer was the theme of a special session in Shelbyville December 19 sponsored by several county medical societies, the Indiana University School of Medicine and a committee representing the American Society for the Control of Cancer The societies cooperating were for the counties of Shelby, Hancock Bartholomew Johnson and Rush Speakers included Drs Willis D Gatch dean of the medical school and Thurman B Rice of the state board of health In addition to talks the program consisted of motion pictures and an exhibit of specimens

Personal—Dr Max M Gutlin Bluffton has been appointed health officer of Wells County, succeeding Dr Francis M Dickson—Dr William O Hildebrand Topeka was named president of the Northeastern Indiana Academy of Medicine

December 21—Dr William D Weis, Hammond, has been named health officer of Lake County, succeeding Dr John W Iddings, Crown Point—Dr James B Ellingwood Fortville has been named health officer of Hancock County, succeeding Dr James R Woods Jr, Greenfield—Dr Jesse Benz, Marengo, has been appointed health officer of Crawford County, succeeding Dr Novy E Gobbel English

New Dental Building—The new building of the Indiana University School of Dentistry, Indianapolis, was dedicated, January 8 in a ceremony marking the fifty-fifth anniversary of the school Speakers were Governor Paul V McNutt William Lowe Bryan, LL D president of the university James B Carr, DDS, president, state board of dental examiners, Ezra E Voyles, DDS president Indiana State Dental Association, Mr James W Fesler, president, board of trustees, Dr Willis D Gatch dean Indiana University School of Medicine, and Frederic R Henshaw DDS, dean of the dental school The dedicatory address was given by Charles N Johnson, DDS, Chicago, and Frank A Hamilton, DDS president of the alumni association of the university, presided

IOWA

Society News—The Carroll County Medical Society was addressed in Carroll, December 6 by Drs Roy L Crowder and Robert H McBride Sioux City, on 'Birth Injuries' and 'Diseases of the New-Born,' respectively—Dr James E Whitmire Sumner discussed appendicitis before the Buchanan County Medical Society in Independence, December 7—At a meeting of the Johnson County Medical Society in Iowa City December 6 Dr Oscar H Plant spoke on "Effect of Opium and Its Derivatives on the Muscular Activities of the Alimentary Canal"—The Four County District Medical Society (Buena Vista, Cherokee Ida and Plymouth) was addressed, December 14, in Cherokee among others by Dr Martin J Joynt LeMars, on 'Treatment of Acute Middle Ear Disease'—Dr Walter A Fansler Minneapolis addressed the Linn County Medical Society, Cedar Rapids, January 11, on "The Physician's Responsibility in Rectal Carcinoma" He also conducted a clinic—Dr Walter A W Kirch Des Moines, spoke on Cleft Palate and Harelip among others, January 30, before the Des Moines Academy of Medicine and Polk County Medical Society

KANSAS

Physician Honored—At a meeting of the Anderson County Medical Society in Garnett December 27 Dr James A Milligan was honored in recognition of his fifty years service in the practice of medicine On behalf of the society, Dr James W Helton, Colony, president presented Dr Milligan with an upholstered chair Dr Louie F Barney Kansas City, reviewed the progress of medicine during the last fifty years, and Dr John F Hassig Kansas City secretary, Kansas Medical Society, extended greetings from the society Dr Joseph R Henning, Westphalia was elected president to succeed Dr Helton

Society News—The Sedgwick County Medical Society will be addressed February 20, by Drs Andrew Allen Olson and Frank L Mencham on 'Allergy and Its Relation to General Medicine' and 'The Evolution of Infant Feeding' respectively The society was addressed February 6 by Drs Laurence S Nelson Salina, on 'Management of the Hypertrophied Prostate,' and Porter D Brown Salina 'Narcosis During Labor and Management of the Posterior Occiput'—The Allen County Medical Society was addressed in Iola, December 15 by Drs Frank Lenski Jr and James T Reid on liver abscess and ectopic pregnancy—Dr Arthur E Hertzler Halstead, was the principal speaker before the Decatur-Norton Medical Society in Norton Nov 7, 1933 on 'General Principles in the Diagnosis of Diseases of the Breast'—At a meeting of the Ford County Medical Society in Fort Dodge, December 13 Dr Erastus S Edgerton, Wichita, spoke on 'Diseases of the Biliary Tract'—Dr Z Hosea Snyder Greenleaf presented a paper on 'Treatment of Varicose Ulcers' before the Washington County Medical Society in Washington City December 12—At a meeting of the Southeast Kansas Medical Society in Fort Scott, December 15 the speakers were Drs Ira Fulton Jones on 'Uterine Hemorrhage Its Diagnosis and Treatment' Arthur F Hoge "Management of Cranio cerebral Injuries," and Frederick H Krock Surgical Treatment of Tuberculosis All were from Fort Smith, Ark In addition Dr Thomas G Orr Kansas City Mo discussed the Treatment of Peritonitis

KENTUCKY

Bills Introduced—H 207 proposes to add to the causes for divorce insanity of either spouse, existing for five years preceding the institution of the suit. H 388 proposes to forbid the possession or sale of marijuana except on the prescription of a licensed physician. S 157 and H 318, to amend the pharmacy practice act, propose to discontinue the registration of assistant pharmacists. Assistant pharmacists who are now registered may be, until October, 1938, examined for registration as pharmacists.

Society News—The Bourbon County Medical Society was host to an extension course sponsored by the Kentucky State Medical Association in Paris, January 18. Dr Frank P. Strickler, Louisville, spoke on fracture of the spine and on goiter, and Dr Virgil E. Simpson, Louisville on anemias and vitamins. Dr Owsley Grant addressed the Jefferson County Medical Society, January 8, on intravenous urography. Drs Roy G. Spurling and Franklin Jelsma presented a paper on tumors of the brain before the society, January 22. Dr Malcolm D. Thompson, Louisville, addressed the Davies County Medical Society, Owensboro, November 28 on 'Local Treatment of Wounds'.

MARYLAND

Tularemia—Two cases of tularemia were recently reported to the Baltimore Health Department. Eleven cases, one of which was fatal, were reported in 1933. In 1931 the same number was reported, with three fatalities.

Dohme Lecture—Harold C. Urey, Ph.D., associate professor of chemistry, Columbia University, New York, delivered the second lecture under the Dohme lecture series for 1933-1934 at Johns Hopkins University, January 12 on "Some Differences in the Thermodynamic Properties of the Hydrogen Isotopes." Dr Urey was associate in chemistry at Johns Hopkins from 1924 to 1929.

Dr. Austrian Honored—Dr. Charles R. Austrian, associate professor of medicine, Johns Hopkins University School of Medicine, Baltimore, was presented with the gold medal of the Phi Lambda Kappa medical fraternity at its annual convention in Washington, D. C., January 1. The medal is awarded annually to the 'Jewish physician considered as having contributed most to medical science in the preceding year.' The fraternity was founded at the University of Pennsylvania School of Medicine in 1907 and now has thirty-eight undergraduate chapters at universities throughout the country and fourteen alumni clubs.

MASSACHUSETTS

Bill Introduced—H 919 proposes to establish under the state department of health a system of clinics to which persons arrested for intoxication may be committed for treatment.

Personal—Dr. Douglas A. Thom, director, division of mental hygiene, state department of mental diseases, was elected president of the Boston School of Occupational Therapy, December 11, succeeding the late Dr. George M. Kline.

State Society Sponsors Extension Courses—The Massachusetts Medical Society has inaugurated a series of extension courses in twenty-four centers, from Cape Cod to the Berkshires. The faculty giving the courses is composed of staff members of Boston University, Tufts College and Harvard medical schools, and other physicians. A registration fee of \$5 is charged for the series of ten sessions, and the instructors receive no remuneration except the payment of their expenses. Since the state society has adopted this program, the Harvard Medical School has discontinued its extension courses in the Massachusetts area.

Richardson Chair in Obstetrics—The William Lambert Richardson Professorship of Obstetrics has been created at Harvard Medical School under the will of the late Dr. Richardson, former professor of obstetrics and dean of the school. Dr. Richardson's will provides for a gift of \$100,000 to the president and fellows of Harvard College to endow a professorship of obstetrics, and the Harvard Corporation voted to name the chair in his honor. Dr. Richardson also bequeathed \$40,000 to establish the Jeffrey Richardson Fellowship in the medical school, the income to be awarded each year by the faculty of medicine to some deserving medical student who wishes to continue his studies after graduation. Dr. Richardson graduated from Harvard College in 1864 and from Harvard Medical School in 1867. From 1871 to 1907 he served as a member of the teaching staff of the medical school acting as dean from 1893 to 1907. From 1909 to 1915 he was a mem-

ber of the board of overseers. The first incumbent of the new professorship will be named at a meeting of the board of overseers, February 26.

MICHIGAN

Society News—At a meeting of the Calhoun County Medical Society, February 6, Dr. Wilkie Leonard Howard Battle Creek, discussed "Modern Treatment of Tuberculosis." Dr. Jean P. Pratt, Detroit, addressed the Gratiot Isabella Chère Counties Medical Society, December 7, on "Complications of Pregnancy and Labor."

Dr. Fulton to Give Beaumont Lectures—Dr. John Fulton, Sterling professor of physiology, Yale University School of Medicine, New Haven, will deliver the Beaumont lectures, sponsored by the Beaumont Foundation of the Wayne County Medical Society, February 19-20, at the Institute of Arts, Detroit. Three lectures instead of two will comprise the series this year. The subject will be "Studies of the Function of the Cerebral Cortex of Primates."

Tuberculosis Campaign—January 22 marked the opening of a campaign against tuberculosis to be carried on throughout the year, according to *Detroit Medical News*, bulletin of the Wayne County Medical Society. Dr. Henry C. Swann, Chicago, was a speaker in a symposium on tuberculosis given before the society, his subject was "The Pathogenesis of Childhood Tuberculosis." In addition to special programs for physicians, monthly talks for the public and school health lecture feature this year will be an effort to detect early cases by tuberculin testing all contact children and following up systematically the positive reactors.

MISSISSIPPI

Bill Introduced—H 251 proposes to create a board of cosmetic therapy and to regulate the practice of cosmetic therapy.

Personal—Wilbur F. Potter, Ph.D., assistant professor of physiology and pharmacology, University of Georgia Medical Department, Augusta, will direct the course in physiology at the University of Mississippi School of Medicine during the coming year.

Society News—The East Mississippi Medical Society was addressed in Meridian, December 21, by Drs. Edward C. Parker, Gulfport, and William Krauss Meridian, on heart surgery and hematology, respectively. Dr. John W. D. Dick, Natchez, also spoke. At a meeting of the Issaquena Sharkey Warren Counties Medical Society in Vicksburg, December 12, the speakers included Dr. Oscar W. Bethea, New Orleans, on physical diagnosis. Speakers before the Northeast Mississippi Thirteen Counties Medical Society in Tupelo, December 19, were Drs. James W. Lipscomb, Jr., Columbus, postoperative complications and their management, Thomas B. Sellers, New Orleans, neglected gynecologic conditions amenable to office treatment, James P. Ward, Aberdeen, sodium amylal in surgery, and Luther L. McDougal, Booneville, proper care of the insane. The meeting of the South Mississippi Medical Society in Hattiesburg, December 14, was devoted to a discussion of fractures, the speakers were Drs. Joseph W. Stringer, Stringer, Clinton, H. Ramsay, Theophilus E. Ross, Jr., Hattiesburg, and James S. Speed, Memphis, Tenn. At a meeting of the Tri-County Medical Society in Brookhaven, December 12, Drs. Edward C. Parker, Gulfport, spoke on wounds of the heart and John W. Wilson, Monticello, suggestions for improvement of the society.

NEVADA

State Board Reciprocity—The Nevada State Board of Medical Examiners announces that reciprocal relations were established, January 24, with the Alaska Board of Medical Examiners.

NEW JERSEY

Hospital News—A new six-story building with a capacity of 428 beds was recently opened at the Lakeland Sanatorium, Grenloch. This gives the hospital a capacity of about 700 beds.

Society News—Dr. Dan S. Renner, Skillman, among others, addressed the Cumberland County Medical Society at Vineland, in January, on "Sterilization of Mental Defectives." Dr. Lay Martin, Baltimore, addressed the Morris County Medical Society, December 14, at the New Jersey State Hospital, Greystone Park, on "Recent Trends in Investigations of Allergy and Immunity and Their Relation to Medicine." A symposium on peptic ulcer was presented before the Union

County Medical Society, Summit, December 13, by Drs Burrill B Crohn, Albert A Berg and Samuel Goldfarb all of New York.

Bill Introduced—S 73, to amend the osteopathic practice act, proposes (1) to permit persons now holding licenses to practice osteopathy to practice physiotherapy and obstetrics and to administer anesthetics, antiseptics, anodynes, vaccines, antitoxins, germicides, parasitocides, narcotics and antidotes for poisoning, (2) to denominate the practice of osteopathy as the practice of osteopathic medicine and (3) to authorize the examining and licensing of osteopaths to practice surgery. An osteopath desiring to practice surgery must in addition to his osteopathic studies, have served for two years as an intern in a hospital or must have completed a postgraduate course of two years "in a reputable school or college of osteopathy or medicine involving a thorough and intensive study of the subject of surgery."

NEW MEXICO

Meningitis Among Indians—The *Chicago Tribune* January 28, reported that eight Navajo Indians had died on the reservation near the Colorado line of spinal meningitis.

NEW YORK

Bills Introduced—A 364 proposes to prohibit any experimentation or investigation on a living dog. S 297 and A 324 propose to permit any corporation organized under the membership corporations law of the state to establish, maintain and operate, subject to the approval of the superintendent of insurance, a nonprofit plan to provide hospital care to its members. S 336, to amend the law prohibiting the admittance of unvaccinated children to schools in cities of 50,000 or more inhabitants proposes that an unvaccinated child shall be admitted to school on the recommendation of the city board of health or such other board, commission or officers of such city having jurisdiction of the enforcement of this law. A 289 to amend the workmen's compensation act, proposes, in effect, to permit an injured employee to select his own physician and to make the employer liable for his fees. A 316 proposes to create a board of barber examiners and to regulate the practice of barbering. A 296 proposes to accord to hospitals, nurses and physicians caring for or treating a person injured through the negligence of another, liens on all rights of action, claims, judgments or settlements accruing to the injured person or his representative by reason of such injuries. A 325 proposes to create a board of hair dressers and cosmetologists and to regulate the practice of hair dressing and cosmetology. S 304 and A 327 propose that, when an unidentified corpse is found the police shall deliver it to the person having lawful control and management of the nearest public general hospital maintained by the county, who may order the performance of an autopsy unless objection is made by the next of kin within forty-eight hours after death. S 373 proposes to prohibit any hospital supported wholly or partly at public expense from charging any fee for medical, dental or pharmaceutical services rendered while operating a clinic to which the public is invited. S 374 proposes to establish in each public welfare district a central bureau to which persons seeking medical, surgical or other treatment in clinics may apply. This bureau after investigation, is to issue a permit to the applicant entitling him to treatment by a clinic located in the hospital which is nearest the place of his residence. A 410 to amend the workmen's compensation act, proposes in effect to make compensable all occupational diseases arising out of any employment covered by the act. A 415 to amend the pharmacy practice act, proposes, among other things (1) to define a pharmacy as 'any place registered by the board in which drugs, chemicals medicines, prescriptions or poisons are possessed for the purpose of compounding dispensing or retailing or in which drugs chemicals medicines prescriptions or poisons are compounded dispensed or retailed or in which such drugs chemicals medicines prescriptions or poisons are by advertising or otherwise offered for sale at retail,' and (2) to provide that every pharmacy shall be under the personal management of a duly licensed and registered pharmacist. A 417, to amend the pharmacy practice act proposes (1) that a drug shall be deemed to be misbranded within the meaning of the act if its package fails to bear a statement of the percentage contained therein by quantity of barbituric acid and (2) that the act shall not apply to the manufacture and sale of proprietary medicines except those containing poisons deleterious and/or habit forming drugs and chemicals. A 529 proposes to make it unlawful for any person to sell any drug medicine chemical tonic or dental or pharmaceutical preparation including lotions for the care or other treatment of the skin and hair which does not have affixed on the container a label stating the name of the substance and the name and quan-

tity of each ingredient. A 507 proposes to forbid the employment of nurses in any state, county or city hospital or in any hospital supported in whole or in part by public funds for more than eight hours in any one day. A 489 and S 462 propose to accord hospitals treating persons injured through the negligence of other persons, liens on all rights of actions, claims judgments or settlements accruing to the injured persons by reason of their injuries. A 485, to amend the workmen's compensation act, proposes to make compensable dermatitis (venenata) acquired in "any process involving the use of or direct contact with acids, alkalis, acids or oil, or with brick, cement, lime, concrete or mortar capable of causing dermatitis (venenata)." S 450, to amend those provisions of the medical practice act provisions with respect to osteopathy, proposes (1) to denominate osteopaths as osteopathic physicians, and (2) to provide that a license to practice osteopathy shall not entitle the holder thereof to perform any surgical operation involving incision for the opening of a natural body cavity for the removal of cancer or other tumor, for the amputation of an extremity or an appendage, or for the removal of any gland or organ, or part thereof, of the human body, nor shall such license permit the holder thereof to administer drugs except narcotics, anesthetics, antiseptics, vaccines and antitoxins."

New York City

Fifth Harvey Lecture—Dr Everts A Graham, Bryn professor of surgery, Washington University School of Medicine will deliver the fifth lecture of the Harvey Society at the New York Academy of Medicine, February 15. His subject will be 'Clinical Application of Some Recent Knowledge of the Biliary Tract and of the Pancreas.' Edward A Doisy, Ph.D., professor of biologic chemistry St Louis University School of Medicine, delivered the fourth lecture, January 18 on "The Estrogenic Substances."

Personal—Dr Charles H Nammack has been appointed director of the fourth medical division of Bellevue Hospital succeeding Dr Alexander Lambert.—Dr Robert F Loeb associate professor of medicine Columbia University College of Physicians and Surgeons, recently gave a series of lectures at the School of Tropical Medicine, San Juan Puerto Rico on 'Edema and Its Treatment' and 'Dehydration and Shock with Particular Reference to Adrenal Insufficiency.'—Assistants of Dr William Hallock Park, director of laboratories New York City Department of Health, observed his seventieth birthday, December 30 by presenting to him a bronze bas relief plaque of himself. Dr Shirley W Wynne, retiring health commissioner, made the presentation at a ceremony at Willard Parker Hospital.—Dr Karl Landsteiner of the Rockefeller Institute for Medical Research has been awarded a gold medal by the Dutch Red Cross Society for his work on blood groups.—Dr Douglas Quick addressed the First District Dental Society at the New York Academy of Medicine, January 3 on 'Correlation of Clinical, Roentgenological and Pathological Findings in the Diagnosis of Oral Lesions.'—Dr William M Genthner has been appointed assistant professor of hygiene and preventive medicine at Brooklyn Polytechnic Institute.

Society for Prevention of Asphyxial Death—The second annual conference of the Society for Prevention of Asphyxial Death will be held at the Hotel Biltmore, February 19-20. The subject will be approached from three angles: research, instruction and practice. Among the speakers will be Drs Chevalier Jackson, Philadelphia, Harrison S Martland Newark, N J, Royd R Sayers of the U S Public Health Service, Washington, D C, Leon A Fox of the U S Army Medical Corps, Ernest W Brown of the U S Navy, Pol N Coryllos, Charles Norris Henry Hall Forbes, James J Walsh and Horatio B Williams. At an evening session Dr Wendell C Phillips former president of the American Medical Association will discuss asphyxia as a problem of medical education and Col F L Devereux will demonstrate the use of sound pictures as a teaching medium. A dinner will be held the second evening in memory of the late Dr Joseph O Dwyer who has been called a pioneer in this field. There will be scientific and technical exhibits dealing with prevention of asphyxial deaths. Among the exhibitors in the former will be Dr Martland, who will show charts, graphs models, photographs gross and microscopic pathologic specimens, Alexander O Gettler, Ph.D. chief city toxicologist of New York, the chloride test for submersion and chemical determination of carbon monoxide poisoning the American Telephone and Telegraph Company work undertaken by this firm on electrical shock Yale University, New York Post-Graduate Hospital and other medical groups. There will be also an exhibit of approved apparatus used in the treatment and prevention of asphyxia.

OHIO

Annual Banquet—The Mahoning County Medical Society held its annual banquet at the Youngstown Club, Thursday, February 1, with Dr. Morris Fishbein, Chicago, editor of *THE JOURNAL*, as the guest speaker. Dr. Fishbein's subject was "Changes in the Nature of Medical Practice."

Public Health Lecture by Dr. Doull—Another lecture will be added to the series for the public presented by the Cleveland Academy of Medicine March 18, when Dr. James A. Doull, professor of hygiene and public health, Western Reserve University School of Medicine, will speak on "Leprosy in the Past and Present." Dr. Doull has recently returned from a five months visit to the Philippine Islands where he made an epidemiologic study under the auspices of the Leonard Wood Memorial for the eradication of leprosy. His principal project was a census and examination of the inhabitants of a small island Cordova with a population of about 6,000. The incidence of leprosy was found to be about 165 per thousand of population. At the second health lecture January 14 the speaker Dr. William F. Bruner agreed to answer questions from the audience. It was stipulated that the questions must be written must not be requests for diagnosis and must be of general interest. More than 150 were submitted, of which 50 were answered. Dr. Bruner lectured on care of the eyes.

PENNSYLVANIA

University News—Dr. Clayton W. Greene, associate professor of medicine, University of Buffalo School of Medicine, delivered a lecture at the Pittsburgh Academy of Medicine, February 7, under the auspices of the University of Pittsburgh on "Present Conception as to the Physiology of the Adrenals Together with its Application to the Treatment of Addison's Disease."

Philadelphia

Scores Made Ill by Poison on Pastry—A baker and about 200 of his customers became violently ill from eating pies that had been sprinkled with a mixture of rat poison with sugar and corn meal recently in the Port Richmond district of Philadelphia. Investigation by representatives of the state and city health departments disclosed that the baker had purchased a supply of corn meal and flour from a grocery store at a receiver's sale. When the materials bought by the baker were loaded a bag in which poison and sugar had been mixed with corn meal to kill rats was accidentally included. Only one person required hospital treatment. The baker was absolved of blame.

Society News—Dr. Edward H. Hatton, Chicago, addressed the Philadelphia County Medical Society, February 14 on "Current Trends in Oral Focal Infection."—Drs. William P. Healy, New York and Frederick C. Irving, Boston, addressed the Obstetrical Society of Philadelphia February 1 on "Experience with Radiation Therapy in Carcinoma of the Cervix" and Braxton Hicks Version" respectively.—Dr. John T. Murphy, Toledo, Ohio, addressed the Philadelphia Roentgen Ray Society, February 1 on "Bone Tumors."—The Aid Association of the Philadelphia County Medical Society distributed \$7,100 in 1933 to needy physicians and their families.

RHODE ISLAND

Bills Introduced—H. 599 proposes that every non-fireproof building used as a hospital or asylum shall be equipped with a system of automatic sprinklers installed in accordance with the rules and regulations of the National Board of Fire Underwriters or the National Fire Protection Association. H. 597 to amend the pharmacy practice act proposes to authorize the state board of pharmacy to register on or before June 30, as a registered pharmacist, every person then registered as an assistant pharmacist.

SOUTH CAROLINA

Changes in State Medical Board—Dr. Joseph T. Taylor, Adams Run, has resigned from the State Board of Medical Examiners because of his appointment as a member of the Sanitary and Drainage Commission of Charleston County. Dr. Josiah S. Matthews, Denmark, was elected president of the board at a meeting November 13.

Health Projects Under Emergency Program—Dr. James A. Hayne, Columbia, state health officer, has been designated by the U. S. Public Health Service to supervise a program of malaria control and other sanitation projects under the Civil Works Administration. The state has been divided into nine districts and numerous local projects have been approved.

Bills Introduced—H. 1345 proposes to make it unlawful for any person other than a registered pharmacist to sell any drugs, medicine or medicinal chemicals included in the United States Pharmacopoeia or the National Formulary. This proposed law, however, is not to apply to persons selling such preparations more than 3 miles from the corporate limits of the nearest city or town. H. 1344 proposes to prohibit the use of any signs or advertising in connection with any store that would indicate that drugs are sold there unless the store is owned by a licensed pharmacist or unless a licensed pharmacist is employed there. This act, however, is not to apply to any store located at a greater distance than three miles from the limits of a city or town in which there is a licensed pharmacist.

Society News—At the annual meeting and banquet of the Marlboro County Medical Society in Bennettsville, January 12, scientific addresses were presented by Drs. John Shelton Horsley, Richmond, on "Cancer of the Colon and Rectum," Beverly R. Tucker, Richmond, "Lancephalitis," Wilbur C. Davison, Durham, N. C., "Lung Abscess," and Archibald Johnston, Buist, Charleston, "Endocrinology in Its Relationship to the Female Generative Organs." Dr. Robert E. Abell, Chester, president, South Carolina Medical Association, discussed problems of the state society and Dr. Edgar A. Hines, Seneca, secretary, the federal emergency relief program.—Dr. Victor H. Bassett, Savannah, Ga., addressed the Medical History Club of Charleston, January 4, on the early history of the Georgia Medical Society.

VIRGINIA

Bill Introduced—A bill introduced in the House of Delegates by Mr. Witten, and referred to the committee on general laws, proposes to repeal the laws relating to narcotic drugs and to enact the uniform narcotic act. A bill introduced in the House of Delegates by Mr. Hobson, and referred to the committee on asylums and prisons, proposes to provide for the operation of a state sanatorium for inebriates. Apparently any person under 30 years of age who has been intoxicated not less than three times within any period of three months can be committed to this institution for treatment. A bill introduced in the House of Delegates, January 19 by Mr. Moffett, and referred to the committee on asylums and prisons, proposes a procedure whereby persons afflicted with insanity, epilepsy or feeble-mindedness may, on the recommendation of a lunacy commission, consent, through their proper representatives, to eugenic sterilization, the operation to be performed at the expense of the state. If a person brought before a lunacy commission and found to be afflicted with insanity, epilepsy or feeble-mindedness refuses to consent to sterilization, the commission may commit him to a state hospital for the insane where, presumably, his aseualization can be effected by means of the existing sterilization law. A bill introduced in the House of Delegates by Mr. Moss, January 25 and referred to the committee on asylums and prisons, proposes to make it unlawful for any person to fail to pay a bill for hospital care obtained by fraudulent misrepresentation as to ability and intent to pay for it. A bill introduced in the House of Delegates by Mr. Witten, January 25, and referred to the committee on asylums and prisons, proposes that interns for the state hospitals shall be selected by a board composed of the superintendents of the state hospitals and a physician member of the general board of directors for the management of the state hospitals for the insane and a psychiatrist in private practice, the latter two to be appointed by the general board. A bill introduced in the House of Delegates by Mr. Fleet, January 26 and referred to the committee on general laws, proposes to create a state board of cosmetic examiners and to regulate the practice of the cosmetic art.

WASHINGTON

Society News—Dr. Roscoe C. Webb, Minneapolis, addressed the King County Medical Society, Seattle, January 15, on "Emergency Treatment of Fractures of the Upper and Lower Extremities." Drs. Brien T. King and Virgil K. Hancock, addressed the society, February 5, on "Hyperparathyroidism and Treatment of Infections by Irradiated Blood Transfusions," respectively. The King County Medical and Dental societies held their annual joint meeting in Seattle, January 2, when Dr. Erval R. Coffey, state director of health, spoke on "Proposed Changes in the Federal Food and Drug Act," Drs. R. H. Somers and Glenn N. Rotton and Jennie I. Rowntree, Ph.D., "Possibilities of Improving Dental Structures," and Herbert C. Miller, D.D.S., Portland, Ore., "Better Service Through Professional Cooperation."

WISCONSIN

Society News—Dr Carl E. Badgley, Ann Arbor Mich., among others, addressed the Milwaukee Academy of Medicine, December 19, on "The Lumbosacral Joint and Its Relation to Sciatica"—Dr Robert A. Arens, Chicago, addressed the Milwaukee Roentgen Ray Society, January 4, on "Modern Trends in Radiation Therapy"—Dr William S. Middleton, Madison, addressed the Columbia County Medical Society December 12, on oxygen therapy—Dr Burton Clark, Jr. Oshkosh, presented a paper on "Carcinoma of the Colon and Rectum" before the Winnebago County Medical Society, Oshkosh December 15—At a meeting of the Medical Society of Milwaukee County, January 12 speakers were Drs. William F. Wegge, on "The Effects of Barbiturates" Lemuel D. Smith "Spiking Operations for Fractured Hips Under Roentgenographic Control", Albert H. Lahmann Jr., and George S. Kilkenny "Recheck of 4000 Obstetrical Cases at the Milwaukee County Hospital"

GENERAL

Journal Changes Name—The *Medical Journal and Record* a semimonthly publication, has changed its name to the *Medical Record*, beginning with the issue of January 3

Tri State Meeting Postponed—The annual meeting of the Tri-State Medical Society (Louisiana, Arkansas Texas) has been indefinitely postponed, it is announced. The present officers will hold office until their successors are elected

Orthopsychiatric Meeting—The American Orthopsychiatric Association will hold its eleventh annual meeting in Chicago at the Palmer House, February 22-24 under the presidency of Dr. Frederick H. Allen Philadelphia. Among speakers who will address the general sessions will be

Dr. Ira S. Wile New York Autosuggested Dreams as a Factor in Therapy

Dr. George J. Mohr and Phyllis Bartelme Ph.D. Chicago Physical and Mental Growth of Prematurely Born Children

Dr. Milton E. Kirkpatrick Cleveland Juvenile Delinquency in Cleveland and Cuyahoga County During the Depression Period

Dr. Franz Alexander Chicago Evaluation of Statistical and Analytical Methods in Psychiatry and Psychology

Committee to Urge Food Study—Dr. William Weston Columbia, S. C., has been appointed chairman and Drs. Mazyck P. Ravenel, Columbia, Mo., and James E. Knighton Shreveport La., members of a committee to confer with federal authorities concerning a nation-wide study of nutritional values of foods in accordance with a resolution adopted at the annual meeting of the Southern Medical Association. This resolution requested the federal government to cooperate with selected medical colleges in various sections of the United States in making chemical analyses of foods with special reference to the role of nutritional deficiency in disease

Southern Tri-State Meeting—The thirty-sixth annual session of the Tri-State Medical Association of the Carolinas and Virginia will be held in Charlottesville Va. with headquarters at the Monticello Hotel and the University of Virginia Medical School, February 12-14. Special guests will be Drs. William D. Stroud and Gabriel Tucker Philadelphia who will speak on 'Coronary Disease' and 'Bronchoscopic Relief of Obstructive Dyspnea' respectively and Mr. W. H. Nickels, Jr. of the Virginia Industrial Commission. Afternoons will be devoted to clinics conducted by members of the staff of the medical school. Among physicians who will present papers will be

Dr. Linwood D. Keyser Roanoke Va. The Problem of Iodine Fast Hypertension

Dr. James A. Lyon Washington D. C. The Angina Syndrome

Dr. Thomas M. Foley Washington Pathologic Conditions in the Knee Joint

Dr. James W. Gibbon Charlotte N. C. Surgical Lesions of the Large Intestine

Dr. David T. Smith Durham N. C. Fungus Diseases

Changes in Status of Licensure—The New York State Board of Medical Examiners reported the following action

Dr. Maximilian Thomas Raub New York license revoked January 14 on the basis of his having been convicted of a felony embezzlement for which he served a term in the federal prison at Atlanta

The New Jersey State Board of Medical Examiners reports the following action

Dr. Samuel C. Husbands Newark license restored Oct. 14 1933 the license was revoked July 10 1930

The Illinois Board of Registration in Medicine reports the following action

Dr. Joseph P. Moran Chicago license reinstated Oct. 11 1933 pending his continued moral and ethical conduct

The Kansas Board of Registration and Examination reports the following

Dr. Blyford B. Jackson Lawrence license reinstated December 12

The State Medical Board of the Arkansas Medical Society reports the following

Dr. Porter R. Rodgers Searcy license revoked January 10 having been convicted in federal court for possessing counterfeit money. A sentence of three years in the U. S. reformatory imposed Nov. 10 1933 has been suspended until March 1

Medical Bills in Congress—Changes in Status H. R. 7527 making additional appropriations for the continuation of the Civil Works program, has been passed by the House. It provides that the provisions of the Federal Employees Compensation Act shall not apply to Civil Works employees, but that nothing contained in the bill 'shall be construed as precluding the furnishing to such persons at the expense of the United States of such medical, surgical, and hospital treatment as may be necessary to meet the emergency of an injury sustained in the performance of duty' H. R. 7199, making appropriations for the Navy Department, has passed the House. In authorizing an appropriation for increased pay for making aerial flights, the bill provides that none of this appropriation "shall be available for increased pay for making aerial flights by more than eight nonflying officers or observers, to be selected by the Secretary of the Navy." By virtue of this provision officers in the Bureau of Medicine and Surgery in the Navy Department, assigned to aerial flight duty, are discriminated against. **Bills Introduced** S. 2492 introduced by Senator Steiwer (by request), Oregon and H. R. 7217, introduced by Representative Rankin (by request) Mississippi, propose to confer additional benefits on veterans. Among other things, they provide that where a service connection for disability was on March 19 1933, established in accordance with section 200 of the World War Veterans' Act, and such service connection was severed by "An Act to maintain the credit of the United States Government," approved March 20, 1933 or by an act approved June 16 1933, this service connection is to be reestablished. S. 2436, introduced by Senator Duffy, Wisconsin, proposes to authorize the Reconstruction Finance Corporation to make loans to public and private colleges, universities and institutions of higher learning. S. 2455, introduced by Senator Patterson, Missouri, proposes that for the purpose of promotion there shall be credited to the officers of the Medical Corps of the Army all active service as officers of the Medical Reserve Corps rendered by them between April 23, 1908, and April 6, 1917. S. 2490, introduced by Senator McKellar, Tennessee, proposes to authorize the erection of a 300 bed veterans hospital in middle Tennessee. H. R. 6778, introduced by Representative McKeown Oklahoma proposes to confer additional benefits on veterans. Among other things, it provides that any World War veteran who served between April 6 1917, and Nov. 11, 1918 not dishonorably discharged suffering from any disability necessitating hospitalization or domiciliary care who is unable to defray the necessary expenses therefor, is to be furnished such hospitalization or domiciliary care in any Veterans' Administration facility, irrespective of whether the disability was due to service. A statement of the veteran that he is unable to pay for such hospitalization or domiciliary care must be accepted by the Administrator of Veterans Affairs as sufficient evidence of that fact. The following bills, conferring additional benefits on veterans, contain a similar provision. H. R. 7048 introduced by Representative Jeffers Alabama, H. R. 7083, introduced by Representative Ellenbogen, Pennsylvania. H. R. 7084, introduced by Representative Moran, Maine, H. R. 7091, introduced by Representative Chase Minnesota, H. R. 7092, introduced by Representative Hastings Oklahoma. H. R. 7100, introduced by Representative Kelly, Pennsylvania, H. R. 7102 introduced by Representative Rankin, Mississippi. H. R. 7133, introduced by Representative Edmonds, Pennsylvania. H. R. 7140, introduced by Representative McFarlane, Texas. H. R. 7141 introduced by Representative Cartwright Oklahoma. H. R. 7151, introduced by Representative Carter Wyoming. H. R. 7152 introduced by Representative Cochran Pennsylvania. H. R. 7203, introduced by Representative Berlin (by request) Pennsylvania, H. R. 7211, introduced by Representative Hope, Kansas. H. R. 7242 introduced by Representative McClintic, Oklahoma, and H. R. 7363 introduced by Representative Ayres Montana. H. R. 7056 introduced by Representative Moran Maine, provides that members of the Telephone Operating Units Signal Corps American Expeditionary Forces who served in the status of civilian employees of the Signal Corps, United States Army shall be considered as having served in the military service of the United States. H. R. 7059 introduced by Representative Ellzev, Mississippi and H. R. 7089 introduced by Representative Jeffers Alabama propose to provide for the further development

of vocational education in the several states and territories H R 7080, introduced by Representative Guver, Kansas provides for pensions for certain soldiers and sailors of the war with Spain, the Philippine insurrection and the China relief expedition, and to certain widows, minor children and helpless children of such soldiers and sailors H R 7144, introduced by Representative Monaghan Montana and H R 7207, introduced by Representative Swank Oklahoma, propose to provide pensions for the aged H R 7298, introduced by Representative McClintic, Oklahoma, provides that veterans with combat service in the World War shall be presumed to have acquired their disabilities in such service H R 7426 introduced by Representative Sirovich, New York, proposes to regulate interstate traffic in food, drugs, nonalcoholic or nonintoxicating beverages, and cosmetics

Government Services

Review of Veterans' Claims by One Hundred and Twenty-Eight Boards

Special boards of review appointed by President Roosevelt to pass on borderline cases of war veterans' presumptive service disabilities found in a consideration of 51,213 cases that 21,955, or 42.87 per cent, were service connected according to the consolidated report recently made public by General Frank F. Hines, Veterans' Administrator. One hundred and twenty-eight boards met in fifty-five regional areas. The percentage of service connected cases in the several areas varied from 23.43 per cent in the Burlington, Vt., area to 74.68 per cent in the area about Charlotte, N. C. Several reasons were advanced for this variance, including personal appearance by veterans or their representatives and credence given to their statements, effective presentation of cases and the fact that some boards were more liberal in their interpretations than others. In addition, the fact that in some areas a larger percentage of veterans had engaged in combat service than in others and the concentration of tuberculous and neuropsychiatric cases in certain regions where hospitals are located were given as reasons for the variations. Thus an unusually large number of veterans suffering from tuberculosis developed as a result of war service live in Arizona, New Mexico, Colorado and North Carolina, and large numbers of neuropsychiatric cases are centered in New York, Philadelphia, Buffalo, Pittsburgh and Hines, Ill. Each review board consisted of three members appointed from nominations submitted by veterans and citizens' organizations and two from the Veterans' Administration. General Hines emphasized the fact that every veteran whose disability has been denied service connection by the special review boards has the right of appeal to the final Board of Veterans' Appeals recently appointed by the President.

Examinations for Army Medical Service

The War Department announces that examinations for admission to the Medical Department, U. S. Army, will be held as follows: Medical Administrative Corps, March 12-16; Medical Corps, March 19-23; and Veterinary Corps, April 16-20. Thirty-nine appointments as first lieutenant in the Medical Corps will be made during the fiscal year 1935, most of them July 1 and shortly thereafter. Examining boards will be constituted at army posts throughout the United States so as to be near groups of applicants and thus hold travel expenses to a minimum. Final results of the examinations will be known about May 1. There are nine vacancies in the Medical Administrative Corps, all of which will be filled in the grade of second lieutenant as of July 1. Eligibility for this examination is limited to enlisted men of the Medical Department of at least two years' service. Examining boards will be convened at stations where the applicants are now on duty. Applications for both these examinations will be received until March 1 for the Veterinary Corps, in which there are six vacancies, until April 1.

CORRECTION

Available Iron in Therapy—In the editorial on this subject which appeared in *THE JOURNAL* Dec. 30, 1933, page 2123, it was said that ferric glutamate was the product used by Elvehjem. We are informed that the material used was actually ferrous glutamate carefully stabilized in the ferrous state, and that an error was made in typing the label of the product this error being carried through to the original article and from the original article into the editorial.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 13, 1934

Discussion of the Danger of the Barbiturates

In a discussion at the Society for the Study of Inebriety on the Medicolegal Aspects of Alcohol and Drug Addiction, Sir William Willcox, toxicologist and medical adviser to the Home Office said that the large group of barbituric acid derivatives occupied a foremost place among the drugs of addiction. The danger to the public was greater than from any other group even including the dangerous drugs controlled by special laws and regulations. The barbituric acid group had a special action of a narcotic nature on the higher brain centers. Their continued use might cause impairment of speech and gait, paralysis of the eye muscles and hallucinations of vision. The risk of death from accidental or purposeful overdose was considerable. He had seen a large number of cases of suicide or attempted suicide among persons who had been taking these drugs for long periods. They took an overdose often because their minds were so confused that they did not care what might happen and hoped for the worst. It was essential that the public should have access to them only by medical prescription, which should be returned by the pharmacist and not repeated except by medical order. Physicians should not prescribe a total quantity of these drugs which, if all were taken might be a fatal dose. So many barbituric acid derivatives were being placed on the market that it was difficult to keep pace with them. Some of them were especially toxic. Among the barbiturates he referred to were veronal, medinal, sororal, dialquidronox, herberal, luminal, phrenodrin, evipan (sodium evipan), numbital, ipral, allonal, veramon, gardenal, ciblagin, somnifane, bertol, amital and picroton.

But certain leading physicians do not place the dangers of the barbituric acid derivatives as high as Sir William Willcox does. A discussion on "The Uses and Dangers of Hypnotic Drugs other than Alkaloids" was recently opened by him at the Royal Society of Medicine in which he gave the same warnings. Sir James Purves-Stewart, a neurologist, described three cases of unexpected toxic effects from ordinary dose. He pointed out that while in full doses the barbituric acid derivatives exercised widespread toxic effects on the brain, from cortex to medulla in smaller and repeated doses they might have a special action on special groups of nerve cells—for example on the cortex or the midbrain or cerebellum, or even the spinal cord. The reason for such differences was varying vulnerability of the centers in question. Dr. R. D. Gillespie, a psychiatrist, strongly contested the views put forward as to the dangers of therapeutic doses of the barbituric acid derivatives. The number of recorded cases of dangerous effects from these doses was small. He did not believe that there was on record a case in which either a single or a repeated dose of therapeutic magnitude had caused death in the absence of complicating factors. There was no foundation for Sir William Willcox's assertion that repeated administration in one or more daily therapeutic doses was dangerous, although of course there were idiosyncrasies, as Purves-Stewart himself pointed out. He denied that the barbiturates predisposed to suicide.

Among 5,147 suicides only 13 were accomplished by the barbiturates. Sir Maurice Craig, a psychiatrist, said that these drugs had been given successfully in thousands of cases and that it was most unscientific to condemn them because of a few unfortunate cases. Sir William Willcox replied that he spoke from sad experience of many cases during his long specializa-

tion in toxicology His opponents failed to realize the dangers, and in support of his contentions he offered access to his notes of cases

Destruction of Locusts by Airplane

An airplane is to be used in Rhodesia to put up poison barrages against locusts as they pass across the country. An apparatus for spraying powder into the air has been sent from England and will be attached to the wings of the airplane. When locusts are reported, the machine will go up in search of them and will attempt to fly along the front of the swarm spraying poison into the air so that they will fly into it. This will be a new experiment in the use of aircraft against destructive insects. An airplane has been used to dust such crops as cotton with insecticides and has helped to rid forests of pests, particularly in Canada. But never before has it been used against migrating insects. It will carry 300 pounds of sodium arsenite. What will happen if the airplane gets among a cloud of locusts is difficult to say. Recently an engine was put out of action by a swallow getting jammed in the air intake. Locusts might do the same. The method will probably be to overtake a swarm at a high altitude, descend to its level and spread a curtain of fine powder before it. The powder is expected to remain suspended for some time and to cause heavy casualties in a long column.

Controversy over the Minimum Food Requirements

The report of the British Medical Association committee on the minimum weekly expenditure on foodstuffs that must be incurred to maintain health (*THE JOURNAL*, Dec 21, 1933, p 2061) has aroused a storm of controversy. The minister of health had previously accepted a memorandum of advice from a committee of eminent dietitians consisting among others, of Sir Gowland Hopkins, president of the Royal Society, Prof Edward Mellanby, FRS, and Prof E P Cathcart, FRS, which arrived at a conclusion different from that of the British Medical Association. The dietitians adopted 3,000 calories and 37 Gm of first class protein as the minimum for a person not engaged in more than moderate physical labor, while the figures of the British Medical Association are 3,400 calories and 50 Gm of protein. On the publication of the British Medical Association report the minister of health dispatched a circular to the local authorities stating that he had referred it to his advisory committee as its conclusions differed in important respects from the principles he had laid down for guidance of these authorities in a previous memorandum. His committee now unanimously reports that it does not desire in any way to modify the advice which it had tendered and which it believes can be safely followed. This has elicited a rejoinder in the *Times* from the medical secretary of the British Medical Association, who points out that its committee attempted to set out a minimum standard for the maintenance of health and working capacity. The figure of 3,400 is for calories as purchased in the shop which would be needed if approximately 3,000 is to reach the body after cooking and other losses. The chairman of the advisory committee Prof Major Greenwood FRS replies that it considered the average requirements of a man who was not, as has been insinuated living at a mere existence level" but who was not required to perform more than moderate physical labor. Is the British Medical Association committee, he asks competent to overrule the judgment of physiologists whose life work has been in the field of nutrition and metabolism? Replying to this the medical secretary quotes two sentences from the memorandum. "The figures chosen as standards are not very generous. no account has been taken of wastage and. Any deficit of first-class protein is probably detrimental for the figure adopted as a standard is not high.

The British Medical Association committee has not criticized the conclusions of the first committee but has taken a slightly different view and has in addition gone into the question of cost. But, as pointed out by the chairman of the first committee, this is not a medical question. It is an economic one with which no medical body has special competence to deal. The result of entering into it has not been happy. The association committee found that 5 shillings and tenpence-halfpenny (about \$1.25) was the cost of the minimum diet per week for a man. The popular press at once came out with the cry that the government was proclaiming that this small sum was the proper relief allowance for feeding a man and that the official experts were recommending still less. The government was charged with flouting the physicians of the British Medical Association on a matter on which depended the lives of 2,000,000 workless persons. What should be a purely scientific question has become a matter for scare head lines in the daily press. The point is overlooked that the determination of a minimum is one thing and compelling people to live on it is another and has never been proposed.

Robert Prosser White

Dr Robert Prosser White, well known for his book "Occupational Affections of the Skin," has died at his residence Southport, at the aged of 78. This book was translated into Russian by order of the soviet government and has been published in America and Europe. Dr White's work as factory surgeon and medical attendant to workers in cotton mills, collieries and other industries in the Wigan area induced him to make a special study of occupational diseases. In 1928 Dr Moritz Oppenheim, professor of dermatology in the University of Vienna, visited England to confer with Dr White as to publishing his work in German. Various honors were conferred on Dr White. He was appointed a member of the permanent committee for the study of industrial diseases constituted by the League of Nations and was elected president of the London Dermatological Society. He was associate editor of the *Journal of Industrial Hygiene*.

PARIS

(From Our Regular Correspondent)

Dec 27, 1933

The Increased Budget for Public Charities in Paris

The new budget of the Assistance publique a Paris, which includes that of the public hospitals, gave rise to a lively debate at a recent meeting of the municipal council. Mr Mourier, director of the Assistance publique, was accused of receiving in the public hospitals large numbers of well-to-do patients. Mr Mourier replied in defense, that the number of such patients did not exceed 7 per cent of the total admissions, and that, of the others scarcely 1 per cent paid the charges that were assessed against them. He added that nearly all exemptions from charges had been made on the recommendation of members of the municipal council, to favor certain of their political supporters. The budget of the Assistance publique in 1913 amounted to 23,000,000 francs (\$4,439,000, prewar exchange). The appropriation this year, is 300,000,000 francs (\$18,000,000 current exchange) for a total budget of 668,176,131 francs (\$40,000,000). However, several new hospitals and sanatoriums with 300 new beds will be completed this year, which will bring the number of beds up to 42,000. Another criticism of Mr Mourier was the exaggerated length of stay of patients in the hospitals. Furthermore it was emphasized, too many foreigners are admitted to the Paris hospitals who pay no part of the hospital charges. It has been suggested that every country through its consuls, should pay the hospital charges of its indigent nationals and that previous reciprocity agreements be abolished.

The Income Tax of Physicians

Parliament experienced great difficulties in balancing the budget that it has adopted. There is no doubt that the deficit is caused by the excessive expenditures created by the soldiers' pensions and by the new social laws. But the influence of the socialists prevents parliament from taking any action to reduce these expenditures and operates rather in the direction of increasing taxation, since taxes are mostly paid not by their constituents but by the middle and the wealthy classes. Hence new regulations applicable to the liberal professions have been adopted. The physicians and the lawyers awaken suspicion in the minds of treasury officials. It is alleged that physicians fail to make honest declarations of their incomes, since it is more difficult to check up on their incomes than on those of industrialists. Similar charges are made against lawyers. It may be that some physicians and lawyers do act in that manner, but the socialist idea is that all members of these professions are assumed to be defrauders until they have furnished proof of being innocent. Henceforth, all physicians must keep a special register in which are to be entered daily all the amounts that they receive from their clients, and the collector of revenue may demand at any time the privilege of inspecting this register. Furthermore the legislator has decreed that the incomes declared by physicians may not be less than four times the house rent. If this arbitrary evaluation is exaggerated it is the physician's duty to furnish the collector, or his deputy, with proof. The Confederation des Syndicats médicaux français filed a protest based on two facts. It is impossible for the physician to keep an account of the sums paid by his clients without giving their names, and that would be a distinct violation of the legal right of privileged communication. Furthermore the arbitrary fixation of professional income is equal to four times the amount paid for house rent is inapplicable to the physician who is compelled for practical reasons to have a more imposing residence in which to receive his clients than he would have if he were not practicing a profession. The protests however were not heeded, owing to opposition from the socialists.

Paul Richer

The death of Dr. Paul Richer, at the age of 84 is announced. Dr. Richer was a member of the Academy of Medicine and as a sculptor, of the Academy of Fine Arts. He had been an intern of the Hôpital de Paris, and a pupil of Charcot, in his celebrated service in the Hôpital de la Salpêtrière which he never left. His remarkable talent for drawing made him a valuable collaborator for the important periodical *Iconographie de la Salpêtrière*. Richer produced a number of excellent sculptures, which were shown at the fine arts exhibits. He was also professor of anatomy at the School of Fine Arts and published numerous volumes illustrated by many of his own drawings, on the physiologic expression of emotions. He produced also a large number of portrait medallions of contemporary medical celebrities.

A New Center of Cardiology

The old central structure at the Hôpital de Versailles is still magnificent though it dates back to the time of Louis XIV. Among the new buildings that have sprung up is one equipped with all modern technical improvements for cardiology. It is under the direction of Dr. Lutembacher. This new institute will relieve the pressure on the two centers in the congested sections of Paris. It is unquestionable that the number of cases of heart disease is constantly increasing. The mortality from heart disease is but slightly lower than that of cancer (108 as against 119). In 1906, 49,889 deaths from heart disease were recorded in France, in 1930 the number had risen to 62,014. This increase is ascribed to overwork, noise, the greater development of emotional life, rheumatism and syphilis.

An endeavor is therefore being made to detect with greater certainty incipient forms of heart disease when they are still curable, by means of radiography and electrocardiography. To the cardiographic center in Versailles will be added, furthermore, another specialized center for rheumatismal disorders, in which Dr. Lutembacher will develop his method of intravenous injections of sodium salicylate. The hospital has no wards—only rooms with two or four beds and rooms for isolated patients. There are two laboratories for histology and microscopy, a laboratory for photography, and a radiographic department. In addition to a large stationary electrocardiograph, there are several portable electrocardiographs. The new edifice constitutes the most complete cardiologic institute in France.

BERLIN

(From Our Regular Correspondent)

Dec. 27, 1933

The Action of Crystalline Insulin

After obtaining considerable quantities of crystalline insulin from an American brand of insulin Professor Burger, director of the Medical University Polyclinic in Bonn, carefully studied its effects on animals and diabetic patients. The insulins on the market contain at least one secondary substance that has a mobilizing effect on the carbohydrates of the liver. The many contradictory statements in the literature concerning the physiologic effects of insulin are due in part to the use of a mixture of substances and not a pure preparation. The crystalline product prepared in Bonn corresponds exactly. Burger pointed out in his address before the *Niederrheinische Gesellschaft für Natur- und Heilkunde*, with the Abel product in crystalline form melting point and composition. In determining its action not only the extent to which the blood sugar is reduced but also the duration of its action are considered. The latter depends on the method of administration. The intravenous method is less effective than other methods. The action on diabetic patients is manifested in two phases. Immediately after the injection the oxygen consumption rises and then returns to normal. During the progress of the hypoglycemic phase there is a second increase of the oxygen consumption which is due chiefly to increased respiratory and heart activity and to a certain muscular unrest. The main point of attack of insulin is the musculature, and hence bodily activity increases the action.

Prognosis of Cancer of the Larynx

Professor von Eicken, director of the Hals-Nasen-Klinik at the University of Berlin, reported before the Berlin Medical Society that the results of radium and roentgen therapy with Coutard's method are fully equal to the surgical results. In cancer of the larynx it must be determined whether only one vocal cord is involved, the whole larynx or the hypopharynx is involved. The prognosis is the most favorable when there is only vocal cord involvement. According to the statistics of Sir St. Clair Thomson laryngectomy effects a cure in 80 per cent of the cases. Of the various radiologic methods the speaker recommended chiefly prolonged irradiation by the Coutard method (which provides for about twenty sittings of irradiation, with one-third to one-half erythema dose to be given at each sitting) and the insertion of radium preparations in the thyroid cartilage. Both methods give good results. The vocal cord is preserved. Through good filtration (particularly of the beta rays) it has proved possible to avoid, to a great extent, the troublesome perichondritis formerly observed if the dosage was inexact. The choice between laryngectomy and irradiation must be determined by the aspects of the case. A combination of the two methods is sometimes effective. In extensive metastatic involvement of the lymph glands, removal of the glands, with the subsequent

use of radium, has proved effective. The least favorable cases are the hypopharynx carcinomas, with their extensive metastases to the lymph glands. In many cases treated by von Eicken, the speech did not appear affected. Several patients were treated for recurrences. Some patients, to be sure, have to use a tube, but even after total extirpation a cure may proceed so far that the speech is gradually restored. Concerning the remote effects nothing can be said, as the method is still too new.

A Test of the Capacity of the Nose to Collect Dust

Dr Gunther Lehmann of the Emperor William Institute for the Physiology of Work has worked out a method to determine what percentage of the inspired dust can be retained by the nose. With this method, dust-laden air is blown into the nose, and the air, while the breath is being held, emerges from the mouth. By means of two komometers, the concentration of the dust is measured before it enters the nose and after it emerges from the mouth. It was found that many noses retain up to 75 per cent of the inspired dust, whereas others allow virtually all the dust to pass out. The concentration of the dust plays a small part; likewise the velocity of the air in motion, and the chemical nature of the dust. The observations made it seem that persons with poor dust fixation capacity of the nose are particularly disposed to pneumoconiosis. Therefore, eighty-nine stone cutters who had worked in stone from ten to thirty years were examined. Of this number fifty-three were healthy, while thirty-six had pneumoconiosis. The dust fixation capacity of the healthy workmen averaged about 52.3 per cent, while the average of the workmen with pneumoconiosis was about 22.3 per cent. Of the forty-six stone cutters with a dust fixation capacity above 40 per cent only two presented pneumoconiosis, while forty-four were exempt. Of the stone cutters with a dust fixation between 29 and 40 per cent, five were ill and five were healthy, while two were showing just the first symptoms of disease. Of the thirty-one stone cutters with a dust fixation capacity under 29 per cent, only two were healthy, while all the others were affected with pneumoconiosis. A good dust fixation capacity of the nose affords therefore almost complete protection against pneumoconiosis, whereas persons with poor dust fixation capacity under corresponding conditions are almost certain to develop pneumoconiosis. Applicants for work as stone cutters should be given this test, and those with poor dust fixation capacity should not be allowed to work where a menace of silicosis exists.

Ernst von Romberg

Prof Ernst von Romberg, director of the first medical clinic at the University of Munich died December 18, after a short illness, aged 68. He was the grandson of the distinguished founder of neurology, and he brought honor to the name. As a pupil of Curschmann in Leipzig as a member of the polyclinic in Marburg as a clinical ordinarius in Tübingen, and finally in Munich he introduced advanced ideas into the study of diseases of the circulation and of tuberculosis. In his early years he became known through his book on *Diseases of the Heart and Blood Vessels*. He was director of the crusade against tuberculosis in Bavaria during the years following the war. Romberg was on the editorial staff of the *Deutsches Arch. für klinische Medizin*, the *Zeitschrift für Tuberkulose*, the *Münchener medizinische Wochenschrift* and other journals. His high conception of his duties as a clinical teacher was revealed three years ago by his *Teaching and Learning of Internal Medicine*. His work as chairman of the *Deutsche Arzneimittelkommission* merits great praise. He was distinguished for his comprehensive knowledge and was universally esteemed for his personal qualities.

Seventieth Birthday of Prof Wilhelm His

Prof Wilhelm His, who served for many years as director of the Medizinische Universitätsklinik, celebrated his seventieth birthday, December 29. His father was the anatomist. His grandfather he was trained under Curschmann. In 1902 he returned to Basel as an ordinarius, in 1906 he was called to Göttingen and in 1907 to Berlin as the successor of Ernst von Leyden. His has devoted himself particularly to diseases of the heart and of metabolism. The term "the bundle of His" perpetuates his name. He has carried on research on diseases of the joints, tuberculosis, goiter, and radium therapy, and has participated in campaigns to eradicate charlatanism. He has always left a deep impression on his pupils through his broad education, his gift of combining in artistic form present-day medicine with its historical past, and by his comprehensive survey of cultural fields.

ITALY

(From Our Regular Correspondent)

Nov 15, 1933

Congress of Medicine Pertaining to Sport

Organized by the Associazione internazionale medico-sportiva the International Congress of Medicine Pertaining to Sport was held at Turin and at Rome, under the chairmanship of Prof Ugo Cassinis. The discussion centered about one topic, "Individual Biometric Standards for University Students." The chief speaker Professor Latarjet, emphasized the difficulty of reconciling the various trends to reduce the international standards to a few anthropometric measurements, and the more scientific trend to collect numerous anthropometric, physiologic and psychologic data. The speakers suggested entrusting the establishment of individual biometric standards to an international committee.

Professor Benedetti described standards prepared by the method of Professor Viola, clinician of Bologna. Viola invented a method for evaluating the nervous impulse and the muscular work in the contraction of muscle. It consists in establishing the relation between the average of certain dynamometric measurements and the average of certain circumference measurements of the limbs. The evaluation is important, since there are sports in which rapidity of the nerve impulse is preponderant and others in which muscular strength is the main thing.

Professor Herlitzka of Turin stated that he was opposed to setting up biometric standards, as they may be either too simple or too complex, and it is desirable to leave ample liberty to every medical advisory board associated with a stadium or gymnasium.

Professor Lafranca emphasized the importance of adopting clinical criteria. Successive examinations during the course of training are important, because often at first the disturbance of function does not manifest itself.

Professor Baglioni of Rome distinguished between international biometric standards of a practical nature and those that might serve as a basis for scientific research. He emphasized the great differences in people and pointed out that methods which are purely morphologic and statistical do not express the biologic reality of person the essentials of which are variation which defies all attempts at mathematical evaluation.

Professor Vallebona of Genoa discussed the importance of radiologic examination and suggested the creation of a radiologic record booklet of the lungs for athletes.

The congress decided to entrust to an international commission the preparation of an individual biometric record booklet.

Many other communications were presented. Professor Donaggio discussed the so-called obstruction phenomenon observed in the urine in various morbid conditions, following physical exertion. The intensity of the phenomenon which is

probably due to colloidal protective substances may constitute a test of fatigue. Professor Cassinis spoke of the marked effect on performance in sports produced by adding to the normal diet supplementary protein chiefly of vegetable origin.

Finally, Professor Gassetto announced the selection of an international committee, which has its headquarters in Bologna.

The Antituberculosis Crusade in Italy

The superior council of the public health service has been studying of late the antituberculosis campaign in Italy. The first problem taken up was the purification of the waste waters of antituberculosis sanatoriums on which a special report of a commission was received. The commission held that in every institution provisions should be made for the destruction or at least the sterilization of contaminated excreta before they are permitted to flow into the cesspool. No special provision is necessary for waste waters that flow into a well constructed municipal cesspool since the heavy dilution of the infective material and its dispersion offer a guarantee of protection. Also when the material can be purified by filtration through soil or transported a distance from habitations into the sea or a large watercourse, no special treatment is needed. Otherwise the purification of waste waters of sanatoriums is indispensable. The biologic methods (septic tanks, oxidation beds, activated muds) used for this purpose are unsatisfactory. They are expensive and have little effect on the vitality of the tubercle bacillus. Much better is the treatment with chlorine. If the dosage and the duration of the chlorination are properly regulated (20 Gm. of chlorine per cubic meter of fluid and two hours of contact) the destruction of the tubercle bacillus may be regarded as certain.

The council considered next the hospitalization of patients with surgical tuberculosis. A medical commission reported that patients with bone and osteo-articular tuberculosis should be removed from ordinary hospitals to more suitable institutions on the seashore or in climatic resorts which have specially trained personnel. There are in Italy thirty-one institutions specially equipped for such service. The commission suggested to the superior council the desirability of promoting the growth of heliotherapeutic stations for ambulant patients.

The council then considered the results secured thus far in antituberculous prophylaxis. There is in each province an adequate number of beds for the admission of tuberculous carriers, and aid is provided for tuberculous mothers and their infants. While this organization is in the initial stages, it has 544 beds, in special departments, for tubercle bacillus carriers, 10,991 beds for the children living with tuberculous persons, and 291 beds for infants of tuberculous mothers.

Finally the council considered the provincial antituberculosis dispensaries. The data examined concerned 361 dispensaries in which in 1932 there were 215,024 patients examined, 59,824 of whom were found to have pulmonary tuberculosis, 122,143 were found to be exempt, and 33,057 presented an uncertain diagnosis. In tuberculosis of the lungs and the pleurae, there was a preponderance of females affected. The tracheobronchial types were most prevalent during the first ten years of life, and the pulmonary types around age 23. The classes most affected were workmen, next came domestics, mendicants and persons admitted to shelters.

Congress of Microbiologists

The Italian chapter of the International Society of Microbiology has chosen the following topics for discussion at the fifth congress, to be held in the spring of 1934: (1) "The Filtrable Viruses in General Pathology," chief speaker, Professor Rivera of Perugia, (2) "New Views on the Biology of Malaria Parasites," chief speaker, Prof. G. Alessandrini of Rome, and (3) "The Bacteriophage," chief speaker, Professor

Orsi of Naples. In addition Professor Rondini of Milan will present a paper on "The Chemical Nature of Antigens and Antibodies."

The Crusade Against Tuberculosis

Special measures have been adopted to prevent the spread of tuberculosis in the seminaries and convents. All young men aspiring to the priesthood will be given a rigorous medical examination. The ecclesiastical authorities are planning to institute clinical record cards for all future priests, on which will be recorded all the important facts that progressive legislation may require. This system will gradually be extended to other religious organizations.

BUDAPEST

(From Our Regular Correspondent)

Jan. 11, 1934

The Ancient Urologists

At a recent meeting of the Budapest Royal Medical Society, Dr. Izid Kesztrner, a urologist, read a paper on the history of urology. The development of urology has occurred through the centuries. For 3000 years circumcision has been a religious, obligatory ceremony with the Egyptians. In a king's tomb opened in 1897, evidence of this operation carved on stone was found. A papyrus written between 400 and 500 years before the Trojan war describes how in cases of inability to evacuate the bladder the urine can be removed. In the Ayur Veda written 2000 years ago there is a description of vesicotomy. A great impetus was given to urology by Hippocrates. About 400 B. C. he described diseases of the urinary organs, laying special stress on the odor, color and precipitates in the urine. He wrote also about catheters made of pliable tubular plants and about the way to evacuate an obstructed bladder. He accurately described the symptoms of ureteral calculi. In the ruins of Pompeii a bronze catheter was found in the house of a physician. It was 26 cm. long and 17 mm. wide, with adequate curvature.

In ancient Rome Aurelius Cornelius Celsus (53 B. C. - 7 A. D.), played an important part in the history of urology. His treatise *De medicina libri octo* considers broadly the infirmities of old age. Hippocrates, Celsus and Galen all displayed special urologic knowledge. Celsus, in the domain of venerology, contributed to the study of condyloma acuminatum and gonorrhea. He wrote a long chapter about kidney diseases and disorders of the male reproductive organs and the operative treatment of hydrocele and varicocele. He dealt with the disturbances of urination, catheterism, renal sand, soft stones, and the treatment of calculi. He wrote a special chapter on female vesical calculi.

In the century following Celsus, the leading part was played by Galen who cleared up several erroneous conceptions in urology. He was an adherent of conservative treatment. He sought the cause of gonorrhea in excessive sexual contacts or in exaggerated abstinence.

The ancient Indo-Babylonian, Assyrian, Syrian and Greek writers mentioned a disease the symptoms of which resembled those of gonorrhea. In Moses' books and in the Talmud there are references to gleet, and particularly to prevention by personal cleanliness. The oldest pertinent records in respect of gonorrhea are in the work of Susruta written in Sanskrit and translated into Latin in the nineteenth century by Dr. Francis Hessler. This reveals that contagious sexual diseases occurred in ancient times.

While Hippocrates did not mention gonorrhea, some diseases mentioned under different names are identical with it. Dioscorides dealt minutely with the treatment of venereal and urologic disturbances. Plinius wrote a treatise on venereal diseases. He applied external and internal remedies and knew the complications of gonorrhea in women. Oribasius who

lived in the time of the emperor Julian acting as court physician, used an indwelling catheter, which he prepared from a goose quill and parchment paper. Such catheters he introduced into the urethra for dilation. Paul Aegina first performed bladder irrigation through a catheter.

The Plight of the Budapest Ambulance Society

For forty seven years the Budapest Ambulance Society has supplied first aid medical service by day and by night fifteen motor cars, forty physicians, twenty-seven medical students and 108 volunteers were always on duty to render aid in cases of accidents and fires. During the first eleven months of 1933 their service was required in 52,000 cases. They never charge a fee except when the sick are transported. The institution is financed by voluntary contributions. This support has dwindled so much that the Ambulance Society may be compelled to reduce the medical staff and to put out of commission at least half of its motor cars. To avert this disaster the council of the city of Budapest applied to the government to nationalize the institution. It is doubtful whether the state will undertake to cover the whole budget. It is rumored that the state intends to pay all salaries, leaving the remainder to be raised by appeal to the public.

Contagious Diseases and Tuberculosis in Childhood

At a recent lecture at the Royal Medical Society, Professor Hainiss said that, in children, tuberculosis has the character of a general infection more than in adults. It depends on the amount of infection, the constitution of the individual, the condition and the age what course tuberculosis will take. If the primary effect is not followed by serious processes the disease will assume importance later only if the slumbering infection is awakened by such intercurrent diseases as smallpox, pertussis and influenza. These diseases endanger the already infected organism, but they may create a favorable soil for a fresh tuberculous infection also. Pertussis causes decided changes in the lungs, as does measles. In influenza, in addition to a specific pathologic agent, various bacterial groups exercise a preponderant influence on the course of the disease. These may dispose the individual in various ways to a flare up of tuberculosis.

After convalescence from one of these contagious diseases it is important to examine children, partly to detect flaring tuberculosis and partly to prevent the possibility of spreading tuberculosis among other children.

Marriages

EDGAR ARMISTEAD BELDEN, Columbia, Mo. to Miss Elinore Scanlon of Philadelphia, at Merdville Pa., January 20.

ROBERT HENRY KAZMIERSKI, Pittsburgh to Miss Carolyn E. Henderson of Oil City, Pa., Nov. 11, 1933.

BERNHARD A. ROGOWSKI, New Haven Conn. to Miss Marjorie Schwarz of New York, Dec. 21, 1933.

HUGH MARTIN HALL, New Carlisle Ind. to Miss Helen Elizabeth Miller of Elkhart, Dec. 26, 1933.

HENRY ARTHUR DUNLAP, Ann Arbor Mich. to Miss Alice Josephine Burkit of Monroe, Dec. 31, 1933.

KEITH W. WOODHOUSE, Van Horn Iowa to Miss Eleanor Chernov of Independence, Dec. 28, 1933.

CARROLL C. LUTTON to Miss Clara Mae McAdams both of Burlington N. C., Dec. 5, 1933.

HAROLD M. CAMP to Miss Doris Holt both of Monmouth Ill., January 28.

JONAS SILVER to Miss Ruth Feigenbaum, both of Brooklyn January 6.

PHILIP B. REED Indianapolis to Miss Genevieve Pickrell January 2.

Deaths

Arthur Lambert Chute ☉ Boston, Harvard University Medical School, Boston, 1895, Chairman of the Section on Genito-Urinary Diseases, 1913-1914, and Member of the House of Delegates of the American Medical Association, 1926-1928, associate professor of urology, Tufts College Medical School, fellow of the American College of Surgeons, member of the New England Surgical Society and American Urological Association, past president of the American Association of Genito-Urinary Surgeons, on the staffs of the Robert Breck Brigham Hospital, St. Elizabeth's Hospital and the Boston Dispensary, the Josiah B. Thomas Hospital, Peabody, Newton (Mass.) Hospital, Leonard Morse Hospital, Natick and the Somerville (Mass.) Hospital, aged 64, died, January 12, of disease of the aortic valve.

Frank Dormer Jennings ☉ Brooklyn, Columbia University College of Physicians and Surgeons, New York 1902, clinical professor of surgery, Long Island College Hospital, past president of the Medical Society of the County of Kings, fellow of the American College of Surgeons, on the staffs of the Mary Immaculate Hospital, Jamaica Lutheran Hospital, Williamsburgh Maternity Hospital, Greenpoint Hospital, St. Catherine's Hospital and St. Cecilia Maternity Hospital and the Menorah Home for the Aged, aged 53, died, January 26, of coronary thrombosis.

George Tryon Harding, Jr. ☉ Columbus, Ohio, University of Michigan Medical School, Ann Arbor, 1900, fellow of the American College of Physicians and member of the American Psychiatric Association, past president of the Columbus Academy of Medicine, formerly clinical lecturer, Ohio State University College of Medicine, neurologist to the Grant Hospital, president and medical director of the Columbus Rural Rest Home, Worthington, aged 55, died, January 18, of cerebral hemorrhage.

Paul Churchill Hutton ☉ Colonel M. C., U. S. Army, Chicago, Columbian University Medical Department, Washington D. C., 1897, veteran of the Spanish-American and World wars, entered the regular army as an assistant surgeon in 1901, in 1906 was promoted to captain in the medical corps and was made a colonel in 1927, fellow of the American College of Surgeons, member of the Colorado State Medical Society, aged 58, died suddenly, January 27, of heart disease.

Leon Franklin Luburg ☉ Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1899, formerly instructor in obstetrics at his alma mater for many years, police and fire surgeon, at various times on the staffs of the Philadelphia General Hospital, Howard Hospital, American Stomach Hospital and the Methodist Hospital, aged 57, died, January 18, of cerebral hemorrhage.

Ellis Duncan, Louisville Ky., University of Louisville School of Medicine, 1896, member of the Kentucky State Medical Association, fellow of the American College of Surgeons, served during the Spanish-American and World wars, formerly county coroner, visiting surgeon to St. Mary and Elizabeth and Kentucky Baptist hospitals, aged 59, died, January 6, of cerebral hemorrhage.

William Wallace Eshbach, Allentown, Pa., Jefferson Medical College of Philadelphia, 1892, member of the Medical Society of the State of Pennsylvania, also a pharmacist, past president of the Lehigh County Medical Society, formerly health officer, aged 61, died, January 8, of cerebral hemorrhage and arteriosclerosis.

Abel Benson George, Burlington Iowa, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900, member of the Iowa State Medical Society, served during the World War, aged 55, died, Dec. 29, 1933, in the Edward Hines (Ill.) Jr. Hospital, of cerebral hemorrhage.

Matthew Lawrence Carr ☉ New York, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1892, instructor of oto-laryngology at his alma mater, served during the World War, on the staff of the Vanderbilt Clinic, aged 63, died, January 10, of arteriosclerosis.

John J. Gambill, Jr., Blaine, Ky., Atlanta Medical College, 1895, member of the Kentucky State Medical Association, formerly member of the county board of education, aged 59, died, January 10, in the Memorial Hospital, Huntington W. Va., of cerebral hemorrhage.

Hiram Martin Read, Seattle, Rush Medical College, Chicago 1883, past president of the King County Medical Society.

fellow of the American College of Surgeons served during the World War, formerly city health officer aged 73, died, Dec 27, 1933, of cardiovascular disease

Chester Wilmet De Mott, Independence, Kan. Rush Medical College, Chicago, 1901, member of the Kansas Medical Society, served during the World War aged 58, chief of staff at the Mercy Hospital where he died January 1, of a streptococcal infection

Leroy Clarke Hedges, Chicago, Chicago Homoeopathic Medical College, 1890, past president of the Colorado State Medical Society and formerly member of the state board of medical examiners, aged 74, died, January 17 of cerebral hemorrhage

Henry Edward Armstrong & Billings, Mont. Trinity Medical College, Toronto, Ont., Canada 1894 fellow of the American College of Surgeons on the staffs of the Billings Deaconess Hospital and St. Vincent's Hospital aged 66 died January 10

Eugene Abraham Darling & Cambridge, Mass. Harvard University Medical School, Boston, 1894 fellow of the American College of Surgeons, for many years on the staff of the Cambridge Hospital aged 65, died, January 9 of coronary sclerosis

Gudmund J. Gislason & Grand Forks, N. D. Illinois Medical College, Chicago, 1906 fellow of the American College of Surgeons, on the staffs of the Grand Forks Deaconess and St. Michael's hospitals aged 56 died, January 3, of heart disease

Howard Hodson Austin, Springfield, Ohio Eclectic Medical Institute, Cincinnati 1903 member of the Ohio State Medical Association served during the World War for twelve years county coroner, aged 53 died January 16 of heart disease

Floyd Leslie Echols, Perry Point, Md. Medical College of the State of South Carolina Charleston 1924 on the staff of the Veterans Administration Hospital aged 41 died Dec 25 1933 in the Mount Alto Hospital Washington D. C.

John Fraser Barbrick, Pasadena, Calif. American Eclectic Medical College, Cincinnati 1893 Atlanta (Ga.) College of Physicians and Surgeons 1900 California Eclectic Medical College, Los Angeles 1910, aged 65 died Dec 29 1933

Joseph Theodore Woodward, East Moline, Ill. Medical College of Indiana Indianapolis 1894 served during the World War, on the staff of the East Moline State Hospital aged 63 died, Dec 24, 1933, in Peoria, of coronary thrombosis

Bertrand Dean Ridlon, Gorham, Maine Medical School of Maine, Portland, 1894 member of the Maine Medical Association, served during the World War aged 65, died, Dec 9 1933, of coronary thrombosis and myocarditis

George Henry Donahue, Northport, N. Y., College of Physicians and Surgeons, Medical Department of Columbia College, New York 1882 member of the Medical Society of the State of New York, died Dec 31 1933

Larcus B. Allen, Alexander City, Ala. Tulane University of Louisiana Medical Department, New Orleans 1912 member of the Medical Association of the State of Alabama aged 46 died, Nov 18 1933, of Hodgkin's disease

Robert James Barritt & Pawhuska, Okla., Tufts College Medical School Boston, 1921, formerly secretary of the Osage County Medical Society aged 40 died January 10 in the Research Hospital, Kansas City, Mo.

Louis Nagorsky, New York Long Island College Hospital, Brooklyn, 1910, member of the Medical Society of the State of New York, aged 50 died suddenly January 12, of heart disease, at Jersey City, N. J.

John Eldridge Dubell, Columbus, N. J. University of Pennsylvania School of Medicine, Philadelphia 1893, member of the Medical Society of New Jersey aged 60 died Dec 31 1933 of carcinoma of the prostate

James Henry McClure, Cornelia, Ga. University of Tennessee Medical Department, Nashville, 1892 member of the Medical Association of Georgia served during the World War, aged 69, died, Dec 7, 1933

Jay William Dounce, New York Syracuse University College of Medicine, 1900, served during the World War aged 57, died January 12, in the Rockefeller Institute Hospital of bronchopneumonia

James Bernard Fitzgerald, Boston Boston University School of Medicine, 1899, College of Physicians and Surgeons Boston 1902 aged 73 was found dead Dec 23, 1933, of nephritis and heart disease

Howard Herrington, San Francisco, University of Michigan Medical School, Ann Arbor, 1894 formerly on the staff of the Franklin Hospital, aged 67, died, Dec 29, 1933 of cerebral hemorrhage

George Francis Berry, Kansas City, Mo., University of Missouri Medical College of Kansas City 1897 member of the Missouri State Medical Association, aged 66, died, January 4 of pneumonia

Wentworth Darcy Vedder, Pottstown, Pa. College of Physicians and Surgeons Baltimore 1880, member of the Medical Society of the State of Pennsylvania, aged 73, died, Dec 22 1933

Lloyd Anson Faulkner, St. Paul, Bennett College of Eclectic Medicine and Surgery, Chicago, 1885, aged 71, died, Dec 18 1933, in the Ancker Hospital, of carcinoma of the hepatic duct

Alban Frederick Emery, St. John N. B., Canada Bellevue Hospital Medical College, New York 1887 aged 77 on the staff of the St. John General Hospital, where he died, Dec 7 1933

Jean Jacques DuMortier, New Haven, Conn., Yale University School of Medicine, New Haven 1931, on the staff of the New Haven Hospital, aged 29 died, January 19 of septicemia

Robert M. Gubbins, Ceresco, Mich. Western University Faculty of Medicine London Ont. Canada 1892 member of the Michigan State Medical Society, aged 69, died January 12

Louis Harry Gribble, Zelenople, Pa., Rush Medical College, Chicago, 1931 aged 31 died Dec 22 1933 in a hospital at Butler, of injuries received in an automobile accident

Lemuel Judson Hunt, Boston Pulte Medical College, Cincinnati 1873 aged 86 died January 11 in the Massachusetts Memorial Hospital of chronic hypertrophic prostatitis

George P. Morris, De Funiak Springs, Fla. Georgia College of Eclectic Medicine and Surgery, Atlanta 1899 aged 83 died Dec 24, 1933, of chronic interstitial nephritis

Benjamin R. Freeman, Spokane, Wash. Medical College of Ohio, Cincinnati 1873 member of the Washington State Medical Association aged 89, died, Nov 28, 1933

Benjamin Franklin George, San Angelo, Texas Memphis (Tenn.) Hospital Medical College 1904 aged 58 died, Oct 28, 1933 of pulmonary tuberculosis

Ferdinand Edmund Parkinson, Saginaw, Mich. Saginaw Valley Medical College 1901 formerly a druggist aged 67 died January 7 of cerebral hemorrhage

Walker F. Cartwright, Columbia, Ky., University of Louisville School of Medicine, 1878 aged 82 died January 9 in Bradenton Fla. of arteriosclerosis

Richard Connell, Seattle, Kentucky School of Medicine Louisville 1889 aged 77, died, Dec 26 1933 of cerebral hemorrhage and arteriosclerosis

Albert Gansen, Oshkosh, Wis. Kentucky School of Medicine Louisville 1898 aged 79 died, January 5 of cerebral hemorrhage and arteriosclerosis

George Hoffman & Chester, Ill. St. Louis College of Physicians and Surgeons 1896, bank president, aged 62 died January 10 of heart disease

John Frances Hudson, Olathe, Kan. Pulte Medical College, Cincinnati 1885, aged 88, died January 11, of nephritis and myocarditis

Thomas Pleasant Callicott, Rives, Tenn., Vanderbilt University School of Medicine, Nashville, 1880, aged 80, died Dec 21, 1933

Hubert Frank Jermain & Milwaukee Wisconsin College of Physicians and Surgeons, Milwaukee 1901, aged 61, died Dec 22, 1933

H. Page Hough, Linden, N. J., Jefferson Medical College of Philadelphia 1878 aged 77, died suddenly, January 20, of heart disease

Louis Harry Ephraim, Baltimore, Maryland Medical College, Baltimore 1902, aged 74 died, Dec 16, 1933 of chronic myocarditis

Eben Jordan Marston, Bath, Maine Medical School of Maine Portland 1893, aged 63 died Dec 30, 1933, of cerebral hemorrhage

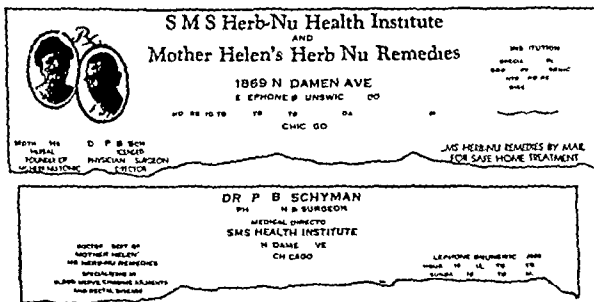
James T. Marlow & Tamarac, Ill. Missouri Medical College St. Louis 1886 aged 74 died January 12 of coronary embolism

Bureau of Investigation

S-M-S LABORATORIES

A Mail-Order Fraud of Helen Schy-Man-Ski and Peter B Schyman, M D

For many years a woman known as Helen Schy-Man-Ski and sometimes calling herself "Mother Helen" has exploited a line of nostrums from Chicago. During the last ten or twelve years she has had associated with her one of her sons, who was graduated by Loyola University School of Medicine in 1919 and licensed to practice medicine in Illinois the same year. The son was registered at Loyola first under the name of Peter B Schymanski and also as Peter Bryant Becker. After graduation Peter B Schymanski had his name changed to Schyman by order of the court. It was not long after getting his diploma that Schyman and Helen Schy-Man-Ski were working together, and at the present time P B Schyman, M D, is medical director of Helen Schy-Man-Ski and Sons. The other son connected with the founder of this piece of quackery is said to be known as Edwin B Becker.



Some of the letterheads used by the Schymanski Schyman Becker concern

That the Schy-Man-Ski business has been a profitable one is indicated by the fact that as long ago as 1924 the real estate section of the Chicago *Tribune* reported that Helen Schy-Man-Ski had purchased a piece of property "for an indicated \$130,000."

The Schy-Man-Ski business is mainly local and is one that is hard to control under our present laws. If our present inadequate National Food and Drugs Act could prevent false and fraudulent claims for "patent medicines" being made in any of the advertising, the Schy-Man-Ski business would be more respectable and less profitable. As it is, the Schy-Man-Skis are shrewd enough to confine their falsehood to the collateral advertising not covered by the present law.

During the past year or two the Schy-Man-Ski concern was careless enough to do some of its business by mail, which did bring them into a position where the public could, at least, be protected to some extent against this particular phase of their business. As a result, the postal authorities looked into the matter and on Dec 7 1933, on the recommendation of the Hon Karl A Crowley Solicitor for the Post Office Department, the Postmaster General issued a fraud order debarring from the mails the S-M-S Laboratories, Inc S-M-S Herb-Nu Health Institute, S-M-S Herb-Nu Remedies, Mother Helen's S M-S Remedies, Mother Helen's S M-S Remedies Company, Mother Helen's S M S Herb Nu Remedies and their officers and agents as such. Unfortunately, the fraud order was not extended to cover the name of Helen Schy-Man-Ski and Sons Helen Schy-Man-Ski herself or Peter B Schyman. It is doubtful also whether the amount of business that this quick concern was doing through the mails was very large in comparison with the total business that it does in this field.

According to the memorandum to the Postmaster General recommending the issuance of a fraud order the S M-S Laboratories is a corporation owned by Dr P B Schyman Mrs Helen Schy Man Ski his mother and Edwin B Becker his brother. Under that name as well as the other names that

have been mentioned, Dr Schyman is engaged with his family in offering to diagnose and furnish herb preparations for the cure of the most serious diseases through the mails. Business is obtained in the way that mail-order quacks usually obtain their business, through advertising in newspapers both foreign language and English language by direct mail circularization, and by radio. Those who answered such advertisements were sent a symptom blank which they were told to fill out and return. The government collected evidence to show that Schyman and his mother and brother claimed the ability to diagnose and cure by herbal medication on the mail order plan such conditions as tuberculosis, syphilis, diabetes, gallstones, "female trouble," kidney trouble and numerous other serious pathologic states. The Schy-Man-Ski outfit was called on to show cause why a fraud order should not be issued against it. On Nov 16 1933 Peter B Schyman and his attorney appeared in Washington and a hearing was held which consumed four days.

Schyman admitted at the hearing that on the basis of the data called for in the symptom blanks which he and his relatives furnished, it was absolutely impossible to arrive at an accurate diagnosis or to prescribe proper treatment. Of course, medical expert testimony offered by the government corroborated these admissions. In part of the follow-up letters sent out by Dr Schyman and used in the operation of the mail-order fraud, Schyman would state that he had been so busy that he had not had time to give the patient personal attention but that he had now made arrangements to have his "doctor associates" take over a large part of his practice, so that he (Schyman) would now be able to give the patient "personal attention." Yet at the hearing Schyman admitted that although he had exercised general supervision over this mail-order quackery, neither he nor any other physician personally formulated the letters recommending various preparations sent to mail-order patients, but that the work was actually done by his advertising manager and girl employees.

Schyman also admitted at the hearing that sales of "S-M-S Herb Nu Tonic," which is the chief nostrum exploited by Helen Schy-Man-Ski and her two sons, constitute approximately 90 percent of the business done by the concern. In addition, there was a so called kidney tonic, a "Body Home Ointment," a "bathing tea," a preparation called "Rematone," a nerve sedative preparation, a kidney and bladder preparation, a liniment, and others. The Solicitor in his recommendation to the Postmaster General stated that the composition of these preparations was on evidence before him, as was also their lack of curative value. The so called Herb-Nu Tonic was a dark-colored liquid with a bitter taste. According to the Schy-Man-Ski concern, this so-called Tonic contained the following ingredients:

Aloes	Valerian	Fennel
Cascara	Butternut	Icicle root
Chionanthus	Black Cohosh	Pareira Brava
Senna	Culvers Rt	Uva Ursi Leaves
Buckthorn	Echinacea	Juniper Berries
Baking Soda	Anise Seed	Couch Grass
Dandelion	Caraway	Blue Cohosh
Calumbo	Cassia Bark	Clycena
Gentian		

This complex and unscientific mixture of twenty-five ingredients runs true to form for crude nostrums prepared especially for the ignorant of foreign birth. Purgatives and diuretics with sufficient unpalatable drugs to confirm the opinion frequently held that a nasty-tasting mixture must possess great therapeutic virtue.

Even Peter B Schyman at the hearing admitted that neither the Herb-Nu Tonic nor any of his so called special preparations either alone or in combination would cure or materially alleviate cancer syphilis tuberculosis, diabetes gastric ulcer, gallstones, or any of the other serious diseases and ailments that they advertise to cure. It was brought out at the hearing too that although Schyman posed in the literature as a great "herbalist," when he was questioned as to the actions and properties of the various drugs contained in his preparations he displayed a lack of accurate knowledge relative thereto. As a result of the hearing and the investigation the Solicitor recommended the issuance of a fraud order and as already stated the mails are now closed to this quackery. Unfortunately the local and cash-and-carry quackery itself still persists.

Correspondence

VALUE OF ORGANIZATION IN CONTROLLING STATE MEDICINE

To the Editor—The past months have seen the development of federal control not only to an unprecedented extent but to an undreamed one. That control has extended into many fields which were considered exempt from government interference—business, production, agriculture have all been brought under the yoke. Wiser men than I, men whose life work has been in the field of political economy, admit that they cannot foresee the far-reaching effects of these new policies or predict how far they may extend, so that I need not hesitate to confess that I am unable to pass judgment on them even if I were so inclined. I am mentioning them here for a very different reason—because I would call attention to the fact that the medical profession has thus far not only escaped hampering, federal restrictions but has in a sense received federal endorsement—a vote of confidence from the government as it were.

In the bulletin issued by the Federal Civil Works Administration entitled "Rules and Regulations No. 5" under the head of Medical Treatment it is specifically provided that: "In locations where neither public nor designated medical facilities exist, or where the number of such facilities is inadequate to furnish the service required, local Civil Works Administrators are authorized to arrange for medical care by reputable private physicians. This does not include the use of osteopaths or chiropractors unless treatment by such practitioners is recommended by the Government or designated private physician. This recognition of the difference between scientific medicine and the left-handed schools of so-called healing is something which we have failed to achieve in our own state, and to me at least it is most gratifying that such recognition should come to the profession from the federal government."

In still another matter, the government has recognized and paid tribute to the medical profession in its handling of the medical phases of its CWA work. While it provides fixed fees to be paid for hospitalization, for laboratory work for roentgen examination, it does not fix a medical fee schedule beyond providing that "the fees charged shall not be in excess of those charged patients in the same income class as the injured person." It is as though the government recognized that the medical profession in its hippocratic code already possessed all needed regulations, that such a code of necessity transcends any lesser regulations such as might be provided by the NRA or CWA or the PWA.

There is, however, nothing permanent, nothing unchangeable, about the present regulations. The profession still faces a very real danger. If tomorrow the government should find that certain physicians are failing to abide by this code, it can provide new regulations, it can take over the entire medical work of the CWA, arrange to have it done by salaried government employees, and so take the first steps toward state medicine. In other words, you and I, the members of the medical profession as a whole, are at the mercy of the individual physician, our fate, whether or not we are to continue as individual members of a great profession, or are to become mere cogs in the machine called state medicine, depends on whether each and every one of us plays the game. Unless we are mere dreamers, we must admit that no large group of humans is 100 per cent perfect, and we must face the fact that there are sure to be those who will seek personal profit at the cost of the group welfare—unless we as an organization control them.

Group control through organized medicine is the answer to our problem. If it is to be every man for himself there can be no question but that we shall soon find state medicine a

reality. Because I believe that state medicine would be a mistake, a tragedy, not only from the standpoint of the individual physician but from the standpoint of the welfare of the nation and the continued advancement of medical science, I want to stress once more the vital need for organization, for strong organization in medicine. Such organization, and only such organization can insure freedom to the individual and to the profession in medicine. Individualism and freedom in scientific pursuits have meant advancement in the past and we must look to them for advancement in the future. Organized medicine must have the support of every thinking physician if we are to continue to advance.

Working as individuals, we can do nothing to stem the tide if it turns toward state medicine. As members of a great national organization, the American Medical Association, we can do much. But we must remember that this national organization is strong only as it has the support of its component state medical societies, and that these state societies are strong or weak as the county medical societies that compose them are strong or weak, loyal or indifferent. Now is the time for each component county society to show its strength and its loyalty, to hold its membership to the spirit of the hippocratic code that we may escape membership in a mere trade union and the code control of the federal government.

OLIVER J. FAY, M.D., Des Moines, Iowa

Queries and Minor Notes

ANSWERS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

BOOKS AS DISEASE CARRIERS

To the Editor—Please state what restrictions should be put on the circulation of books from a public library among patients in a general hospital, especially on the obstetric floor, which is well isolated from the remaining parts of the hospital.

W. I. CAMPBELL, M.D., New Castle Pa.

ANSWER—This question has been answered in previous issues of THE JOURNAL, for example once in the issue of Sept. 12, 1914, page 964 and reference to it was made in THE JOURNAL April 20, 1912, page 1201. It is also mentioned in Hygiene June 1925, page 358. The disinfection of books was the subject of a note in THE JOURNAL May 23, 1931, page 1819. To all these sources the questioner is referred.

The matter of the transmission of infection by fomites, such as books, has been agitating public health officials and heads of hospitals for centuries. Whereas formerly the danger was considered great, later experience seems to prove that it is small.

It has not been shown that library workers are more susceptible to infections than the general population, although they handle books that have come from homes that are infected and books that are really infected, and most of the writers on the subject after explaining the possibility of danger, conclude that ordinary care is usually sufficient to prevent infection.

On the other hand the biologic study of the habits of bacteria make it clear that the element of danger should not be ignored. Smiley of Providence, R. I., proved bacteriologically that hemolytic streptococci and staphylococci will live exposed to room temperature for three weeks, the staphylococci being a little more hardy. He says that "a safe general rule appears to be that books, not grossly contaminated, if left untouched in a warm room for a few months are not capable of transmitting infection." The germs lived longer inside the books than on the covers. A few months is a long time to entertain a potential danger. Diphtheria will live nearly a year in its membrane and many months on a dry surface. Balmann of London made a study of the streptococci of scarlatina and found that streptococci were definitely present on books that had been sprayed with broth cultures of the bacterium eighteen days before and that under experimental conditions they can be recovered during a period of four weeks.

A report from the Hygienic Institute of Belgium showed that pathogenic bacteria can be recovered from paper money during a period of from four to six weeks.

A distinction must be made of the various forms of infection, especially since the biologic cause of many of them, such as smallpox, measles, rubella and chickenpox, is not known. It is believed that these viruses die rapidly when exposed to drying and air, but it is not the same with diseases caused by spore-bearing bacteria, such as tetanus or anthrax. Little knowledge exists of the life tenacity of filtrable viruses, and Calmette's and Kendall's work on morphologic changes in bacteria opens up new avenues of thought.

An inquiry at the Chicago Public Library elicited the statement that the books are fumigated only when it is known that they come from an infected home. Children's hospitals always wash and otherwise disinfect toys used by successive children and destroy those that have been grossly contaminated.

While hospitals have conquered the graver infections and contagions, such as hospital gangrene and erysipelas, and have made most gratifying improvements in the reduction of suppurations in clean wounds and done wonders in the prevention of cross infections such as diphtheria, scarlet fever and measles they are still far from perfect. Milder suppurations that destroy primary union, mild or greater rises of temperature that retard recovery, occasional cross-infections with all kinds of diseases, so called catgut infections, frequent individual cases or even mild epidemics of pyelitis, unexplained late pneumonias in convalescence in adults and children, pemphigus in the new-born, all these and other complications occur with a disturbing frequency in general hospitals. This means that patients are being exposed to avoidable dangers from within. These dangers are increased by visitors, who are allowed to carry in all kinds of infections from the outside, and by books, which are admitted from a circulating library, to come into intimate contact with the patients' hands and mouths and add to the risk.

It is not easy to disinfect a book and formaldehyde seems to be the most successful. The books are hung on strings in an atmosphere strongly impregnated with formaldehyde for at least twelve hours and before being put away, a few drops of solution of formaldehyde should be sprinkled between each two leaves. Patients suffering virulent diseases should be given only pamphlets and clippings, which are later destroyed.

PAINLESS OBSTETRICS

To the Editor—I notice that a number of men throughout the country are using a so-called painless delivery in obstetric practice. I understand that most of these men give the patient some form of analgesic or anesthetic and do a dilation version and rapid delivery. I should like to have your opinion as to the advisability of this and any other information you will give me about it. If published please omit name.

M D, North Carolina

ANSWER—The type of delivery outlined in the query is pernicious and to a degree criminal if it is performed as a routine and without a definite indication other than the alleviation of pain. During the last few years, efforts have been made to shorten labor artificially. De Lee proposed what he called the "prophylactic forceps" operation, by which he meant the application of forceps almost as a routine when the fetal head was on the pelvic floor and visible. This entailed practically no risk to either the mother or the baby but was intended for and should remain a procedure only for those skilled in obstetrics. Potter advocated almost routine version and extraction at the end of the first stage of labor in order to eliminate the pain of the second stage. Unfortunately this operation, even in the hands of specialists in obstetrics, has a definite maternal and fetal mortality and morbidity. Hence it should not be used as a routine but only for strict indications. Since trouble may arise from version and extraction after there is complete dilatation, how great must the risks be when the cervix is manually dilated before the version is performed? All authorities are agreed that forcible dilation of the cervix during labor, regardless of whether it is done manually instrumentally or by means of a colpeurynter, is in reality forcible tearing apart of the cervix. During and following this procedure there is danger not only of extensive lacerations even rupture of the lower uterine segment but also the risk of serious hemorrhage, severe infection in the broad ligaments and dead or injured babies. Dilation of the cervix followed by version and rapid delivery may be painless to the patient while she is anesthetized, but the painlessness and shortening of labor will usually be more than counterbalanced by discomfort and trouble after delivery. An ample array of drugs exists with which to relieve the pains of labor satisfactorily in most cases. Version and extraction even after complete dilatation should

be performed only by a trained obstetrician, because even he may encounter difficulties. The physician with little obstetric experience will pay heavily for his apprenticeship in learning this operation unless he is well instructed and supervised, but if he performs this procedure through an undilated cervix for no valid obstetric reason except to shorten labor or relieve pain, he is inviting disaster to both mother and child and he will be liable to a court action should injury result to mother or child. The maternal and fetal mortality in this country is unduly high and in a large measure is due to meddlesome intervention during labor. Accouchement force is the worst of all unnecessary obstetric operations. No physician should attempt, and no reputable hospital should permit, the routine employment of the type of delivery outlined in the query.

EPILEPSY

To the Editor—There has come under my attention a girl aged 9 years who is evidently suffering from epilepsy. She is very intelligent is carrying on her school work in the home and is making her grades. At birth it seems that she suffered some head injury which the father says the attending physician called some kind of an intracranial hemorrhage. At 3 years she had a spinal puncture the father does not know why. She has convulsions mostly at night and usually between the evening meal and bedtime. The father relates that when the patient has an empty stomach she has no spells and that occasionally, when she is threatened he gives an enema and she escapes severe attacks if not the attacks altogether. A gastro-intestinal series has never been made and I do not know of any diagnosed intestinal condition that might complicate the case. She has had an appendectomy. The father has spent a good deal of time and money on behalf of the patient but there has been no relief. Phenobarbital seems to do better than any drug tried. The little patient suffers from indigestion it is said. She is underweight but otherwise appears normal. This case has not come under my care for treatment but has been presented for general interest only. If there is anything you might suggest as to an examination and a course of care and suggested treatment, I should be glad to pass it along to the father. Please omit name and address.

M D Texas

ANSWER—Epilepsy is a symptom and not a disease. It may be caused by many diseases that can be diagnosed, even though at times it appears without any cause that can be detected with available methods of study—the so-called cryptogenic epilepsy. Hence the importance of detailed examination. Even when no definite cause is demonstrated by such an examination, however, much can often be accomplished, especially in childhood, by regulation of the diet—the amount of fluids, varying degrees of ketogenesis and so on—with or without the administration of drugs such as the bromides and phenobarbital. Treatment should be instituted as early as possible, as there is a tendency, when the condition is allowed to continue unchecked for the development of an epileptic habit. One cannot advise too strongly, therefore, that this child should be studied by a competent neurologist and pediatrician even if it is necessary to have recourse to a clinic.

PURPURA RHEUMATICA

To the Editor—I have a case of purpura rheumatica under my care. A woman, aged 44 has had the symptoms and signs almost continuously for the past sixteen months. She presents a textbook picture of crops of large purpuric lesions over the arms, hands, face and neck accompanied by itching and burning sensations as well as by localized edema. The lesions change in a few days from pink to red and then to a dark purple. Joint manifestations are scattered but are most severe in the knees where swelling and redness are noted with some attacks. The lesions were first seen on the legs and swelling or edema was first noted here but both have disappeared and have not returned for several months. My available literature has recommended symptomatic treatment only, ultraviolet therapy, blood transfusions and splenectomy. I would greatly appreciate advice as to treatment and prognosis. Please omit name.

M D Pennsylvania

ANSWER—Purpura rheumatica follows no typical clinical course. Although the condition has almost always a favorable termination, there is a tendency to repeated attacks. New manifestations or recurrences may continue irregularly for days or weeks. Recurrence after months or years has been observed. The nature of this type of purpura is by no means clear, but it can be stated with certainty that it is not associated with a reduction of blood platelets or change in the intravascular clotting mechanism. The frequent association of purpura of this type with erythema multiforme, urticaria and edema suggests a change in vascular permeability. Various agents have been suggested as the underlying cause of the change in vessel permeability but they cannot be established in each case with any regularity. In some cases infection can be definitely related to the symptoms and in others hypersensitivity to protein in one form or another has been demonstrated. Many cases, however, are without a well defined etiology. It has been suggested

that the condition is due to an acute capillary weakening from some toxic action similar to that of histamine also that the hemorrhagic cutaneous manifestations are a secondary phenomenon and are frequently preceded by erythematous or urticarial skin manifestations. Treatment is difficult to evaluate. In many cases the condition is self limited. In others treatment of the infection when present or desensitization to the offending protein seems to be followed by good results. Symptomatic treatment consisting of 25 cc of a 10 per cent solution of calcium chloride intravenously or calcium lactate in doses of from 2 to 6 Gm a day by mouth has been recommended. This is considered by some to decrease the permeability of the vessels. When urticaria and edema are prominent symptoms epinephrine subcutaneously has been advised. While splenectomy has been suggested and performed in a few cases the variable and mild course of the malady makes such a radical procedure of doubtful value.

IDENTIFICATION OF SPERM AND SEMINAL FLUID IN VAGINA

To the Editor—Would you please give me whatever information you have concerning the length of time semen will remain in the vagina without mechanical interference (as douching) so that it can be recognized on examination from appearance and odor of the material. The case in question will probably be a court case. A girl aged 16 years was brought to me by her parents for examination. They claimed that she had been found at a party just before being brought to me and they wanted to know if she had been assaulted. She denied having been touched by any one that evening or in fact at any time. Examination showed that the hymen was absent and that the vagina contained a whitish material which had the appearance and characteristic odor of seminal fluid. A medium sized speculum was used in making the examination. She did not complain of pain during the examination. The material was all over the cervix and the walls of the vagina and in the vestibule. She finally admitted having had intercourse a number of times but said that the first time was eleven days before. She absolutely denies any later contact. Would it be possible for seminal fluid to remain in the vagina so that it practically coated the cervix and was much in evidence over the walls of the vagina after a period of eleven days? A prompt reply would be appreciated. Kindly omit name. M D

ANSWER—From the appearance and odor alone one is not justified in assuming that a whitish material on the vaginal mucosa and cervix is semen. Microscopic examination of the material will reveal whether the secretion contains spermatozoa; the fresh hanging-drop preparation showing motile or immotile sperms, epithelial cells and crystals. Stained slides may also be used for sperm identity and may be kept for medicolegal evidence.

A chemical test should also be applied to the secretion for the detection of semen. The one commonly used is the Florence test, in which a drop of a solution of potassium iodide in iodine is mixed with a drop of the suspected fluid. If semen is present, brownish-red rhomboid crystals (lecithin) will form. The results of this test are of medicolegal value.

Owing to the vaginal acidity, spermatozoa rapidly disappear from the vagina but may remain motile in the uterus for a week and in the fallopian tubes two weeks. Runge proved that spermatozoa disappear from the vagina within forty-eight hours. A whitish secretion such as is described is not uncommon in women and may be the result of hypersecretion or vaginal mucosal exfoliation. Smears usually reveal merely pavement epithelial cells.

MALARIA PROPHYLAXIS

To the Editor—1 Do you think a drug prophylaxis should be used in CCC camps in areas in the South where malaria is prevalent? 2 What is the best drug to use and the dose for malarial prophylaxis as for example in CCC camps in Georgia and Florida where malaria is prevalent? 3 Atebrin has been highly advertised in this community as a five day treatment for malarial fever. What is your opinion as to its use for the treatment and prophylaxis of malaria? Is it superior to quinine? 4 What is the best opinion as to the use of plasmochin and plasmochin compound as for treatment and prophylaxis of malarial fever and how does it compare with quinine and atebrin? Please omit name and address and use initials. M D

ANSWER—It is impossible to give dogmatic answers to these questions. Most of the drug prophylaxis has been done with quinine. The consensus now is that quinine will not prevent infection but will prevent clinical attacks. Thus particularly in camps where it is necessary to keep up the efficiency of a group of workers, it is possible to reduce clinical malaria to a minimum over a long period. Many of these individuals, however, will have contracted the infection so that later after the drug is discontinued and particularly if their general resistance is lowered, they may relapse. Quinine hydrochloride is

generally given in doses of 0.3 Gm daily or 1 Gm twice a week. Some authorities suggest from 0.5 to 0.65 Gm daily.

There is evidence that plasmochin acts as a prophylactic actually preventing infection, especially in malignant tertian malaria but many feel that the doses necessary for complete protection are too large to be safe. Some assert that 0.03 Gm a day can be taken for several months without untoward symptoms and will materially lessen the case rate especially of malignant tertian malaria. Certainly even small doses are of public health value because even when they do not materially affect the individual's infection they render the gametocytes noninfective to mosquitoes and are of great ultimate advantage to public health. A safe prophylactic dose is said to be about 0.018 Gm.

So far reports concerning atebrin are few. It is said to destroy curatively all plasmodial forms of benign tertian and quartan malaria but only the schizonts of malignant tertian malaria. It is usually given in doses of 0.1 Gm three times a day and in the treatment of malignant tertian malaria 0.01 Gm of plasmochin is added for the crescents. The course of treatment is from five to ten days. The low toxicity and its tendency to remain for a long time in the body must recommend it for use as a prophylactic but satisfactory evidence for such usefulness is not yet available. Among side actions that have been reported for atebrin are transient yellow discoloration of the skin and gastro intestinal disturbances.

In sum quinine is still of most proved value in the treatment of malaria. Plasmochin has been proved to be a wonderful adjunct particularly because of its action on the gametocytes of malignant tertian malaria. Atebrin alone and combined with plasmochin for malignant tertian malaria may be superior to both the preceding but it is too recent a discovery to permit definite conclusions. Provided malaria in the CCC camps in Georgia cannot be controlled by mosquito reduction some type of drug prophylaxis would seem advisable but with any of the drugs it probably will partially control the symptoms without absolute protection against infection. In view of its promise it would seem admissible to try atebrin (combined with plasmochin if much malignant tertian malaria is present). If this does not give satisfactory results the use of quinine (or plasmochin compound) a mixture of plasmochin hydrochloride 0.01 Gm and quinine sulphate 0.125 Gm, if much malignant tertian malaria is present) would probably be the next best chance.

Neither plasmochin nor atebrin has been accepted by the Council on Pharmacy and Chemistry.

THYROID DISTURBANCE DURING PREGNANCY

To the Editor—A woman aged 27 is now in her fourth month of pregnancy. Prior to conception the thyroid gland was scarcely palpable except for a firm nodule measuring 1 by 2 cm in the upper pole of the left lobe of the gland. During the past two months this nodule has approximately doubled in size and the remainder of the gland has become more easily palpable. There are no clinical signs of hyperthyroidism except a slight emotional instability at times and this could be accounted for by worry over economic conditions. A basal metabolic rate has not been determined owing to distance from the city. The adenomatous area is beginning to exert a feeling of pressure but is not sufficient to make the patient aware of it all the time. No physical signs of pressure are demonstrable as yet. Please advise what iodine therapy you would recommend in this case and over how long a period it should be used. Kindly omit name and address. M D Maryland

ANSWER—Stimulation of the thyroid to become larger or functionally hyperactive during pregnancy seems to be a frequent occurrence. These phenomena are believed to be due to the participation of the thyroid in the increased metabolic demand incident to pregnancy and lactation. Frequently pressure symptoms and, rarely, severe hyperthyroidism may be observed. Usually the thyroid manifestations of pregnancy are mild and terminate with the termination of the pregnancy and lactation. Occasionally the pregnancy may be the obvious inciting agency in originating a true hyperthyroidism which does not terminate with the pregnancy.

The principles governing management do not differ in pregnancy from thyroid disturbances occurring under other circumstances save that in pregnancy one may more confidently look forward to a spontaneous remission. Iodine in small doses, such as 5 drops of compound solution of iodine twice a day, may be employed to advantage and should be continued throughout lactation. In case severe manifestations due either to pressure or to hyperthyroidism should develop the principles governing management should be the same as though pregnancy did not exist. Under these conditions surgical intervention at the hands of a well trained surgeon in this field, with the patient under the influence of iodine feeding, should not be withheld because of the presence of pregnancy.

CELLULOID BODY CAST

To the Editor—Will you kindly send me detailed instructions for making a celluloid body cast?
M D Michigan

ANSWER—A celluloid body jacket is made as follows. A plaster-of-paris model is made over a thin stockinet. This model is split and removed and rebanded. It is then placed in a drier until perfectly dry. Before the cast is removed, indelible lines are placed across so that when they are matched up after the model has been removed they will ensure the exactness of the shape of the model so that it will be exactly as on the torso.

When the cast is thoroughly dry, the inside is either powdered with talcum or covered with a thin layer of tincture of green soap. Plaster cream is poured into the model until it is filled and a long iron bar is placed in the middle of the model. It is then allowed to dry with the iron bar protruding from the top and bottom.

The original plaster model is then removed and one has an exact positive of the torso. Over this torso a thin layer of stockinet is placed as the first layer for the celluloid jacket.

The celluloid material is prepared as follows. Celluloid comes in various forms; some use old celluloid collars, others use scraps of film from the moving picture industry, others use pyraline. These materials are dissolved in acetone. Other substances are used, but acetone chiefly. The mixture is stirred until a viscid cream is obtained.

The celluloid is then ready to be applied by means of a thin brush. Layer after layer of stockinet or crinoline is used, between each two layers a coating of celluloid cream is applied and just as it is about to dry another layer of material is applied. Usually from six to eight layers of material are used, and after the last layer has thoroughly dried (preferably in the sun) one or two layers of celluloid cream are applied in order to produce a smooth surface. Some use a layer or two on the inside to produce a smooth surface. In some clinics and brace shops, a layer of duco is applied as the final coat. When all the celluloid and duco have been applied the jacket is trimmed at the top and bottom and under the arms and "finished off" with either leather or chamois. Some line the cast with chamois. Straps and buckles or eyelets are applied and laces used.

BRACHIAL BIRTH PALS—DUCHENNE'S PARALYSIS

To the Editor—Will you kindly outline treatment for Duchenne's paralysis due to injury at childbirth? Kindly omit name.
M D New Jersey

ANSWER—Brachial birth palsy, sometimes called obstetric palsy, is a condition found at birth in which there is loss of use of part or all of an upper extremity. It was described by Schmell in 1768 by Duchenne in 1872 and by Erb in 1874. It is usually referred to as Erb's palsy or Erb-Duchenne palsy.

There are three recognized types: the upper-arm type, called the Duchenne-Erb; the lower-arm type, called the Klumpke; and the whole arm type. The more common type, that of the upper arm, involves the fifth and sixth cervical roots and the suprascapular nerve which produces paralysis of the muscles of the upper arm with the exception of the supinator. The junction of the fifth and sixth cervicals is called Erb's point.

The treatment may be divided into immediate, delayed and late. When a new-born child is found to have brachial palsy, he should be treated immediately by gentle manipulation. The affected arm is placed in abduction and external rotation. A bandage looped round the padded wrist with the ends tied to the head of the crib maintains an excellent position. The improvement that occurs in twenty-four hours in certain cases is miraculous.

The indications in all brachial palsies are to stretch contracted tissues to allow overstretched tissues to contract to increase the power of stretched weakened tissues and to increase the circulation of weakened structures. The methods of meeting these indications are correction of the deformity, application of splints, stimulation of muscles by means of the electric current, muscle education, muscle stretching and massage and operation.

The correct position is 90 degrees of abduction of the shoulder, outward rotation of the humerus and flexion of the elbow to 90 degrees, complete supination of the forearm, dorsiflexion of the wrists and extension of the fingers. The best means of obtaining this position is a brace of the type popularized by Sever. One should alternate between the airplane splint, the plinth splint and no splint at all.

Physical therapy includes neuromuscular reeducation, gentle massage, passive and active movements, game rhythm and noise producing toys which the child attempts to grasp. For

older patients, swimming and "climbing up the door with the fingers" are beneficial exercises. Active movements are the most valuable. Until they are possible, passive movements prevent fibrosis. All major positions should be assumed from four to six times daily.

Taylor advocated that, if improvement is unsatisfactory at the end of three months, exposure of the brachial plexus and suture of the damaged nerve ends be done.

The disadvantage in operating during early infancy lies in the small field and the small size of the nerve which makes the technique of suturing difficult. Sharpe advised the exposure of the plexus at the age of 1 month. He sutures the nerves end to end and sheath to sheath and when the separation is greater than 3 or 4 cm, splices the nerves or bridges the gap with several strands of silk or nerve taken from other parts of the body.

Late treatment includes operative correction of the deformity. The chief operations are those described by Sever, Kleinberg, Lange, Thomas and Tubby.

PHOSPHORUS POISONING AND APLASTIC ANEMIA

To the Editor—I recently had a case of aplastic anemia which seems directly traceable to the inhalation of the fumes generated in the process of arc welding. The patient noticed headaches and exhaustion for a year previous to being obliged to stop work because of a severe bilateral epistaxis; these varied in severity with the amount of time the equipment was used and with the type of welding rod. He also noticed no headaches after the use of a bare steel rod. The progression of symptoms seems to show a definite cause and effect relationship. There were five other nasal hemorrhages. The past history is irrelevant. The patient was examined by a number of men who agreed on the diagnosis of aplastic anemia. Six transfusions were ineffective. The autopsy showed no other pathologic changes. Moderate hyperplasia of the bone marrow and fatty degeneration in all organs constituted the only report. Chemical analysis of tissues was not complete. One maker of welding rods here states that the common substances used for coating is a mixture of asbestos, copper sulphate, arsenic and sodium fluoride. None of these substances were found in analysis of the rods used by the patient. The composition seems to be a trade secret and information from commercial concerns is not available. Can you help me to references on similar cases or suggest what the involved chemistry might be? The general survey of the case fitted chronic phosphorus poisoning more nearly than anything else.
OLIVER C. NICKUM, M.D., Omaha

ANSWER—Any arc welder is likely to have also engaged in some acetylene welding. Acetylene may contain hydrogen phosphide as an impurity. It is possible, but improbable, that the welding or welded materials may have included ferrosilicon. If either of these circumstances can be established, poisoning by hydrogen phosphide becomes a tenable assumption.

In the absence of such substances as phosphorus and arsenic, idiopathic aplastic anemia, wholly unrelated to work as the cause, must be regarded as a possible cause of the disorder and death. More often than otherwise, these rare dyscrasias are attributable to obscure conditions within the body, entirely uninfluenced by work conditions or materials. Inquiry should be made as to exposure to benzene or kindred hydrocarbons. Any extended exposure to such substances might lead to exactly the type of clinical picture described in the query. Fumes arising from arc welding are quite capable of causing headaches, lassitude, marked weakness, inflammation of the upper respiratory tract, severe thirst and similar manifestations, but little justification exists for connecting a fetal aplastic anemia with this trade, based on the limited information furnished in the query.

TREATMENT OF ACNE

To the Editor—I am treating a case of acne pustulosa in which the face, neck, chest and upper half of the back are involved. Have you any suggestions for effective treatment of this case?
JAMES PERRY LEVFESTER, M.D., Green Bay, Wis.

ANSWER—A well ordered, simple life should be prescribed, regular hours, plenty of sleep, exercise in the open air and a simple diet. All greasy foods, rich desserts and fats other than milk and butter should be prohibited. Plenty of vegetables and fruits are desirable. Alcohol, chocolate, cocoa, tea and coffee should be avoided. Care must be taken that all vitamins are supplied. If constipation persists in spite of the fruit and vegetables in the diet, mild laxatives may be prescribed. Anemia, if present, should be treated with adequate dosage of iron.

The patient should be instructed to wash the affected parts with hot water and soap, using for a very greasy skin green soap or, if many comedones are present, hand sapolite. The skin is then dried, washed with alcohol and all pus evacuated.

and comedones expressed. Hot towels are then applied for ten minutes, then a cold water or ice rub the skin dried and a lotion applied. This should be done every evening before retiring. The best lotion is solution of sulphurated lime, N. 1 (Vlemmick's solution), diluted with nine parts of water. If its odor is unbearable, lotion may be composed of zinc sulphate and sulphurated potassa—2 Gm of each in 60 cc of rose water may be used in its place. The strength of the lotion should be increased as the case requires. If the skin becomes uncomfortably dry or scaly the lotion should be discontinued until the normal condition returns.

Cases that do not yield within a month or two to such treatment require retic treatment. Superficial pustular cases showing few comedones can often be controlled with ultraviolet radiation, a mild erythema dose twice a week. When a more severe dose is given, as happens in spite of the greatest care, a longer interval should be allowed for recovery. Other cases should be given one eighth or one fourth doses of roentgen rays over each area, with care to avoid much overlapping. These treatments are given once a week until two full erythema doses (1,200 roentgens) have been given. If not clear they are then treated with ultraviolet rays as mentioned. During treatment with roentgen rays careful watch should be maintained for dryness and wrinkling of the skin particularly about the corners of the mouth. If this is seen the treatment must be discontinued. Strong lotions should not be used with full doses of roentgen rays because their action may mask a roentgen effect, or the combined action produce an irritation that would not occur with either one alone.

While the etiologic importance of the endocrine glands in the causation of acne vulgaris is generally acknowledged not enough is yet known of the modus operandi of their action to make practical the use of gland extracts in treatment.

Mention must be made of the experience of A. H. Hoge (Acne Due to Milk Allergy. *THE JOURNAL*, March 8, 1924, p. 788), who demonstrated in allergy to milk in a case of severe acne vulgaris, and cured it by removing milk from the diet.

The treatment of acne vulgaris must be individualized according to the special problems presented by each case.

MENINGOANGULAR SYMPHIS

To the Editor—A white man aged 55 seen in generalized convulsions four months ago had been noticed by the family to have gradually had increasing nervousness for the past two years and frequent lapses of memory and inability to form words. The deep reflexes were very active but there was no Babinski reflex. The pupils were slightly irregular but reacted to light. The spinal fluid and blood Kline tests were both four plus and the colloidal gold curve was 000123000. Considerable improvement followed a course of eight graduated injections of neoarsphenamine up to 0.6 Gm. and alternate injections of sodium bismuth thioglycollate 0.2 Gm. At this time the patient began to complain of itching so the neoarsphenamine was discontinued. A course of trypanamide was begun with 2 Cm. increasing to 3 Cm. a week alternating with sodium bismuth thioglycollate. After the third injection of trypanamide there was a beginning contraction of the visual fields. At this time the patient was also complaining bitterly of the pain caused by the intramuscular injections of the bismuth compound so all parenteral treatment was discontinued and the patient was given potassium iodide. After eight days he was observed to be considerably more nervous complained of feeling electric shocks and of seeing geometric figures. Treatment was resumed with neoarsphenamine 0.6 Gm. for a week alternating with sodium bismuth thioglycollate 0.2 Gm. and again the general health of the patient is improving. The reflexes remain brisk there is no Romberg nor Babinski sign and the pupils continue to react well to light, but the patient is still unable to repeat complex nonsense phrases. However, I do not feel that the neoarsphenamine is doing the most for the meningoangular element of this syndrome. Is there any thing more besides the use of malaria (which he refused) that may be done? Would it be safe to begin injections of trypanamide again? Would alternate injections of trypanamide and neoarsphenamine be beneficial? Please omit name.

M. D. Wisconsin

ANSWER—From the facts given it seems probable that a diagnosis of meningoangular syphilis is justified, but care should be taken to exclude an intracranial neoplasm of non-syphilitic nature. While trypanamide and inoculation with malaria are indicated in parenchymatous syphilis of the brain or in dementia paralytica, the indications in arterial and meningeal syphilis are rather for spirocheticidal remedies such as the arsphenamines, compounds of bismuth and of mercury, and the iodides. In estimating the results from treatment it must be remembered that irreversible damage to nerve tissue may possibly have been done through the thrombosis of arteries, with consequent softening. These arteries may be of small caliber, with the result that the cerebral damage is of small size. The symptoms may be correspondingly localized but nevertheless persistent. Trypanamide is apparently contraindicated in this case.

EFFECTS OF FALCISIOR DUST AND BAKELITE DUST

To the Editor—Please send me information on the effect of excelsior and bakelite dust on the lungs when inhaled in large amounts also the effect of acid fumes when inhaled in moderate amounts over long periods of time.

I. I. JEFFERS M.D. Chicago

ANSWER—Excelsior dust is essentially harmless, except a mechanical action which largely is limited to the upper respiratory tract. Excelsior made from pine and other conifers may be more irritating owing to a content of resin and oxidized products of resin. Bakelite dust is more irritating, owing to the presence of oxidized derivatives of phenol and formic acid. The well known irritating action of bakelite dust on the skin, due to substances akin to hexamethylenetetramine may be duplicated on the membranes of the respiratory tract. Neither excelsior nor bakelite is known to produce any severe condition comparable to the action of silica or asbestos dust. So great a variety of acids exist and so great a diversity of toxic action is known to be caused by them that it is not practical here to furnish any detailed statements. Although hydrocyanic acid and phenol are both toxic little similarity exists in the manner or type of injury produced.

Since not even a list of toxic acids may here be listed, because of space limitations the suggestion is made that information of this character be sought in Henderson and Hagerd's 'Noxious Gases,' published in 1927 by the Chemical Catalog Company.

IRRITATION FROM ENAMELS

To the Editor—I have a patient who acquired eczema about the face and scrotum shortly after painting with green Water Spar-Quick Drying Enamel made by the Pittsburgh Glass Company. The reason a causal relationship is attributed to exposure to this enamel is that he has had eczema on only one previous occasion and that was immediately after using the same type of four hour drying enamel. The prodromal symptoms that followed immediately after using this paint the last time were itching eyes and sore throat. The skin rash then followed. What ingredients in this special paint could cause this reaction? Please omit name.

M. D. Connecticut

ANSWER—Without particular reference to the product of the Pittsburgh Plate Glass Company, it may be stated that various alcohols, acetates and hydrocarbons that enter into enamels and varnishes are skin irritants.

The sore throat and irritated eyes are common manifestations. The hands, forearms, neck and face are the sites commonly involved by dermatitis. Involvement of the scrotum is unusual. Apparently it is possible for painters to become sensitized to some of these agents with the result that trivial exposure is followed by a dermatitis.

Patch tests should be applied to the forearm of the painter using some of the specific product for test purposes, with controls consisting of one or two other enamels and a blank. If the reaction definitely is more from the specific paint than from others in its class it may be concluded that some particular ingredient found only in the specified product is responsible.

If reactions to several enamels are similar, it necessarily must be concluded that the painter is susceptible to the action of various types of enamels.

Further, it will be possible to make patch tests with the various individual ingredients of enamels including such items as ethyl alcohol, amyl and butyl acetates, amyl and butyl alcohols, possibly naphtha, turpentine and benzene. It is possible that the pigment contains chromium, which in itself may be the offending agent.

VASECTOMY—VAS LIGATION FOR STERILITY

To the Editor—Will you please advise me on contraceptive methods? Patients are demanding this information and I would like to be informed of the best method to date. I have two married men that wish to be sterilized. Does tying the cord interfere with sex life? Is there any tendency to atrophy of the testicle or impotence later? Could the vas be reanastomosed later if the patient so desired? I desire medical information on this operation on the male. I am familiar with the textbook operations for tying the cord. R. R. McCrumb M.D. Lansing Mich.

ANSWER—For a complete review of contraceptive methods and details of technique the subscriber is referred to Dickinson and Bryant's book, *Control of Conception*, Baltimore, Williams & Wilkins, 1931. In the same volume, chapter VIII deals with the legal aspect of sterilization. Vasectomy or vas ligation does not interfere with sex life and there is no evidence that it causes atrophy of the testicle or impotence. In fact the Steinach operation of rejuvenation is dependent on ligation of the vas. Reanastomosis is a possibility, but the expectancy of success would be small.

Council on Medical Education
and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Cleveland, June Sec Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Written (Group B Candidates) The examinations will be held in various cities of the United States and Canada April 7 Oral (all candidates) Cleveland June 12 Sec Dr Paul Titus, 1015 Highland Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY Cleveland June 11 Sec Dr William H Wilder 122 S Michigan Blvd Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

CALIFORNIA Los Angeles Feb 26 March 1 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

CONNECTICUT Regular Hartford March 13 14 Endorsement Hartford March 27 Sec Dr Thomas P Murdock 147 W Main St Meriden Homeopathic New Haven March 13 Sec Dr Edwin C M Hall 82 Grand Ave New Haven

IOWA Des Moines Feb 26 28 Dir Division of Licensure and Registration Mr H W Grefe Capitol Bldg Des Moines

MAINE Portland March 13 14 Sec Dr Adam P Leighton Jr 192 State St Portland

MASSACHUSETTS Boston March 13 15 Sec Dr Stephen Rushmore 144 State House Boston

NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Feb 14 16 May 7 9 (limited to a few centers) June 25 27 and Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

NEW HAMPSHIRE March 15 16 Sec Dr Charles Duncan State House Concord

OKLAHOMA Oklahoma City, March 13 14 Sec Dr J M Byrum Mammoth Bldg Shawnee

PUERTO RICO San Juan March 6 Sec Dr O Costa Mandry Box 536 San Juan

WEST VIRGINIA Charleston March 12 State Health Commissioner Dr Arthur E McClue Charleston

WISCONSIN Basic Science Madison March 24 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee

Nebraska November Examination

Mrs Clark Perkins, director, Bureau of Examining Boards, reports the written examination held in Lincoln Nov 22-23 1933 The examination covered 10 subjects and included 95 questions An average of 75 per cent was required to pass Nine candidates were examined, all of whom passed The following schools were represented

School	PASSED	Year Grad	Number Passed
College of Medical Evangelists		(1933)	1
Creighton University School of Medicine	(1931)	(1933 2)	3
University of Nebraska College of Medicine	(1929)	(1932 2)	5

Eleven physicians were licensed by reciprocity and 1 by endorsement from August 10 to November 21 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Northwestern University Medical School		(1933)	Utah
Rush Medical College		(1930)	Illinois
Harvard University Medical School		(1922)	Iowa
Creighton University School of Medicine		(1930)	Kansas
University of Nebraska College of Medicine		(1920)	Maryland
(1931) Illinois			
Western Reserve University School of Medicine		(1932)	Ohio
Hahnemann Medical College and Hosp of Philadelphia		(1932)	Penna
Jefferson Medical College of Philadelphia		(1931)	Penna
Temple University School of Medicine		(1932)	Kansas
Marquette University School of Medicine		(1933)	Wisconsin

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Cornell University Medical College		(1924)	B M Ex

West Virginia November Report

Dr Arthur McClue state health commissioner reports the oral and written examination held in Morgantown Nov 16 18 1933 The examination covered 11 subjects and included 110 questions An average of 80 per cent was required to pass Seven candidates were examined 5 of whom passed and 2 failed Twelve physicians were licensed by reciprocity The following schools were represented

School	PASSED	Year Grad	Per Cent
Rush Medical College		(1933)	88
University of Louisville School of Medicine		(1932)	89
University of Virginia Department of Medicine		(1929)	82
University of Virginia Department of Medicine		(1932)	90

School	FAILED	Year Grad	Per Cent
Rush Medical College		(1930)	80*
Medizinische Fakultät der Universität Wien		(1928)	75 8f

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Georgia Medical Department		(1925)	Georgia
Maryland Medical College		(1904)	Maine
University of Maryland School of Medicine and College of Physicians and Surgeons		(1921)	N Carolina
Harvard University Medical School		(1923)	Virginia
Jefferson Medical College of Philadelphia		(1932)	N Carolina
University of Tennessee College of Medicine		(1931)	Tennessee
Medical College of Virginia		(1930)	Virginia
University of Virginia Department of Medicine		(1930)	Louisiana

* Fell below 65 per cent in pathology
† Verification of graduation in process

California Reciprocity and Endorsement Report

Dr Charles B Pinkham, secretary, Board of Medical Examiners, reports 4 physicians licensed by reciprocity and 1 by endorsement, from Nov 29 to Dec 22, 1933 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Hahnemann Medical College and Hospital Chicago		(1916)	Oregon
Rush Medical College		(1929 2)	Illinois
Harvard University Medical School		(1912)	Mass

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
College of Medical Evangelists		(1932)	N B M Ex

Book Notices

Sex Habits A Vital Factor in Well Being By A Buschke M D and F Jacobsohn M D Translated from the German by Fden and Cedar Paul Foreword by Gerard L Moench M D Cloth Price \$2 50 Pp 204 with 30 Illustrations New York Emerson Books Inc [n d]

This is one of the many books recently published on matters of sex that is really worth reading It was written by two German urologists who have had extensive experience not only in their specialty but also in matters pertaining to the sex life of both men and women In the first part of the book the lay reader is made familiar with the anatomy and physiology of the reproductive organs There is a chapter on puberty in which the anatomic and psychic changes are described for both boys and girls and this chapter should be carefully studied by all parents The authors discuss in detail the sexual impulses in men and women, the lack of these impulses in both sexes, and the abnormalities that may occur There are also chapters on sterility, venereal infections prophylaxis, heredity, eugenics advice concerning marriage and monogamy The authors defend certain extramarital sexual relationships but maintain that the ideal marriage is the one that is truly monogamous The translation is excellent and well printed, and the illustrations are praiseworthy The language employed is plain spoken and perhaps may shock a few people However, most individuals will profit immensely by reading every word in this book, because it is based on a thorough understanding of the sex life of both men and women

Mediaeval and Modern University Ideas and Students Life An Address Before the Medical Students Society of McGill University Montreal October 17 1932 By Horst Oertel Paper Pp 31 Montreal Southam Press Montreal Ltd [n d]

This address was occasioned by the author's selection as honorary president of the Medical Students Society and was published at the request of many students so that it might be enjoyed by a wider circle of readers The author gives an account of the origin meaning and significance of the university movement as a whole with random notes on the ideas and purposes of its masters and students 'Scholars and clerics who studied and taught Aristotle during the day roamed through the woods and hunted the wild boar and wolves at night who would not hesitate to draw the sword to defend their ideas and rights Everywhere an uncontaminated naive strength and sincerity of efforts in spite of lack of conventional manners' Oertel thereupon contrasts the mediaeval with the twentieth century universities regarding the latter as dry technical high schools, for the training of most uninterest-

ing conventional 'good citizens' who conform to the world instead of leading it," ending with a plea to a return to much that has been lost and with the hope that as in the past ages the future university graduate will leave his school with an understanding of everything that makes and enters into human life, which builds and moves the human character. To all of which every academic man will heartily agree. A reader may feel that this distinguished pathologist spoke of anything, a little slightly, or perhaps not enough on the great significance of the modern output of research by universities and was perhaps leaning more to the view that in advance in knowledge (also a function of a university) should come perhaps more from thought, reasoning and intuition than from tedious research in the laboratory. Every cultured person will enjoy reading this interesting address.

Manual of Urology. By R. M. McComie, M.D., F.A.C.S., Professor of Urology, Georgetown University Medical Department. Cloth. Price \$1. Pp. 317 with 46 illustrations. Baltimore: William Wood & Company, 1933.

This small volume covers completely the field of genitourinary diseases. It is brief and for the most part accurate. Isolated sentences may arouse objection. On page 173, relative to therapy of malignant bladder tumors. Radical cure by bilateral transplantation of the ureters and total cystectomy [typographic error—cystectomy is meant] is a surgical curiosity and not a practical procedure. On page 261 regarding non-descent of the testes. Reposition often fails and atrophy following operation is frequent. In view of this and the increased incidence of neoplasm removal should be given careful consideration in unilateral cases and in adults. However, with a few exceptions the volume is readable and especially well adapted for students.

Radiologische Praktika. Herausgegeben von Prof. Dr. W. Alvens. Prof. Dr. Fr. Dessauer und anderen. Band XX. Die Curie Röntgentherapie bösartiger Frauenleiden. Von Dr. Stefan Simon. Leiter der Strahlenabteilung der I. Universitäts-Frauenklinik in Wien. Cloth. Price 12.50 marks. Pp. 122 with 78 illustrations. Leipzig: Georg Thieme, 1933.

The author introduces his monograph with a historical survey of the development of combined radium and roentgen therapy. The indications, contraindications and complications of radiotherapy are discussed briefly and the importance of a complete physical examination before therapy is begun is properly stressed. The general principles of dosage are reviewed. There are excellent descriptions of the physical properties of radium and x-rays and the biologic effects of these agents on normal and pathologic tissues. The various patterns of radiation treatment as to time and intervals of treatments as utilized by various schools are presented. There are detailed descriptions of the effects of radiation on the blood, skin, bladder and intestine. The second part of the monograph deals with the treatment of carcinoma of the vulva, vagina, cervix, uterus and ovaries. Carcinoma of the vulva is treated by the author by a special surface radium applicator. The lymph node areas are treated with x-rays. Of fourteen patients treated by radical irradiation, five are well after a lapse of from one to three years. Different technical methods of irradiating carcinoma of the vagina are described and illustrated. Statistics of various authors vary from 10 to 30 per cent of cures. The author reports thirty cases of vaginal carcinoma treated by radiation, with freedom from disease in six after from one to five years. The author presents his technic for the treatment of carcinoma of the cervix and describes several other accepted methods. Indications, contraindications, complications and results are discussed. Attention is called to the advantages of surgery over irradiation in the treatment of strictly operable carcinoma of the body of the uterus. The author applies 50 mg. of radium for from fifty to sixty hours in two or three sittings and follows this with roentgen therapy. Radical operative removal followed by radiotherapy is advised for operable carcinoma of the ovary. Statistics showing end-results are quoted. This monograph on x-rays and radium in the treatment of neoplasms of the female genitalia is excellent in every respect. It presents concisely, clearly and authoritatively the practical phases of the problem and thereby constitutes a valuable addition to the literature on radiation. It should prove especially useful to the general practitioner and the beginner in the study of radiation therapy.

The Pregnant Woman. By Porter Brown, M.D. Cloth. Price \$2. 1p. 174 with 22 illustrations. New York: Eugenics Publishing Co. Inc., 1933.

The author states that the memory of his mother and the things she told him about her experiences in the bearing of ten children planted in him a desire to help women in the field of motherhood. Unfortunately in his effort to be altruistic the author includes enough information in his book to frighten a large number of women. In the first place he makes the assertions: We see annually the ghosts of thirty thousand dead women many times that number doomed to preventable invalidism for the rest of their lives all of which unfortunate terminations are associated with the functions of reproduction and childbearing. This is a number three times greater than that of the Netherlands and greater than that of twelve other civilized nations.

The present generation of the world has lost more lives from preventable causes in the performance of the function of reproduction than were lost from all causes produced by the World War. I challenge my country to correct this disgraceful condition. These statements which are among the first to be seen by the prospective mother, are sufficient to arouse an undue alarm about childbirth in most young women. Furthermore the author's estimate of 50,000 deaths annually from obstetric causes is entirely too high. Like we he errs in his contention that we should bow our heads in shame because our maternal mortality is disgracefully higher than it is in nearly all other civilized countries in the world. Until a reliable method has been developed of comparing international mortality statistics, it is only fair to ask overenthusiastic obstetric authorities and others to withhold such damaging remarks. The book contains entirely too much about abnormalities during pregnancy and labor which do not properly belong in a book for expectant parents. The author also gives in detail every step of a normal delivery including the enema shaving, the use of sedatives and description of the first stage of labor how the physician and his assistants should scrub the patient and himself and details of the second stage including uterine contractions molding of the head bulging of the perineum and flexion of the head. The book is well written and reveals the extensive experience of the author. There are interesting chapters on superstitions preparation for marriage birth control and abortion, anatomy and physiology prenatal care and care of the mother and new born infant. If a second edition is to be printed it is advisable to eliminate a good deal of the unnecessarily disturbing details of trouble that may befall a pregnant woman.

Les troubles de l'élimination urinaire de l'eau. Étude physiopathologique et clinique. Par Jules Cottet. 14 pages. Price 32 francs. 1p. 21. Paris: Masson & Co. 1933.

The author reviews the older opinions on the various tests of excretion of water by the kidney pointing out that he and Voquez first studied this renal function in 1912. He prefers to have the patient under observation several days during which time he studies various factors including the amount of urine secreted during the day and the night as well as after the ingestion of a large quantity of water. He repeats the observation that the specific gravity of the urine tends to be at a fixed level in the presence of renal insufficiency. In his description of the water exchange in the body, he omits mention of recent observations on water metabolism. He feels that flushing the kidney is important in the treatment of early renal insufficiency and he believes the treatment at Evian is especially beneficial for this reason.

Senile Cataract. Methods of Operating. By W. A. Fisher, M.D., F.A.C.S., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College. With the collaboration of Prof. F. Fuchs, Prof. J. Barraquer, Dr. H. F. Holland, Dr. John Westley Wright, Dr. A. Van Lint and Dr. O. B. Nugent. Second edition. Cloth. Price \$1. 1p. 271 with 183 illustrations. Chicago: Chicago Eye, Ear, Nose & Throat College, 1933.

This edition appearing about ten years after the first, contains the surgeon's own descriptions and illustrations of the technic of operations done by Fuchs, Barraquer, Holland, Wright, Van Lint and the author. The chapter by Professor Fuchs is unchanged since the first edition and Professor Barraquer's shows little change. The chapters by Wright and Holland are newly revised though the former has not changed his technic. Colonel Smith's chapter has been omitted, but

Fisher describes the Kuapp and Smith technic in the fifth chapter. The author describes fully his latest variation of the suction method for doing the intracapsular extraction. The seventh chapter is devoted to the methods of acquiring technic, chiefly by continued practice on kittens' eyes. The final chapter is by Nugent, on fitting glasses after operation. The book is concise and well illustrated and gives the student an outline of the various procedures used by well known ophthalmic surgeons but does not discuss the advantages and disadvantages of the different operations. The author does discuss the accidents that may occur during the operation but omits complications and sequelae that may occur after the surgical procedure. A chapter on the anatomic, physiologic and visual results in a series of operations by the various methods would add greatly to the value of the book to the student.

Medicolegal

Trauma Broken Compensation in Aortic Insufficiency and Diaphragmatic Pleurisy Attributed to Automobile Accident—The plaintiff was injured in an automobile collision due to the negligence of the defendant. He sued and was awarded damages in the amount of \$10,000. The defendant on appeal to the Supreme Court of Missouri admitted liability but contended that the damages awarded were grossly excessive and attributed the excessiveness to the action of the trial court in authorizing the jury to award damages for permanent injury.

Prior to the accident, the plaintiff had an aortic insufficiency which however, was fully compensated. As a result of the collision, he contended, there ensued a state of broken compensation producing permanent injury. The accident occurred July 14, 1928. The plaintiff returned to work the following Monday and thereafter lost only four days' work between the date of the injury and the date of the trial sixteen months later. The plaintiff testified that while he had heart trouble before the injury, it did not bother him. Following the accident, he suffered with shortness of breath. Exertion brought on nervousness and a state of exhaustion. At times he suffered pain. The physician appearing for the plaintiff testified that he examined the plaintiff just prior to the trial and found him suffering from a state of broken compensation and that it was possible for such a condition to be caused by a physical shock. He did not, however, testify that the plaintiff's condition was due to the collision. Another physician, appointed by the court to examine the plaintiff about a week prior to the trial testified that from his examination he believed that the plaintiff's heart was in a diseased condition before the accident and that plaintiff's condition at the time of examination could have been caused by trauma or by other causes. He expressed no definite opinion as to the cause. A medical witness for the defendant testified that the accident could not have permanently aggravated the condition of the plaintiff's heart. It is clear said the Supreme Court that a jury could not, except by pure guess and speculation find from the medical testimony that the accident permanently aggravated the plaintiff's heart condition. It is true, continued the court that the plaintiff testified that his heart did not give him any trouble before the accident but that a short time thereafter the symptoms of heart trouble manifested themselves. As a matter of course the plaintiff would know how he felt before and shortly after the accident but no layman would be competent to say what caused a heart condition. The sum total of the evidence in the opinion of the court was that the condition of the plaintiff's heart at the time of the trial might or could have been caused by shock or by the disease which the plaintiff had prior to the accident. If the heart condition was caused by disease the defendant was not liable therefor. Evidence that the condition might or could have been caused by either the accident or disease without any substantial showing as to which of the possible causes did produce the condition furnished no basis from which a jury could determine the cause.

The plaintiff further contended that he received a pleural injury which caused an adhesion of the pleura to the diaphragm thereby permanently impairing the right lung. The plaintiff

was injured shortly before noon. A physician examined him at his office between 3 and 4 o'clock the same day. This physician testified that a roentgenogram was made and revealed a diaphragmatic pleurisy. If this testimony is true, said the court the diaphragmatic pleurisy could not have been caused by the injuries received in the collision since it would not have developed in the few hours intervening between the time of the accident and the time the plaintiff was examined. The same witness, however, later on in his testimony testified that the pleurisy which the plaintiff had was the result of the accident and that it developed some time after the plaintiff was injured. This conflict in the physician's testimony, said the court, presented a question as to whether or not there was any substantial evidence tending to show that the diaphragmatic pleurisy was caused by the injuries the plaintiff received in the collision. Where a party to a suit relies on the testimony of a single witness to prove an issue, and the testimony of such witness is contradictory and conflicting one version thereof tending to prove the issue, the other tending to disprove it with no explanation of the contradiction, and no other fact or circumstance in the case tending to show which version of the evidence is true, no case is made, and the jury should not be permitted to speculate or guess which statement of the witness should be accepted. The court concluded that there was no substantial evidence tending to show that the diaphragmatic pleurisy which the plaintiff claimed permanently impaired his right lung resulted from the injuries received in the collision.

The trial court erred, therefore, in submitting the question of permanent physical injury to the jury for which error the judgment of the trial court was reversed and the cause remanded.—*Adelsberger v. Sheehy (Mo.) 59 S. W. (2d) 644*

Corporate Practice of Optometry Illegal in Iowa—The Kinky Optical Company, a Delaware corporation, was organized among other things, "to manufacture, purchase and sell optical goods and glasses of every character, mathematical and scientific instruments, photographic supplies, and materials, and carry on the business of opticians and dealers in optical goods and allied lines." It established equipped, maintained and operated, in various states, offices or departments where licensed optometrists were employed to carry on the practice of optometry. W. O. Jensen, a licensed optometrist, had been so employed by the corporation and had conducted and managed stores or departments for it in Minneapolis, Duluth, Kansas City, Detroit, Pittsburgh and Sioux City.

In August 1931, Jensen was sent by the corporation to take charge of an optical department owned by it in the Younker Bros. Department Store, in Des Moines, Iowa. An alleged lease was entered into between the corporation and Jensen, under the terms of which the former purported to lease to Jensen certain examination rooms or space located in the Younker Bros. Department Store and agreed to pay him \$281.66 per month. This so called lease provided that all eye examinations should be under the exclusive control of Jensen. Furthermore the corporation and Jensen entered into a written contract of employment, under the terms of which the corporation agreed to employ Jensen and to pay him \$240 per month plus certain percentages. This contract also provided that Jensen should be the manager of the optical department but that he should in all things be subject to the control and direction of the proper officers of the corporation. All money derived from the department was to be deposited in the name of the corporation in a bank selected by it and all disbursements were to be made by checks drawn by the proper officers of the corporation. All machinery and equipment installed and used in the department was the property of the corporation and all the accounts of the business were handled through the Younker Bros. store. The name of the corporation did not appear in any way in the business. Advertisements of the business appeared in local newspapers under the name of Younker Bros., such advertisements being prepared, however, in the home office of the corporation in St. Paul. They were inserted in the newspapers and paid for by the corporation. Contending that the corporation was practicing optometry without a license the state of Iowa sought an injunction to restrain such practice. The trial court refused to issue an injunction and the state appealed to the Supreme Court of Iowa.

The corporation argued that it was not practicing optometry, that Jensen, the licensed optometrist, was the lessee of the corporation and was not under its supervision or control in the practice of optometry, and that it did not profess publicly to be an optometrist nor did it assume the duties incident to the practice of optometry. It is true, answered the court, that the name of the corporation did not appear in connection with the business. The business was advertised in the newspapers in the name of Youmker Bros, but these advertisements were all prepared, inserted in the newspapers and paid for by the corporation. The ownership and control of the entire equipment was in the corporation not in the employee Jensen. Its officers determined all matters of policy and said the court the subtle attempt by the corporation to evade the provisions of the Iowa statute regulating the practice of optometry by employing a licensed optometrist to conduct its business and by the execution of the alleged lease was too patent to appeal strongly to a court of equity. The execution of the alleged lease in connection with the contract of employment was a sham and a fraud. Furthermore the court observed the Youmker Bros should have been made a party defendant in this action. The store had no more right to hold itself out to the public as being engaged in the practice of optometry than did the corporation. The corporation could not conduct the business without a license and it could not obtain a license. The court could conceive of no reason why the corporation should be permitted to continue its activities under the license of its employee. The trial court should have issued the injunction. The Supreme Court therefore reversed the decision of the trial court and remanded the case.—*State v. Kinds Optical Co (Iowa)*, 248 N W 352

Malpractice Negligence Provable by Lay Testimony

—While the defendant dentist was polishing a bridge in the plaintiff's mouth the polishing instrument slipped and cut her. She sued the dentist for malpractice and obtained a verdict in the trial court. The dentist appealed to the Supreme Court of Minnesota contending that there was no evidence on which the jury could base a verdict against him.

It was not necessary, said the Supreme Court for the plaintiff to establish her case by expert testimony for the cause of the movement of the dental instrument from the bridge to the tissues of the plaintiff's mouth was not a scientific question. In such a case the rule applied in *Evens v. Roberts* 172 Iowa 653, 154 N W 923, is applicable. In that case a surgeon in performing an adenoidectomy cut off a part of the patient's tongue. The court said:

If we understand counsel correctly it is their contention that negligence in cases of this nature can be established only upon the testimony of competent experts. What may be the rule where the sole question is upon the treatment of the diseased part and whether it was in accordance with approved and medical standards we need not here decide for as we have already noted this is not a case of that kind. The jury here did not have to consider whether the method of the defendant in removing the adenoids was correct or scientific but whether the unintentional wounding of plaintiff's tongue was occasioned by lack of reasonable care on his part. This it would seem very clear, involves no question of science or necessarily of expert knowledge.

Nor was it necessary in the present case continued the Supreme Court, for the plaintiff to prove that her negligence did not cause or contribute to the injury. After reviewing the evidence the court could not hold as a matter of law that the jury could not find that the defendant's negligence caused the injury. In the opinion of the court, however, the amount of damages awarded was too large and it therefore affirmed the judgment of the trial court only on condition that the plaintiff consent to a reduction in the amount awarded.—*Ellering v. Gross (Minn.)*, 248 N W 330

Wills Insane Delusions and Testamentary Capacity —

Derangement of mental faculties, says the Supreme Court of Missouri, does not incapacitate a testator from making a will, if the derangement does not render him incapable of transacting his ordinary business, of understanding the extent of his property or of appreciating the natural objects of his bounty. So, an insane delusion that will destroy testamentary capacity must be a delusion as to or affecting some matter necessarily involved in the making of a will, and not as to some extraneous or collateral matter or fact. An insane delusion is defined to

be a false and fixed belief not founded on reason and incapable of being removed by reason. One of the requisites of a sound mind in making a will is that the testator is able to remember and appreciate the natural ties of kinship. If it be shown that a person making a will is possessed of an insane delusion as to any person who is the natural object of his bounty which renders the testator incapable of appreciating and responding to the natural impulse toward such person then the testator lacks testamentary capacity.—*Hall v. Mercantile Trust Co (Mo)* 29 S W (2d) 664

Medical Practice Acts Collateral Attack on Order of

Revocation of License—The department of registration of Utah revoked Cragun's license to practice medicine, and his appeal to the Supreme Court of Utah was dismissed on the ground that a direct appeal could not be taken from the department's order to the Supreme Court. *Harrison v. Cragun* 78 Utah 445 3 P (2d) 1092. Subsequently Cragun was convicted of practicing medicine without a license and he again appealed to the Supreme Court of Utah. He sought to justify his right to practice medicine by contending that the complaint on which the department revoked his license was insufficient and that therefore the order of revocation was void. This contention, however, said the Supreme Court of Utah, constitutes a collateral attack on the order of revocation and to meet the contention it need only be shown that the allegations of the complaint tend to show, or colorably or inferentially show each material fact necessary to a cause of action. Defects or imperfections in the complaint which on its face is amendable cannot be urged to invalidate the order. If on the other hand the complaint is not only defective with respect to essential averments but is also so wanting in substance as not to be even colorable or amendable the order founded thereon is not only subject to direct but also to collateral attack. Assuming said the Supreme Court that the complaint in question would not withstand a direct attack yet on its face the complaint, charging Cragun with having attempted to procure or having aided and abetted in procuring a criminal abortion, stated enough to have informed him, not only of the nature of the wrong but of the particular instance or the alleged perpetration. The fact therefore, that the complaint did not charge that the attempt to procure a criminal abortion was on a pregnant woman that it did not allege the means by which the abortion was attempted that the intent with which the abortion was attempted was not stated and that it was not negatived that the abortion was necessary to preserve the life of the woman, may not be urged in support of a contention that the order of revocation was void when that contention is made in a collateral attack on the order. The judgment of the trial court convicting Cragun of practicing medicine without a license was affirmed.—*State v. Cragun (Utah)* 20 P (2d) 247

Society Proceedings

COMING MEETINGS

- American Association of Anatomists Philadelphia March 28-30 Dr George W. Corner University of Rochester School of Medicine Rochester N Y Secretary
- American Association of Pathologists and Bacteriologists Toronto Canada March 29-30 Dr Howard T. Karsner 2083 Adelbert Road Cleveland Secretary
- American Orthopsychiatric Association Chicago Feb 22-24 Dr George S. Stevenson 450 Seventh Avenue New York Secretary
- American Physiological Society New York March 28-31 Dr Frank C. Mann Mayo Clinic Rochester Minn Secretary
- American Society for Experimental Pathology New York March 28-31 Dr C. Philip Miller Jr 950 East 59th Street Chicago Secretary
- American Society of Biological Chemistry New York March 28-31 Dr H. A. Mattill Chemistry Building State University of Iowa Iowa City Secretary
- Annual Congress on Medical Education and Licensure Chicago February 12-13 Dr W. D. Cutter 535 North Dearborn Street Chicago Secretary
- Federation of American Societies for Experimental Biology New York March 28-31 Dr Frank C. Mann Mayo Clinic Rochester Minn Secretary
- Mid South Postgraduate Assembly Memphis Tenn Feb 13-16 Dr A. F. Cooper Bank of Commerce Building Memphis Tenn Secretary
- Tri States Medical Association of the Carolinas and Virginia Charlottesville Va Feb 12-14 Dr James M. Northington 804 Professional Building Charlotte N C Secretary

Current Medical Literature

AMERICAN

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Alabama Medical Association Journal, Montgomery

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Management of Fractures of Facial Bones J J Shea Memphis Tenn —p 125

Clinical Significance of Hematuria E B Frazer Mobile —p 129

Two-Year Study of Maternal Mortality in Birmingham and Jefferson County G A Denison Birmingham —p 132

Treatment of Recent Fractures H E Conwell Fairfield —p 143

Chronic Acidemia Its Relation to Chronic Diseases J F Yarbrough, Montgomery —p 145

American Journal of Cancer, New York

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Experimental Studies on Lymphomatosis of Mice J Furth New York H R Seibold and R R Rathbone Philadelphia —p 521

Radiation Therapy in Skin Cancer H E Martin, New York —p 605

*Conservative Surgical Measures Facilitating Radium Implantation G S Sharp, Pasadena, Calif —p 622

Surgical Measures Facilitating Radium Implantation—Sharp states that irradiation may fail to control epidermoid cancer of the head and neck because of the omission of certain aids, chief of which are various conservative surgical procedures. Many tumors require both external and interstitial irradiation to produce cure. In such cases, surgical measures are indicated for exposure and drainage and for dealing with complications in adjacent bony structures. The removal of the bulky, raised portion of a skin tumor for example may make more effective irradiation of the active base possible, while exposure of deep-seated growths is an aid to the accurate implantation of radon seeds, as in early neoplasms of the nasal accessory sinuses. A justifiable substitute for radical neck dissection in metastatic carcinoma of the neck consists in exposure and the implantation of gold-filtered radon seeds. The reduction of inflammation in tumor-bearing areas may be accomplished by a group of conservative surgical procedures which facilitate drainage, as by enlarging the opening or by removing the greater part of the irradiated area. Resection of bone secondarily invaded by cancer is advised because of its radioresistant character. The author discusses in detail carcinoma of the skin, lip, tongue, floor of the mouth and nasal accessory sinuses, intrinsic carcinoma of the larynx and epidermoid carcinoma metastasis in the neck.

American Journal of Medical Sciences, Philadelphia

186 605 752 (Nov.) 1933

Diabetes Mellitus Problems of Present Day Treatment H O Mosenthal and C Bolduan New York —p 605

Fasting Blood Sugar in Schizophrenia W Freeman with technical assistance of Ella K Ruggles Worcester Mass —p 621

Studies of Liver Function in Advanced Pulmonary Tuberculosis J Steidl and F H Heise Trudeau N Y —p 631

Liver Function in Catarrhal Jaundice N Jolliffe New York —p 640

Upper Lobe Bronchiectasis E H Rubin and H S Newman New York —p 650

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Diagnosis of Carcinoma of the Colon W C White New York —p 665

Cholesterol Content of Plasma in Chronic Nephritis and Retention Uremia B I Ashe and M Bruger New York —p 670

Accidental Hypodermic Transmission of Malaria in Drug Addicts I McK Eaton Rochester Minn and S M Feinberg Chicago —p 679

Corrected Sedimentation Rate (C S R) in Scarlet Fever S Friedman Boston —p 683

Induction of Eosinophilia in Normal Animal N Banerji Calcutta India —p 689

Chronic Idiopathic Hypochromic Anemia Etiologic Relationship of Achlorhydria to the Anemia with Especial Reference to the Effect of Large Doses of Iron Organic (Dietary) Iron and of Predigested Food on Formation of Erythrocytes S R Mettler F Kellogg and J F Rinehart San Francisco —p 694

*Fetal Endomyocarditis Intra Uterine Infection as Cause of Congenital Cardiac Anomalies S Farber and J Hubbard Boston —p 705
Right Ventricular Preponderance (Axis Deviation) of Heart Significance of Ventricular Preponderance and T Wave Inversion in Human Electrocardiogram A M Master New York —p 714
Effect of Heart's Position on Electrocardiographic Appearance of Bundle Branch Block in Man M Kassin, Brooklyn W Ackerman and L N Katz Chicago —p 721

Chronic Idiopathic Hypochromic Anemia—Mettler and his associates discuss the relationship of diet and nutrition to anemia in ten cases of chronic idiopathic hypochromic anemia associated with hypochlorhydria or achlorhydria and defective diet. The response of the bone marrow, as determined by the hemoglobin and production of erythrocytes, to iron administered in large daily oral doses in the form of iron and ammonium citrate (U S P) was compared to the response in patients on an 'iron-rich' diet. In addition, a comparison was made of the response of the bone marrow to a diet rich in iron and to a meal previously digested in vitro with hydrochloric acid and commercial pepsin. The bone marrow responded rapidly and excellently to large doses of inorganic iron but there was no evidence of increased hematopoiesis after the ingestion of an 'iron-rich' diet for a long period of time. There was however, a rapid and satisfactory increase in the concentration of the hemoglobin, and in the production of red cells and a slight reticulocyte response following the administration of predigested meals. The authors conclude that chronic idiopathic hypochromic anemia is presumably due to a deficiency of iron wherein gastric dysfunction leads to failure in utilization of organic (dietary) iron.

Fetal Endomyocarditis—Farber and Hubbard collected ten cases of fetal endomyocarditis from the literature to which they have added four of their own, in all of which there is evidence indicating that the cardiac changes can best be explained on the basis of an infectious process originating in intra-uterine life. In the cases gathered from the literature, there were eight deaths within the first four days of life. Of their own patients two died within the first three days, one lived two and one-half months and the other five months. In the two latter cases there was clinical evidence of heart disease since birth. The most frequent observation throughout the series was cyanosis. Death often occurred unexpectedly. The authors heard a murmur in only two of their patients, and only once was the heart enlarged to percussion. In the other two the hearts were clinically recorded as normal. The cardiac abnormalities represented the end-results of old inflammatory processes. The most important are the gross distortion of the valves and the thickening of the endocardial surfaces and the microscopic evidence of previous infection, such as fibrosis and calcification. There was aortic stenosis in seven of the total series. Five of these also showed changes in the mitral valve. One had pulmonary stenosis with a superimposed terminal acute bacterial endocarditis. In all the instances of stenosis, the appearance of the leaflets resembled the changes found in chronic valvular disease of later life. Aortic atresia occurred four times and pulmonary atresia once. In only one case were all the valves recorded as normal but there was scarring and calcification of the myocardium. In four cases, calcium deposits were found in the myocardium. In considering the etiologic possibilities it is important to exclude congenital syphilis. In a few instances the mother contracted an "influenza" type of infection in the seventh or eighth month of pregnancy. It has been claimed that this was responsible for the cardiac changes in the infant. It would appear profitable, as soon as a diagnosis of congenital heart disease is suspected to make a careful review of the health of the mother during pregnancy.

American Journal of Ophthalmology, St Louis

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Transmissibility of Trachoma to Monkeys L A Julianelle and R W Harrison St Louis —p 857

Chemistry of the Lens C S O'Brien and P W Salit Iowa City —p 863

Metabolism of Normal and Cataractous Lens P C Kronfeld Chicago —p 881

Recession Operation for Strabismus R J Curdy Kansas City Mo —p 890

Melanotic Sarcoma of the Iris Case S J Meyer Chicago and J Kubik Prague Czechoslovakia —p 893

Linear Measurement of Strabismus New Simple and Accurate Method J G Alcorn Columbus Ohio —p 898

American Journal of Surgery, New York

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- Foreign Bodies in Urinary Bladder W P Garshwiler A F Weaverbacher and J T Balch Indianapolis —p 199
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- Multiple Neuritis Following Biliary Tract Operations J Christopher H A Paskind and I D Snodt Evanston Ill —p 280
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- Primary Carcinoma of Appendix Versus Carcinoid R A Leonardo Rochester N Y —p 290
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- Partial Intestinal Obstruction Due to Congenital Anomaly of the Duodenum and Partial Rotation of the Colon J I Kelley Utica N Y —p 299
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- Implication of Rectum J H Breyer Pasadena Calif —p 305
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- Herpes Zoster as a Differential Diagnosis in Surgical Conditions of Abdomen and Kidneys E L Young Jr Boston —p 335
- Observations on Use of Bacterial Lysoins in Surgical Cases K R Ruddell O W Sicks and N S Joannis Indianapolis —p 337
- Tetanus R A Wilson Tucson Ariz —p 343
- Ovarian Dermoid A Koplowitz M Jacob and N Reibstein Brooklyn —p 345
- Vulvectomy for Leukoplakia and Paget's Disease M Glass Brooklyn —p 350
- Gangrene of Lower Uterine Segment in Obstructed Labor E M Tazard Los Angeles —p 353
- Hemorrhage from Ruptured Chocolate Cyst C E Haines New Rochelle N Y —p 356
- Postpartum Hemorrhage Case of Uncontrollable Bleeding T S Walton Brooklyn —p 358
- Pes Cavus of Congenital Syphilis C W Coff Hartford Conn —p 359

Aseptic Uretero-Intestinal Anastomosis—Higgins outlines a technic for simultaneous bilateral transplantation of the ureters into the rectosigmoid in which the continuity of the ureter is not interrupted until the new channel develops and the normal physiologic function of the upper urinary tract

is not altered until the anastomosis has formed. Owing to the simplicity of the procedure the operation may be performed on a child with extrophy of the bladder very early and before renal complications develop. The author reports a case in which the operation was performed on a boy, aged 4 in whom a most satisfactory result was secured with slight postoperative reaction. Examinations of the kidneys and ureter in dogs six months after this operation reveal no evidence of hydronephrosis or infection. Experience with experimental animals has shown that peritonitis, shock and acute renal sepsis following this procedure are reduced to a minimum.

Osteopexilia—Bloom describes a case of osteopexilia in an adolescent of 17 who complained of recurrent attacks of sore lids since he was 3 years of age. He is blind in the right eye. He presented many cardinal symptoms of congenital syphilis such as saddle nose, Hutchinson's teeth, enlarged epiphyses of the wrist, rather thin pronounced costoclavicular joints and wing scapulae. In addition he had blepharitis, phthisis bulbi and complete atresia of the right side of the nose. The Kahn test was negative. The mother gave a history of numerous miscarriages and one stillbirth. The father is confined to an institution. The living siblings are a sister who is five years older, a sister who is three years younger, a brother four years younger and another sister seven years younger. The Kahn test was negative in all but the spinal fluid curve in the younger brother slightly resembled a tubercle curve. The diagnosis in the case was blepharitis, congenital syphilis and juvenile dementia praecox with tabes. Roentgenograms showed that there were numerous areas of increased density varying in size from 1 to 15 mm in the carpal, metacarpal and phalanges, the heads, upper half of the shaft and lower ends of the humeri, the scapulae and the upper and lower ends of the radius, ulna, tibiae and fibulae. There was one single spot 5 mm in diameter in the middle of the right clavicle and one 3 mm in diameter in the left jaw. The spine, ribs and skull were not affected. No changes were found in the mother, the two younger sisters and a younger brother, except in the case of the next youngest sister in whom a single spot 2 mm in diameter was found at the base of the second metacarpal of the left hand.

Treatment of Gonorrheal Arthritis—In the experience of Hedrick, aspiration and air insufflation of the knee is the method of choice in the treatment of the serous type of gonorrheal arthritis. Repeated insufflations may be done if the case is refractory but frequently one is sufficient. For the periarthritis and pro-arthritis immobilization of the affected joint is nearly always necessary because of the associated pain. This is done best in plaster if possible. Failing this splints are used. The pro-arthritis should be drained or irrigated as soon as recognized. Ammonium iodody benzoate is started as soon as the diagnosis is made. After a series of six biweekly injections it is stopped but may be resumed again after two or three weeks. A second series is not often necessary. In mild cases the use of ammonium iodody benzoate in outpatients permits patients to be ambulatory. After the symptoms have subsided the plaster is removed and active motion, together with diathermy and massage is instituted. Hyperpnea by fever diathermy is useful especially in refractory cases. The author feels that the use of these measures materially shortens the course of the gonorrheal arthritis, prevents massive destruction of the joint and permits more complete restoration of function than measures he has known heretofore. If an acute or chronic urethritis is present it should be treated actively.

Interphalangeal Osteochondromatosis—Mandruzzato presents the first case of interphalangeal osteochondromatosis and states that the etiology and pathogenesis of osteochondromatosis is still uncertain. From the histologic study and its clinical evolution it can be classified as a new formation of benign character from a metaplasia distinctly different from an arthritic alteration. As a summary of the published cases, the most salient features are reported as follows. The disease is noted in young, robust persons in 50 per cent of whom there is a slight history of trauma. It is slow in its course, latent and unrecognized by the patient until late, when there is pain or functional disturbances. It is usually monoarticular and has a particular predilection for the large joints such as the knee and the elbow. The osteocartilaginous bodies can be present

at the same time in the articular bursae. They have been found also in the tendon sheaths of the flexor group of the hand. The joint is full of bodies of different sizes and shapes. The synovial membrane is hyperemic and covered with fibrous exudate. The bony extremity is almost always intact. The histologic examination in the author's case revealed hypertrophic and hyperemic villi, villi transformed into pedunculated bodies and loose bodies. Breuckman believes that these formations become secondarily pedunculated and become ossified by either the fluid or the membrane.

Annals of Internal Medicine, Lancaster, Pa

7 543 686 (Nov.) 1933

- Hepatic Pathology in Exophthalmic Goiter C V Weller Ann Arbor Mich.—p. 543
- Painless Histamine Skin Test Experimental Study S Perlow Chicago—p. 561
- Intravenous Vaccine Therapy in Chronic Arthritis W B Rawls, B J Cruskin and A Ressa New York—p. 566
- Xanthoma Accompanied by Hypercholesterolemia Occurring in an Otherwise Normal Individual and in an Individual with Acromegaly and Diabetes T H McGavack and H Clare Shephardson San Francisco—p. 582
- Ultraviolet Energy Its Effect and Intensity at Various Locations and Altitudes M K Wylder R S Rockwood and S B Lippincott Albuquerque N M.—p. 605
- Incidence of Hypertension Among Urban Japanese H Hashimoto K Akatsuka I Tsuyi and H Shiraishi Tokyo Japan—p. 615
- Gastro Intestinal Allergy in Children H Casparis Nashville Tenn.—p. 625
- Abscess of the Aorta Case With Perforation Without Aneurysm C W Mills and M Pinner Tucson Ariz.—p. 630
- Parenteral Administration of Magnesium Sulphate in Hypertension B L Zohman and B Sternberg Brooklyn—p. 643
- Experimental and Clinical Studies of Ergotamine V Action of Ergotamine on Sympathetic Nervous System Stimulated by Epinephrine Studies of Metabolic Rate Pulse Rate Blood Pressure Blood Sugar and Total Leukocyte Count J B Youmans C Trabue and R S Buvinger with technical assistance of Helen Frank Nashville Tenn.—p. 653
- Psychiatric Investigation in Internal Medicine Marie L Carns and Annette C Washburne Madison Wis.—p. 664

Painless Histamine Skin Test—Perlow presents a table which reveals that the size of the reaction and the intensity of the pain vary directly as the concentration of the histamine when used alone. To prevent the pain, correspondingly stronger solutions of procaine hydrochloride are necessary. He has found that 1 2,000 histamine in a 0.5 per cent solution of procaine is such a solution. The test is painless and the reaction in the skin is intense and rapid enough to be practical. There was no noticeable difference between the reactions following injections of 1 1,000 histamine and those produced by 1 2,000 histamine in a 0.5 per cent solution of procaine. Skin with deficient circulation reacted as intensely to 1 2,000 histamine in a 0.5 per cent procaine solution as it did to 1 1,000 histamine alone. The reaction may be read at five minutes but is best read at ten minutes, when it is at its height.

Administration of Magnesium Sulphate in Hypertension—Zohman and Sternberg observed that the parenteral administration of magnesium sulphate had a distinct effect in reducing the systolic pressure in forty of a series of fifty consecutive cases of hypertension. The effect was sustained for a period of at least two weeks. The parenteral administration of magnesium sulphate had a definite effect in reducing the systolic pressure in twenty-five cases and the effect was sustained for a period of two weeks in twenty-one cases. The parenteral administration of magnesium sulphate had a distinct ameliorating effect on the symptoms of hypertension, viz., headache, vertigo, insomnia, hot flashes, head noises and nervousness. In order to reduce the factors of error the authors employed a standardized procedure. 1 Blood pressure readings were taken three times a day for a period of a week in all hospital cases. On the outpatients one single reading was taken each morning at the same hour for a period of a week. 2 All injections were given at a definite hour in the morning. Ambulatory patients rested in the supine position for a half hour before receiving the injection. 3 Blood pressure readings were made one, two and three hours after the injection at the same hour in the morning for at least two weeks. 4 Three blood pressure readings were taken at five minute intervals. The first reading was discarded and the mean reading of the other two was taken to be accurate. The authors used chemically pure, anhydrous magnesium sulphate in triple distilled water. A

stock solution of 25 per cent by weight was prepared. All dilutions were made from this immediately before using by adding warm, sterile, triple distilled water. A graduated arsphenamine cylinder was used with a length of rubber tubing ending in an adapter for a luer needle. The rubber tubing was interrupted at a point 12 inches from the needle by a petcock so that the flow could be interrupted. A 20 gage needle of 2 inches was used. The level of the fluid in the cylinder was kept at approximately 18 inches above the anterior chest wall of the patient at all times. The solution was warmed to body heat and was delivered to the patient intermittently in accordance with the sensation of heat experienced by the patient. The rate of flow of the solution was approximately 100 cc in half an hour. The patient remained at rest in bed for two hours after the injection.

Archives of Dermatology and Syphilology, Chicago

28 609 764 (Nov.) 1933

- Hydroadenitis Axillaris of Verneuil J E Lane New Haven Conn.—p. 609
- Excretion of Bismuth in a Series of Clinical Bismuth Treatments T Sollmann H N Cole and Katharine I Henderson with collaboration of J V Ambler H F De Wolt R L Howard E C Loon J E Rauschkoll and H C Shaw Cleveland—p. 615
- *Transitory Baldness of a Peculiar Type Following Trauma F Ronchese Providence R I—p. 639
- Vitiligo from Arsphenamine Dermatitis and from Arsenic of Unknown Origin Arsenic Findings in Blood Urine and Skin A B Cannon and Marie B Karchitz New York—p. 642
- Pustular Psoriasis N M Wong Toronto—p. 682
- *Nickel Eczema L Goldman Cincinnati—p. 688
- Hereditary Canities and Vitiligo L Hollander and C L Schmitt Pittsburgh—p. 697
- *New Cutaneous Manifestation in Syndrome of Vitamin A Deficiency L J A Loewenthal Kampala East Africa—p. 700

Transitory Baldness Following Trauma—Ronchese presents a case of a peculiar type of sudden and transitory baldness presenting features both of alopecia areata and of alopecia diffusa, a traumatic transitory alopecia of male pattern in a woman. The baldness was evidently not hypocratic, because of the history of a sudden development and a quick recovery. This was a case of alopecia following a trauma which is rare in general and unique with this pattern not having been recorded in either sex. The distribution of alopecia resulting from nervous shock is usually described as in patches or completely diffuse, but not limited to the top of the head. The usual time from the shock to the falling of the hairs is from a few days to a few weeks. In the present case the time was about four months although not only the wound itself but the subsequent complications must be taken into consideration as the acting cause. The author calls attention to the disproportion between the relatively slight trauma and the conspicuous loss of hair and also to the psychic condition of the patient. Apparently there was a trophic nervous reaction of a distinctly reflex nature. The patient has an infantile uterus and coarse hairs on the chin and lips. A dysfunction of the sexual glands may be considered a tentative explanation of the unusual pattern. Pituitary was not administered and hence cannot be credited with the quick recovery, and psychotherapy could not be attempted.

Nickel Eczema—Goldman describes the cases of two nickel workers with definitely proved nickel eczema. In each the eczema developed after a brief period of contact, two days in one case and three days in the other. These patients exhibited a remarkable idiosyncrasy to the nickel ion. Both gave negative reactions to cobalt solutions and to lime. Both patients experienced previous allergic disturbances, urticaria in one instance and hay fever in the other. One patient exhibited a strong reaction to a nickel coin. The author discusses the practical value of nickel coins and nickel-plated objects as potential eczematogenic agents and suggests that these be considered in the study of some of the eczemas of the hands with heretofore unknown etiology.

Vitamin A Deficiency—Loewenthal believes that the medical literature has been reticent regarding the changes in the skin in avitaminosis. The only description of the lesions that he can find is that of Pillat. Pillat's cases and the author's, however, agree in only a few particulars. In both the skin is dry and scaly, and in both there are comedones on the face and chest. Here however the resemblance ceases, Pillat's

dermatitis is a decay, associated with a diminished resistance to pyogenic bacteria and consequent multiple abscesses. The condition in the author's cases is a dyskeratosis, with changes consequent on this condition and without signs of sepsis or softening. What, then, are the true dermal manifestations of vitamin A deficiency? Though always referred to as the anti-infective factor, there is little evidence of detail that vitamin A subserves such a function in man. The formation of leukocytes, bacteriolysins, precipitins and the like seems to continue normally in spite of an avitaminosis. It is probable that the infections which occur in some cases of vitamin A deficiency are due to breaches in epithelial surfaces permitting a more than normal invasion of bacteria with which the normal defense mechanism of the body is unable to cope. If Pillat's patients were subject to general undernourishment as well as to a specific deficiency in vitamin A, this would explain the differences between his observations and those of the author. The author's cases would then represent the dermatosis of vitamin A deficiency, while those of Pillat would have superimposed the results of general undernourishment and possible deficiency in other necessary food factors and neglect of long standing.

Archives of Internal Medicine, Chicago

52 649 828 (Nov.) 1931

- *Periodicity of Carbohydrate Metabolism and Rhythmic Functioning of the Liver. Their Significance in Treatment of Diabetes with Insulin. J. Mollerstrom. Stockholm, Sweden—p. 649.
- Epilepsy and Convulsions in Diabetes. W. R. Jordan. Boston—p. 664.
- Toxic Cirrhosis Caused by Cinchophen. J. F. Weir and M. W. Comfort. Rochester, Minn.—p. 685.
- Studies on Digitalis in Ambulatory Patients with Cardiac Disease. V. Further Observations on Nature of Cumulation of Digitalis. H. I. Otto, H. Gold and C. R. Messeloff. New York—p. 725.
- Experimental Renal Insufficiency Produced by Partial Nephrectomy. II. Relationship of Left Ventricular Hypertrophy, Width of Cardiac Muscle Fiber and Hypertension in the Rat. A. Charnin and I. F. Barksdale. University Va.—p. 739.
- Electrocardiographic Study of Coronary Occlusion. Further Observations on Use of Chest Leads. F. C. Wood, S. Bellet, I. M. McMillan and C. C. Wolferth. Philadelphia—p. 752.
- *Simple Method of Producing Vasodilatation in Lower Extremities with Reference to Its Usefulness in Studies of Peripheral Vascular Disease. E. M. Landis and J. H. Gibbon, Jr. Philadelphia—p. 785.
- *Effect of Alkali on Absorption of Thyroxine from Gastrointestinal Tract, with Note on Comparative Effects of Synthetic and Natural Thyroxine Injected Intravenously. W. O. Thompson, Phebe K. Thompson, Lois I. N. Dickie and J. M. Alper. Chicago—p. 809.

Carbohydrate Metabolism and Rhythmic Functioning of the Liver.—Mollerstrom states that in many cases of diabetes there is a periodic variation in the effect of nourishment on the blood and urine sugar curves, irrespective of meals. At certain hours of the day, postalbuminuric hyperglycemia is milder and less prolonged and the excretion of sugar in the urine diminishes. There may be a tendency to spontaneous reduction of the blood sugar content, so that, in spite of nourishment blood sugar values are sometimes obtained which are less than the starvation values. The endogenous periodicity is different in different persons and may change slightly from one day to the next in the same person. This phenomenon is explained by Forsgren's discovery of the rhythmic functioning of the liver with alternate production of glycogen and secretion of bile. In the assimilatory stage of the liver function with glycogen production there is a tendency toward carbohydrate retention in the body with reduction of the blood sugar content and of the excretion of sugar in the urine, in the dissimilatory or secretory stage the conditions are reversed. The endogenous periodicity of the carbohydrate metabolism is significant for the results of alimentary tolerance tests in diabetic patients, and appears to be of fundamental importance in the development of a rational insulin therapy. Insulin should be administered with due regard for the endogenous rhythm, and not for meal hours.

Vasodilatation in Lower Extremities.—Landis and Gibbon immersed the forearms of patients in warm water (from 43 to 45 C.) for thirty-five minutes in order to produce vasodilatation in the lower extremities. They studied this vasodilator response in twenty-four patients who showed clinical evidence of peripheral vascular disease. The authors conclude that the procedure is a simple and entirely unobjectionable method of producing vasodilatation in the lower extremities. If the surface temperature of the toes rises above 31.5 C. (88.7 F.), significant obliterative structural disease of the arteries of the lower extremity is definitely absent. If the

surface temperature fails to rise to this level, organic arterial obstruction is probably present. With controlled room temperature, the approximate grade of the organic obstruction is indicated by the difference between 31.5 C. and the maximal temperature reached. For absolute certainty in the diagnosis of organic arterial obstruction the abnormal vasodilator response obtained by warming the forearms should be confirmed by some other method of producing peripheral vasodilatation.

Effect of Alkali on Absorption of Thyroxine.—Thompson and his associates observed that in three patients suffering from myxedema, single doses of 7.5 and 10 mg. of synthetic thyroxine in an alkaline solution had from 68 to 80 per cent as much effect on the basal metabolism when administered by mouth as when injected intravenously, in terms of the increase in basal metabolism, and from about 72 to 84 per cent as much effect in terms of excess calory production. The same doses given by mouth in the form of the monodism salt to two patients had only from one third to two fifths as much effect as an alkaline solution given by mouth. In one patient a single dose of 10 mg. of pure synthetic thyroxine by mouth produced too slight a change to be measured. The solubility of any thyroxine compound administered appears to play an important part in its absorption from the gastrointestinal tract and hence in its effect on the basal metabolism. In two of the patients the intravenous injection of synthetic thyroxine produced approximately the same increase in basal metabolism as an equal dose of natural thyroxine.

Archives of Neurology and Psychiatry, Chicago

70 957 1192 (Nov.) 1933

- Cerebral Circulation. VII. (A) Action of Epinephrine on Pial Vessels. (B) Action of Pituitary and Pitresin on Pial Vessels. (C) Vasomotor Response in the Pia and in the Skin. H. S. Ferber, K. H. Finley and G. I. Nason. Boston—p. 937.
- Id. VIII. Action on Pial Arteries of Convulsants Caffeine, Amenth, Camphor and Picrotoxin. J. E. Finesinger and S. Cobb. Boston—p. 950.
- Cerebral Blood Flow Preceding and Accompanying Experimental Convulsions. F. A. Gibbs. Philadelphia—p. 1003.
- Ventriculographic Interpretation. A. Torkildsen. Oslo, Norway and W. Penfield. Montreal—p. 1011.
- Anatomic and Functional Relationships of Nucleus Dorsalis (Clarke's Column) and of the Dorsal Spinocerebellar Tract (Flechsig's). I. J. Piss. Minneapolis—p. 1025.
- Changes in Brain in Legal Electroconvulsion. G. B. Hassin. Chicago—p. 1046.
- Hemorrhage into Chiasm. Review of Eight Hundred and Thirty-Two Consecutive Verified Cases of Glioma. E. Oldberg. Chicago—p. 1061.
- Myelitic and Myelopathic Lesions. VI. Cases with Marked Circulatory Interference and a Picture of Syringomyelia. C. Davison and M. Keschner. New York—p. 1074.
- Growth of a Localized Functional Center in a Relatively Equipotential Nervous Organ. G. E. Coghill. Philadelphia—p. 1086.
- *Alcohol Injected Intravenously. Its Penetration into Cerebrospinal Fluid in Man. H. G. Mehrtens and H. W. Newman. San Francisco—p. 1092.

Alcohol Injected Intravenously.—According to Mehrtens and Newman, the intravenous administration of alcohol is admirably adapted to the study of the psychologic effects of alcohol on man. After a single dose is administered intravenously, the alcohol in the lumbar spinal fluid rises much more slowly than that in the blood attains its maximum later and declines more slowly. When the alcohol in the blood is kept at a constant level for from four to five hours, the alcoholic content of the lumbar and cisternal fluids at the end of this time is equal to, or in excess of, that in the blood plasma. The evidence from this work seems to indicate that alcohol enters the spinal fluid by diffusion from the blood, probably largely from the choroid plexuses. The higher alcohol content of the spinal fluid as compared with that of the blood plasma may be due to a relative impermeability of the absorbing system to alcohol, with a resulting concentration of the alcohol, or to an active secretion of the alcohol by the choroid plexus. The authors favor the former hypothesis.

Delaware State Medical Journal, Wilmington

5 223 244 (Oct.) 1933

- The Future of the Medical Profession in the Next Twenty Five Years. W. H. Speer. Wilmington—p. 223.
- Gallbladder Disease. B. M. Allen. Wilmington—p. 228.
- An Overlooked Factor in Susceptibility to the Common Cold. E. Ewens. Atlantic City, N. J.—p. 234.
- Diagnostic Hints in Diseases of Lungs. L. Podolsky. Brooklyn—p. 237.

Indiana State Medical Assn Journal, Indianapolis

26 545 590 (Nov 1) 1933

- Medical Aspects of Endocrine Therapy T Fitz Hugh Jr Philadelphia—p 545
Indiana's Indigent Relief Plan W H Book Indianapolis—p 550
Local Anesthesia in Labor H D Tripp Kewanee—p 553
Atypical Mastoiditis Complicated with Hematuria A H Hansen Hammond—p 555
Diagnosis of Hyperthyroidism H F Dunlap Rochester Minn—p 556

Local Anesthesia in Labor—Tripp states that procaine infiltration of the perineum relaxes the muscles and eliminates that period of anguish when the child's head passes through the vulva. In every case infiltration is done for that one reason alone, even if episiotomy is not necessary. He believes that rigid muscles tear more readily than relaxed ones. Uterine contraction pains are not affected by the infiltration. Sodium amylal, amylal or amytal compound greatly reduces the amount of pain from contractions, and the author recently used amytal compound with satisfying results. Amytal compound supplies an analgesic of unsurpassed value with the exception of the opiates, and it supplies a sedative and hypnotic of accepted value. Barbituric acid derivatives counteract the ill effects that sometimes accompany the use of procaine hydrochloride. The technic employed is as follows: A 5 per cent solution of mercurochrome is used to prepare the patient after she has been cleansed with a weak compound solution of cresol and to irrigate the vagina. In the stage of labor, when the contractions are becoming painful, one capsule of amytal compound is given by mouth and is repeated in one hour if the pains are still severe. When the child's head begins to make pressure on the perineum, about 20 cc of a 1 per cent solution of procaine hydrochloride is injected into the perineum. The first injection is made into the perineal body with about 5 cc of the solution, the needle being long enough to go past the skin and fat, so that the solution is placed in the muscles. From this point the bulbocavernosus muscles are injected. A few cubic centimeters is also injected posteriorly to both sides of the perineal body in order to catch the fibers of the superficial transverse perineal and levator ani muscles. If episiotomy is to be done the skin of the corresponding area is infiltrated. The author states that with this technic he has been able to conduct labor practically without pain and with the cooperation of a quiet and calm patient.

Journal of Allergy, St Louis

5 1114 (Nov) 1933

- Some Comments on Antigens and Practice of Allergy A H W Caulfield Toronto—p 1
Preparation and Stability of Food Allergen Extracts G A Alles G Piness and H Miller Los Angeles—p 5
Preservation of Pollen Extracts by Drying and Preparation of Concentrated Pollen Solutions B Z Rappaport Chicago—p 13
Studies in Pollen Potency S M Feinberg and M J Steinberg Chicago—p 19
Intradermal Pollen Therapy During the Attack E W Phillips Phoenix Ariz—p 29
Air Conditioning as a Means of Removing Pollen and Other Particulate Matter and of Relieving Pollinosis W T Vaughan Richmond Va and L E Cooley Dubuque Iowa—p 37
The Antigen Free Room in Detection and Control of Cutaneous Anergy in Pollen Bronchial Asthma I S Kahn and Emma M Grothaus San Antonio Texas—p 45
Neurodermatitis Due to Protein Sensitization S J Taub and S J Zakon Chicago—p 53
Silk Sensitivity with Especial Reference to Its Role in Atopic Eczema K D Figley and H J Parkhurst Toledo Ohio—p 60
Rapid Standardization of Protein Extracts by Determining Their Nitrogen Content A I Cohen and Mary Louise Goodale Buffalo—p 70
Pheдрine in Allergic Migraine R H Kampmeier New Orleans—p 74

Preservation and Preparation of Pollen Extracts—According to Rappaport ragweed pollen extract may be dried at 40 C with little loss in its solubility and no demonstrable change in its potency. A highly concentrated pollen extract may be prepared by redissolving the dried material in a smaller quantity of water than that used for the original extraction. The most concentrated solution prepared contained 18 mg of nitrogen per cubic centimeter the equivalent of an 18 per cent pollen extract. The concentrated extract prepared in this manner had a potency which was proportional to its nitrogen content when compared with the original undried material. The dried material showed no loss of activity when redissolved

after eighteen months. The chief advantage of this method of preparation and preservation of pollen extracts is that it provides a readily available supply of pollen stock, which is preserved by drying and which can easily be made into a solution of a definite potency.

Rapid Standardization of Protein Extracts—Cohen and Goodale describe a method of nitrogen determination applicable to protein extracts in which the protein extract is diluted with distilled water so that 1 cc of the solution will equal approximately 0.1 mg of nitrogen per cubic centimeter. After the extract is properly diluted, 1 cc of extract and 1 cc of digestion mixture (sulphuric-copper sulphate mixture or phosphoric-sulphuric mixture) are placed in a digestion tube. This is heated slowly on the micro-bunsen burner until the water boils off and white fumes appear, and then the tube is covered with a watch glass. The heating should continue until the solution first chars and then becomes clear white, when it is allowed to cool for thirty seconds, after which about 5 cc of distilled water and then 1 cc of 10 per cent solution of potassium and sodium tartrate is added drop by drop. Distilled water is added up to the 35 cc mark. At this point the tube may be corked and kept in a refrigerator for twenty-four hours, if desired. In reading, the standard consists of 1 cc of standard nitrogen solution, 1 cc of digestion mixture, distilled water up to the 35 cc mark, and 15 cc of Nessler's solution, mixed by inverting the tube. To the extract 15 cc of Nessler's solution is added and read against the standard in a colorimeter preferably by daylight. In the calculation, the colorimeter reading of the standard over the colorimeter reading of the extract $\times 0.1$ (amount of nitrogen in standard) \times dilution = milligrams of nitrogen per cubic centimeter of extract.

Journal of Lab and Clinical Medicine, St Louis

19 113 224 (Nov) 1933

- Relative Incidence of Intestinal Parasites in Hospital Patients in Nashville and in Rural Tennessee H E Meloney Nashville Tenn—p 113
Studies in Pharmacology of Local Anesthetics VI Comparison of Metycaine with Cocaine and Procaine on Experimental Animals E E Swanson, Indianapolis—p 120
Fatal Case of Sickle Cell Anemia with Autopsy Findings M D Hargrove and W R Mathews Shreveport La—p 126
*Blood Catalase in Heart Disease I Preliminary Report J C Healy and H Baker Boston—p 133
Study of Blood Calcium After Administration of Sodium Oxalate to Normal and Thyroparathyroidectomized Cats W Salant W M Parkins and Lillian E Sheppard Long Island N Y—p 142
Five Hundred and Nineteen Voge Bromine Tests of Urine for Pregnancy A M Young Cleveland—p 153
Phytopharmacology of Stomach Washings in Various Digestive Disorders and Pernicious Anemia D I Macht and M Paulson, Baltimore—p 155
*Methylene Blue as an Antidote for Aniline Dye Poisoning Case Report with Confirmatory Experimental Study J R Williams and F E Challis Rochester N Y—p 166
Study of Red Blood Cell Count and Hemoglobin in the Adolescent Male S M Goldhamer and Agnes I Fritzell Ann Arbor Mich—p 172
Behavior of Lead in Animal Organism III Colloidal Lead Compounds R A Kehoe and F Thammann, Cincinnati—p 178
Adaptation of Sand Filtration to Rapid Clearing of Heavy Bacterial Culture Mediums G McF Mood Charleston S C—p 195
Simple and Efficient Electrical Tool for Sealing Museum Jars C D Brown Albany N Y—p 197
Simple Automatic Sharpener for Microtome Knives T J Putnam Boston—p 199
Morphine Pentobarbital Anesthesia for Dog Surgery M H SeEVERS Madison Wis—p 202
*An Improved Method of Blood Culture L S Manly and C C Saelhof Chicago—p 203
Preparation and Staining of Frozen Sections A A Thibault, Buffalo—p 204
Simple Autopsy Stand for Mice J M Hutcheon Toronto—p 210

Blood Catalase in Heart Disease—Healy and Baker studied the diagnostic value of the blood catalase in disease of the heart. They observed 429 cases and checked the amounts of oxygen liberated by the individual bloods. The examination of 136 apparently normal persons showed the normal range to be from 10 to 15 cc of oxygen. When a blood caused a 19 cc yield, it was repeated to be certain that it was not a borderline case and its proper classification ascertained. The average normal figure was found to be about 15 cc, thus putting all the normal cases in the 10 to 20 group. There were 116 cases of mitral and aortic valvular disease of rheumatic

etiology, a few of which were decompensated. All these were felt to be inactive valvulents as determined by the general clinical picture of each case and observation over a period varying from weeks to years. At first examination and others after close study the average yield was 29 cc in these. A value of from 21 to 30 indicates valvular disease, the final diagnosis being dependent on the entire clinical and laboratory picture. At about the age of 26 the lesion is probably active and at the age of more than 30 certainly active. The authors conclude that the determination of blood catalase is of value in making a diagnosis of rheumatic heart disease especially in doubtful cases. It is of help in determining the activity or inactivity of a lesion of the valve. A study of the blood catalase in active rheumatic endocarditis will aid in determining the length of time required for treatment.

Methylene Blue for Aniline Dye Poisoning—Williams and Chellis describe a case of aniline dye poisoning in a student who had been handling parabromaniline and parabromorthosulphanilic acid. Intense signs and symptoms of pigmentation of the skin, headache, stupor, nausea and vomiting were relieved promptly by the intravenous injection of a 1 per cent solution of methylene blue (methylthionine chloride U. S. P.). It was shown by spectroscopic studies of the blood that the poisoning was due to parabromaniline and that the parabromorthosulphanilic acid was nontoxic when applied to the skin. Animal experiments indicated that methylene blue injected intravenously into a rabbit in approximately twice the strength of that given to the patient did not affect the absorption spectrum of normal blood but that if methylene blue is mixed with normal blood in vitro the spectrum from such a mixture seems to be a composite of the spectrums of methylene blue and normal blood.

Improved Method of Blood Culture—Munk and Snelhof state that the following method of making blood cultures has given satisfactory results. A bottle approximately 250 cc in size and containing 30 cc of dextrose phosphate broth is fitted loosely with a two hole rubber stopper bleeding attachment the inlet tube of which should extend for about 6 cm into the bottle to which a number 13 gauge needle is attached and is sterilized at a pressure of 15 pounds for thirty minutes. Just before use 10 cc of sterile peptone solution containing 2 drops of a 5 per cent solution of sterile sodium carbonate is added. The rubber stopper is then fitted tightly and tied into position. Into this bottle approximately 130 cc of blood is drawn from a suitable vein. The bottle is left to stand at room temperature for three hours in order to secure a firm adherent clot incubated at 37 C, and examined carefully each day for the growth of small pinpoint colonies on the edge of the clot or in the surrounding fluid. For identification of eventual growths, streaks on suitable mediums can be made. Using this method the authors obtained positive cultures in forty-three of sixty-seven cases (64 per cent) while the usual routine method yielded positive blood cultures in only fourteen cases (21 per cent).

Journal of Pharmacology & Exper Therap, Baltimore

49 257-386 (Nov.) 1933

- Sodium Iodobismuthite (Iodobismutol). Muscular Absorption of Bismuth. P. J. Hanzlik and J. B. Spaulding. San Francisco—p. 257.
- Studies in Cancer Chemotherapy. VI. Effect of Carbon Monoxide, Hydrocyanic Acid and Pituitrin on Tumor Growth. I. C. Maxwell and F. Bischoff with technical assistance of H. Ullmann Jr. Santa Barbara, Calif.—p. 270.
- Further Studies on Pharmacology of Acetyl-β-Methylcholine and Ethyl Ether of β-Methylcholine. J. H. Comroe Jr. and I. Starr Jr. Philadelphia—p. 283.
- *Irritation and Toxicity of Sodium Iodobismuthite (Iodobismutol) Prepared with Propylene Glycol and Diethylene Glycol. P. J. Hanzlik, H. G. Mehrtens and J. B. Spaulding. San Francisco—p. 300.
- Myocarditis Produced Experimentally in Rabbits by Drugs. C. M. Gruber. Philadelphia. I. Y. Olch. St. Louis and B. Blades—p. 306.
- Studies of Morphine, Codeine and Their Derivatives. III. Morphine Methochloride and Codeine Methochloride. N. B. Eddy. Ann Arbor, Mich.—p. 319.
- Brief Study of Anesthetic Action of a Series of Naphthalene Derivatives. M. E. Fisk and F. P. Underhill. New Haven Conn.—p. 329.
- Some Responses of Cat's Uterus in Situ to Adrenalin, Quinine, Morphine and Pituitary Extract. N. B. Dreyer and R. A. Morenash. Halifax, Nova Scotia—p. 337.
- Studies on Coronary Circulation. II. Effect of Ephedrine on Coronary Circulation. O. O. Stotland, Lawrence Kan. and A. M. Ginsberg. Kansas City, Mo.—p. 345.

- Standardization of Dosage of Sodium Ethyl (1 Methyl Butyl) Barbiturate (Nembutal) for Anesthesia in Cats and Dogs. H. C. Bizer and W. H. Erb. Philadelphia—p. 352.
- Influence of Ephedrine Sulphate on Reflexes of Spinal Monkeys. C. F. Jacobsen and Margaret A. Kennard. New Haven Conn.—p. 363.
- Secretion of Posterior Lobe of Hypophysis After Administration of Drugs. A. Simon. Baltimore—p. 375.

Irritation and Toxicity of Iodobismutol—Hanzlik and his associates point out that the local irritant action of iodobismutol prepared with propylene glycol and injected intramuscularly in human subjects appears to be about the same as ordinary iodobismutol or possibly somewhat more in some subjects. According to mortality statistics from intravenous and intramuscular injections in animals iodobismutol prepared with propylene glycol is less toxic systemically than is ordinary iodobismutol prepared with ethylene glycol. Iodobismutol prepared with diethylene glycol tends to be more toxic than ordinary iodobismutol. The presence of iodide in iodobismutol tends to increase the toxicity as indicated by fatal doses in animals, but this is not important in the practical utility of iodobismutol nor is the systemic action of ethylene glycol, in ordinary iodobismutol in large repeated therapeutic doses toxic or injurious, the margin of safety being ample.

Laryngoscope, St. Louis

77-80 (Oct.) 1933

- Mastoiditis. Symptomatology and Diagnosis of Acute Mastoiditis. R. T. Atkins. New York—p. 777.
- Id. Diagnostic Aids in Acute Mastoiditis. A. Rav. F. M. Lar. New York—p. 784.
- Id. Diagnostic Aids in Mastoiditis. Laboratory. A. A. E. New York—p. 788.
- Id. Differential Diagnosis in Acute Mastoid Disease. M. F. Jones. New York—p. 793.
- Evolution of Mastoid Tip Cell as a Cell System Separate from Remainder of the Mastoid Cells and Its Significance (Preliminary Report). R. Almour. New York—p. 797.
- An Aid to Interpretation of Intracranial Complications Resulting from Venous Circulatory Disturbance of Temporal Bone Offered by a View of Lateral Sinus and Jugular Foramen. M. S. Fraser and D. M. Vetter. Philadelphia—p. 800.
- Pellagra Oral and Tharyngeal Manifestations. Report of Case. O. Rodin. Brooklyn—p. 819.
- Pempylus Beginning in the Larynx. Report of Case. H. Danish. Brooklyn—p. 823.
- Cavernous Sinus Thrombosis of Otic Origin. Report of Case. J. G. Gilbert. Brooklyn—p. 825.
- Carbuncle of Nose. Ophthalmic Vein Phlebitis. Operation for Cavernous Sinus Thrombosis. Recovery. Report of Case. E. I. Browder. Brooklyn—p. 829.
- Bullet Wound of Right Laryngeal Canal. Hematomy of the Soft Palate and Pterygomaxillary Space. Tracheotomy and Ligation of the Common Carotid Artery. Recovery. Report of Case. H. Rubin. Brooklyn—p. 831.
- Peritonsillar Abscess. Retropharyngeal Abscess. Otitis Media of Skull. Extracranial Abscess and Death. Report of Case. J. S. Silverberg. Brooklyn—p. 835.
- Ludwigs Angina. Report of Case. W. I. Hochbaum. New York—p. 838.
- Nutritional and Biochemical Phases of Otolaryngology. M. C. Myerson. New York—p. 840.
- Lithioiditis. Its Various Forms and Their Treatment. L. S. Dunn. Philadelphia—p. 848.

Evolution of Mastoid Tip Cell—Almour presents a study based on the dissection of and experimentation with twenty-four well pneumatized temporal bones. In all the tract from the middle ear to the tip cell was demonstrable. It is conceivable that the tip cell may be pneumatized while the remainder of the mastoid process is sclerotic or diploic. This additional pathway from the middle ear into the mastoid process is of significance in that infection can spread by contiguity from the middle ear into the mastoid cells without spreading from the antrum. It explains the early appearance of tenderness over the mastoid tip in cases of acute purulent otitis media. This point of tenderness may be the only one present during the entire course of the disease. It also explains the frequent observation on roentgen examination of intact cells in the region of the antrum and throughout the major portion of the mastoid process in the presence of tenderness of the tip. It also accounts for isolated empyema of the mastoid tip cells with intact cells through the remainder of the mastoid process. It may also account for the presence of early facial paralysis in infants, since the pathway into the tip from the middle ear surrounds the facial canal, and for the early involvement of the jugular bulb by a thrombus.

Medical Annals of District of Columbia, Washington

247 276 (Nov.) 1933

- Hyperparathyroidism E A Merritt Washington—p 247
Fundamentals of Internal Medicine Diseases of the Heart W M
Latter Washington—p 259
Sexual Frigidity in Women W R Stokes, Washington—p 264

Michigan State M Society Journal, Grand Rapids

32 531 572 (Oct.) 1933

- America's One Undepressed Asset J M Robb Detroit—p 531
Important Little Things in the Treatment of Anal Diseases L J
Hirschman Detroit—p 534
Minimizing Discomfort Following Laparotomy Report of One Hundred
Consecutive Cases I Snyder Lansing—p 540
Studies of Skeletal Remains of Indians S C Sander on Detroit—
p 545
Treatment of Varicose Ulcer M C Harvey Detroit—p 546
Use of Bacteriophage in Certain Eye Diseases I F Carter Detroit
—p 549
Scopolamine Alone for the Relief of Pain During Labor L E Daniels
and F W Tambllyn Detroit—p 551
Surgery in Gout J M Jones Bay City—p 557

Nebraska State Medical Journal, Lincoln

18 365 404 (Oct.) 1933

- The Colostomy Indications Methods and Points of Practical Interest
Regarding Its Care R R Best Omaha—p 365
The Country Doctor His Status A A Conrad Crete—p 370
The Irritable or Unstable Colon H L Bockus and J H Willard
Philadelphia—p 375
Sickle Cell Anemia in the White Race Report of Two Cases F
Clarke Omaha—p 376
Newer Concepts of Rheumatic Fever B C Russum Omaha—p 380
Sympathetic Influence in Disease E Connolly Omaha—p 383
Pitfalls in Allergic Diagnosis G R Underwood Lincoln—p 386
The Knowledge of the Internist as It Applies to the Specialties H
Farrell McCook—p 390
Adenofibroma of Male Breast M Emmert Omaha—p 394

18 405 444 (Nov.) 1933

- Deep X Ray Therapy I Merits and Limitations of Radiotherapy in
the Control of Cancer H B Hunt Omaha—p 408
Id II Deep X Ray Therapy for Fibroids and Uterine Hemorrhage
A P Overgaard Omaha—p 417
Id III Present Status of Radiation Therapy Especially Low Voltage
Therapy J F Kelly Omaha—p 419
Illumination and Headache (Demonstration of Lighting Methods)
L B Bushman Omaha—p 424
Trichomonas Vaginalis Sophia E Warner Arapahoe—p 425
Use of Vaccine in Treatment of Chronic Arthritis F L Rogers
Lincoln—p 427
The Orr Method of Osteomyelitis Treatment S A Novotelnov Emm
grad U S R—p 431
Tumor of Hip Joint M Emmert Omaha—p 435

Vaccine in Treatment of Arthritis—Rogers feels that it is definitely proved that rheumatoid arthritis is a bacterial disease and that it is fair to assume that osteo-arthritis is also a bacterial disease in which trauma plays a part. The menopause, obesity, thyroid deficiency and other conditions may be associated and aggravating. Climate through infection plays a part. The changes that occur in and about the joint may be due to the presence of the bacteria and their toxins or they may be allergic manifestations. The removal of foci of infection is important and should be done early. By the time a case of chronic arthritis has become well developed, the organisms have spread throughout the body and it has become a systemic disease. Removing an infected tooth or tonsil at this stage is like cauterizing a chancre to cure syphilis. No known medication will destroy these organisms without destroying their host. The greatest hope lies in building up the patient's resistance, that is, immunizing or desensitizing or both. The question as to whether the condition is type or group specific is important. If it is group specific a stock vaccine should be satisfactory, if type specific an autogenous vaccine from carefully collected cultures must be prepared. The author has observed not infrequently that a stock vaccine will be relatively impotent while an autogenous vaccine will be extremely potent. Cultures should be from all suggestive foci of infection: blood, throat and tonsils, nasopharynx, sinuses, abscessed or devitalized teeth, duodenal contents, stool, intestinal wall, urine, prostatic secretions, neck of the uterus and other sources. Each organism that is arthritis producing and all organisms to which the patient is sensitive are used to make up his vaccine and a group of organisms is added which have proved most potent in previous cases. The vaccine is given subcutaneously at intervals of from five to seven days. The dose is kept small as compared to the dose of commercial vaccine.

New England Journal of Medicine, Boston

209 765 814 (Oct 19) 1933

- Pulmonary Tuberculosis in Adolescents with Especial Reference to
Frequency Diagnosis and Prognosis A S Pope Boston—p 765
Some Conditions in Which the Roentgen Examination May Lead to an
Erroneous Diagnosis of Pulmonary Tuberculosis G W Holmes
Boston—p 774
Changing Aspect of Tuberculosis Treatment J B Amberson Jr New
York—p 777
Pathogenesis of Multiple Sclerosis Possible Vascular Factor T J
Putnam Boston—p 786
A Sketch of Vermont's Early Medical History L Allen Burlington,
Vt—p 792
Cesarean Section H M Little Montreal—p 799
Antenatal Care I J Patrick, Westmount Que—p 801

New Jersey Medical Society Journal, Orange

30 599 688 (Sept.) 1933

- Relation Between the General Practitioner and the Public Health Official
H S Cumming Washington D C—p 599
Infected Teeth in Relation to Mortality Rate of Major Operations
H A Cotton Trenton—p 604
Some of Our Present Day Problems M Danzig Newark—p 608
One of the Medical Economic Problems in New Jersey W R Davies,
Scranton Pa—p 617
Osteomyelitis of the Jaw in a Nursing Case A Del Duca Camden
—p 625
Treatment of Leukorrhea A Shulman Paterson—p 626
Mastoiditis Differential Diagnosis H Dintenfuss, Philadelphia—
p 629
Appendicitis H A Longdorf Mount Holly—p 633
Radiation in Cancer D Quick New York—p 636
What Do Patients Expect from Physicians? T A Smith Short Hills
—p 641

New Orleans Medical and Surgical Journal

56 205 268 (Oct.) 1933

- Effect of Feeding Amino Acids in Cases of Muscular Dystrophy H H
Beard and C J Tripoli New Orleans—p 205
Some Roentgenologic Studies of Parts of Lymphatic System L J
Menville and J N Ane New Orleans—p 211
Dermatophytosis of Extremities, Its Treatment by Roentgen Ray
Therapy H C McCormick Laurel Miss—p 213
Gynecologic Aspect of Symptomatic Epilepsy I A LeDoux New
Orleans—p 217
Urinary Antiseptics F I Van Alstine Jackson Miss—p 219
Acute Conjunctivitis Diagnosis and Treatment E I Wilkins
Clarksdale Miss—p 221
Cause Diagnosis and Treatment of Intercular Opacities M L Batson
Jackson Miss—p 225
The Schilling Hemogram in Pediatrics H Hosen New Orleans—
p 229
Report of the Pasteur Institute of the Charity Hospital of New Orleans
for the Years 1931 1932 R D Aunov and A Fine, New Orleans—
p 236

New York State Journal of Medicine, New York

33 1133 1190 (Oct 1) 1933

- Disorders of Muscle Tone and Their Localizing Significance W Free
man Washington D C—p 1133
External Examination of the Eye in the Diagnosis of General Diseases
II Extra Ocular Muscles Conjunctiva Cornea and Sclera C Berens
and J Zuckerman New York—p 1137
Importance of Bronchoscopy in Obscure Pulmonary Conditions Report
of Two Cases J W Miller New York—p 1139
Sequestrum of the Frontal Sinus E R Nodine Freeport—p 1141
Study of the Maternal Mortality of New York State Preliminary
Report G W Kosmak New York—p 1142
Postgraduate Medicine and the General Practitioner A R Anderson
New York—p 1145
Physical and Constitutional Measures in Chronic Arthritis R Kovacs
and J Kovacs New York—p 1148
Present Day Problems in Light Therapy F H Krusen Philadelphia
—p 1154

33 1191 1248 (Oct 15) 1933

- Blood Changes in Intestinal Obstruction D W Atchley New York
—p 1191
Cause of Death in High Obstruction J F Sweet New York—p
1194
Treatment of Intestinal Obstruction J J Morton Rochester—p 1197
Nonoperative Treatment of Renal Pathology H G Bugbee New York
—p 1203
Dietary Control of Chronic Hypothrombinemia in Childhood I A
Kugelmass New York—p 1207
External Examination of Eye in Diagnosis of General Diseases III
Iris Pupil and Lens C Berens and J Zuckerman New York—
p 1209
Surgical Relief of Intractable Pain F C Grant Philadelphia—p 1213
Health Examination Life Service and the Family Doctor C W
Crampton New York—p 1216
Contralateral Cavernous Sinus Thrombosis Following Chronic Purulent
Otitis Media A Weizenboffer Schenectady—p 1219

Surgery in Intractable Pain—Grant points out that the pain from cancerous lesions about the mouth and face, especially when the disease involves the lip, nose, maxillary antrum or

dorsum or side of the tongue, may be completely relieved by injection of alcohol into the second or third division of the trigeminal nerve or by section of its sensory root behind the ganglion. And not only is the pain from the cancerous lesion itself relieved but also radical methods for its removal are painless. These patients willingly accept fulguration, excision, implantation of radium or other treatment up to the limit of tolerance, because of their freedom from pain. Patients having malignant disease in this region are often encountered who are suffering severe and constant pain and who dread further or more intensive treatment because it aggravates their suffering. The author is certain that some of his patients who are alive at the end of five years survived because their freedom from pain permitted them to sleep to eat comfortably and to receive the maximal amount of treatment without an increase in their distress. It should be stated that the pain from malignant disease involving the floor of the mouth or the tonsil with pain referred to the throat or deep in the ear is not benefited by injections of the trigeminal. Occasionally a suboccipital craniectomy with section of the fifth and ninth nerves and the upper three cervical posterior roots has been attempted but the relief afforded has never been nearly as satisfactory as in those instances in which the lesion lies completely within the sensory distribution of the fifth nerve.

Northwest Medicine, Seattle

72 101 446 (Oct.) 1933

- Urgent Medical Problems A. H. Percock Seattle—p. 401
Organization and Coordination of Service Bureaus H. C. Wright Seattle—p. 403
Health Insurance in the State of Washington H. J. Whitacre Tacoma Wash.—p. 406
Care of the Indigent Sick by the County Medical Society N. L. Thompson Everett Wash.—p. 410
Legislative Actions and Policies W. B. Penney Tacoma Wash.—p. 413
Sites of Election of Benign and Malignant Gastric Ulcers J. M. Bowers Seattle and A. B. Rivers Rochester Minn.—p. 415
Diagnosis of Cranioloma Pyogenicum D. W. Montgomery and J. D. Nicelli San Francisco—p. 417
Preoperative and Postoperative Care of Goiter H. I. Hartley Seattle—p. 419

Oklahoma State Medical Assn Journal, Muskogee

26 385 424 (Nov.) 1933

- The Mechanism of Forceps Delivery W. W. Wells Oklahoma City—p. 385
Use of Calcium in Pregnancy C. E. White Muskogee—p. 388
Suspension of the Uterus D. B. Shaw Seminole—p. 390
Influence of Endocrines on Menstruation K. J. Wilson Oklahoma City—p. 392
Biologic Action of Radium Light and Its Use in Medicine L. A. Turley Norman—p. 398
Impressions After Ten Years Use of Radium in Gynecologic Conditions P. Fite Muskogee—p. 406

Use of Calcium in Pregnancy—White has been using calcium gluconate and dicalcium phosphate in all pregnant patients who complain of tingling and numbness of the hands and feet or cramping of the legs. There has been absolute relief of these symptoms in two or three days without the addition of any other kind of therapy. He found that the use of this type of calcium is of considerable value in many cases in which there is insomnia, pain and stiffness of the hips and at times, in general malaise associated with nervousness and irritability. He has made no effort to differentiate between polyneuritis of pregnancy and the tetanoid syndrome or calcium deficiency. He is of the opinion that the milder types of polyneuritis as they are commonly described may be due to calcium deficiency.

Pennsylvania Medical Journal, Harrisburg

37 1 80 (Oct.) 1933

- Coroner or Medical Examiner? J. E. Scheele Lancaster—p. 6
Salysrgan as a Diuretic Report of Case Ora F. McKittrick Lingles town—p. 8
Work of the Health Car in Westmoreland County in 1932 Sonia Cheifetz Greensburg—p. 11
Perforating Aortitis Report of Cases A. S. Brumbaugh Altoona—p. 15
Polymyositis in McKean County Pennsylvania in the Fall of 1932 Persis Straight Robbins Bradford—p. 17
Myocarditis V. S. Messenger Easton—p. 20
Physical Incompetence as a Result of Sexually Repressed Emotions A. H. Moore Doylestown—p. 22

- Amphlopia and Squint from Head Injuries at Birth M. E. Smeltz Philadelphia—p. 25
Matchmarking Louis Benedict Philadelphia—p. 28
Acute Intussusception as a Cause of Acute Intestinal Obstruction Intussusception Report of Case I. F. Knoepf Spangler—p. 29
Improved Tonsillectomy Camp I. P. George Harrisburg—p. 31
Albuminuria Its Clinical Significance When Occurring in Otherwise Healthy Young Men N. J. Burden Philadelphia—p. 37
Treatment of Pulmonary Infections with Intratracheal Instillations of Iodized Oil N. Muntz and M. S. Jacobs Philadelphia—p. 36
Yellow Atrophy of the Liver A Review A. G. Beckley and F. W. Konzelmann Philadelphia—p. 39
Exophthalmic Goiter in Children of Ten and Under Comments Based on a Series of One Hundred and Two Cases I. Bram Philadelphia—p. 45

Philippine Islands Med. Association Journal, Manila

17 451 492 (Oct.) 1933

- Maternal Morbidity and Mortality in the Philippine General Hospital from 1913-1932 H. Acosta-Sison Manila—p. 451
Reopening the Red Light Districts in the Philippines P. T. Lantieri Manila—p. 454

Public Health Reports, Washington, D. C.

18 1277 1308 (Oct. 20) 1933

- Growth and Economic Depression Study of Weight of Elementary School Children in 1921-1927 and in 1933 C. E. Palmer—p. 1277
Comparison of Enumeration of Bacteria by Means of Solid and Liquid Mediums C. T. Butterfield—p. 1292

18 1309 1340 (Oct. 27) 1933

- Investigation of Mitogenic Radiation by Means of a Photo-Electric Counter Tube F. Lorenz—p. 1311

18 1341 1362 (Nov. 3) 1933

- *Encephalitis Studies on Experimental Transmission R. S. Muckenfuss, C. Armstrong and H. A. McCordock—p. 1341
Preliminary Surveys of the Industrial Environment J. J. Bloembergen—p. 1343

Experimental Encephalitis—Muckenfuss and his associates state that their studies on the experimental transmission of encephalitis have been successful in seven of fifteen animals. Successful transfers were secured by making heavy inoculations (from 15 to 2 cc) of a thick brain emulsion intracerebrally, combined with from 5 to 10 cc of the same emulsion intraperitoneally. The inoculations were repeated after an interval of from four to five days. The symptoms observed in monkeys while varying in degree were uniform in character and suggested those seen in human encephalitis. The first significant symptoms appeared in from eight to fourteen days following the first inoculation and began with an elevation of temperature which tended to rise on successive days to a height of from 40.6 to 41.6 C (104.9 to 106.7 F) on the fourth or fifth day of the fever. When undisturbed the animals usually sat hunched up with their eyes closed as if asleep and with the head bent forward. When disturbed the animals seemed alert and often excitable. Intention tremors, most noticeable in the forelegs and in the head, usually appeared about the second or third day and were often pronounced. Muscular weakness of one or more extremities and occasionally definite paralysis made their appearance during the febrile stage. Involvement of the muscles of the eyes was not observed. The appetite usually continued good and the animals would often eat greedily throughout the febrile period. Constipation was often present. The spinal fluid at the height of the fever was usually under increased pressure, was clear and commonly showed cell counts of from 150 to 350. The animals were usually killed for transfer from the second to the fifth day of the fever but in a few instances the disease was allowed to run its course. In these instances the monkeys recovered completely. There were no spontaneous deaths, although some animals were apparently very ill when killed. The authors have successfully carried three strains through five passages in monkeys with incubation periods varying from eight to twenty-one days. Only about 40 per cent of the inoculated monkeys developed symptoms. The acuteness of the illness in animals coming down during the fourth and fifth transfers suggests that the virulence may be increasing. The pathologic picture is consistent with that seen in human beings during the epidemic and includes marked congestion with perivascular round cell infiltration together with some nerve cell destruction scattered diffusely through the brain bulb and cord. The virus persists in 50 per cent glycerin for at least one week.

Rhode Island Medical Journal, Providence

16 145 160 (Oct.) 1933

- Congenital Intestinal Obstruction Report of Case R C Bates Providence—p 145
Rules Governing the Child Health Stations Submitted by the Providence Child Welfare Committee W P Buffum Chairman Providence—p 146
Congenital Syphilis M J Exner New York—p 148
Estimation of and Methods of Meeting Surgical Risks and Postoperative Complications in Surgical Diseases of Biliary Tract F V Hussey Providence—p 154

16 161 178 (Nov.) 1933

- Clinical Diagnosis of Hypopituitarism Its Relation to Medical Practice and Limitations as to Treatment J Perkins Providence—p 161
Pathology of Peptic Ulcers C D Newel Providence—p 169

Southern Medical Journal, Birmingham, Ala

26 909 1012 (Nov.) 1933

- Primary Intrathoracic Malignant Tumors M P Neal Columbia Mo—p 909
Nonoperative Versus Operative Treatment of Tuberculosis of the Spine in Children Review of Fifty Consecutive Cases Treated by Each Method J H Kite Decatur Ga—p 918
Bilateral Traumatic Pneumothorax with Recovery O R Troje Fairfield Ala—p 928
Obliterated Pericardium by Hypernephroma Metastasis J A Lanford and E P Thomas New Orleans—p 929
Simple Device for Localizing Small Stones in the Kidney Substance H K Turley Memphis Tenn—p 932
Epidemiologic Studies on Typhoid Fever in Georgia Problems Associated with Its Control D L Seckinger Atlanta Ga—p 933
Radical Frontal Sinus Operation Under Local Anesthesia G B Collier New Orleans—p 941
Maintenance Dosage of Liver Administered Parenterally in Treatment of Pernicious Anemia J E Sherman El Paso Texas—p 944
Observations on Potency of Various Proprietary Digitalis Preparations H B Haag Richmond Va—p 946
Consideration of Our Present Knowledge Concerning Pancreatic Ferments D N Silverman New Orleans—p 948
Ablatio Placentae H R Robinson Galveston Texas—p 954
Effect of Diet on Worm Burden of Children Infected with Necator Americanus and Ascaris Lumbricoides C F Ahmann and L M Bristol Gainesville Fla—p 959
Opportunity for Parasitology in Medical Schools of the South E C Faust New Orleans—p 962

Treatment of Tuberculosis of the Spine—Kite states that the merits of the nonoperative and the operative methods of treatment of tuberculosis of the spine cannot be accurately determined from a study of the conflicting statements in the literature. The important question for each surgeon to decide is which method will give him the better result in his own particular climate and with his individual operative ability. Spontaneous fusion of the diseased vertebral bodies, which is nature's method of curing the tuberculosis occurred in only 2 per cent of the cases. The deformity should be corrected as much as possible before operation. Absolute immobilization is the most important prerequisite in the treatment of any tuberculous lesion. No type of mechanical support will give absolute immobilization. This can be obtained for the diseased bodies of the vertebrae only after the posterior portion of the vertebrae have been firmly ankylosed by bony fusion. In evaluating the results one must distinguish between adequate and inadequate operations. All cases having an adequate operative fusion showed a solid bony ankylosis of the diseased bodies about three years after operation. Great care should be exercised to prevent operative shock, as tuberculous patients do not undergo operation as well as healthy patients. Besides the immediate risk there is the additional hazard of lowering the patient's resistance and thus disposing him to a flare up later of tuberculosis elsewhere in the body. For this reason it is recommended that if more than two vertebrae are diseased the operation be done in two stages and under local anesthesia. Bony fusion in the operative area and bony ankylosis of the diseased bodies occur as rapidly in children as in adults. Mechanical support should be continued until the diseased bodies show solid fusion. The results in forty cases treated by the nonoperative method were: excellent one, satisfactory seven, somewhat improved fourteen, unimproved eleven, and deaths seven. The results in fifty cases treated by the same method plus operation were: excellent in thirty-four cases having adequate operation or 100 per cent. In the fifteen cases having inadequate operations they were: excellent one, satisfactory six, poor six, and deaths two. There was one operative death. While operation does shorten treatment it affords no excuse for neglecting to use everything of value in the con-

servative treatment both before and after operation. Operative fusion is done only to cure tuberculosis and thus it will do in most cases if an adequate operation is done and if adequate postoperative treatment is given.

Localizing Small Stones in Kidney Substance—Turley uses a rectangle made from number 24 silver wire, 45 cm long and 25 cm wide, as an aid in localizing small stones in the substance of the kidneys. All intersections were lightly soldered to reduce their shadow casting to a minimum. The two wires forming the short ends of the rectangle are left long enough to encircle the kidney and fasten firmly if desired thus insuring accuracy of location. The device divides the kidney into nine sections. Behind the delivered kidney a small roentgen film well covered with a sterile slip is placed and exposure made. The marker is left unmolested until the film is developed. Comparison is immediately made with the marked kidney and the definite location of the stone obtained. Then, by using a straight needle first, or direct incision over the stone, the stone is removed with a minimum of damage to the substance of the kidney. The wires are very pliable, so that the application is quickly and easily made with no damage whatever to the kidney.

Tennessee State Medical Assn Journal, Nashville

26 417 464 (Oct.) 1933

- Discussion of Subphrenic Abscess Report of Case D Seward, Nashville—p 417
Childhood Tuberculosis A G Jacobs Memphis—p 423
Barometer of the Blood Sugar J Alperin Memphis—p 427
X-Ray Diagnosis of Lesions of Carpal Bones F B Bogart Chattanooga—p 433
Treatment of Subacute Maxillary Sinusitis C D Blessingame Memphis—p 439
Bronchoscopic Treatment of Lung Abscess C K Lewis Memphis—p 443
Botulism L C Olin Maryville—p 446

Virginia Medical Monthly, Richmond

60 461 516 (Nov.) 1933

- Value of Roentgen Ray in Management of Duodenal and Gastric Ulcers C H Peterson Roanoke—p 461
Diagnosis and Medical Treatment of Peptic Ulcer G B Lawson Roanoke—p 462
Surgical Treatment of Gastric and Duodenal Ulcers H H Trout Roanoke—p 466
The Unsocial School Child Is He the Potential Dementia Praecox? H DeJ Coghill in collaboration with R W Miller Richmond—p 469
Medical and Surgical Reminiscences E W P Downing Franktown—p 471
High Blood Pressure Its Causes Symptoms and Principles of Treatment D G Chapman Richmond—p 477
Simpler Method of Reduction of Dislocated Shoulder Joint T G Hardy Farmville—p 481
Sterilization as a Contraceptive J H Bell Colony—p 483
Analgesia and Anesthesia in Obstetrics J M Whitfield Jr Richmond—p 484
Oral Diagnosis S C Warden Norfolk—p 486
Treatment of Sciatica by Epidural Sacral Injection P F Whitaker Kingston N C—p 489
Diagnosis and Treatment of Duodenal Ulcer R S Anderson Rocky Mount N C—p 491

Reduction of Dislocated Shoulder Joint—Hardy describes a procedure that has been 100 per cent satisfactory in reducing twenty-five cases of uncomplicated dislocations of the shoulder. With the patient lying down the operator being directly behind the patient's head, grasps the elbow with one hand, supports the forearm with the other and abducts the arm while maintaining gentle traction in the direction of the long axis of the humerus in the same plane until the elbow is above the head and the arm close to the ear. This maneuver immediately relieves the pain that is caused by pressure of the head of the humerus on the periarticular structures. In this position the traction is increased, sometimes with slight to and fro rotation until the head of the humerus slips into position. If the muscles of the anterior and posterior folds of the axilla are spastic and the patient is muscular the wrist or hand may be steadied under the arm of the operator and the other hand used to massage the muscles to encourage relaxation. Backward and upward dislocations or the head of the humerus are easily reduced with downward traction and slight to and fro rotation. In order to make the mechanics of the subdislocations the same as the upward and backward dislocations the position of the shaft of the humerus is reversed.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

45 385-436 (Oct.) 1933

- At the Public Dispensary with Willan and Bateman H. MacCormac —p. 385
Willan and Bateman on Fevers I. D. Rolleston —p. 396
Some Personal Relics of Robert Willan H. D. Haldim Davis —p. 406
Early Bibliography of Dermatology Note A. J. Hawkes —p. 411
Calcinosis Cutis Report of Case B. C. Tate and H. B. Frumper —p. 413
Bilateral Thoracic Zosteroid Spreading Marginate Telangiectasia Probably a Variety of Carcinoma Fysipeloides (C. Risch) Associated with Unilateral Mammary Carcinoma and Better Termed Carcinoma Telangiectaticum F. P. Weber —p. 418
Carcinoma Telangiectaticum Case N. C. Van Vonne —p. 423

Guy's Hospital Reports, London

83 387-514 (Oct.) 1933

- Pneumococcal Infections I. Natural History Prognosis and Treatment of Pneumococcal Fever (Lobar Pneumonia) J. A. Ryle and R. J. Waterfield —p. 89
Id. II Pneumococcal Infections in Childhood H. C. Cameron —p. 408
Id. III Pneumococcal Infections of Nose Throat and Ear W. M. Mollison —p. 423
Id. IV Nephritis in Pneumococcal Infections C. Rake —p. 430
*Id. V Pneumococcal Arthritis C. H. Fagge —p. 444
*Id. VI Pneumococcal Meningitis Analysis of Thirty Three Cases R. J. Waterfield —p. 452
Studies on Tumor Formation G. W. Nicholson —p. 465
*Secretion of Mucus by Stomach with Special Reference to Achlorhydric Anemias G. N. Burger S. J. Hartfall and I. I. Witts —p. 497
Studies in Bright's Disease IX. Removal of Septic Foci in Upper Respiratory Tract in Cases of Unresolved Acute Nephritis A. A. Osman —p. 507

Pneumococcal Arthritis—Fagge believes that, as soon as a suspicion of acute arthritis is tenable, the joint should be immobilized and, if distended, aspirated. If turbid fluid is evacuated the joint cavity should be emptied as far as possible. If the fluid is frankly purulent, the joint should be washed out with physiologic solution of sodium chloride. This is best done under a general anesthetic with two small lateral incisions. If the knee is involved, it is best to immobilize it in a plaster cast split up along the two sides, the anterior half may thus be removed easily for inspection. Aspiration informs one of the severity of the joint reaction, reveals the causative organism and mechanically relieves distention and pain. It can be repeated as required. In a fair proportion—possibly a majority—of cases, no other operative treatment is necessary, the arthritis subsides and, after a prolonged period of rest and immobilization, a useful, if not a complete, restoration of movement results. If aspiration or irrigation fails, there is no satisfactory alternative. Drainage is mechanically impossible, the insertion of tubes into joints always results in some degree of ankylosis. Drainage down to the joint has not met the success that was at first claimed for it.

Pneumococcal Meningitis—Waterfield states that the signs and symptoms may be vague or absent in meningitis, while in meningism they may be strongly marked. No definite points distinguish them except perhaps the tendency to hyperpyrexia in meningitis. Since meningism appears to arise invariably soon after the onset of pneumonia, one must always regard meningeal signs arising late in the disease as of the gravest significance. Meningism in adults must be extremely rare, hence meningeal symptoms in adult pneumonia suggests meningitis. Examination of the cerebrospinal fluid is the only means of making an absolute decision. In the past, recoveries seem to have occurred rarely irrespective of the treatment adopted. The introduction of Felton's serum has resulted in a larger number of cures. When available it should be employed, especially if the organism has been typed and found to belong to groups I or II. In eight of the author's cases of meningism, diagnostic lumbar puncture appeared to result in a dramatic improvement in the meningeal symptoms. But fatal results in such cases have been reported, and in one of his cases death followed rapidly from the formation of a pressure cone. When a lumbar puncture is performed the fluid must be removed slowly and in small amounts.

Secretion of Mucus by Stomach—Burger and his associates made quantitative estimations of the amount of mucus in the fasting contents of the stomach, in the basal secretion and in the juice obtained by stimulation with histamine and with physostigmine. Under these conditions the total amount of mucus and mucoprotein obtained from the stomach in simple achlorhydric anemia and in pernicious anemia is less than in health. The viscosity and high protein concentration of the gastric juice in simple achlorhydric anemia and in pernicious anemia are due to the decreased volume of secretion and the consequent inspissation of the juice. It is possible that the diminution of gastric secretion in these diseases is due in part to a coating of insoluble mucus on the surface of the stomach, which is too tenacious to be aspirated and which mechanically blocks the channels of gastric secretion. In view of the permanence of the achlorhydria the authors feel that this hypothesis is unlikely and that it is more probable that the gastric lesion is of an atrophic type.

Indian Journal of Medical Research, Calcutta

21 237-468 (Oct.) 1933

- Improved Micromethod of Estimating Iodine M. Patnaik —p. 237
Pharmacologic Action of Certain Derivatives of Cotarnine K. S. Chandra B. D. Kochhar and J. N. Ray —p. 249
Pharmacologic Action and Antimalarial Properties of Anhydrocotarnine Resorcinol Hydrochloride (Derivative of Narcotine) R. N. Chopra B. Mukherjee and H. G. M. Campbell —p. 255
Pharmacologic Action of an Alkaloid Obtained from Rauwolfia serpentina Benth. Preliminary Note R. N. Chopra J. C. Gupta and B. Mukherjee —p. 261
Electric Charge of Erythrocytes Part II Malaria R. N. Chopra and S. G. Choudhury —p. 271
Pharmacologic Action of Kurchicum (Alkaloid of Holarrhena Antidysenterica) R. N. Chopra J. C. Gupta and C. S. Chopra —p. 275
Precipitin Pests New Techniques in Serology S. D. S. Ghosal and N. P. Dhal —p. 283
Effects of Quinine Atelrin and Plasmoquin on Experimentally Induced Malaria in Macacus Monkeys and Some of the Pathologic Changes Observed R. Row N. P. Dhal and G. V. Collier —p. 292
Transmission of Haly Aza to Hamsters by the Bite of Sandfly Phlebotomus argentipes I. E. Napier R. O. A. Smith and K. V. Krishnan —p. 299
Relative Infectivity of Two Forms of Leishmania Donovanii Administered by Different Routes I. E. Napier R. O. A. Smith and K. V. Krishnan —p. 30
Is Hematocrit Reliable? Statistical View H. P. Choudhury —p. 315
Observations on Mode of Action of Quinine in Malaria K. V. Krishnan —p. 331
Contributions to Protozoal Immunity Part I Effect of Splenectomy on Course of Malarial Infection in Monkeys K. V. Krishnan R. O. A. Smith and C. Lal —p. 343
Observations on Cirrhosis of Liver as Seen in Punjab T. A. Hughes —p. 353
Investigation on Diagnostic Value of Serum Protein Changes in Kala Azar M. R. G. Mudaliyar S. K. Sundaram and A. S. Ramachandran —p. 361
Studies on Antigenic Structure of Vibrio Cholerae Part III Further Analyses of Specific Carbohydrates R. W. Linton and D. L. Shrivastava —p. 379
Id. Part IV Preliminary Examination of Carbohydrates in Rice-Water Stools of Cholera Patients R. W. Linton D. L. Shrivastava and B. N. Mitra —p. 385
Investigation into Decompensated Portal Cirrhosis M. V. R. Rao —p. 389
Some Indian Species of the Genus Phlebotomus Notes Part I A. J. A. Sinton —p. 417
Observations on Chemistry of Oxytocic Hormone of Pituitary Gland Part I B. C. Guha and P. N. Chakravorty —p. 429
Observations on Filariasis in Some Areas in British India Part IV Sind Area V. T. Korke —p. 437
Further Observations on Vitamin A in Indian Fish Liver Oils A. R. Ghosh P. N. Chakravorty and B. C. Guha —p. 441
Investigations on Nutritive Values of Indian Foodstuffs Part I A. R. Chosh and B. C. Guha —p. 447
Method of Making Slide Smears from Female Anopheles for Examination for Sporozoites of Malarial Parasites and of Preserving Mosquitoes for Reference P. J. Barraud —p. 451
Longevity of Females of Culex fatigans Under Experimental Conditions and Duration of Malarial Infections in These Insects S. A. Nayad and J. A. Sinton —p. 455

Mode of Action of Quinine in Malaria—From supra vital studies of the blood of forty-six monkeys infected with Plasmodium mui (?) Krishnan found the mode of action of quinine to be as follows: 1. By accelerating the natural immune processes of mobilization, proliferation and functional activation of the phagocytic large mononuclear cells composing the reticulo-endothelial system the drug causes rapid engulfment and effective destruction of the malarial parasites. 2. By bringing about an alteration in the electrical condition of the parasites

and the infected red cells by direct action it increases the susceptibility of these to phagocytosis. 3 By slowing down asexual reproduction and occasionally leading to the formation of sexual forms, it checks the intensity of infection. 4 By indirectly leading to the production of humoral changes (antibodies) and to the sensitization of the cells of the reticulo-endothelial system it increases the resistance to reinfection. 5 By causing the removal of effete and old red cells and increasing the output of young red cells it renders the successful entry of parasites into these cells more difficult.

International Journal of Psycho-Analysis, London

14 463 538 (Oct.) 1933

The Relation of Perversion Formation to the Development of Reality Sense. E. Clover—p. 486

Journal of Anatomy, London

68 1156 (Oct.) 1933

So Called Sympathetic Cells in Spinal Cinghons. C. Fisher and S. W. Ranson—p. 1

Development of the Hypophyseoportal System in Man. P. C. Espinasse—p. 11

Suprarenal Cortex in Monkeys of the Genus *Pithecus*. W. C. O. Hill—p. 19

Topography and Histology of Parathyroid Glandules in *Xenopus Laevis*. B. G. Shapiro—p. 39

Cartilage Canals. R. W. Haines—p. 45

Musculus Retractor Bulbi (Oculi) in Carnivora and Ungulata. O. C. Bradley—p. 65

Irregularities of Oogenesis and Abnormal Development of Embryo in *Cavia*. T. Nicol—p. 75

Some Effects of X Rays on Developing Chick Embryo. R. J. Gladstone and H. A. Colwell—p. 85

Nonmetric Morphologic Characters of Skull as Criteria for Racial Diagnosis. Part IV. Nonmetric Morphologic Characters of the Northern Chinese Skull. F. Wood Jones—p. 96

Articulations of Carpus in *Chiromys Madagascarensis* with Reference to Certain Other Lemurs. U. A. Nayak—p. 109

Lancet, London

2 905 958 (Oct. 21) 1933

Clinical Science. T. Lewis—p. 905

Clinical Tests of Antirachitic Activity of Calciferol. J. C. Spence—p. 911

Clinical Manifestations of Intracranial Aneurysms. F. J. Attridge—p. 915

Relation Between Vital Capacity and Activity of Disease in Pulmonary Tuberculosis. G. E. Beaumont—p. 918

Results of Mass Treatment of Late Rickets and Osteomalacia. D. C. Wilson—p. 919

Vitamin D Potency of Sun Irradiated Dried Yeast. Katherine H. Coward—p. 920

Antirachitic Activity of a Crystalline Compound—

Spence treated twelve actively rachitic children with daily doses of a crystalline compound derived from viosterol (calciferol) for eleven weeks or more. The therapeutic effects were estimated by serial roentgenograms, compared with a standard scale of the optimal rate of cure. A control of eight rachitic children was used to determine what spontaneous or automatic healing might have occurred had no vitamin D compound been given. The results showed that the compound had an active curative effect on the rickets and that it produced healing at an optimal rate, acting as quickly and effectively as the usual therapeutic doses of cod liver oil or viosterol. The results of the antirachitic activity of the compound were confirmed by observations on two pairs of twins, one member of each being kept as control and also on a child with an exactly controlled diet. In four cases 1 cc of the compound solution daily produced a maximal curative effect.

2 959 1020 (Oct. 28) 1933

Clinical Significance of Vertigo. C. P. Symonds—p. 959

Tissue Culture in Its Relationship to Surgical Pathology. H. J. Burrows—p. 964

Thrombophlebitis in Acute Rheumatism. C. B. Perry with clinical case notes by O. C. M. Davis and B. Schlesinger—p. 966

Meningococcus Vaccine in Treatment of Cerebrospinal Fever. I. K. Cavid—p. 969

Typhoid Fever with Apparently Identical Origin but Different Serology. Two Cases. J. M. Davidson, J. D. A. Gray and I. M. Ritchie—p. 971

Undeveloped Ovary. R. M. Walker—p. 972

Thrombophlebitis in Acute Rheumatism—Perry reports three cases of venous thrombosis occurring during the course of acute articular rheumatism in childhood and presents a

review of other recorded cases. From the clinical features and histologic observations he concludes that a rheumatic phlebitis may occur as a rare feature of acute rheumatism. The venous thrombosis encountered in cases of acute rheumatism is secondary to the rheumatic phlebitis. There is nothing strange in the possibility of the rheumatic virus directly attacking the wall of the vein in view of the well recognized widespread character of the manifestations of the disease—arthritis, carditis, chorea, nodules—particularly since the characteristic histologic picture of the disease has been described in such situations as the arteries, the lungs, the pharynx and the diaphragm. Shaw described a cellular infiltration of the adventitia of the superior vena cava with swelling of the nutrient vessels in the case that he reported. The fact, noticed by many observers, that pain often precedes the swelling of the limb may be regarded as further evidence of a primary phlebitis antecedent to the secondary thrombosis. The rapid subsidence of the swelling that occurred in one of the author's cases has been noted by other observers. Whether it is due to venous occlusion being incomplete in the first instance, as suggested by Remlinger, or whether it is to be attributed to the development of an efficient collateral venous return is impossible to say. A further possibility is that much of the edema is caused by the involvement of the lymph nodes in the inflammatory process and that, with the subsidence of the acute inflammation, the lymphatic drainage once more becomes able to remove the greater part of the edema. Involvement of the lymph nodes may be the reason why in some cases the edema does not develop until some time after the onset of the pain.

Vaccine in Treatment of Cerebrospinal Fever—From his observation of more than 200 cases, Gayid considers that meningococcus vaccine should have its place in the treatment of cerebrospinal fever. It is indicated in (1) subacute and chronic cases, (2) inflammatory complications—e.g., arthritis and pleurisy, and (3) cases that are not affected by ordinary treatment. It is relatively indicated in (1) acute cases that become worse in spite of ordinary treatment although the disease in most of these cases is fatal, and (2) nervous and eye complications. In fulminating and hyperacute cases the vaccine has no effect in the first stage of the illness, and the best method of treatment in these cases is the repetition of lumbar puncture and the administration of serum intrathecally and intravenously with dextrose solution (40 cc of antimeningococcus serum and 250 cc of solution of dextrose), to be repeated every twelve or twenty-four hours. Simultaneously epinephrine should be injected subcutaneously to guard against any anaphylactic tendency.

Medical Journal of Australia, Sydney

2 535 568 (Oct. 21) 1933

The Nervous Child. A. W. Campbell—p. 535

The Psychopathic Child. W. S. Dawson—p. 538

Blood Grouping in Proof of Paternity. J. V. Duhig—p. 545

Trauma and Epithelioma. H. M. Moran—p. 547

2 569 610 (Oct. 28) 1933

Modern Treatment of Squint. J. M. Bickerton—p. 569

The After Treatment of Fractures. E. B. Claxton—p. 574

Some Points in Treatment of Cardiac Disorders. T. East—p. 577

Brief Survey of Transurethral Technique for Bladder Neck Obstructions in the Prostatic Subject. J. Everidge—p. 579

Delay in Labor. W. Gilliat—p. 581

Empyema. J. B. Hunter—p. 586

Practitioner's Care of Insulin Diabetics in Routine and Emergencies. R. D. Lawrence—p. 588

Diagnosis and Treatment of Hoarseness. V. E. Negus—p. 591

Chronic Intestinal Indigestion in Childhood. W. Sheldon—p. 595

Trauma and Epithelioma—Moran states that there is no experimental evidence that an epithelioma can be produced at will in a healthy subject by a single act of trauma. A single injury is capable of being a determining factor in the causation of epithelioma when applied to a precancerous lesion. An injury to an epithelioma may increase the rate of growth and the rapidity of generalization. Violence to a part in a subject suffering from a generalizing epithelioma may determine a local metastasis. Although the factor of coincidence must be of importance one is not justified from the present knowledge in denying the likelihood of causal relationship between trauma and epithelioma provided in the circumstantial evidence brought forward certain postulates are satisfied.

Archives de Médecine des Enfants, Paris

36 713 795 (Dec.) 1933

- *New Type of Degeneration Cornelia de Lange—p. 713
 Acute Pneumococcal Pulmonary Abscess Ending in Cure P. Noblecourt
 P. Duhem and M. Kaplan—p. 720
 Malformations of Ribs Marie Nageotte Wilbouchewitch—p. 730
 Biventricular Trilocular Heart Case E. Jaso and P. Bernal Indos
 —p. 736
 Pulmonary Scleroses in Childhood J. Comby—p. 746

New Type of Degeneration—In two children de Lange observed a type of multiple degeneration of which she finds no description in the literature and which she designates typhus amstelodamensis. This type of degeneration is characterized by mental deficiency, a small underdeveloped body (birth at term with inferior weight which remains well below the average), brachycephaly, hypertrophy of the eyelashes and eyebrows, small hands and feet, abnormally proximal position of the thumb and thenar eminence, low placed ears and syndactylia of the toes. Other characteristics, which the author thinks may be accidental, are hirsutism of the forehead, an ogival palatine arch and curving inward of the little finger toward the ring finger. The syndactylia does not always affect the same toes. The two patients in whom this type of degeneration was observed were not related, and no similar dystrophies were found in their families. The author thinks that in these two cases it is probably a question of genotypic anomalies due to a lesion of the germ plasma, although one cannot completely rule out parakinetic factors.

Presse Medicale, Paris

41 1981 2004 (Dec. 9) 1933

- *Subcutaneous Asphyxiating Emphysema Accident of Collapse Therapy
 P. Bourgeois—p. 1981
 Present Treatments of Tetanus E. L. Peyre—p. 1982
 Acidifying Treatment of Bronchial Asthma Contribution to Dietetics
 of Bronchial Asthma M. Szour—p. 1984

Subcutaneous Asphyxiating Emphysema—Bourgeois states that the rare but grave occurrence of asphyxiating subcutaneous emphysema is practically always the result of a pulmonary perforation through a pleural adhesion during the attempted production of a pneumothorax. Severe emphysema does not result from the mere perforation of the lung but occurs if the fistula produced by the trocar remains permeable to air, which may happen if the instrument used is too large and, above all, if the tissues have lost their elasticity through infiltration and sclerosis of the lung and thickening and adhesion of the pleura. Asphyxiating emphysema may also occur at the end of a pleuroscopy, whether followed by the division adhesions or not. The progressive infiltration of the subpleural and subcutaneous tissue results from the extreme elevation of pressure produced by violent and repeated attacks of coughing. The average period between the perforation and the manifestation of the emphysema is five hours. In cases of asphyxiating emphysema the gaseous infiltration, once it is apparent, spreads with alarming rapidity, affecting first the neck and the eyelids, then the face, the shoulders and upper part of the arms (first on the side of the puncture and then on the other side). At the base of the thorax the emphysema is arrested for a time, the infiltration of the abdominal wall appears later and is more discrete. The emphysema gives rise to crepitation wherever it appears. The evolution of the emphysema is accompanied by progressive cyanosis and dyspnea increasing until death by asphyxiation occurs, usually within two or three days unless effective intervention is employed. The ideal intervention consists in closing the fistula. Ecot accomplished this in a case of fistula produced by a pleuroscopy by suturing the parietal pleura, the intercostal muscles and the pectoralis major. In the author's case, it being impossible to locate exactly the fistula caused by a small trocar, the intervention merely aimed at establishing a ready communication between the fistula and the exterior. This was done by means of a large crucial incision at the level of the puncture, systematic incision of the various layers to uncover extensively the intercostal region traversed, and tamponade of the wound to allow the free passage of gas. This deep incision resulted in the disappearance of the gaseous infiltration in less than forty-eight hours while multiple incisions of the skin for discharge of the air had only uselessly prolonged the duration of the emphysema.

Polinico, Rome

10 1959 1998 (Dec. 11) 1933 Practical Section

- *Observations in Streptococcal Bacteriuria Particularly in Disease Groups
 Traceable to Local Infections F. Corelli—p. 1960
 Chundular Fever G. Lazzaro—p. 1964
 Idemitous Pancreatitis F. Truzzi—p. 1967
 Sudoral Disturbances in Diencephalic-Hypophyseal Syndromes A.
 Salmon—p. 1970

Streptococcal Bacteriuria in Focal Infections—Corelli studied the urine of 114 patients, divided into the following groups: (1) patients presenting no focal lesions and free from any disease associated with focal infections, (2) patients who, although apparently in perfect health, showed chronic tonsillitis, rheumatic pyorrhea or dental caries, and (3) patients having diseases associated with focal infections. In the second and third groups, seventy-one out of seventy-eight patients showed streptococci in the urine, the other seven showed isolated cocci, diplococci and various bacilli. In the first group of thirty-six patients the urine of thirteen was sterile, while that of twenty-three occasionally contained streptococci or produced mixed cultures. This indicates a relation between the presence of inflammatory foci, accompanied or not by general diseases, and the bacillary content of the urine. This relation becomes more apparent through isolation of anaerobic micro-organisms in the urine. The streptococci are more frequently anaerobic. If the urine of normal persons without foci and without preceding tonsillitis occasionally contains streptococci, there are only a few colonies. The carriers of foci, with or without associated diseases, present large amounts of streptococci. The urine of women affected with nephrosis contained from 500 to 1,000 colonies of streptococci in each 50 cc. tube of urine. The urine of a young patient having exophthalmic goiter, stomatitis and pharyngitis contained 1,000 colonies. Two patients with erythema nodosum showed from 800 to 4,000 colonies not only during the disease but three months after complete disappearance of symptoms. In three cases of acute articular rheumatism there was a greater number of diplostreptococcus colonies after termination of the febrile stage than at the beginning of the articular manifestations, while in cases of chronic ankylosing arthritis the number of colonies remained without notable variations but was always elevated. One case of recurrent chronic tonsillitis, which in the last attack was associated with a mild renal reaction, showed after tonsillectomy a pronounced increase of streptococci in the urine (2,000 colonies of hemolytic streptococci on blood agar), which rapidly diminished, completely disappearing on the tenth day after operation. The author maintains that bacteriuria may occur without a renal lesion in acute simple tonsillitis or in other diseases accompanied by tonsillitis. The relation between bacteriuria of tonsillitis (therefore bacteremia) and nephropathies should not be underestimated. Bacteriologic examination of urine in disease reveals the importance of localized chronic and acute inflammatory foci as the source of mild temporary bacteremias difficult to demonstrate and of streptococcal bacteriuria, and as points of origin of various modes of infection originating in a distant focus.

Brasil-Medico, Rio de Janeiro

47 851 868 (Dec. 2) 1933

- *New Serologic Variety of Shigella Dysenteriae A. de Assis—p. 851
 Passage of Substances Through Intestines and Defecation J. Velho da
 Silva—p. 851
 Mean Blood Pressure from Clinical Point of View G. L. Feijó and
 J. Martins Barbosa—p. 854

Report Rectified Concerning New Serologic Variety of Shigella Dysenteriae—De Assis rectifies his statement published in the *Brasil-Medico* 36 653 (Sept. 9) 1933 and abstracted in *THE JOURNAL*, Nov. 25, 1933, page 1763, on the behavior of a bacillus isolated from the feces of a patient suffering from acute febrile dysentery. The reactions of the bacillus to the glucides (sucrose, galactose, rhamnose, sorbitol, adonitol and glycerin) and especially its serologic reactions, were quite different from those given by a Hawkins strain, the latter being considered a classic example of the *Shigella ambigua* type. The new strain was considered as a new species of the *Shigella ambigua* group and was named the "Caxambu" variety. However, new cultural, biochemical and serologic studies of the Caxambu variety compared with seventeen different samples of the *Shigella ambigua* type proved that, con-

trary to the author's former statement, the variety "Craambu" agrees in all respects with the typical strains of the *Shigella ambigua* type. The Hawkins strain used as a control in the original study is the one that gave both cultural and serologic reactions entirely different from those given by typical bacilli of the *Shigella ambigua* group. Therefore the Hawkins organism is the new species of *Shigella ambigua*.

Prensa Medica Argentina, Buenos Aires

20 2549 2592 (Dec 6) 1933

- Lumbar Sympathectomy in Treatment of Pott's Paraplegia Case J Diez—p 2549
Atypical Syndrome of Weber Case B B Spota—p 2557
Liver Therapy in Pernicious Anemia Caused By Pyloroduodenitis Case L L Resto and I Pastor Costa—p 2562
Sodium Fluoride, by Intravenous Route to Provoke Diminution and Normalization of Erythrocytes in Hyperthyroidism L Goldenberg—p 2569
From Nonne Incomplete Syndrome in Tuberculous Meningitis Case A P Heutlass and O Garre—p 2572
Pneumococcal Peritonitis in Infant Case M J del Carril B Paz and I Diaz Bobillo—p 2579

Sodium Fluoride Therapy in Hyperthyroidism—Goldenberg states that in patients having exophthalmic goiter or hyperthyroidism with increased basal metabolism and accelerated sedimentation speed the intravenous injections of sodium fluoride, administered for a long period varying from eight to twelve months (with some intervals of rest), retard the sedimentation speed until it becomes normal and also normalizes the basal metabolism thus producing complete recovery of the patient. In some cases the sedimentation speed becomes normal before the basal metabolism, which remains high for some time during the treatment, to become normal at the end of it. The results of the treatment in five cases are reported.

Archiv fur Dermatologie und Syphilis, Berlin

169 347 458 (Dec 18) 1933

- Pulmonary Metastases of Protuberant Dermatofibrosarcoma R Bezecky—p 347
Propeptane Therapy According to Luthlen Urbach W Jadassohn and F Schaaf—p 354
Impetigo Herpetiformis and Tetany R M Bohnstedt—p 357
Formation of Antibodies and Demonstration of Sessile Antibodies G Ensbrenner—p 364
Hair Disks of Peccary (*Dicotyles Torquatus*) Contribution to Knowledge of Muscles of Hair F Pinkus—p 379
Pathogenesis of Syphilitic Reindurations K Schreiner—p 397
Mechanism of Jadassohn Bloch's Skin Test with Gauze Dipped into Solution of Suspected Substance Significance of Vasomotor Reaction for Its Outcome K Steiner—p 411
Hereditary Transmission of Psoriasis Vulgaris A Spindler—p 417
Value of Serologic Test Methods in Gonorrhea J Dorffel—p 421
Clinical Aspects Histology and Pathogenesis of Pneumococcal Erythema F Schmidt La Baume and Charlotte Otto—p 431
Hypersusceptibility to Arsphenamine and Acute Arsphenamine Intoxication as Result of Occupational Contact of Fingers with Arsphenamine Solutions A Vuletic—p 436
Fungicidal Action of Iodine Vapors and Short Report on Relations to Treatment of Hyphomycoses in Human Beings A H Zifferblatt and H K Seelaus—p 442
Practical Value of Skin Tests in Allergodermias Assman—p 451

The Jadassohn-Bloch Skin Test—Steiner shows that the reliability of the Jadassohn-Bloch skin test with gauze dipped into a solution of the suspected substance has not yet been established beyond a doubt. In order to determine whether this skin test is capable of indicating an allergy in the organism or the skin, he made tests on 100 patients suffering from tuberculosis. Studies of these patients gave two possibilities for the solution of the problem: the comparison of the reaction with that in normal persons, on the one hand, and with tuberculin allergy on the other. The author's observations indicate that patients having tuberculosis react to dilute solutions of corrosive mercuric chloride more frequently than do healthy persons; that is, the stimulation threshold of tuberculous patients is much lower than that of normal persons. The intensity of the reactions likewise indicated the greater susceptibility of tuberculous patients, for they gave stronger reactions in a larger percentage of cases. The author observed that there is a certain parallelism between the outcome of the tuberculin test and the Jadassohn-Bloch allergy test. He thinks that this parallelism can be due only to a factor that is involved in both tests: the vasomotor reaction and he concludes that the Jadassohn-Bloch skin test with saturated gauze is largely dependent on the vasomotor reaction but he questions the value of the test for the detection of specific allergic conditions.

Serologic Tests of Cure in Gonorrhea—Dorffel describes studies which corroborated his opinion that the complement fixation test may remain positive for months and even for years after the clinical cure. Thus its positive result does not necessarily indicate the existence of a latent focus, but its persistence may be taken as a warning. If the antibody titer is determined with successively decreasing quantities of serum, the complement fixation reaction permits a more exact estimation of the acuity of the gonorrheal process. If the gradual decrease in the quantity of antibodies corresponds with the clinical aspects, it may be accepted that, as a result of the decrease in the growth of gonococci and of their gradual disappearance, gonococcus toxins are no longer absorbed by the urogenital system, and that the formation of antibodies likewise ceases. The gradual decrease in the antibody titer is thus an indication for an approaching or accomplished cure. A renewed increase, however, indicates an exacerbation (complication) or a relapse. Protracted cases of gonorrhea with complement fixation reactions that are either negative or become only weakly positive (up to 1:10) generally have a poor healing tendency and consequently an unfavorable prognosis. The same applies to complicated cases with negative or weakly positive reaction. Tests with antigonorrheal vaccine on normal persons indicated that a positive reaction may persist for a number of months, in spite of the fact that gonococcus toxins are no longer administered. On the basis of these studies the author recommends that in difficult cases, particularly in the granting of marriage licenses and in forensic matters, the complement fixation reaction be made with successively decreasing quantities of serum, since the curve outlining the results of several tests permits conclusions about the course the process is taking.

Hypersusceptibility to Arsphenamine—Vuletic describes a form of hypersensitivity to arsphenamine not reported heretofore. It developed in the author and his assistant as the result of daily contact of the fingers with arsphenamine solutions and from inhalation of the solutions, when they administered anti-syphilitic treatment to great numbers of patients in Bosnia. Neither he nor his assistant had taken arsphenamine in any form. The disturbance became manifest at first as a mild dermatitis of the fingers, but later deep fissures and deep structural changes of the skin developed. Typical attacks of asthma occurred only at one of the stations at which they worked, and it was found that the air of the room in which they worked contained dust in addition to the arsphenamine vapors, for the ventilation was insufficient. The assistant developed in this epicutaneous manner a universal arsphenamine urticaria, Quincke's edema and acute arsphenamine poisoning. The symptoms of the latter resembled those of acute arsenic intoxication (vomiting, headaches, pains in the extremities, mucosanguineous diarrheas, thready pulse, fever, and albuminuria). The finger dermatitis of the assistant was refractory to all therapeutic measures, and it still exists, two years after its first appearance. Skin tests with the application of gauze saturated with arsphenamine were positive, while tests with solution of potassium arsenite were negative. If these reactions permit definite conclusions, the hypersusceptibility and intoxication must be considered as the action of the unchanged arsenobenzene molecule.

Beitrage zur klinischen Chirurgie, Berlin

158 561 670 (Dec 13) 1933

- Experience with Electrosurgical Methods in Operation for Rectal Carcinoma That Cannot Be Radically Removed H Florcken—p 561
Present Status of Study and of Serum Treatment of Gas Edema W Lohr—p 569
Conservative Treatment of Recent Fractures of Shaft of Bones of Forearm J Oberzimmer—p 590
Investigation of Tissue in Gas Gangrene P Sunder Plassmann—p 603
Vagot Treatment of Osteomyelitis O Schurch—p 613
Causes of Bleeding in Thyroid Gland H Wulstein—p 623
Effect of Vitamins on Acute Infections H J Lauber—p 633
Prevention of Skin Recurrences After Removal of Breast Carcinoma with Electric Knife K Gerlach—p 638
Tumors of Lung P Walzel—p 645

Status of Serum Treatment of Gas Edema—Lohr states that anaerobic serums in their present form do not guarantee absolute protection against the development of gas

edema, but he rejects the statements of certain authors that the serums are altogether useless. He recommends the immediate administration of large doses of serum to patients who have sustained serious injuries, especially those in whom the wound cannot be excised. The author treated seven patients with anaerobic serum. The serum was administered as a means of immunization but failed to retard the edema. Continued administration of the serum after edema had developed however, resulted in a favorable number of cures. The author states that, in the event of gas gangrene large doses of serum should be administered along with surgical measures or even eventual amputation. He believes that scrothotherapy should not be regarded as useless and superficial but as valuable in the presence of ever increasing automobile accidents and the possibility of war. The great frequency and toxicity of the Welch-Fraenkel bacillus (*Bacillus perfringens*) warrants more consideration in bacterial research. In cases of severe destruction of tissue it is advisable to administer large doses on account of the rate of toxin formation and the type of growth of the gas bacillus. In manifest gas edema anaerobic serum should be given in large quantities for curative purposes. According to observations made by the author during the war and in peace times, this serum has in many cases mitigated the otherwise malignant course of gas edema and has considerably reduced its mortality rate.

Deutsche Zeitschrift für Chirurgie, Berlin

241 741-927 (Nov. 21) 1933

Dosage of Euparin Sodium (a Sodium Salt of a Barbituric Acid Derivative) for Momentary and for Short Anesthesia. K. Harn. —p. 741

Rectal Hemorrhage. Contribution to Diagnosis and Therapy of Intestinal Bleeding. M. Dethlefsen.—p. 767

Clinical and Experimental Investigation of the Goiter Problem and Hyperthyroidism. E. Schneider and F. Widmann.—p. 775

Familial Generalized Osteochondritis Dissecans of Multiple Joints and of Vertebral Column. W. Müller and W. Heltzer.—p. 795

*Vertebral Chordoma. O. Simon.—p. 805

Vertebral Chordoma.—Of the three types of chordoma the cranial the caudal and the vertebral the last mentioned is the rarest, according to Simon. Podlaha and Pavlica collected forty-four cases of cranial chondroma including their own up to 1928. The author reviews five cases of vertebral chondroma existing in the literature and adds one of his own. His patient a woman aged 57, complained of increasing difficulty in deglutition. At operation a tumor springing from the anterior surface of the cervical vertebrae and compressing and displacing the esophagus was found. The tumor was removed. Nine months later there was a recurrence in the scar with pressure on the brachial plexus. The patient would not consent to removal of the recurrence. The tumor was lobulated and possessed a capsule which sent septums into the interior. On histologic examination the tumor was found to be made up of two kinds of cells, small polygonal cells with homogeneous plasma and large physalis cells containing characteristically vacuolated plasma. The tumor lobules reproduced the structure of the notochord which likewise contains small epithelial cells in its peripheral sections and physalides in the median sections. The malignant character of the tumor cells manifested itself in the tendency to invade the capsule the connective tissue septums and the capillaries. Formation of metastases was reported in only eight of the forty-four cases. On the other hand local recurrence after operative removal was the rule. All chordomas, vertebral as well as those of the sacro coccygeal region are to be considered malignant. The intimate relationship between the tumor and the bone from which it develops makes it difficult to remove it completely and favors the recurrence of the tumor. Vertebral chordoma originates from the remains of the notochord within the vertebral body. Two distinct types may be distinguished the intravertebral and the antevertebral. The intravertebral chordoma grows in the direction of the spinal canal and causes symptoms of transverse paralysis. The earliest symptoms of the antevertebral variety are those of pressure displacement of neighboring organs with involvement of peripheral nerves. Prognosis is bad in both forms because of inability to remove the tumor completely. It may be possible to obtain better results in the future by irradiation.

Deutsches Archiv für klinische Medizin, Berlin

176 111-230 (Dec. 12) 1933

Pneumothoracic Demonstration of Adhesive Pericarditis. M. H. Rein and I. J. J. J. —p. 113

Involvement of Thyroid in Increased Metabolism. Mechanism. Increased Metabolism in Fever. H. Anthes.—p. 123

Daily Secretion of Water Hydrochloric Acid and Chloride in Health and in Ulcerated Human Stomach. K. P. Becker and J. Felber.—p. 138

*Is Vitamin B the Therapeutically Active External Factor in Pernicious Anemia? 1. Diehl and J. Kühnau.—p. 149

Quantitative Determination of Insulin Action on Partial Function of Healthy Human Stomach. K. P. Becker and Emma Goss.—p. 155

Psychotic Conditions and Cerebral Focal Symptoms in Patients with Cardiac Decomposition. R. Engel and Anna von Mentzen.—p. 163

Interference Dissociation. F. Doleschall.—p. 173

Intrapulmonary Oxygen Consumption in Anemia. F. Bardenheuer, Birkner and H. Bohnenkamp.—p. 178

Digestion of Insulin. W. Heupke and K. Blauenburg.—p. 187

Thallium Poisoning. W. Ludwig and H. Ganner.—p. 188

Rhodium Metabolism. M. Stuber and K. Lang.—p. 213

Clinical Aspects of Adams Stiles Disease. A. Mies.—p. 219

Is Vitamin B the Active External Factor in Pernicious Anemia?—Diehl and Kühnau call attention to the studies of Castle and Strauss which were reported in the *Lancet* (2 111 [July 16] 1932 abstr. THE JOURNAL Oct. 8 1932 p. 1300), and which gave evidence that a substance which is closely related to vitamin B or is vitamin B itself, is the extrinsic active factor in pernicious anemia. In order to determine whether the extrinsic factor really is vitamin B the authors treated three patients who had pernicious anemia with a purified B preparation that had been exposed to the influence of gastric juice. They observed an increase in reticulocytes on the fourth or fifth day, but this increase was not as large as is normally the case. The thrombocytes likewise increased slightly, but the hemoglobin and the erythrocytes either remained unchanged or decreased. Under the influence of the B alone not even the slight increase in reticulocytes was noticeable. In view of the fact that the authors used a rather concentrated B extract and that consequently the quantities of vitamin received by their patients were if anything even larger than those given by Castle and Strauss they reach the conclusion that vitamin B cannot be the extrinsic factor referred to by these investigators. But since the latter found fresh yeast effective the authors think that some other substance contained in yeast but not vitamin B must be the active extrinsic factor.

Thallium Poisoning.—Ludwig and Ganner describe three cases of acute thallium poisoning. The patients at first did not admit having ingested thallium and the disturbances were not correctly diagnosed until the characteristic loss of hair set in. The initial symptoms are paresthesia and severe pain in the extremities, particularly the legs. Intestinal disturbances of a colic-like character may develop within the first forty-eight hours but as a rule they do not become manifest until several days later. Renal disturbances in the form of albuminuria and cylindruria occur generally during the first week. The cardiac disorders that present themselves within the first two weeks are tachycardia, weak pulse and, occasionally, stenocardial symptoms. Acute dilatation and collapse may threaten. Insomnia appears early and is much complained of. It may be partly caused by the severe pains, but as a rule it persists after the pains have disappeared and consequently the intoxication as such must play a part. Disturbances of the bladder in the form of inhibition of micturition or of incontinence exist for a number of weeks and the incontinence of the bladder may be accompanied by that of the bowel. The pathognomonic loss of hair generally sets in during the third week following the ingestion of the poison. The authors also noted changes in the nails (white streaks) and, in one case cutaneous changes in the nail bed. They think that the initial paresthesias and pains in the extremities were a manifestation of polyneuritis, which in two cases later developed into a degenerative atrophic paralysis. Involvement of some of the cerebral nerves (facial and recurrent), although rare in thallium poisoning, has been observed in two cases. The functional disturbances of the bladder were probably caused by an impairment of spinal nerves. Whether the temporary ataxia, which in one patient involved all the extremities and the trunk, was of central or neuritic origin could not be determined. Metabolic tests revealed abolishment or reduction of the specific dynamic protein action.

Clinical Aspects of Adams-Stokes' Disease—Milew describes the clinical and electrocardiographic aspects of two cases with complete block. In one of the patients there existed in the beginning most likely sinus block and complete auriculo-ventricular dissociation, during which the ventricles probably worked under the rhythm of the right bundle branch. In the other patients there existed only a ventricular automatism. After a number of years the first patient developed a retrograde conduction from the ventricles to the auricles. In the second patient it was proved by anatomopathologic studies that the sclerotic changes of the vascular system of the heart particularly the complete obstruction of a branch of the right coronary artery, were the cause of the complete block. Electrocardiography revealed that in the first patient the inhibition of myocardial nitrite deepened the P wave of the transferred auricular contractions.

Klinische Wochenschrift, Berlin

12 1925 1936 (Dec 16) 1933

- Principles for Standardization of Testing Vestibular Nystagmus M H Fischer—p 1925
Stereochemical Constitution and Selective Resorption of Carbohydrates G Maljoth—p 1930
Reduction of Serum Lipase Produced by Thyroxine and Inhibition of This Action of Thyroxine J Bruer and M H Hoffman—p 1933
Reduction in Serum Lipase Produced by Thyroxine and Inhibition of This Action of Thyroxine Blockage of Reticulo-Endothelial System C Dell Acqua and W Strauss—p 1935
Kauffmann's Water Test as Functional Test of Heart H von Pein—p 1935
Influence of Splenic Substances on Cholesterol Content of Blood E Schliephake—p 1936
Infiltration of Gastric Wall in Roentgenogram F Kuhlmann—p 1939
Thyroxine Inhibiting Action of Urine in Cardiac Decompensation A Hofmann and O Lutteroth—p 1941
Serodiagnosis of Syphilis on Cadavers R Knepper—p 1942
Exophthalmic Goiter and Hyperthyroidism O Voss and R Hansen—p 1943
Parathyrotropic Action of Extracts of Anterior Lobe of Hypophysis K J Anselmino F Hoffmann and L Herold—p 1944
Suprarenalotropic Action of Extracts of Anterior Lobe of Hypophysis K J Anselmino F Hoffmann and L Herold—p 1944
Significance of Combination of Bacteriologic and Serologic Methods for Examination of Punctates H Habs and E Witebsky—p 1945

Reduction of Serum Lipase by Thyroxine—Bruer and Hoffman direct attention to the observations of several Hungarian investigators, who noted that a single subcutaneous injection of thyroxine effects in rabbits a considerable reduction in the lipase content. They point out that their own observations of the extremely low lipase values in patients with exophthalmic goiter correspond to this thyroxine effect, and that the thyroxine test is a simple method for the demonstration of substances that protect against thyroid intoxication. After reviewing some of the contradictory reports about these substances, they call attention to the studies of Anselmino and F Hoffmann, who succeeded in isolating from the blood and tissues of normal animals a lipid substance that protects against thyroxine. They relate their own investigations on these problems in rabbits. They were able to confirm that the subcutaneous injection of thyroxine (from 0.25 to 0.5 mg) causes a considerable reduction in the serum lipase which far exceeds the spontaneous fluctuations. By means of the lipid extract that Anselmino and Hoffmann isolated from the blood they inhibited the effect of thyroxine on the lipase content. Small amounts of the lipid substance dissolved in oil were fed to the animals for seven successive days. Then they were given injections of 0.25 mg of thyroxine for a number of days and these injections did not reduce the lipase content. Later 0.5 mg of thyroxine was administered at irregular intervals but even these amounts did not reduce the lipase as late as thirty eight days after the feeding with the protective substance. In two animals the protective action of ordinary olive oil was tested and it was observed that olive oil has a certain protective value but that it is far inferior to the lipid substance. Other tests revealed that thyroxine reduces not only the lipase but also the fat content.

Rôle of Reticulo-Endothelial System in Reduction of Serum Lipase by Thyroxine—In view of the protective action of fats and lipoids against thyroxine Dell Acqua and Strauss decided to determine whether the reticulo-endothelial system plays a part in this protective action. For this purpose they blocked the reticulo-endothelial system of rabbits with trypan blue and then determined whether this blockage as such

influences the lipase content of the blood serum or whether the blockage inhibits or changes in any way the lipase reduction produced by thyroxine. It was found that in none of the animals did the lipase content of the serum change either during or after the blockage of the reticulo-endothelial system, at least there was no change in excess of the spontaneous variations. Two animals were given an injection of 0.5 mg of thyroxine nine days after the last injection of trypan blue. The thyroxine injection was followed by the typical reduction in the lipase, which, if anything, was even more intense than is the case ordinarily. These observations indicate that a blockage of the reticulo-endothelial system with trypan blue does not protect against thyroxine.

Influence of Splenic Substances on Cholesterol of Blood—Schliephake calls attention to studies in which he succeeded in isolating an active substance of the spleen. This substance influences the metabolism as well as the immunobiologic processes in the organism. The influence of the splenic hormone on metabolism manifests itself in various functions, and in former studies the author has investigated its influence on the circulation. He found that the circulatory changes produced by the spleen do not become manifest in direct vascular reactions such as dilatation or constriction but are of a purely potential nature in that they change only the reaction capacity. On the basis of the assumption that these processes are the result of changes in the humoral composition of blood and tissues the author examined various constituents of the blood and their modification by the spleen. He studied the relations of the spleen to the defense mechanism of the organism and found that the splenic hormone activates the reticulo-endothelial system and increases the phagocytosis of the leukocytes. In the course of these investigations his attention was drawn to a substance that plays a part in the circulatory system as well as in the defense mechanism namely cholesterol. He observed that the cholesterol content of the blood is changed by the splenic hormone. The change is usually an increase and is the more pronounced the lower the initial value. In case of high initial values the increase may be followed by a decrease. In order to control his observations the author resorted to irradiation of the spleen with ultrashort waves and found that this procedure is likewise followed by changes in the cholesterol content. The intravenous injection of the splenic hormone is always followed by an initial increase, while in case of intramuscular injection or of irradiation with ultrashort waves the increase may be preceded by a decrease which never lasts longer than an hour.

Serodiagnosis of Syphilis on Cadavers—In order to determine the serologic method best suited for the diagnosis of syphilis on cadavers, Knepper compared the results of the Memmcke turbidity reaction in the pericardial fluid, of the Wassermann reaction in the native serum and of the so-called corroboration reaction devised by Witebsky. The latter reaction consists of a separation of the union of antigen and antibody for by an increase in temperature the antibodies can be separated again from the antigens to which they are united. If a flocculation has taken place the specific union of which is doubtful, an attempt may be made to separate the antigen-antibody compound and then to demonstrate the antibodies again. However before attempting the separation of the antigen-antibody union in a flocculate it is necessary to free the sediment from serum containing intermediate fluid and from the nonspecific serum albumins and serum globulins by repeated washings with cold sodium chloride solution. After sufficient washings, the separation fluid contains only slight traces of serum protein. Since the nonspecific seroreactions are dependent on the presence of relatively large amounts of serum protein such a reaction is impossible in the separation fluid. Witebsky employs for the flocculation the older technic of the citochol reaction. The author gives a description of the technic and a tabular report of the results obtained with the three tests on 500 cadavers. His results indicate that the Memmcke turbidity reaction on the pericardial fluid is least subject to nonspecific reactions and to auto-inhibitions, however in many cases of syphilis it remains negative because of the insufficient antibody content of the pericardial fluid. The Wassermann reaction of the native cadaver serum is unsuitable because of the great tendency to nonspecific reactions and auto-

inhibitions (particularly during the summer time), although it indicates a considerable number of the actual cases of syphilis correctly. Witebsky's corroborative reaction together with the Wassermann reaction gives good results on cadavers and the author recommends this procedure, for it is the only one that has given satisfactory results in cases in which the clinical and anatomic diagnosis was not quite clear.

Munchener medizinische Wochenschrift, Munich

80 1961 1998 (Dec 15) 1933

- Erroneous Diagnoses in Nervous Patients P Schuster—p 1961
Research on Virus W Rimpau—p 1964
Simplified Method for Isolating Estrual Hormone and New Phenomenon of this Hormone Masao Ito and Seiji Hayazu—p 1969
Digestion of Vegetable Foods and Penetration of Ferments into Closed Vegetable Cells W Heupke—p 1969
Diastase Values in Urine in Acute Necrosis of Pancreas T Rost—p 1971
Later Fate of Patients Who Had Eclampsia and Renal Disturbances During Pregnancy W Schultz—p 1972
Investigations on Distribution of Blood Groups in Patients with Polio myelitis K Hitzky—p 1973
Treatment of Furuncles with Paquelin's Cautery E Winckler—p 1974
Anlage, Heredity and Race G Sticker—p 1975
Illness and Death of Great Men A Bruun—p 1981
Fever Therapy of Acute Gonorrhea M Flesch—p 1985
Reliability of Friedmann's Rapid Reaction for Diagnosis of Pregnancy K Ehrhardt—p 1985
Estimation of Catgut J Zeissler—p 1986

Isolation of Estrual Hormone and New Phenomenon—Masao Ito and Seiji Hayazu describe a simple method for the isolation of the estrual hormone in crystalline form, which they employed on the urines of pregnant horses and of women. After the urine has been acidified with hydrochloric acid, it is filtered through diatomaceous earth. Animal charcoal is added to the filtrate in order to absorb the hormone. After thirty minutes of boiling the suction filter is used, and the remaining charcoal is washed with dilute solution of alkali until the fluid becomes clear. Following rinsing with alcohol, the charcoal is extracted by being heated two or three times with phenol. The extraction medium is removed by distillation and the hormone-containing residue is dissolved in diluted alcohol and boiled with ten times its quantity of benzene. After cooling, the benzene is removed and these procedures are repeated several times. The hormone-containing, yellow benzene particles are mixed with a 2 per cent solution of sodium carbonate and washed until the fluid becomes clear. The discolored benzene solution is concentrated and repeatedly shaken with a 4 per cent solution of sodium hydroxide. From 90 to 95 per cent of the active substance enters the soda solution, which is then neutralized with hydrochloric acid. The sediment is saponified by dilution in a 5 per cent solution of sodium hydroxide and boiling for one hour. After cooling, it is repeatedly shaken with ether, so as to make the hormone pass into the ether, and, after evaporation of the ether, yellow crystals precipitate, but after being washed with ether they become colorless. The remaining oily substance is again saponified and treated with ether, and by repetition of this procedure several times 60 per cent of the hormone can be crystallized, while the remaining 40 per cent remains in the oily substance. The authors report that they stored pregnant urine, which had been acidified with acetic acid and then evaporated, so that a thick extract remained. The hormone content of this extract was determined from time to time, and after one year the hormone content increased unexpectedly almost nine times, while other extracts, which had been prepared with alcohol and acetone, revealed no change in the hormone content. The authors advance as the most likely cause of this phenomenon the fact that the extract probably contains a prehormone, which, by a still unidentified factor, is changed into the hormone.

Diastase in Urine in Necrosis of Pancreas—Rost shows that acute necrosis of the pancreas may take an atypical course and that in these cases the diagnosis is extremely difficult. He has observed cases that exhibited all signs of poisoning or of cardiac disturbance. In one patient the cardiac symptoms were so severe that in spite of the intense pains in the left epigastrium the operation was dispensed with and the patient recovered. The diastase reaction according to Wohlgemuth-Baumann was made repeatedly in this case but always gave normal values.

This normal diastase content of the urine in a patient who had the signs of an acute pancreatic necrosis induced the author to investigate the reports on the diastase values in cases of necrosis of the pancreas. In the course of these investigations, Baumann called his attention to the fact that the original method of Wohlgemuth gives unreliable results, because buffering of the urine, which is an essential requirement, had been omitted. In further tests, he saw to it that buffering was done, and he reaches the conclusion that the diastase determination in the buffered urine is a reliable aid in the diagnosis, although there is a possibility that low values may occur in cases of necrosis of the pancreas, for no clinician will expect a 100 per cent reliability from a single method. Recently he found the diastase determination helpful in two cases in which the differentiation between perforation of the stomach and necrosis of the pancreas offered difficulties. The method is helpful also in cases of gallstone, for it indicates pancreatic involvement and it shows in how many of these pancreatides recovery takes place without an operative intervention. The author stresses the necessity of individualization in deciding on an operation in pancreatic impairments. However, he does not advise against surgical treatment in general. In cases in which the attacks of pain persist or recur in short intervals, the operation should not be postponed. Only in cases in which the cardiac symptoms predominate and the abdominal symptoms show a tendency to subside is an expectant attitude advisable.

Fate of Patients with Eclampsia—Schultz shows that a transition of eclampsia or of the renal disorders of pregnancy into chronic nephritis is extremely rare. Of 239 cases that were carefully controlled only one such case was observed. In this instance there were no indications that a renal disturbance had existed before pregnancy, but, of course, this does not necessarily prove that it developed during pregnancy. The author admits that an existing chronic nephritis may be exacerbated and that under the influence of an eclampsia and a renal disturbance of pregnancy with hypertension it is possible that a sclerosis of the vessels and with this a nephrosclerosis may develop or become exacerbated.

Treatment of Furuncles—Winckler treats furuncles and carbuncles, particularly those of the face, with the Paquelin cautery. He emphasizes that the cautery must be at white heat, for only thus will it be possible to introduce it without special pressure and without severe pain deep into the infectious focus. It is also essential to introduce the cautery vertically into the center of the focus, so as to destroy the necrotic cone. In small furuncles a single application of the cautery is sufficient, provided it is deep enough. However, if pus exudes, the cautery is introduced once or twice more until pus no longer comes up. Experience on himself convinced the author that the method is not unduly painful. Following cauterization, a dry sterile bandage is applied.

80 1999 2034 (Dec 22) 1933 Partial index

- Estimation and Treatment of Patients with Heart Disease R Siebeck—p 1999
*Gonorrheal Endocarditis of Pulmonary Valves K Ziegler—p 2001
Impairment of Carbohydrate Metabolism of Liver in Chronic Lead Poisoning L Schmidt Kehl—p 2003
Erroneous Diagnoses in Nervous Disorders P Schuster—p 2004
Estimation of Arteriogram in Diagnosis of Cerebral Tumors G Bodechtel and T W Wichmann—p 2012
*Symptoms of Traumatic Accumulation of Air in Cranium H Muller—p 2014
*Cubital Patella Case P Ewald—p 2015
Pleural Rings in Roentgenogram F Kuhlmann—p 2016
Anthrax of Skin with Formation of Multiple Pustules V Ristic—p 2018
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Recent Observations on Venous and Pulmonary Circulation Drenkhahn—p 2021
Multiple Venous Thromboses as Early Symptom of Carcinoma E Moser—p 2022

Gonorrheal Endocarditis of Pulmonary Valves—Ziegler discusses the etiology and the symptomatology of endocarditis of the pulmonary valves. Statistics reveal that the primary lesions of the pulmonary valves are most frequently caused by the gonococcus and the pneumococcus, the gonococcus being about twice more frequent than the pneumococcus. The author cites eleven cases of gonorrheal endocarditis of the pul-

monary valves from the literature and then reports three cases observed by him. One case did not end fatally, but its etiology, clinical and roentgenologic aspects indicated a gonorrheal endocarditis of the pulmonary valves. The other two patients died of gonococcal sepsis. In the first case the pulmonary valves were not involved, while in the second only the pulmonary valves were affected. The second case is reported in detail. The diagnosis of insufficiency of the pulmonary valves was based on the diastolic murmur that is loudest over the pulmonary valve, on the eventually existing hypertrophy of the right ventricle with epigastric pulsation and on the sharply projecting arch of the pulmonary valve as well as on the brisk pulsation of the pulmonary artery visible during roentgenoscopy.

Traumatic Cerebral Pneumatocoele—Muller points out that the accumulation of air in the cranium, which is occasionally observed following traumas of the head takes place most frequently in the space formed by the trauma. Next in frequency as the site of these cerebral pneumatocoeles is the ventricular system of the brain. The extracerebral localization, between the surface of the brain and the dura mater, is comparatively rare, but the author observed such a case and describes it in detail. The case report is followed by a discussion of the general aspects of cerebral pneumatocoeles. Traffic accidents resulting in fractures of the frontal bone, the ethmoid bone, the sphenoid bone or the mastoid process are generally the cause. In many cases the accumulation of air does not develop until several days, weeks or even months after the accident. The eliciting cause is frequently an increase in pressure in the pneumatic spaces produced by sneezing, blowing of the nose, coughing, swallowing or physical exertion. The symptoms vary according to the quantity of air and the resulting pressure and according to the localization and the simultaneous injury of the brain tissue. Thus it is possible that neurologic symptoms are entirely absent or there may be disturbances varying in degree to the severest symptoms of irritation, abolition of function and pressure. A peculiar splashing sound, when the head is moved is observed in comparatively rare cases, but, if present it has pathognomonic significance. Differences in percussion sound are occasionally perceptible such as tympanism on the side of the air accumulation. A periodic discharge of fluid (generally from the nose) frequently influenced by body posture makes the presence of a cerebral pneumatocoele highly probable. The definite proof must be given by roentgenoscopy. When spaces contain both fluid and air a fluid level may become evident in the roentgenogram. Whenever in the course of convalescence following cranial trauma severe headaches recur, roentgenoscopy should be repeated. The treatment must be decided in each case. Rest in bed and immobilization of the head is sufficient in many instances. In other cases operative interventions may be necessary such as puncture trepanation or repair of dural tears. The eventually existing fluid fistula may be treated with roentgen rays. For the prophylaxis of the accumulation of air it is important that patients whose pneumatic spaces have become exposed by a cranial trauma refrain from blowing the nose, suppress sneezing and coughing and avoid exertion (abdominal pressure).

Cubital Patella—Ewald reports the clinical history of a man aged 28, who had been a boxer and wrestler for several years until he developed pains on the extensor side of the elbows and repeated exudates into these joints. At first these symptoms disappeared when he discontinued his strenuous exercise but later they even appeared during work. Examination of the muscular arms that never had been injured revealed that the elbows were rather plump and that the olecranon did not project as sharply as is normally the case. Complete extension of the elbow proved impossible while flexion was not inhibited. A bone 5 cm in length and 3 cm in width could be palpated above the olecranon proper. This bone could not be separated from the triceps tendon but could be moved readily against the posterior articular surface of the humerus and against the olecranon. Roentgenoscopy revealed a bony structure opposite the humerus and the olecranon. The latter was covered as with a bowl but was not atrophied. The patient demanded removal of the bones. The author cites other cases of cubital patella from the literature and calls

attention to the theory of Kienbock who thinks that the cubital patella is generally the result of traumatic detachment during childhood of the epiphysis on the upper portion of the ulna. In view of the perfect development of the structures observed by him, the author rejects this theory of traumatic origin and thinks that the cubital patella just like that of the knee joint, is a true sesamoid bone, which, like the supernumerary bones in the carpus and tarsus, must have an embryonic origin.

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- Picture of Dried Gastric Juice N Henning and L Norpoth—p 1
- *Ferrosensitive Chronic Chloranemias (Asideroses) and Therapeutic Action of Iron in These Anemias F Reimann—p 7
- *Action of Liver in Pernicious Anemia F Reimann F Sinek and F Fritsch—p 41
- Multiple Myelomas A Magnus Levy—p 62
- *Physical and Chemical Stimuli of Incretory Activity of Pancreas Jimena F de la Vega—p 112
- Cystinuria Quantitative Investigations on Daily Elimination in Urine E Meyer—p 119
- *Role of Stomach and Liver in Pathology of Pernicious Anemia J Bence—p 127
- Role of Copper in Formation of Blood J Bence—p 143
- Creatine Creatinine Metabolism in Acute Anterior Poliomyelitis and Its Modification by Glycine W Gros—p 152
- Clinical Aspects of Aleukia Caused by Bone Marrow Metastases of Duodenal Carcinoma W Lengemann—p 161
- Problems of Angina Pectoris E Hausner and D Scherf—p 166

Iron Therapy in Chronic Chloranemias—Reimann maintains that the chronic posthemorrhagic anemias, achylic chloranemias, many forms of postenteritic and postdysenteric anemias, anemias after deficient and unsuitable nutrition, some anemias that develop after febrile and toxic conditions, many of the so called agastric anemias and some cases of chloranemias of obscure origin belong to the same group and may be considered as a unitary hematologic disturbance. The two main characteristics of these anemias are a disturbance in the hemoglobin metabolism and a sensitivity to iron. The disorder in the hemoglobin metabolism is indicated by hemoglobin deficiency, hypochromia of the erythrocytes, low color index, microcytosis and absence of all signs of increased regeneration. There is a change in the bone marrow, namely, the "red erythroblastic marrow" and the contrast between its high cell content and its apparent content of hemoglobin on the one hand and the decrease of cells and of hemoglobin in the blood on the other hand. The cause of this phenomenon is that the erythroblasts, insufficiently provided with hemoglobin, are arrested in their development to normal erythrocytes. Medication with iron is followed by a rapid increase of the hemoglobin content, the number of erythrocytes and the color index, that is, the iron counteracts the disturbance in the hemoglobin supply and its sequels. The number of erythroblasts in the marrow becomes smaller, for since they receive a sufficient amount of hemoglobin they develop into normal erythrocytes and enter the blood stream. The point of attack of the iron is thus in the bone marrow. The action of iron is specific; it cannot be replaced by any other medicament and its efficacy is restricted to this group of anemias. Since there is no common term for these anemias, the author suggests the term "ferrosensitive chronic chloranemias," and since they are deficiency diseases (lack of iron) they may be designated also as "asideroses."

Action of Liver in Pernicious Anemia—Reimann and his associates show that there is a great difference between oral and parenteral liver therapy. The same dose of liver is much more effective in parenteral than in oral therapy, and, in order to produce the same effect on the blood, the oral dose must be from thirty to fifty times as large as the parenteral dose. The pathologic condition of the digestive tract in pernicious anemia exerts a detrimental influence on the utilization of the orally administered liver. The absence of gastric digestion and the rapid passage through the gastro-intestinal tract reduce the resorption of the active substance. Studies carried out by the authors indicated that the resorption of the active principle takes place primarily in the upper portions of the intestine. If liver is introduced directly into the intestine without passing through the stomach its efficacy is reduced in proportion to the lower level at which it is administered in the intestine. Careful observations on four patients disclosed that rectally administered liver and liver extracts have no

effect on the blood status, and consequently the authors reject rectal liver therapy as unreliable. Digestion experiments with trypsin and erepsin indicate that destruction of the active substance by the fermentative processes in the gastro-intestinal tract is not likely and that the active antianemic principle of the liver is not a polypeptide, and that therefore a polypeptide-like binding to another complex can be excluded. The authors inquire whether the superiority of parenteral liver therapy may not be due to the fact that in oral administration and the subsequent resorption in the gastro-intestinal tract a large portion of the active substance is intercepted by the liver stored there, and thus withdrawn from its utilization by the hematopoietic system. In parenteral administration the substance is offered directly to the blood producing organs and can therefore exert a more intense influence. The authors think that the great difference between the efficacy of the oral and parenteral administration is not the result of one but of several factors. Because these factors vary in different cases an exact determination of the oral dose is difficult.

Stimuli of Incretory Activity of Pancreas—De la Vega employed stimulatory and depressive substances, secretin and insulin, to test the pancreatic action. Her tests were made on white mice. She found that small quantities of insulin, given at short intervals effect a decrease in thecretory issue while larger amounts given at longer intervals have the opposite effect. Secretin always produces an increase in thecretory tissue of the pancreas. The author reports her observations on rabbits, the pancreas of which was irradiated with roentgen rays. She reaches the conclusion that the roentgen rays stimulate thecretory function of the pancreas. Anatomic studies on the pancreas of irradiated animals gave somewhat contradictory results, and she is as yet unable to say whether the increase in thecretory action of the pancreas is due to true hypertrophy or to hyperplasia of the islands of Langerhans.

Rôle of Stomach and Liver in Pernicious Anemia—Bence removed the stomach of hogs and found that these gastrectomized animals developed an anemia of hypochromic and microcytic character somewhat resembling achylic chloranemia. However the main purpose of this experiment was to use the liver of these animals for the preparation of a liver extract and then to try this extract on patients having pernicious anemia. It was found that the liver of gastrectomized hogs did not produce a noticeable increase in the number of erythrocytes. Moreover, the hemoglobin was hardly at all influenced the color index remained above one and megilocytes persisted. These observations indicate that, after resection of the stomach the liver loses its influence on anemias, and from this it can be deduced that the stomach is the site of formation of the liver substance that influences anemia. The liver either stores this substance or gives it its active form. The author shows that the substance active in blood formation does not originate from the disintegration products of foods. He thinks that the active stomach substance is a product of internal secretion.

Zeitschrift für Urologie, Leipzig

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- Value of Blood Picture in Urologic Disturbances. H. Nippels—p. 803
 *Treatment of Gonorrhea in Female Urethra and Its Surroundings. R. Hofstätter—p. 826
 Chemotherapy of Gonorrheal Arthritis. A. Dmitriew, I. Porudominski and I. Sdobnow—p. 831
 Stimulation of Soft Ureteral Calculus. A. Herzog—p. 835
 Pollakiuria in Children. F. Hamburger—p. 836

Treatment of Urethral Gonorrhea in Women—In refractory cases Hofstätter obtained favorable results by injecting vaccine near the inflammatory foci, a method that had been recommended by his chief, Bucura. He employed this treatment successfully as far back as 1924. In the years following, his attention was drawn to the efforts of French authors, who first recommended vaccination at the port of entry but later made the injections at all sites where the gonococcus had caused manifestations of disease including the joints in which gonorrheal inflammations or suppurations had developed. It was found that this method was ineffective in acute cases and that it obtained results only when the gonococci were no longer on the surface but had entered the tissues. From 1927 to 1930 the author treated one group of gonorrheal infections with the

method recommended by the French authors and another group with Bucura's method. He found the latter method more effective. Following disinfection of the urethral opening with corrosive mercuric chloride, the urethra is anesthetized by a 20 per cent cocaine solution and from five to ten minutes later the vaccine injection is given. The para-urethral region, as a rule and sometimes also the urethra must be anesthetized by injecting a 1 per cent solution of tutocain. Since this local therapy is employed only in cases that have previously been treated with intramuscular vaccine injections, the initial dose may be relatively large as a rule 0.5 cc. Gradually the dose is increased to 2 cc. In order to obtain a better distribution, Bucura advises the dilution of the first doses with sodium chloride solution to make 2 cc. The para-urethral vaccinations are often accompanied by severe general reactions. For this reason it is important that during the first three or four injections the patients be kept in bed. It should be remembered that mixed infections exist in most para-urethral processes. One or two injections of a mixed vaccine follow the injections of gonococcus vaccine in the author's practice.

Finska Lakaresällskapets Handlingar, Helsingfors

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- Direct and Inverse Astigmatism in Clientele of Private Practitioner with Special Reference to Cases of Direct Astigmatism in One Eye and Inverse in Other. J. G. Lindberg—p. 1027
 *Experiences in Quantitative Determination of Protein in Cerebrospinal Fluid Performed by Aid of Xanthoprotein Reaction and by Application of Leikola-Noponen Universal Colorimeter. A. V. Salminen—p. 1041
 *Treatment of Gonorrheal Epididymitis and Arthritis by Intravenous Injections of Hemolyzed Own Blood. A. Ingman—p. 1051
 *Rupture of Liver in the New-Born Observed at General Lying-In Hospital in Helsingfors from 1924 to 1932. Eva Holmberg—p. 1067

Quantitative Determination of Protein in Cerebrospinal Fluid—Salminen examined normal cerebrospinal fluid from forty-five patients and pathologic fluid from twenty-five by the aid of the xanthoprotein reaction and by the use of the Leikola-Noponen universal colorimeter. The procedure is easy, simple and quickly performed by any person not color blind and the results agree with those of other investigators. One hundred cubic centimeters of normal cerebrospinal fluid contained an average of 25 mg of total protein, 20.81 mg of albumin and 4.19 mg of globulin with a protein quotient of 0.23. In paralysis the total protein and its two fractions were greatly increased, the globulin relatively far more than the albumin and the protein quotient was often above 1. In locomotor ataxia the total protein and the globulin content were increased, the former considerably less than in paralysis, and the protein quotient seldom exceeded 1. In cerebral syphilis the protein relations corresponded approximately to those in locomotor ataxia.

Treatment of Epididymitis by Hemolyzed Blood—Ingman used this method in forty patients with gonorrheal complications. By control of the blood sedimentation reaction and careful dosage the negative phase was avoided. The results were satisfactory and apart from a temporary rise in temperature in some cases, there were no by-effects.

Rupture of Liver in the New-Born—Holmberg says that in a necropsy material of more than 1,000 fetuses observed in the General Lying-In Hospital in Helsingfors from 1924 to 1932 there were three cases of ruptured liver in full term fetuses, two of these after spontaneous delivery, seven in premature cases, and nine in fetuses weighing less than 1,000 Gm. Subcapsular liver hematoma was found in eleven full term and twenty-six premature fetuses. The rupture of the liver is believed to be due to trauma with asphyxia and presumably also a pathologic tendency to hemorrhage as disposing factors. The subcapsular liver hematomas are thought in the main to depend on similar causes.

CORRECTION

The Development of Botulinus Toxin in Frozen Peas—In the abstract of an article by Straka and James from the *American Journal of Public Health*, July, 1933, published in *THE JOURNAL*, Nov. 4, 1933, page 1509, the last line should indicate that the samples concerned had been inoculated with botulinus spores rather than with botulinus toxin.

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SYPHILIS AND PREGNANCY

AN ANALYSIS OF THE OUTCOME OF PREGNANCY IN
RELATION TO TREATMENT IN 943 CASES

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AND
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The presence of an untreated syphilitic infection in the pregnant woman greatly reduces the chance of the birth of a normal baby. As a result of the widespread application of serologic tests to the diagnosis of clinically unrecognizable syphilis and the almost universal use of arsphenamine or related products in the treatment of the disease, there has occurred a striking decrease in the incidence of fetal and infant mortality due to syphilis. The accumulated experience of many workers with the newer methods of treatment has made it evident that congenital syphilis is an almost entirely preventable disease and that one of the most fruitful fields of preventive medicine is open to the obstetrician. Although these main facts are well known, certain of the minutiae of treatment require more detailed elucidation.

In this paper the records of nearly 1,000 pregnancies occurring in syphilitic women are analyzed with regard to the effects of the disease on the product of conception and the results achieved by antisyphilitic treatment. The study has made it possible to offer definite statements as to certain controverted points, such as the relative value of the Wassermann reaction and placental histology, the optimal amount of arsphenamine to be administered during pregnancy, the efficacy of the heavy metals, and the value of preceding antisyphilitic treatment during subsequent pregnancies in which no treatment is given.

SOURCE OF MATERIAL AND METHOD OF STUDY

The basis for this study is afforded by an analysis of the outcome of 943 pregnancies in known syphilitic women delivered under the supervision of the obstetric department of the Johns Hopkins Hospital. All pregnancies occurred between the years 1914 and 1930, inclusive, a period corresponding roughly to that during which the arsphenamines have been generally employed in the treatment of syphilis. Pertinent data have been obtained through the departments of obstetrics, pathology, medicine (syphilis clinic), pediatrics and roentgenology. For each pregnancy, information on the following points has been assembled when available: result of syphilologic examination of the mother and

the kind and amount of antisyphilitic treatment received by her before or during pregnancy, duration of pregnancy at the start of treatment, condition of the child at birth, result of the Wassermann test on the blood of the umbilical cord, microscopic examination of the placenta, follow-up examination of the child in the pediatric clinic, roentgen examination of the baby for syphilitic epiphysitis, and the postmortem observations if the infant was still-born or died soon after birth.

The 943 pregnancies comprising the study occurred in 644 women, each of whom was infected with syphilis prior to delivery. Of these, 78 belonged to the white race and 566 to the Negro race, all were among the public ward class of patients. Each patient was submitted to much the same routine. On admission to the obstetric clinic a Wassermann test on the mother's blood was made, and, if found to be positive or if there was other evidence of the existence of maternal syphilis, the patient was referred to the syphilis clinic for further examination and antisyphilitic treatment when indicated. In many instances, patients presented themselves to the obstetric clinic for the first time during labor. Among this group were 117 women, accounting for 124 pregnancies, who did not reach the syphilis clinic before delivery. The duration of pregnancy at the start of treatment is expressed in terms of lunar months, ten lunar months being accepted as the normal period of gestation. The diagnosis of premature delivery is based on weight and length measurements of the child as outlined in Williams' "Obstetrics."¹ The definition of children born alive or born dead follows the usual criterion, in that infants who breathe are recorded as living.

Approximately three fourths of the children surviving the first weeks of extra-uterine life were later examined by the pediatricians for clinical and serologic evidences of syphilis. In the tabular presentation of our material the ultimate status of the child is recorded as normal or syphilitic, on the following basis:

A child is classed as normal only if it is born alive and found on subsequent pediatric examination (usually including routine roentgen examination) to show no evidence of syphilis. The relationship of normality to the duration of pediatric follow up will be discussed subsequently. Children showing unmistakable signs of the disease, pathologic, roentgenologic or clinical (including serologic), are recorded as syphilitic. Under a third classification, "no data," were placed all cases presenting insufficient evidence on which to make a diagnosis either of "normal" or of "syphilis." The group designated "no data" included still-born children in whom postmortem and roentgen examination was negative, babies apparently healthy but not followed in

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¹ Williams, J. W. *Obstetrics*, ed. 5, New York: D. Appleton & Co., 1923, p. 714. 1930 edition, p. 167.

the clinic, and cases in which clinical, pathologic or roentgenologic evidence was questionable. It is assumed that the absence of discoverable changes at autopsy does not necessarily indicate the absence of infection with syphilis. Maceration alone was not considered sufficient evidence for a diagnosis of syphilis. Approximately one third of all infants belong to the "no data" group. In the accompanying tables this group has been omitted for, while among these are of course both syphilitic and normal children, it is a fair statistical assumption that the proportions of each found in the known groups would also be preserved in the unknown groups, and the trend is thereby unaffected.

CRITERIA OF DIAGNOSIS IN THE INFANT

When a living child is born of a syphilitic mother, treated or untreated, it is of paramount importance to determine as promptly as possible whether or not the child is infected. Five methods of examination are available in order of their time relationships to birth, as follows: (1) dark-field examination of the umbilical cord vessels, which may be performed within a few minutes of delivery, (2) the cord Wassermann test, requiring from twenty-four to forty-eight hours for a result, (3) microscopic examination of the placenta the rapidity of reporting depending on the expedition of the pathology laboratory but requiring several days, (4) roentgenograms of the infant's long bones most satisfactory at about the second week of life, and (5) pediatric follow up by clinical and serologic methods necessitating several months of study.

Dark-Field Examination of the Umbilical Cord—This method has not been utilized in our series. It is highly lauded in Germany, especially by Philipp,² whose publications should be consulted for details. If spirochetes are found, the infant is definitely infected. Their absence does not, however, indicate freedom from infection but merely the necessity for further study by other means. The method has been used by one of us but in our opinion is too cumbersome for routine application.

The Cord Wassermann Test—The reliability of the cord Wassermann test has long been a controversial subject. Some observers feel that a positive test is a

necropsy, roentgen and pediatric follow up. Unfortunately, we have no data as to comparative results of maternal and cord Wassermann tests at the moment of delivery, but we are able to offer an opinion as to the reliability of cord Wassermann tests by the second method of study. This information is provided in table 1.

Among infants in whom the Wassermann test on the cord blood was positive, 81.4 per cent were ultimately shown to be syphilitic, while among infants with a negative cord Wassermann reaction, born of a syphilitic mother, only 13.7 per cent proved to have

TABLE 2—Condition of Placenta as Compared with Ultimate Status of Infant

Placenta	Number of Preg- nancies	Ultimate Status of Infant per Cent	
		Normal	Syphilitic
Normal	518	79.0	20.0
Syphilitic	41	12.1	87.8
Questionable	19		100.0

congenital syphilis. It is evident that this test is not an infallible guide to the presence or absence of syphilis in the offspring, but it does provide important information regarding the ultimate diagnosis. A positive test alone is not an indication for immediate treatment but it points strongly to the necessity for further intensive study of the infant.

Placental Histology—Macroscopic and microscopic examination of the placenta was a routine procedure in this series of cases, the diagnosis having been made or confirmed in almost all instances by the late Dr. J. W. Williams. In table 2 are shown statistics indicating the ultimate status of the child when the placenta was regarded as normal, syphilitic or questionably syphilitic.

Among cases in which the placenta was considered to be normal, 20 per cent of the offspring subsequently showed evidences of syphilis while 80 per cent remained free from infection. On the other hand, among cases exhibiting a syphilitic or questionably syphilitic placenta, the baby proved to be syphilitic in all save 8.3 per cent. Microscopic study of the placenta, therefore, affords exceedingly important information regarding infection in the child. If the placenta shows changes due to syphilis, the presence of infection in the infant cannot be ruled out without the most careful study over a period of months although treatment should not be instituted until a definite diagnosis of syphilis has been made. Among cases in which the placenta was normal, however, the child was syphilitic in 20 per cent, thus the occurrence of a normal placenta in no way eliminates the possibility that the child is infected. In actual practice, the value of information obtained by placental examination is somewhat impaired by the fact that among cases showing a syphilitic placenta the child was born alive in only 19 per cent, and even a smaller percentage survived the first few weeks of life. Of eight surviving infants, three were shown to be normal after observation periods of twelve years, eight years and one and one-half years, respectively. The presence of syphilitic changes in the placenta and the apparent absence of syphilis in the fetus raises some interesting questions regarding the mode of infection of the fetus, unfortunately it is not possible to review in detail the basis for the diagnosis in these three cases. Examination of the placenta is one of the important

TABLE 1—Cord Wassermann Reaction as Compared with Ultimate Status of Infant

Cord Wassermann Reaction	Number of Preg- nancies	Ultimate Status of Infant per Cent	
		Normal	Syphilitic
Negative	283	86.2	13.7
Positive	54	18.6	81.4

definite indication of infection of the fetus, others believe that the passive transfer of reagin from maternal to fetal circulation is common and that the results of this test are without significance. Two methods of approach are available for a solution of this problem: (1) a comparison of the cord with the maternal blood Wassermann reaction at the time of delivery, to determine the relationships of positive or negative cord tests with the reagin titer of the mother's blood; (2) the correlation of cord Wassermann results with the ultimate status of the child, as determined by

2 Philipp E. Die frühzeitige Erkennung und Behandlung der Lues bei Mutter und Kind als sozialhygienisches Problem. Ztschr. f. Geburtsh. u. Gynäk. 93: 443, 1928.

aids, not only in arriving at a correct diagnosis of congenital infection in the child, but also at times in making a correct diagnosis of syphilis in the mother. Cases are still encountered in which the changes in the placenta are the only clue to the presence of syphilis in the mother.

The result of the Wassermann test on the umbilical cord blood and the result of placental examination considered together afford information that is of more value in determining the presence or absence of syphilis in the offspring than when either is used alone (table 3). Thus, among cases in which the cord Wassermann test and the placenta were both positive, the infant proved to be syphilitic in all, while among cases in which both of these were negative the child was syphilitic in only 12.2 per cent.

Moreover, when either of these diagnostic procedures gave positive results the percentage of syphilitic children was considerably higher than when both were normal. The figures in table 3 indicate also that the Wassermann test on the cord blood is a more reliable guide than is the result of placental examination, for the percentage of syphilitic offspring was twice as high among cases in which the cord Wassermann test was positive and the placenta normal than when the results were the reverse.

Roentgenograms of the Infant as a Diagnostic Sign—This subject, including a review of the literature, is thoroughly covered in a series of articles by McLean.³ His observations tend to show that syphilitic epiphysitis is almost universal in syphilitic infants born alive at term. In some instances visible roentgen changes are difficult to detect at birth, but they are almost always apparent by the end of the second week. It is possible

one of the earliest, diagnostic signs of congenital syphilis. Among nineteen cases in our series in which a roentgen diagnosis of syphilis was made, all eventually presented supporting evidence for the diagnosis of syphilis.

From the figures in table 4 it is evident that the absence of demonstrable syphilitic epiphysitis does not rule out the possibility that the child has syphilis, for among sixty-two infected children the roentgen examination was negative in forty-three, or 69.3 per cent.

Pediatric Follow Up—It is certainly true that the blood Wassermann test on the infant at birth is no

TABLE 5—*Pediatric Follow Up*

	Total Number of Children	Duration of Follow Up						
		Less Than 1 Mo	1-3 Mos	3-6 Mos	6-12 Mos	1-2 Yrs	2-5 Yrs	More Than 5 Yrs
Normal	450	100	41	48	69	63	78	47
Syphilitic	86	2	12	8	20	13	19	12
Questionable	15	2	2	6	2	3		

more reliable than the cord Wassermann test. Many infants who ultimately develop congenital syphilis have negative blood Wassermann reactions during the first few weeks of life. In our clinic, it is routine practice to test the child's blood at the age of 6 weeks. If the test is positive, the diagnosis of syphilis is made even in the absence of clinical or roentgen evidence, if negative, it is repeated at 3 months and 6 months and, when the children can be followed, at even longer intervals.

Unfortunately, our material does not provide an answer to the important practical question of how long a presumably normal infant born of a syphilitic mother should be followed before being discharged as normal. Roberts,⁴ from a study of 903 children born of syphilitic mothers, concluded that, should the infant show no clinical or serologic evidence of the disease by the fourth month of life, infection has probably not taken place. There were occasional exceptions to this rule, however, and it is our opinion that it is safest to follow the child with repeated clinical and serologic examinations for a minimum of six months and, if possible, for two years.

In table 5 we present figures that indicate the actual duration of follow up among the children in this series, these are of value chiefly from the standpoint of the normal group, two thirds of whom have been followed for more than three months after birth.

METHOD OF TREATMENT OF SYPHILITIC MOTHERS

Since its inception, the syphilis clinic of the Johns Hopkins Hospital has employed a treatment scheme consisting essentially of alternating courses of an arsphenamine product and a heavy metal, either mercury or bismuth. The former group of drugs is the more potent form of treatment and it has been customary to use the heavy metal only as interim treatment between courses of an arsphenamine. For the purposes of this paper the amount of arsenical drug received by any patient is expressed in terms of grams of arsphenamine. On the basis of the probable therapeutic index (Schanberg and Kolmer) a given amount of neoarsphenamine is recorded as one-half that amount of arsphenamine. However, since all save a relatively few of our patients received arsphenamine, the results

TABLE 3—*Cord Wassermann Reaction and Placenta as Compared with Ultimate Status of Infant*

Cord Wassermann Reaction	Placenta	Number of Pregnancies	Ultimate Status of Infant per Cent	
			Normal	Syphilitic
Positive	Positive	16		100.0
Negative	Negative	270	87.7	12.2
Positive	Negative	21	14.3	85.7
Negative	Positive	7	57.1	42.8

TABLE 4—*Roentgen Examination as Compared with Ultimate Status of Infant*

Roentgen Diagnosis	Number of Children	Ultimate Status of Infant per Cent	
		Normal	Syphilitic
Normal	212	79.5	20.5
Syphilitic	19		100.0

that students of the problem will not all be willing to agree to the finality of the roentgenologic results as expressed by McLean, in the diagnosis of congenital syphilis for there are instances in which there is room for legitimate differences of opinion in the interpretation of films and in our own series there are many cases in which no epiphysitis was demonstrable despite the fact that subsequently the infant was shown to have syphilis. Nevertheless the presence of characteristic epiphysal lesions as demonstrated roentgenographically affords one of the most definite, as well as

³ McLean, Stafford. *The Osseous Lesions of Congenital Syphilis*. Am J Dis Child 41: 130 (Jan.) 363 (Feb.) 607 (March) 887 (April) 1128 (May) 1411 (June) 1931.

⁴ Roberts, M. H. *Congenital Syphilis*. Am J Dis Child 45: 461 (March) 1933.

published here afford essentially an indication of the effectiveness of this preparation. The individual dose of the drug was found to have been remarkably constant, 0.3 Gm constituting the usual dose for an adult female. A course of six treatments, therefore, would imply an amount of arsphenamine just under 2 Gm, two courses just under 4 Gm, and so on. Arsphenamine in this dosage is well tolerated by the pregnant woman. The pregnant state provides an increased liability for the supposed arsphenamine accident of acute yellow atrophy of the liver, of which we have seen four examples in pregnant women. Arsphenamine therapy does not, however, increase the incidence of other toxemias of pregnancy, it does not cause abortion or miscarriage, though its use in the last week or two of pregnancy may precipitate labor, and it is without deleterious effects on the fetus.

As the heavy metals occupied a position of secondary importance in our treatment scheme, no opinion can be expressed as to their isolated effect. Rarely were these drugs given alone or in quantities out of proportion to the arsphenamines. It is possible, however, to formulate an opinion as to their value when used in conjunction with arsphenamine as compared with arsenical treatment alone.

With these limitations in mind we may analyze the results of antisyphilitic treatment administered at various times in relation to the pregnancy. To 268 patients, no treatment was given either before or during pregnancy, to 82, treatment was given before pregnancy but none during pregnancy, to 391 during pregnancy only, to 202, both before and during pregnancy.

THE OUTCOME OF PREGNANCY IN UNTREATED
SYPHILITIC MOTHERS

Control Group—The chances that an untreated syphilitic woman may bear a normal child have been variously estimated at from one in four to one in twenty-five. In McCord's⁵ series of untreated syph-

TABLE 6—Outcome of Pregnancy with Varying Amounts of Antisyphilitic Treatment No Treatment Prior to Pregnancy

Treatment During Pregnancy	Number of Pregnancies	Condition of Child at Birth per Cent		Ultimate Status of Child Known No of Children	Of These per Cent	
		Living	Dead		Normal	Syphilitic
None total	268	54.1	45.9	155	35.4	64.5
None infants measuring 45 cm or more	26*	77.4	22.6	139	48.2	51.8
Arsphenamine						
Less than 1 Gm	118	89.0	11.0	78	73.0	27.0
1-2 Gm	127	90.6	9.4	94	79.7	20.2
2-3 Gm	85	91.8	8.2	62	83.8	16.1
3-4 Gm	33	100.0	0	24	87.5	12.5
4-6 Gm	19	94.7	5.3	13	100.0	0

* These 265 pregnancies are part of a larger total of 400 or more some of which are not included in the first lateral column of 268 pregnancies because of the fact that data as to syphilologic examination of the mother were lacking.

ilitic colored women the percentage giving birth to still-born infants was 66.3 in one series of 116, and 80.0 in another series of 137, undoubtedly a large number of the children born alive had syphilis. Gammeltoft,⁶ dealing almost entirely with white women, found 96.5 per cent syphilitic infants among a total of 201 born of untreated syphilitic mothers.

5 McCord J R. Prenatal Treatment of Syphilis. Some Results of Antisyphilitic Treatment in a Series of 519 Pregnant Syphilitic Colored Women. *Am J Syph* 16: 78 (Jan) 1932.
6 Gammeltoft S A. Syphilis and Pregnancy. *Am J Obst & Gynec* 15: 747 (June) 1928.

In our series of 268 pregnancies in which the mother had received no treatment either before or during pregnancy, 45.9 per cent resulted in a still-born infant, and 54.1 per cent were born alive. Among infants in whom the ultimate status is known, as determined by the various methods of study outlined above, 35.4 per cent were normal and 64.5 per cent were demonstrated clinically or at autopsy to have syphilis. It is difficult to appraise the factors accounting for a higher percentage of normal children in our series than in similar groups from some other clinics. It is possible that the routine use of the Wassermann test over a period of

TABLE 7—Effect of the Addition of Heavy Metal to Arsphenamine Therapy During Pregnancy on the Ultimate Outcome in the Child

Treatment of the Mother During Pregnancy	Number of Pregnancies	Condition of Child at Birth per Cent		Ultimate Status of Child Known No of Children	Of These per Cent	
		Living	Dead		Normal	Syphilitic
Arsphenamine alone 2 Gm or more	60	90.0	10.0	41	78.0	22.0
Arsphenamine 2 Gm or more plus mercury or bismuth compounds	78	96.1	3.9	61	93.4	6.5

many years has succeeded in adding to the group of syphilitic mothers many who would otherwise pass unrecognized. It is conceivable, also, that by the use of a sensitive test patients with long standing infections are included who would be more likely than not to give birth to normal children (Kassowitz's law), for it is probable that the Wassermann titer decreases in many patients with increasing lapse of time after infection.

RESULTS OF ANTISYPHILITIC TREATMENT OF
THE MOTHER IN THE OUTCOME
OF PREGNANCY

Treatment During Pregnancy, None Previously—The Optimal Amount of Arsphenamine. The data of table 6, showing the immediate and ultimate outcome as to the child in 650 deliveries occurring in women who had never received any treatment prior to the pregnancy under consideration, are confirmatory of the excellent results presented by many other investigators the world over. In addition, however, these data offer evidence as to the optimal amount of arsphenamine for the child. The 268 pregnancies in untreated women are included as a control. The ultimate status of the child is classified on the basis just described. Even a very small amount of treatment (1 Gm or less of arsphenamine) given in the last month of pregnancy alters the prognosis for the infant in startling fashion in the direction of his chance for ultimate normality. We realize, however, that these data do not present an absolutely accurate picture of the efficacy of treatment, since women who have gone through to the tenth month of pregnancy represent a selected group. We find, however, that, of these women who were untreated and who were delivered of a child of 45 cm or more in length, 51.8 per cent of the offspring were syphilitic and 48.2 per cent nonsyphilitic. Of the treated patients, delivered at term and receiving less than 1 Gm of arsphenamine, only 27 per cent were syphilitic and 73 per cent normal. When it was possible to give as much as 4 Gm (an approximate average of from twelve to fourteen injections) congenital syphilis in the offspring was not observed.

THE USE OF HEAVY METALS IN ADDITION
TO ARSPHENAMINE THERAPY

A point of great practical importance is whether treatment during pregnancy should be limited to the arsphenamines alone, or whether a heavy metal should be added. Our material furnishes an answer (table 7) that can be regarded only as suggestive in view of the fact that the time element of duration of treatment is a factor of considerable importance (table 8).

Comparing only those patients who received 2 or more grams of arsphenamine with and without the addition of bismuth or mercury compounds, the advantage to the child, in terms both of immediate and of ultimate outcome, is significantly in favor of those in whom heavy metals were used. This is particularly striking in the ultimate status of the child. When the mother received some heavy metal during pregnancy the child was normal in 93.4 per cent and syphilitic in 6.5 per cent, as compared with 78.0 and 22.0 per cent, respectively, in infants born of mothers who received arsphenamine alone.

In this particular series of patients the two drugs (arsenical and heavy metal) were used in alternating courses when time permitted, and the mothers who received arsphenamine alone were usually so treated because they first came under observation so late in pregnancy that there was no available time in which to follow a course of arsphenamine with a course of heavy metal. The superior results when this was done, however, may indicate either the desirability of combined treatment or the commencement of treatment early in pregnancy. If treatment can be started early enough (before the fifth month) to permit alternating courses, this should be done.

RELATIONSHIP OF OUTCOME TO THE TIME
OF STARTING TREATMENT

The dosage of antisyphilitic drugs is not the only factor involved in the child's fate. The duration of pregnancy at the start of treatment is equally important. This is analyzed in table 8. The chances of obtaining a living infant are about equal, whether the mother's treatment is started in the first or second half of pregnancy (and in either case, this approximates the inci-

TABLE 8—Outcome as to Child as Influenced by Time of
Starting Treatment in the Mother

Treatment of the Mother Started During	Total Preg- nancies	Condition of Child at Birth per Cent		Ultimate Status of Child Known No of Children	Of These per Cent	
		Living	Dead		Normal	Syphilitic
1st to 5th month in- clusive	74	90.5	9.5	57	91.2	8.7
6th to 10th month in- clusive	312	89.5	10.6	220	77.7	22.2

dence of living children in normal women). But if it is started within the first five months of pregnancy, the probability of the birth of a syphilitic child is less than half as great (8.7 per cent) as when it is delayed until the sixth month or later (22.2 per cent). It is of great importance to note, however, that both the immediate status and the ultimate status of the child are vastly better even if treatment is delayed until the final month of pregnancy than if no treatment at all is given (percentage of living children 89.0, as compared with 77.4, of normal children, 73.0 as compared with 48.2 (table 4). Though prevention of infection of the fetus by means of treatment begun before the fifth month is

easier than its "cure" with treatment given later, nevertheless something of value may be accomplished no matter how late in pregnancy the existence of syphilis is recognized in the mother. Even if she is almost at term, an injection or two of arsphenamine may materially improve the infant's chance of life (table 9).

TABLE 9—Effect of Treatment Late in Pregnancy as Compared
with No Treatment in the Outcome as to the Child

Treatment of the Mother During Pregnancy	Total Preg- nancies	Condition of Child at Birth per Cent		Ultimate Status of Child Known No of Children	Of The e per Cent	
		Living	Dead		Normal	Syphilitic
None	263	54.1	45.9	155	30.4	64.5
During 9th and 10th months only	168	87.5	12.5	117	75.4	24.5

IMPORTANCE OF CONTINUOUS TREATMENT, AND
OF TREATMENT IN THE LAST TRI-
MESTER OF PREGNANCY

An analysis of the failures of antisyphilitic treatment provides information on two additional points of importance. In fourteen instances, syphilitic babies were born to mothers who received treatment before the beginning of the eighth month. These are listed in detail.

Treatment Started in Seventh Month. Outcome Syphilis in Five—1 Treatment, arsphenamine 20 Gm in seven doses over a period of fourteen weeks. Child living at term. Clinical syphilis.

2 Treatment, arsphenamine 15 Gm in five doses. No treatment during last fifty days of pregnancy. Child still-born at term. Autopsy, syphilis.

3 Treatment, arsphenamine 23 Gm in six doses, but only mercury injections in last sixty days of pregnancy. Child living at term. Clinical syphilis.

4 Treatment, arsphenamine 15 Gm in five doses plus an indefinite amount of mercury by injection. No arsphenamine during last sixty days of pregnancy. Child living at term. Clinical syphilis.

5 Treatment, arsphenamine 0.4 Gm in one dose, neoarsphenamine 27 Gm in six doses, and bismuth salicylate 10 Gm in five doses but only bismuth in last six weeks of pregnancy. Child living at term. Clinical syphilis.

Treatment Started in Sixth Month. Outcome, Syphilis in Three—6 Treatment, arsphenamine 12 Gm in three doses and silver arsphenamine 0.8 Gm in four doses over a period of eighteen weeks. Child living at term. Clinical syphilis.

7 Treatment, arsphenamine 21 Gm in six doses and an undetermined amount of mercury by injection. No arsphenamine during the last twelve weeks of pregnancy. Child living at term. Clinical syphilis.

8 Treatment, only mercury by injection at any time. Child living at term. Clinical syphilis.

Treatment Started in Fifth Month. Outcome Syphilis in Two—9 Treatment, arsphenamine 22 Gm in seven doses plus an undetermined amount of mercury by injection, but only one treatment of arsphenamine during the last nine weeks of pregnancy. Child living at term. Clinical syphilis.

10 Pregnancy resulted in six months abortion after two doses of arsphenamine. Roentgen examination showed syphilitic epiphysitis.

Treatment Started from First to Fourth Month. Outcome, Syphilis in Four—11 Treatment, arsphenamine 18 Gm in six doses plus mercury by injection for four months. No arsphenamine during the last nineteen weeks of pregnancy. Child living at term. Clinical syphilis.

12 Treatment, arsphenamine 0.8 Gm in three doses. No treatment during last twenty-two weeks of pregnancy. Child living at term. Clinical syphilis.

13 Treatment, arsphenamine 2.3 Gm in six doses. No treatment in last twenty-seven weeks of pregnancy. Child living at term. Clinical syphilis.

14 Treatment, arsphenamine 3.9 Gm in eleven doses plus an undetermined amount of mercury by injection over a period of twenty-six weeks. Child still-born. Autopsy, syphilis.

One of two factors is common to all these cases. Either treatment was administered at irregular intervals or no arsphenamine at all was given during the last trimester of pregnancy. It seems clear from these unfortunate instances that it does not suffice to give treatment irregularly or only during the early months of pregnancy, it must be continued regularly and espe-

cially throughout the last trimester. The administration of several doses of an arsphenamine just before delivery seems particularly important.

In table 10 this problem is presented in slightly different form.

Pregnancies resulting in a known syphilitic infant after the mother received 2 Gm or more of arsphenamine are tabulated, included are three patients who received some treatment before pregnancy. Here again it is noted that in many of the cases treatment was irregular, and frequently no arsphenamine was received in the last weeks of pregnancy. This, however, is not true with regard to cases 1, 7, 11, 12, 13 and 15, in which treatment was regular and the amount of each dose not unusually low. The only possible conclusion to be drawn is that treatment up to 4 Gm of arsphenamine or its equivalent, or less than twelve treatments of an arsenical, is simply inadequate, in certain cases, to protect the child from syphilis regardless of the regularity of treatment. A point to be noted in passing

is that in seven of the sixteen cases presented in table 10 the mother had secondary syphilis during pregnancy. As the percentage of early syphilis in this special group is much higher than in the whole series, it would indicate that from 2 to 4 Gm of arsphenamine is less efficient in preventing syphilitic offspring in mothers with early syphilis than in mothers with late syphilis.

TRATMENT BEFORE PREGNANCY, NONE
DURING PREGNANCY

TABLE 10—Women Bearing Syphilitic Child After Receiving Equivalent or Arsphenamine 2 Gm or More During Pregnancy

Serial Number	Race White or Negro	Age	Parity	Mother's Diagnosis	Condition of Child at Birth	Basis of Diagnosis of Syphilis in Child	Treatment Prior to This Pregnancy	Treatment This Pregnancy			No. of Days Before Delivery	Comment
								Drug	Amount Gm	Number of Doses		
1	W		3	Secondary	L P	Clinical	0	Arsphenamine	0.3	1	38	
2	W		3	Secondary	I T	Clinical	0	neoarsphenamine	4.8	8		
3	N		1	Latent	I T	Clinical	0	Arsphenamine	2.1	6	119	Last treatment with arsphenamine 64 days before delivery
4	N		1	Latent	S B T	Autopsy	0	mercury	1			
5	N		1	Secondary	L P	Clinical	0	Arsphenamine	1.2	3	126	Treatment irregular
6	W	20	1	Latent	I T	Clinical	Indefinite amount	silver arsphenamine	0.6	4	80	Treatment irregular
7	N	20	2	Secondary	L T	Clinical	0	Arsphenamine	2.0	7	249	Last treatment 170 days before delivery
8	N	32	7	Latent	I T	Clinical	0	Arsphenamine	2.3	6	84	Last treatment 45 days before delivery
9	N	22	1	Latent	L P	Clinical	8 treatments previous year	mercury	6 wk	7	43	Last arsphenamine 56 days before delivery 3 syphilitic children prior to this one duration of infection 3 years probably longer
10	N	24	6	Secondary	L T	Clinical	0	Arsphenamine	2.2	6	97	Treatment irregular
11	W	19	1	Secondary	S B T	Autopsy	0	Arsphenamine	2.1	7	147	Only one treatment during last 66 days of pregnancy
12	N	22	1	Latent	L T	Clinical	0	Arsphenamine	2.1	7	53	
13	W	20	3	Latent	L T	Clinical	1 treatment 3 yrs previous	neoarsphenamine	1.2	2	61	
14	W	20	3	Latent	L T	Clinical	1 treatment 3 yrs previous	Arsphenamine	2.7	9	72	
15	N	23	1	Latent	I T	Clinical	0	Arsphenamine	2.7	9	72	
16	N	17	1	Secondary	L T	Clinical	0	Arsphenamine	3.0	7	97	Treatment irregular
17	N	17	1	Secondary	L T	Clinical	0	Arsphenamine	3.2	8	64	
18	N	20	5	Late syphilis	S B T	Autopsy	0	Arsphenamine	3.0	11	179	Treatment irregular
19	N	20	5	Late syphilis	S B T	Autopsy	0	mercury	3.0	11	179	Treatment irregular

* L T living at term L P living premature S B T still born at term

cially throughout the last trimester. The administration of several doses of an arsphenamine just before delivery seems particularly important.

In table 10 this problem is presented in slightly different form.

Pregnancies resulting in a known syphilitic infant after the mother received 2 Gm or more of arsphenamine are tabulated, included are three patients who received some treatment before pregnancy. Here again it is noted that in many of the cases treatment was irregular, and frequently no arsphenamine was received in the last weeks of pregnancy. This, however, is not true with regard to cases 1, 7, 11, 12, 13 and 15, in which treatment was regular and the amount of each dose not unusually low. The only possible conclusion to be drawn is that treatment up to 4 Gm of arsphenamine or its equivalent, or less than twelve treatments of an arsenical, is simply inadequate, in certain cases, to protect the child from syphilis regardless of the regularity of treatment. A point to be noted in passing

posely or inadvertently, were not treated during pregnancy. The outcome of pregnancy among this group is shown in table 11.

In 81.7 per cent of cases the child was born alive, the offspring proved ultimately to be normal in 91.3 per cent and syphilitic in only 8.7 per cent of cases in which the ultimate status of the child is known. Viewed as a group, therefore, the results of treatment before pregnancy in these patients were even better than when treatment was given only during pregnancy. Moreover, the results vary in general with the amount of treatment given before pregnancy, for the outcome was much more favorable in patients receiving more than 2 Gm of arsphenamine than in those receiving less than this amount. It would appear from table 11 that 2 Gm or more of arsphenamine before pregnancy is sufficient to protect the child in every instance. However, we have recorded one case, included in table 12, in which the mother received not only 4 Gm of arsphenamine before pregnancy but some treatment dur-

ing pregnancy as well and yet gave birth to a syphilitic baby. In this instance the mother exhibited lesions of tertiary syphilis during pregnancy in spite of previous treatment. Thus, despite the relatively large amount of previous antisyphilitic treatment, the infection was still active and consequently a menace to the child.

Among the group of eighty-two women who were treated prior to but not during pregnancy, twenty had positive Wassermann reactions and fifty-one had negative reactions during pregnancy, while in the remainder no reaction was recorded. Among the twenty patients with a positive Wassermann reaction the ultimate status of the child was normal in five, syphilitic in four, "no data" in eleven. Among the mothers exhibiting a negative Wassermann reaction the outcome as regards the child was normal in thirty-three, syphilitic in none, "no data" in eighteen. In other words, the four known syphilitic infants in this group belonged to mothers with positive Wassermann reactions.

It appears, therefore, that if, in spite of previous treatment, the blood Wassermann reaction remains positive, or if the patient has developed active lesions of syphilis, the amount of previous treatment should be disregarded and the patient treated as would be any other with active syphilis. On the other hand, if the mother has been thoroughly treated before pregnancy and has remained clinically and serologically negative for at least a year after the end of treatment, it is probably permissible to withhold treatment during pregnancy.

TREATMENT BOTH BEFORE AND DURING PREGNANCY

As might be expected, the outcome of pregnancy in women treated both before and during pregnancy is even more favorable than when treatment is given either before or during pregnancy alone. The outcome

TABLE 11—Effect of Treatment of the Mother Before Pregnancy, None During Pregnancy on Outcome of Child

Treatment of the Mother	Number of Preg nancies	Condition of Child at Birth per Cent		Ultimate Status of Child known No of Children	Of These per Cent	
		Living	Dead		Normal	Syphilitic
Mercury only	3	66.6	33.3	1		100.0
Arsphenamine less than 1 Gm. with or without mercury or bismuth compounds	13	92.3	7.7	7	71.4	28.5
Arsphenamine 1.2 Gm. with or without mercury or bismuth compounds	11	72.7	27.2	7	100.0	
Arsphenamine 2.4 Gm. plus mercury or bismuth compounds	19	89.4	10.5	12	100.0	
Arsphenamine more than 4 Gm. plus mercury or bismuth compounds	29	82.7	17.2	18	100.0	
Exact amount not known	7	71.1	42.8	1		100.0
Total	82	81.7	18.3	46	91.3	8.6

of pregnancy in 202 cases is shown in table 12. Among this group the percentage of living children is quite as high as that which might be encountered among a similar group of nonsyphilitic mothers. Moreover, of 135 children whose ultimate status is known, 129, or 95.5 per cent, were normal. Three syphilitic children were born to mothers who received a known amount of treatment in two cases less than 4 Gm. of arsphenamine had been given either before or during preg-

nancy. In the third case, referred to in a preceding paragraph the mother exhibited signs of active syphilis during pregnancy despite large amounts of treatment prior to conception.

SUMMARY

Nine hundred and forty-three pregnancies occurring in syphilitic women were analyzed with regard to the presence or absence of congenital syphilis in the offspring, particular attention being paid to the effect of maternal antisyphilitic treatment on the outcome of

TABLE 12—Treatment both Before and During Pregnancy

Treatment with Arsphenamine	Number of Preg nancies	Condition of Child at Birth per Cent		Ultimate Status of Child known No of Children	Of These per Cent	
		Before Preg nancy	During Preg nancy		Normal	Syphilitic
< 2 Gm.	30	88.5	11.4	24	95.8	4.2
2.4 Gm.	26	96.1	3.8	14	100.0	
4 Gm. or more	33	100.0		22	100.0	
< 2 Gm.	20	95.0	5.0	17	94.1	5.9
2.4 Gm.	22	86.3	13.7	14	100.0	
4 Gm. or more	20	92.0	8.0	10	93.3	6.7
Any amount	20	100.0		16	100.0	
Exact amount not known	21	85.7	14.2	13	77.0	23.0
Total	202	93.0	6.9	135	95.5	4.5

pregnancy. In addition, the relative value in the diagnosis of congenital syphilis of such signs as the cord Wassermann test, placental histology, and roentgen examination of the infant's bones for syphilitic epiphysitis were considered. Among cases showing a negative cord Wassermann reaction the infant was nonsyphilitic in 86.2 per cent, and among those giving a positive reaction the infant was normal in only 18.6 per cent.

Among cases in which the placenta was normal on macroscopic and microscopic examination the infant proved to be nonsyphilitic in 79.9 per cent, while among cases showing syphilitic changes in the placenta the offspring was syphilitic in all but 12.1 per cent. When these two diagnostic aids were considered together, the information was of more value than when each was considered alone. Infants presenting evidences of syphilitic epiphysitis invariably exhibited other evidences of congenital syphilis. However, among children showing no abnormalities on roentgen examination, 20.5 per cent were subsequently shown to have congenital syphilis.

The striking beneficial effect of antenatal arsphenamine therapy is shown by the fact that among pregnancies occurring in untreated syphilitic mothers the infant was born alive in only 54.1 per cent and 64.5 per cent of living offspring were syphilitic, while the administration of as little as 1 Gm. or less of arsphenamine changed these figures to 89 and 27 per cent, respectively. Administration of larger amounts of arsphenamine or related products brought about a further reduction in fetal mortality and in the percentage of syphilitic offspring, until when as much as 4 Gm. (from twelve to fourteen injections) was given no syphilitic offspring was observed. The administration of heavy metals, mercury or bismuth compounds in addition to arsphenamine, enhanced the good results achieved with the latter alone. Better results were obtained when maternal treatment was started in the first half of pregnancy than when begun in the latter half. It was found particularly important, however,

that the arsenicals be given in the two months immediately preceding delivery

The results in cases treated before pregnancy and not during pregnancy were, in general, quite as good as when the mother was treated during pregnancy only. Here, however, the status of the syphilitic infection in the mother is probably the important factor.

Antisyphilitic treatment both before and during pregnancy yielded results superior to treatment during either period alone.

CONCLUSIONS

1 The Wassermann test on the blood of the umbilical cord and study of the placental histology are important aids in the diagnosis of congenital syphilis and should be carried out on all patients not proved during pregnancy to be free from syphilis. Of the two, the former is the more reliable.

2 The presence of characteristic changes in the epiphyses of the long bones during the first two weeks of life is diagnostic of congenital syphilis, but the absence of epiphyseal abnormalities does not rule out congenital infection.

3 Antenatal treatment of pregnant syphilitic patients with arsphenamine reduces the percentage of fetal deaths and the percentage of syphilitic infants in a striking manner. The good results are roughly proportional to the amount of treatment given and the time at which it is started, even a few treatments in the last weeks of pregnancy, however, will materially alter the outcome.

THE POSTTRAUMATIC NEUROSES

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One of the oldest questions which trouble the mind of the physician is that pertaining to those frequent and baffling nervous states following trauma. The number and importance of these conditions seem to be increasing with the widespread use of machinery in modern industry and transportation. No physician can escape these cases, and all are daily impressed with the great loss of time and money, both to the employer and to the patient, which they bring about. An age-old conflict is being waged today, as in years gone by, between the exponents of the so-called organic and functional interpretations of these conditions. Before the day of Charcot, the explanation was usually sought in organic disturbances of the nervous system, but this great French neurologist early recognized the potent role played by emotional factors. The earliest work of Sigmund Freud, while a student of Charcot's, was in connection with patients exhibiting neurotic states following injury, and since those days it has been generally recognized that the conception of the posttraumatic neurosis was a valuable and valid one. In the past few years, however, an attempt has been made to explain the nervous states consequent to injury—and particularly injury to the head—on organic lesions of the nervous system. This renewed emphasis on the organic factor is largely attributable to the relatively new methods of encephalography and ventriculography and the recent studies of the mechanics of the cerebro-

spinal fluid. The introduction of the method of encephalography has especially given rise to a great deal of enthusiasm and a great wealth of observations in patients who have suffered head trauma. The whole theory of the mechanical etiology of epilepsy has arisen from this movement, and the attempt is being made to explain great numbers of other symptoms on the basis of a disturbance in the hydrodynamics of the cerebrospinal fluid. Many other, so-called finer, methods of study have been utilized in the attempt to find an organic cause for the posttraumatic syndromes.

We do not wish to minimize the importance or value of this attempt. Unquestionably, profit will eventually accrue from these new observations in a broader understanding of the pathologic physiology of head injury. There is, however, a grave danger of being swept off one's feet by overconfidence in a mechanical method. For instance, Strauss and Savitsky¹ state that the term "posttraumatic neurosis" should be abandoned and all the sequelae of head injury explained on the basis of cerebral pathologic changes. While recognizing the great value of these workers' contributions, we feel the need of a new exposition of the psychologic factors underlying the neuroses occurring after head trauma. The neuroses following injury to the head do not differ materially from those after injury to other parts of the body, where no injury to the central nervous system can be in question. Consequently, it seems unwarranted to abandon the concept of neurosis following head trauma, and there appears to be greater need than ever of a proper understanding of these emotional shipwrecks.

It should be made clear at the outset that the diagnosis of a neurosis is not a diagnosis of exclusion. The day is long since past when the term "neurosis," posttraumatic or other, was a waste-basket into which was thrown diagnostic failures. These "functional" disturbances are, on the other hand, recognizable by their own symptomatology, a symptomatology of which an unfortunately large part of the medical profession is quite ignorant.

CLINICAL FEATURES

What are the diagnostic criteria by which the posttraumatic, as well as the nontraumatic, neuroses may be recognized? A study of great numbers of these patients reveals at once that the posttraumatic neuroses do not differ in any essential way from most other, nontraumatic, neuroses. They can all be divided into groups of considerable clinical value, according to their outstanding symptomatology. The following classification includes the majority of cases.

Posttraumatic Neurasthenia—Cases falling into this group exhibit abnormal fatigue and irritability as their outstanding clinical characteristics. This fatigue and irritability are different from those seen in cases of debility from organic disease, in that they are associated with extreme emotionalism and a disproportion between the actual strength of the patient and his supposed weakness. This syndrome is thus rather well described as posttraumatic irritable weakness with emotionalism.

Posttraumatic Anxiety Neurosis—With these patients there is a vast anxiety, which manifests itself with regard to insignificant or imaginary dangers. There is nearly always a marked hypochondria, which is expressed in the patient's concern over one special

or many detailed somatic complaints. These complaints are related most often to the part of the body that was injured, but they are frequently so numerous and bizarre as to render their explanation on an organic basis impossible.

Headache is the most common symptom encountered after head injury. That this headache may be related to "organic" changes is well known, and Foster Kennedy² has recently pointed out the criteria by which it may be recognized. The anxiety headache, on the one hand, is recognizable in that it is usually not a true pain but rather a sense of weight or pressure, is often occipital or vertical in distribution, and is very often constantly present without intermission for days and weeks, being increased only by emotional excitement. Practically all headaches of "organic" origin are, on the other hand, intermittent. The hypochondria in these patients may concern itself chiefly with one organ or symptom until it becomes almost an obsession. In addition, the patient with an anxiety neurosis usually exhibits excessive sweating, cold, clammy hands, tremulousness and dilated pupils—all symptoms of sympathetic overstimulation. The posttraumatic anxiety neurosis can thus be briefly described as exhibiting anxious hypochondria with excessive sympathetic stimulation.

Posttraumatic Hysteria—This is perhaps the most common of the "functional" nervous conditions seen after trauma, although perhaps rare in its pure state. Patients with this type of neurosis exhibit pseudo-organic—usually neurologic—signs and symptoms, such as blindness, deafness, paralysis, anesthetics, and disturbances of motion or gait. These signs can almost invariably be demonstrated to be nonanatomic, i.e., the paralyses, anesthetics and so on do not correspond to the actual anatomic relationships but rather to the patient's idea of the anatomic relationships. Examples of such signs are "stocking and glove" anesthetics, complete paraplegia without sphincter disturbances, and the like. In addition, these patients manifest an abnormal degree of suggestibility. For example, the nonanatomic anesthetics can be altered at the suggestion of the physician. Such a finding, of course, quite excludes an "organic" origin for the sign.

This description would be inadequate if it did not point out that these forms of the posttraumatic neuroses are most often combined rather than pure. One sees regularly anxiety neurasthenia and anxiety hysteria in which the signs and symptoms are mixed.

In addition to these more or less standardized clinical manifestations there are other features in connection with these posttraumatic neuroses which make their recognition more certain. The peculiar emotional state of the patient is almost always diagnostic, being a combination of fear of disability (anxiety), resentment toward the agent responsible for the injury and toward any one, such as the doctor, suggesting that the injury is physically negligible, and a determination to prove beyond a doubt that the injury is "real", i.e., "organic". Also, the disability following the injury is always used to explain the inability of the patient to meet his problems. He can't work, earn money or satisfy his domestic demands because of this particular injury. Furthermore, the reaction of the patient to therapeutic effort is almost always characteristic, there is a tendency to blame any medicine or other therapeutic mea-

sures for the continuation or exacerbation of these symptoms. All methods fail or fall short of their complete purpose, and the doctor begins to feel sure that the patient lacks a real desire to get well. In severe cases these numerous, bizarre and stubborn symptoms, which the physician cannot explain by any known laws of anatomy or physiology, together with the peculiar mental attitude of the patient, constitute a therapeutic problem that is familiar and puzzling to all physicians and that they often eventually are glad to abandon unsolved when the patient, discouraged, seeks aid elsewhere.

PSYCHOLOGY OF THE POSTTRAUMATIC NEUROSES

To attempt to explain these syndromes by recourse to encephalographic, serologic, otoneurologic and various other mechanical methods is to show oneself unfamiliar with the complexity and delicacy of the disturbances from which these patients suffer. In particular, the encephalogram is unsuited to the elucidation of the difficulty, however valuable it may be in other conditions. Apart from abnormalities of the ventricles, gross, localized atrophy of the brain, and distortions of the cerebrospinal pathways by cicatricial contractions and so on, it is our opinion that the encephalogram cannot yet be interpreted with assurance. Furthermore, just what constitutes a normal encephalogram has not been finally established. To one having experience with these neurotic patients, it seems obvious that they suffer largely from emotional and psychologic, rather than physical, difficulty. Consequently, without entering into the old and sterile question as to the relationships between the mind and the brain, it is obvious that, at the present stage of knowledge, it is futile to approach the posttraumatic neuroses from the anatomic or pathologic aspect, and that, at least for the present, it must be studied from the psychologic standpoint, for the purpose of both diagnosis and therapy. One cannot pretend to understand the psychology of the posttraumatic neuroses in all cases because of the extraordinary variety of human nature and the multiplicity of the issues involved. However, a summary of present views can be given in the hope that even a partial understanding will lead to more effective diagnosis and treatment of these unfortunate patients.

One of the first facts that impress one when the history of these patients is carefully studied is that there were evidences of marked neurosis or marked ineffectiveness in the personality before the particular injury in question. This has also been pointed out by other observers³ but is often difficult to demonstrate, since these patients hide evidences of any trouble they may have had previous to the injury. Aside from direct observation, the fact that only certain people develop posttraumatic neuroses, while others with severe injuries do not, suggests that some preexisting factor must have been present to determine the development of the neurosis. It is, indeed, notorious that great numbers of patients who have received the most severe injuries do not develop a neurosis, while in others the slightest injury suffices to precipitate a severe nervous state.⁴ These facts suggest very strongly that people who develop posttraumatic neuroses already had the psychologic basis for the breakdown, and that the injury served merely as a precipitant.

² Kennedy, Foster. Head Injuries—Effects and Their Appraisal. Evaluation of Evidence. Arch Neurol & Psychiat 27: 811-814 (April) 1932.

³ Gordon, Alfred. Delayed Mental Disorders Following Cranial Traumatism and Their Psychopathological Interpretation. J Nerv & Ment Dis 77: 259-273 (March) 1933.

⁴ Freud, Sigmund. Beyond the Pleasure Principle. London: International Psychoanalytical Press.

That this is true is suggested also by the observations of Schaller and Somers,⁵ who found that after recovery from a posttraumatic neurosis had begun a certain point was reached when recovery ceased and the patient remained at a standstill or retrogressed. It thus appeared that, after the immediate illness had been alleviated, the untoward circumstances in connection with the injury adjusted, the fight for compensation ended, the repeated medical examinations stopped, and the patient back at work, there still persisted a personality defect which rendered the patient subnormal. Therefore, the patient who suffers from a posttraumatic neurosis must be considered already abnormal before the injury. The reason for this abnormality, this personality defect, is, therefore, to be traced much further back than the injury, since it existed prior to the injury.

The ultimate understanding and treatment of the posttraumatic neurosis thus involves a fundamental psychologic study of the individual in his relationships to himself, his environment and his associates. Such study leads inevitably to childhood, early home conditions, and the establishment of undesirable behavior tendencies in early life. These behavior tendencies consist largely in an increased self centeredness, a feeling of inferiority, an improper and often unduly antagonistic attitude toward authority, and an inability to face difficulty with courage, rather seeking refuge in excuses and in illness.

It will be profitable at this point to cite briefly a case seen in St. Luke's neurologic outpatient department by Dr. T. L. Fentress and one of us (R. P. M.).

H. V., a carpenter, aged 45, came to the clinic complaining of generalized weakness, painful back, attacks of numbness in his arms and legs, occasional headaches (especially distributed over the occipital region), insomnia, irritability, inability to lie on his left side because of pain in his arms, discomfort during defecation, and anxiety about his cervical spine and occipital region, together with loss of memory which he attributed to a growth at the base of his brain. These complaints he dated back to an accident that occurred in April, 1932 when he fell a short distance from a ladder and struck the occiput. He was not rendered unconscious and continued to work. However one month after this accident he lost his job and thereafter began to suffer from pain in the occiput and neck. For this trouble he sought medical aid, and the physician, taking a serious view of the affair, urged that roentgen examinations and other expensive tests be made, for all of which the patient did not have sufficient money. Thereupon the physician urged the patient to sue the company for which he worked when injured, attributing his troubles to the fall from the ladder. He was urged into this suit also by his wife. The suit was unsuccessful whereupon the other numerous symptoms already mentioned developed. In spite of many examinations and much treatment, his condition had persisted and even grown worse.

The general and neurologic examinations were objectively negative, except that the patient was exceedingly anxious and tremulous, his hands were cold and dripping with perspiration, his axillae were constantly sweating so that the drops ran down his sides during the examination, his pupils were large and his whole mental state was chaotic. It was impossible to detect objective evidence of any organic disease.

At this point the detailed past history of the patient will be of interest. He was the youngest child in his family and his father died when the patient was 3 years of age. Being the youngest he became his mother's favorite and was sheltered and protected by her from his earliest life. She defended him against his playmates, made all his decisions for him, humored him in his slightest wishes and when he grew up would never go to bed until he was safely back at home. She sympathized

with him in all his difficulties and comforted him by laying the blame always on others when he encountered boyhood troubles.

Eventually his mother became an invalid and he went to live with his older brother and his wife. Here the history was repeated. His brother's wife humored and catered to him even as his mother had done. At the age of 22 he married, but of this marriage we know little except that two children were born. At the age of 30 he lost his wife and one son in an influenza epidemic and finally he remarried about the time he received the injury to his head. His second wife accompanied him to the clinic. She was a strong and aggressive type of woman, a former trained nurse, who answered questions for him and obviously did his thinking for him, and humored and dominated him.

This patient illustrates well many of the points which have already been made in this paper. His case is properly diagnosed as one of posttraumatic anxiety neurosis. It is quite clear, even on reciting the list of the patient's complaints, that no conceivable injury that he could have received in his fall could have caused all his trouble, in fact, he suffered but little inconvenience from his fall until a month later, after he had lost his job, i. e., met a difficulty he could not, in these times, solve. In addition, it should be obvious from the detailed past history of his life that he did not receive the entire neurosis from the relatively unimportant injury. This man's whole attitude toward life had been misshapen since childhood, his mother, during his most impressionable years, had through excess of care and solicitude, trained him in indecision, lack of self confidence and, worse still, in a habit of playing for sympathy and pitying himself. Later, he demanded and got the same treatment from his older sister-in-law, and, finally, came to the clinic with a wife treating him in the same manner. Can it be doubted that he had chosen this wife because of her resemblance to his mother in this respect? The unfavorable influence exerted by the physician who first saw this patient is worthy of the most serious consideration. With such patients, physicians must be very careful that they do not do more harm than they can possibly do good.

We do not wish to leave the impression that this is the only way in which factors in early life operate to make human beings especially susceptible to posttraumatic neuroses. Undoubtedly, other methods of mishandling children produce similar results. Indeed, it is probable that whether a person develops neurasthenia, the anxiety neurosis or hysteria depends, for the most part, on the particular unfavorable childhood influences. Lack of time prevents us from discussing here the method of development of these other neuroses. We wish simply to emphasize the fact that posttraumatic neuroses are due to factors dating back to childhood, that they are merely precipitated and not really caused by the injury, and that in no sense can they be considered as due to "organic" changes in the brain, as some so fondly imagine.

One further important feature of these neuroses must be emphasized, and that is the unconscious nature of their operation. No proper understanding of these patients can be attained without a recognition of the unconscious nature of the fundamental difficulty. In the case cited, the neurotic behavior of the patient was the only behavior he knew in the face of difficulty. It was a habit as unconscious as his manner of walking or the intonation of his speech. The assumption that such patients are consciously simulating disease does them an injustice and tends to increase still further their difficulty of adjustment and to prevent finally any proper understanding of their condition.

⁵ Schaller, Walter and Somers, M. R. Psychogenic Factors and Precipitation Point in the Posttraumatic Neuroses. J. A. M. A. 93: 967-971 (Sept. 23) 1929.

TREATMENT

The treatment of the posttraumatic neuroses is one of the most difficult tasks facing the physician. The fundamental nature of the personality defect and the early age at which it is established make its eradication a herculean task. It amounts, in effect, to the reeducation of the individual in a new attitude toward life and its problems, which is, of course, especially in older persons, all but impossible. This reeducation is especially difficult because it involves training in a self-centered, egoistic individual to have less concern about himself and more about the outside world. However, very often a partial adjustment can be effected. Certain fundamental rules for accomplishing this can be laid down.

In the first place, it is folly to antagonize the patient by arguing with him. To adopt the attitude that he has suffered no physical injury may be necessary, but one should not, therefore, insist that he has no real symptoms. The prime rule here is to make oneself the patient's friend, to secure his confidence, and to appear to be his ally. This involves listening patiently to his story and cooperating with him in his efforts to recuperate.

When this has been done, it is absolutely necessary that all financial controversy be settled once and for all. All settlements of a monetary sort should be made in a so-called lump sum and not in protracted payments intended to continue until the patient is again well. Such long-continued payments have the effect of placing a premium on his illness and keeping the question of his disability constantly open. This point has been repeatedly made by many authors in the past, including one of us (G. W. H.). The final settlement of all claims at once stops litigation and ends all controversy calculated to keep the patient forever insisting on the seriousness and reality of his injury.

The next step is the reestablishment of the patient as soon as may be possible, in some form of work in which he can effect a transfer of his attention from himself to outside interests. This step is very difficult sometimes and may be possible only after intensive suggestion. One must be careful to give the patient some excuse for recovery. To expect the patient to become free from all symptoms without treatment is almost equivalent to expecting him to admit that his symptoms were "unreal." Therefore, medication, various forms of physical therapy or electrotherapy are very useful in giving him reason to expect improvement and a basis for relinquishing his symptoms. That such treatment may lack a physiologic rationale, in view of the fact that no physical basis exists for his symptoms, is neither here nor there. The psychologic rationale is ample warrant for such procedure. With these methods, encouragement and optimism find an important place when used tactfully and reasonably.

Such methods, however, must not be unduly prolonged, as they only fix the patient's attention too firmly on his ailments. Consequently a judicious relinquishment of the treatment must be practiced.

With such an approach, the treatment of the posttraumatic neuroses will achieve no little success. Physicians can at least avoid causing patients no end of harm by unwise sympathy, apprehension over their condition, and suggestion of further symptoms. There is a place here for great tact and appreciation of human nature, qualities that can come only with long experience in dealing with these unfortunate patients.

8 South Michigan Avenue

MENINGITIS DUE TO THE INFLUENZA
BACILLUS OF PFEIFFER (HEMO-
PHILUS INFLUENZAE)

A STUDY OF ONE HUNDRED AND ELEVEN CASES,
WITH FOUR RECOVERIES

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The first authentic case of influenza bacillus meningitis was described by Slawyk¹ in 1899. Pfeiffer himself supervised the bacteriologic work. Earlier cases in which gram-negative bacilli were demonstrated were reported by Pfuhl,² Haedke³ and Fraenkel,⁴ but the bacteriologic studies were inconclusive. During the years that followed a few scattered cases were reported but it was not until 1911 that a real impetus was given to the study of influenza bacillus meningitis by Dr. Martha Wollstein⁵ who reported eight cases that she had studied in a little more than a year. She made a careful analysis of the spinal fluids and did virulence tests on the strains of the bacilli, including the experimental production of the disease in monkeys, and treated successfully two of these monkeys with a serum that she had prepared by immunizing goats. In these publications the literature was carefully reviewed.

TABLE 1—Distribution of Most Common Forms of Meningitis

Meningococcal meningitis	1,216
Tuberculous meningitis	961
Pneumococcal meningitis	209
Streptococcal meningitis	203
Influenza bacillus meningitis	111
Staphylococcal meningitis	27

Since 1911 numerous articles on influenza bacillus meningitis have appeared, but most of these referred to small numbers of cases. In 1921 thirty-two cases with one recovery were reported by Dr. Josephine B. Neal.⁶ After a careful study of all factors bearing on influenzal meningitis and a complete review of the literature, Rivers,⁷ in 1922, reported twenty-three cases with one recovery.

Jenks and Radbill⁸ described thirty-two cases of influenza bacillus meningitis with no recoveries, occurring from 1921 to 1929.

Hart⁹ reported thirty-two cases with two recoveries. Our main object in this paper is to report 111 cases that we have seen in the past twenty-three years in connection with our study of meningitis and other acute infections of the central nervous system.

Influenza bacillus meningitis ranks fourth among the types of purulent meningitis. Table 1 shows the distribution of the most common forms of meningitis that we have seen.

- From the Bureau of Laboratories, Department of Health.
- 1 Slawyk, Ztschr. f. Hyg. 32: 443, 1899.
 - 2 Pfuhl, Berl. klin. Wchnschr. 29: 979, 1009, 1892.
 - 3 Haedke, Munchen med. Wchnschr. 44: 806, 1897.
 - 4 Fraenkel, E. Ztschr. f. Hyg. 27: 315, 1898.
 - 5 (a) Wollstein, Martha, Influenzal Meningitis and Its Experimental Production, Am. J. Dis. Child. 1: 42 (Jan.) 1911. (b) J. Exper. Med. 14: 73, 1911.
 - 6 Neal, Josephine B., Arch. Pediat. 38: 1 (Jan.) 1921.
 - 7 Rivers, T. M., Influenzal Meningitis, Am. J. Dis. Child. 24: 102 (Aug.) 1922.
 - 8 Jenks, H. H., and Radbill, S. N., Arch. Pediat. 48: 1 (Jan.) 1931.
 - 9 Hart, A. P., Canad. M. A. J. 27: 163 (Aug.) 1932.

The symptomatology of influenza bacillus meningitis differs in no way from that of meningococcic meningitis. Since so large a percentage of cases occurs in infancy, it may be well to emphasize that the early symptoms at this age are not conspicuously referable to the central nervous system. The earliest signs are usually those of a gastro-intestinal disturbance, irregular fever, irritability and a bulging fontanel. A diagnosis

TABLE 2—*Distribution by Age and by Sex*

Age of Patient	Sex		Total Number of Cases
	Male	Female	
1 2 3 months	1	2	3
4 5 6 months	6	8	14
7 8 9 10 11 12 months	8	9	17
Total under 1 year	15	13	34
1 to 2 years	15	13	28
2 to 3 years	5	10	15
3 to 5 years	8	8	16
5 to 10 years	2	7	9
10 to 20 years	4	0	4
20 to 30 years	2	0	2
30 to 40 years	1	0	1
50 to 60 years	0	1	1
60 to 70 years	0	1	1
Total	52	59	111

at this stage can be made only by lumbar puncture, and this is indicated in babies who are sick with indefinite symptoms that do not yield readily to treatment.

Table 2 summarizes the distribution by age and sex.

Influenza bacillus meningitis is essentially a disease of infancy and early childhood. More cases occurred in the first year of life than in any other one year, and more than half of the total number of cases (sixty-two) occurred in the first two years of life. More cases occurred in females than in males. This is contrary to the distribution in meningococcic meningitis, poliomyelitis and epidemic encephalitis.

Ten of the 111 cases were in Negroes. This is a very much higher proportion than occurred in other acute infections of the central nervous system, except perhaps in tuberculous meningitis.

Table 3 shows the incidence of the cases by year and by season. By far the largest number of cases occur in the last quarter of the year, following closely the peak of the curve of pneumonia incidence. In meningococcic meningitis the largest number of cases occur during the first half of the year. The distribution by year shows nothing notable except that during the influenza epidemic in 1918 and 1919 there was no increase in the number of cases of influenza bacillus meningitis. The largest number of cases was seen in 1932, a year that was not marked by any unusual incidence of infection of the upper respiratory tract in New York.

There has been a great deal of discussion as to whether influenza bacillus meningitis is a primary or a secondary disease. In the earlier days when B influenzae was considered the cause of clinical influenza, many observers expressed the opinion that influenza bacillus meningitis was a complication of a respiratory infection.

Rivers⁷ states that 74 per cent of 171 cases studied by him were probably primary infections. He also calls attention to the fact that, in not a few instances, pneumonia and other lesions accompanying the meningitis are not due to the influenza bacilli.

Hart⁹ states that ten of his thirty-two cases appeared to be primary and that in practically none was it a complication of a respiratory infection.

Of our 111 cases, 68, or 61 per cent, were apparently primary.

In many other instances the preceding or concomitant pneumonia, otitis media or other lesions were in all probability not caused by the influenza bacillus. Since this fact has been brought out by other writers, it seems fair to assume that in a large percentage of cases influenza bacillus meningitis is a primary disease.

We have done blood cultures on eight of our patients and, of these, seven were positive. In other cases there was evidence of a generalized infection, for instance, five patients had a hemorrhagic rash and three patients had joint involvement, in one of which the organisms were recovered from the purulent joint exudate. Rivers⁷ reported eight positive blood cultures in eighteen cases but believed that with suitable mediums the percentage would have been higher. Hart⁹ did blood cultures in seven instances, of which four were positive.

LABORATORY EXAMINATION

Blood cultures should be done more regularly in influenza bacillus meningitis. The blood count shows a high polymorphonuclear leukocytosis. In our own series the leukocytes ranged from 9,000 to 36,000, and the polymorphonuclears ran as high as 92 per cent. Rivers,⁷ Jenks and Radbill,⁸ and Hart⁹ report similar observations.

The spinal fluid examination in influenza bacillus meningitis differs in no way from other forms of purulent meningitis. The fluid is cloudy to purulent in appearance and shows a marked pleocytosis with a preponderance of polymorphonuclears, a variable increase in protein and, when the disease is well established, a decided decrease in the sugar content. The influenza

TABLE 3—*Seasonal Distribution of Influenza Bacillus Meningitis*

Year	January February March	April May June	July August September	October November December	Total
1912		2			2
1913			1	1	2
1914			1	1	2
1915				3	3
1916	1	2	1	2	6
1917			2	2	4
1918		1	1	3	5
1919			1	7	8
1920			1	1	2
1921		1	1	1	3
1922	1	3	1	5	10
1923	3	1		1	5
1924	1			2	3
1925	1				1
1926	1	1	2		4
1927	2	2	1	1	6
1928	2			3	5
1929				4	4
1930	2	2	1		5
1931	5	1		4	10
1932	4	7	4	2	17
1933 Jan to July 1		4			4
Total	23	27	18	43	111

bacillus is demonstrated by smear and culture. A positive diagnosis must be made by cultural examination.

It is interesting to note that strains of the influenza bacillus isolated from cases of influenza bacillus meningitis tend to fall into one group, while the strains of the bacillus obtained from other sources show no tendency to grouping. This was first demonstrated by Povitzky¹⁰ in our laboratories and was subsequently corroborated by Rivers and Kohn.¹¹ Out of fifty-eight

¹⁰ Povitzky, Olga R. and Denny, H. T. *J. Immunol.* 6: 65 (Jan) 1921.
¹¹ Rivers, T. M. and Kohn, L. A. *J. Exper. Med.* 34: 477 (Nov) 1921.

cultures studied by Povitzky, twenty-seven were identical with the predominating group, eighteen were closely related to the predominating group and thirteen were heterogeneous. The bacteriology of influenza bacillus meningitis is described in detail by Povitzky^{11a} in another paper.

PATHOLOGY

The lesions in influenza bacillus meningitis differ in no essential particular from those found in other forms of purulent meningitis. The brain is usually tense, congested and edematous. Occasionally there is distinct flattening of the convolutions. There may be marked engorgement of the superficial cerebral vessels without any conspicuous exudate. More often, however, the surface of the brain is covered with a patchy, yellowish green, thick, purulent exudate, which is most abundant at the base, surrounding the optic chiasm, the peduncles, the inferior surface of the pons and medulla and frequently the cranial nerves. Accompanying the blood vessels, the exudate extends up also on the convex surfaces of the brain. There may be thrombi in any of the cerebral sinuses or in the meningeal veins of the convexity. Frequently there are scattered over the brain surface minute hemorrhagic spots.

The ventricles are, as a rule, distended and contain a turbid or purulent fluid. In protracted cases, however, the ventricular fluid may be clear. On rare occasions there are ventricular hemorrhages. The choroid plexus is usually found extremely engorged and covered with a greenish, fibrinous exudate.

The superficial layers of the brain substance are almost invariably involved, showing engorgement of the vessels and numerous diffuse hemorrhagic areas. In the protracted cases there may be considerable involvement of the cerebral parenchyma. In instances of very severe infection there may occur extensive tissue necrosis in the involved portions of the brain. Minute abscesses may be present, in rare instances, large abscesses occur.

Microscopic examination shows that the exudate which infiltrates the pia-arachnoid consists of fibrin, a large number of polymorphonuclear leukocytes, a few red corpuscles, lymphocytes and large polyblasts. Occasionally the predominant cell may be mononuclear. There is marked vascular congestion with margination of leukocytes. The superficial layers of the brain in the inflamed areas often show minute hemorrhages and very marked cell infiltration. There may be perivascular lymphocytic infiltration. Various stages of degeneration can usually be demonstrated in the neurons.

Changes similar to those just described may be found in the cord, but these, as a rule, are much less severe than those in the brain. The inflammatory process may extend along the anterior or posterior nerve roots.

In protracted cases there may occur an organization of the exudate, with the formation of fibrous strands in the meninges, particularly at the base of the brain. These changes may lead to the development of an internal hydrocephalus. Many clinicians have assumed that extensive adhesions are more common in influenzal than in other forms of purulent meningitis. In our pathologic study we have not been able to confirm this assumption.

It may be of interest to mention briefly the changes in other parts of the body. Toxic degenerative changes in the liver and kidneys are quite common. Broncho-

pneumonia is fairly common. Endocarditis and acute splenitis occur occasionally. In rare instances inflammatory and degenerative changes in the suprarenals have been observed. Arthritis, peritonitis and gastritis are occasionally found. Otitis media, mastoiditis or sinusitis are found not infrequently, but these are not necessarily caused by the influenza bacillus.

COURSE OF THE DISEASE AND TREATMENT

While influenza bacillus meningitis may occasionally run a fulminating course, the disease is frequently prolonged. This has been commented on by many writers. In our series of cases the duration in the greatest number was between ten and twenty days. In thirteen cases it was between thirty and sixty days or longer. This prolonged duration makes it possible to test out different forms of treatment. In searching for methods of therapy, efforts have naturally been made to produce an effective serum.

The first serum for the treatment of influenza bacillus meningitis was developed by Wollstein,¹² who immunized goats with strains of the influenza bacillus and was able to treat successfully two monkeys in which she had produced influenza bacillus meningitis experimentally. This serum was used in two recoveries reported by Torrey.¹³ We have used this serum in five cases, in three of these only one or two injections were given, in the other two, the injections were repeated about ten times in one instance and fifteen times in the other. The last two patients showed temporary improvement clinically, the organisms decreased greatly in number and became largely intracellular, but death finally resulted.

Since 1920, horses have been immunized at the research laboratory in New York City with strains of the influenza bacillus found by Povitzky to predominate in cultures of spinal fluids from cases of influenza bacillus meningitis.

Antinfluenza serum has also been prepared under the direction of Dr Dorothy Wilkes-Weiss of Washington University, St. Louis, and by Hugh K. Ward and Joyce Wright¹⁴ of Harvard.

For the last two years, Dr Margaret Pittman has been preparing a serum at Rockefeller Institute, and there is to be published a report of cases treated under her direction.

With any form of treatment, the mortality has been exceedingly high. Bloom¹⁴ collected from the literature up to March, 1930, a total of 302 cases with a mortality of 92.05 per cent. Of our 111 patients, four recovered, giving a mortality of 96.4 per cent.

Table 4 gives a list of recoveries collected from the literature, to which we have added three of our own and one reported to us personally by Dr Benjamin Kramer. Undoubtedly a number of recoveries have never appeared in the literature.

A study of the treatment of these thirty-five patients who recovered shows that twenty-six had lumbar punctures only or lumbar punctures supplemented by non-specific therapeutic measures. The use of "convalescent serum" is mentioned in three instances. This, however, cannot be regarded as specific therapy, since the serum was obtained from individuals who had recovered from clinical influenza, which is not now considered to be caused by the influenza bacillus. It seems obvious, therefore, that lumbar puncture is an important thera-

¹² Torrey R. G. *Am J M Sc* 152 403 (Sept.) 1916

¹³ Ward H. K. and Wright Joyce J. *Exper Med* 55 223 (Feb) 1932

¹⁴ Bloom C. J. *New Orleans M & S J* 83 455 (Jan.) 1931

peutic measure. Furthermore, the use of antimeningococcus serum may be of value in a nonspecific manner. Two patients received an autogenous vaccine, and in one of these the antinfluenza serum also was used. Only eight patients received the antinfluenza serum. Of these, four patients were in our own group, and, as will be discussed later, in none of them could the use of the specific serum be regarded as a determining factor in the recovery. However, we have observed a number of instances in which the use of the serum has been followed by a period of improvement, remarkable though temporary, in the patient's clinical condition and in the spinal fluid finding.

There has been a tendency of late to employ the intracarotid route for the injection of serum and chemical agents in cases of meningitis. We have never used nor advocated this method. In the first place, we can see no advantage from its use, since the rapidity of the circulation of the blood is so great. In the second place, one instance has been under our observation and others have been reported to us in which thrombosis of the cerebral vessels followed this method of injection. We therefore regard it as a dangerous procedure.

There is a certain vogue at present for adding complement to the serum in treating cases of influenza bacillus meningitis. From a theoretical standpoint and

TABLE 4—List of Recoveries

Case	Author	Year	Age	Sex	Treatment
1	Langer Jahrb f Kinderh 53 91 1901	1901	9 yrs	♂	Lumbar punctures
2	Mya Gazz d osp 24 268 1903	1903	9 mos	♀	Lumbar punctures
3	Thomasesco and Crasoski Bull de la Soc d sc med de Bucharest 1904 no 2 abstr Rev Neurol 13 44 1904	1904	7 yrs	♀	Lumbar punctures
4	Cohoe Am J M Sc 137 74 1909	1909	33 yrs	♂	Lumbar punctures
5	Batten Lancet 1 167 1910	1910	14 mos	♀	Lumbar punctures antimeningococcus serum methen
6	Sayce Australian M J 16 20 1911	1911	4 yrs	♂	Lumbar punctures daily for 1 week
7	Klinger Cor Bl f Schweiz Aerzte 42 1289 1912	1912	Years	♂	Lumbar punctures
8	Spillmann and Benesch Province med 24 433 1913	1913	Adv age	♂	Lumbar punctures
9	Hill and Packard Lancet Clin 113 721 1915	1915	4 mos	♀	Lumbar punctures
10	Packard Ann Otol Rhin & Laryng 25 706 1916	1916	11 yrs	♂	Lumbar punctures influenza serum
11	Torrey Am J M Sc 152 403 1916	1916	11 yrs	♀	Lumbar punctures influenza serum
12	Johnson Arch Pediat 26 82 1919	1919	3 yrs	♂	Lumbar punctures and subcutaneously
13	Stone Texas State J Med 15 318 1920	1920	15 yrs	♀	Lumbar punctures
14	Litchfield M J Australia 1 104 1920	1920	23 mos	♀	Lumbar punctures
15	Christiansen and Kristensen Ugesk f Laeger 83 Jul 1921	1921	2 yrs	♀	Lumbar punctures
16	Neal Arch Pediat 18 1 1921	1921	2½ yrs	♀	Lumbar punctures serum
17	Rivers Am J Dis Child 24 102 1922	1922	13 mos	♀	Lumbar punctures
18	Hadfield J Neurol Psychopath 3 342 1923	1922	14 yrs	♂	Lumbar punctures
19	Jordan Rhode Island M J 7 8 1924	1924	10 yrs	♂	Lumbar punctures and washing subarachnoid space with saline
20	Kristensen and Christensen Acta med Scandinav 60 1 1924	1924	8 yrs	♂	Lumbar punctures antipneumococcus serum
21	Schneider and Urech Schweiz med Wchnschr 55 549 1925	1925	4 yrs	♂	Lumbar punctures
22	Turner J Iowa M Soc 16 400 1926	1926	6½ yrs	♂	Lumbar punctures
23	Signorelli Proc Louisiana State Pediat Soc Meet April 1929	1929	7 yrs	♀	Lumbar punctures
24	Bloom New Orleans M & S J 83 453 1931	1930	10 mos	♂	Lumbar punctures
25	Dabney Laryngoscope 41 14 1931	1931	1½ yrs	♀	Lumbar punctures
26	Gibbens Lancet 1 291 1931	1931	5 yrs	♂	Lumbar punctures spinally and intravenously
27	Johnson J M Soc New Jersey 20 311 1932	1932	2 yrs	♀	Lumbar punctures
28	Hart Canad M A J 27 163 1932	1932	3 yrs	♀	Lumbar punctures
29	Hart Canad M A J 27 163 1932	1932	5½ yrs	♀	Lumbar punctures
30	Needles J A M A 99 1342 1932	1932	29 yrs	♂	Lumbar punctures
31	Ward and Wright J Exper Med 55 233 1932 (Kuttner)	1932	2½ yrs	♂	Lumbar punctures ment intraspinally
32	Kramer Personal communication to the authors	1933	2 yrs	♂	Lumbar punctures one dose antimeningococcus serum anti influenza plus complement intraspinally and the serum intravenously
33	Neal Jackson and Applebaum	1933	14 yrs	♂	Lumbar punctures influenza serum
34	Neal Jackson and Appelbaum	1933	28 yrs	♂	Lumbar punctures influenza serum
35	Neal Jackson and Appelbaum	1933	38 yrs	♂	Lumbar punctures influenza serum

We strongly favor that further research be done in an effort to produce more potent specific serum. A study of the pathologic condition shows evidence of a diffuse toxemia, as evidenced by the toxic degeneration of many of the viscera. This was strikingly brought out in one patient who showed definite clinical improvement following the use of the serum intraspinally but who finally died. The necropsy revealed the fact that the meningitis had practically subsided, but there were severe toxic changes in many of the viscera.

This suggests the advisability of attempting to develop a highly antitoxic serum. Furthermore, the frequency of positive blood cultures and also the markedly toxic changes in the viscera indicate the use of the serum intravenously as well as intraspinally in the early stages of the disease.

from the results in certain cases under our observation, we fail to see that it is of any value.

The method of application and the underlying principles of forced drainage of the cerebrospinal fluid in cases of influenza bacillus meningitis have been studied thoroughly by Kubie¹⁵ and will not be discussed in this paper. It is conceivable that a thorough "washing out" of the exudate from the perivascular tissues of the brain may also effect a marked elimination of toxins and in this way may influence favorably the course of the disease. We have employed this method of drainage in the last ten cases in our series, with apparent benefit.

15 Kubie L. S. and Shultz G. M. Bull Johns Hopkins Hosp 37 91 (Aug) 1925. Kubie L. S. Intracranial Pressure Changes During Forced Drainage of the Central Nervous System Arch Neurol & Psychiat 16 319 (Sept) 1926. J Exper Med 46 615 (Oct) 1927. Brain 51 244 (June) 1928. Forced Drainage of the Cerebrospinal Fluid Arch Neurol & Psychiat 19 997 (June) 1928.

in three of these. We believe that the use of forced drainage in meningitis merits further trial.

In view of the high mortality, it may be of interest to report briefly our four cases in which recovery took place.

CASE 1—Phyllis M. aged $2\frac{1}{2}$ years, had been well except for a mild cough and cold from four to six weeks earlier. She was taken ill suddenly Aug 21, 1920, with headache, vomiting and fever ranging from 99 to 102 F. Two lumbar punctures were done from August 22 to 26. The spinal fluids were sent to us for examination, and the second showed the Pfeiffer bacillus. August 28 the child was seen by us. She presented a typical picture of meningitis. At this time deafness had developed, 25 cc of spinal fluid was withdrawn and 500 million of a stock influenza vaccine was injected intraspinally. It was not possible to secure the cooperation of the family for regular treatment.

August 31 another lumbar puncture was done, and vaccine was given in a dosage of 1,000 million mixed with antimeningococcus serum, as the smear from the previous fluid had shown coccoid forms which suggested that the meningococcus might also be present. Further studies showed that this fluid as well as the previous ones contained the Pfeiffer bacillus in pure culture. At this point there was some improvement and no further treatment was permitted until September 9, when the child became suddenly worse with a rise of temperature and vomiting. An autogenous vaccine was used as soon as it could be prepared. September 18, the fluid for the first time gave a negative culture, the previous eight fluids having been positive. At this puncture anti-influenza serum (prepared by the research laboratory but not available until this time) was given in addition to the vaccine. The administration of the combined serum and vaccine was repeated September 20 and 22. September 24 and October 2, lumbar puncture was done for relief of pressure, no injection being made. Deafness, which had developed early in the illness and had seemed to clear up, returned about the middle of September. Therefore in this particular case the serum cannot be credited for the disappearance of the organisms and the ultimate recovery of the patient.

CASE 2—M. G., a boy aged 14 years, was taken ill suddenly Jan 28 1923 with headache, vomiting, chills and a fever. Examination, February 3, showed the patient to be acutely ill. The temperature was 103 F, the pulse 130 and the respiration 18. The signs of meningeal irritation were pronounced, showing marked rigidity of the neck, positive Kernig and Brudzinski signs and a positive Oppenheim sign on the left side. A diagnosis of meningococcal meningitis was made.

Lumbar puncture was performed and 30 cc of cloudy fluid was withdrawn under moderately increased pressure. After removal of the fluid 20 cc of antimeningococcus serum was injected intraspinally. The examination of the spinal fluid showed a large increase of cells, practically all polymorphonuclears, a moderate increase in albumin and globulin, and a moderate diminution in the amount of sugar. The smear and culture were both positive for the influenza bacillus.

February 4 there was no change in the clinical picture. Lumbar puncture was performed, 50 cc of cloudy fluid was removed and 20 cc of antimeningococcus serum was administered intraspinally. Examination of the spinal fluid was similar to that of the preceding day, with the exception that organisms were found on smear but not on culture.

February 5 the patient's general condition was somewhat worse and the temperature mounted to 105 F. Spinal tap yielded 35 cc of purulent fluid which showed a marked increase in protein and marked diminution in the sugar content. Organisms were found both on smear and on culture. Twenty cubic centimeters of antimeningococcus serum was again injected intrathecally.

February 6 the spinal fluid showed absence of sugar and the presence of organisms on smear but not on culture. The patient again received 20 cc of antimeningococcus serum.

February 7 there was an improvement in the clinical picture. The spinal fluid showed a moderate amount of sugar and no organisms were found either on smear or on culture. The intraspinal injection of antimeningococcus serum was repeated.

February 9 the patient continued to improve. The spinal fluid was slightly hazy and showed a little increase in protein and a decided rise in the sugar content. The smear and culture remained negative for organisms.

February 10 the child's clinical condition was somewhat worse again. The spinal fluid was again slightly turbid and showed the presence of organisms on smear but not on culture. Twenty cubic centimeters of antimeningococcus serum was given intraspinally.

February 12 the child continued to have an irregular temperature. The spinal fluid showed no organisms either on smear or on culture. Twenty cubic centimeters of anti-influenza serum was injected intraspinally.

February 14 there was a decided improvement in the clinical picture. The spinal fluid was practically clear and remained negative for organisms. The administration of anti-influenza serum was, however, repeated.

From this time on the child continued to improve. A number of lumbar punctures were performed, yielding each time a practically normal spinal fluid. Twenty cubic centimeters of anti-influenza serum was injected intraspinally on February 16 and again on February 18.

February 20 the temperature fell to normal and the patient was free from any signs or symptoms. Recovery was complete.

Following the first four lumbar punctures and the intraspinal injection of antimeningococcus serum there was a definite improvement in the clinical picture, with disappearance of organisms from the spinal fluid. For three days the improvement progressed satisfactorily. The following day, however, organisms reappeared in the spinal fluid. A decided improvement followed the next spinal tap and the intraspinal injection of one dose of antimeningococcus serum. It is to be noted, therefore, that the patient was well on his way toward recovery and the spinal fluid was sterile before the use of anti-influenza serum was begun.

CASE 3¹⁶—T. D., a man aged 28, admitted to Bellevue Hospital Nov 9, 1931, complained of severe headache, vomiting and pain over the back and in the lower extremities. The onset of these symptoms was rather sudden, six days prior to admission to the hospital. There was also deafness from the second day of illness. A few days before the onset of the present illness examination showed the usual signs of meningeal irritation. The temperature was only 100 F. The white blood count was 20,000, with 84 per cent polymorphonuclears. A lumbar puncture was done and 25 cc of cloudy spinal fluid under increased pressure was obtained. On examination, the spinal fluid showed a large increase in cells, mostly polymorphonuclears, marked increase in protein, and absence of sugar. No organisms were found either on smear or on culture. After removal of the fluid, 20 cc of antimeningococcus serum was injected intraspinally.

November 10 the spinal tap yielded 25 cc of cloudy fluid which was positive for the influenza bacillus both on smear and on culture. The intraspinal injection of antimeningococcus serum was repeated. The spinal fluids obtained on November 11 and 12 showed the presence of organisms on smear and culture. Antimeningococcus serum was administered after each puncture.

November 13 the spinal fluid was still cloudy but had a normal sugar content and was negative for organisms both by smear and by culture. Twenty cubic centimeters of anti-influenza serum was injected intraspinally at this time.

The spinal fluids obtained on November 14 and 15 remained negative for organisms. Anti-influenza serum was, however, administered after removal of the fluid in each instance.

November 16 there was marked improvement in the clinical condition. A spinal tap was performed but no serum was given. The spinal fluid remained negative for organisms. Several blood cultures taken during the course of the disease

¹⁶ For the privilege of reporting this case we are indebted to Dr. Alexander Lambert, director, Fourth Medical Division, Bellevue Hospital.

were now reported as negative. A roentgenogram of the skull showed a fissure fracture of the parietal and temporal bones on the left side.

From this time on the patient continued to show progressive improvement. Several more spinal taps were done for relief of pressure. On examination, these fluids were practically normal. With the exception of deafness in the left ear and moderate neuritic pains in the legs, he made a good recovery. He was discharged from the hospital, December 12.

November 13, when the use of anti-influenza serum was started, the spinal fluid had already become sterile and had a normal sugar content. This improvement followed the performance of four lumbar punctures and the intraspinal administration of antimeningococcus serum after each spinal tap. The recovery cannot, therefore, be credited, at least in any great measure, to the use of specific serum.

CASE 4—William M., aged 38, seen, July 21, 1932, had been admitted to the hospital, May 22, 1932, suffering from a severe injury to the head. A diagnosis of fracture of the skull was made clinically but was not confirmed by x-rays. May 22 a lumbar puncture was done, revealing a bloody spinal fluid. The blood count showed 23,000 leukocytes with 86 per cent polymorphonuclears. June 23 there was severe headache, vomiting and a temperature of 104 F., with other signs of meningeal irritation. May 25 the second spinal puncture was done. The fluid was practically clear, with a slightly yellowish tinge. There was some increase in protein and a normal sugar. May 27 a third puncture was done, which revealed a cloudy fluid, and antimeningococcus serum was administered. This procedure was repeated twice on the 28th and once on the 29th. On the 30th it was reported that the spinal fluid had yielded influenza bacillus on culture.

During June and up until the latter part of July, the patient's condition remained about the same. He continued to have a fever and was irrational much of the time. The signs of meningeal irritation persisted. Lumbar punctures were done from time to time. The spinal fluid withdrawn on July 8 still showed organisms. July 21, 20 cc of anti-influenza serum was administered intraspinally. The following day there was a severe serum reaction. No more serum was given. As the serum reaction subsided, the patient appeared much improved. His mentality entirely cleared and he was discharged, August 28, completely recovered.

It is difficult to attribute the favorable outcome to a single dose of anti-influenza serum. It is more likely that the repeated spinal drainage was the important factor in this patient's recovery.

SUMMARY

1 We have correlated certain data in regard to 111 cases of influenza bacillus meningitis under our observation.

2 Influenza bacillus meningitis is essentially a disease of young children.

3 The evidence points to the fact that influenza bacillus meningitis is usually a primary disease and that it is caused by strains of influenza bacilli that tend to fall in one group.

4 The pathologic examination usually shows severe toxic changes in the viscera. There is no particular tendency to the development of adhesions in the meninges or to the formation of abscesses in the brain.

5 In the thirty-five cases in which recoveries have been reported, four have been under our observation.

6 At present there is no adequate method of treatment. Further research should be done toward the development of a more potent serum with high antitoxic as well as antibacterial properties. Serum may be given early intravenously as well as intraspinally.

Foot of East Sixteenth Street

GRANULOCYTOPENIA

REPORT OF TWO CASES

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It has long been appreciated that a marked decrease in the white blood cell count in the presence of acute infection is an unfavorable prognostic sign. It is only during recent years, however, that granulocytopenia has been recognized as a definite clinical entity. The two cases of this condition reported here presented several unusual features. Both patients were middle-aged women, but the interesting thing is that they were sisters, living in the same household, the recurrence in one and the single attack in the other occurring within about two months. Also, contrary to the usual textbook description, there was practically no angina, but rather there were numerous necrotic lesions in the skin and subcutaneous tissues. Another remarkable observation was that during her second attack patient 1 lived for at least twenty-four days without any granular cells, except a few myeloblasts, and then had a complete remission of the blood picture, although she finally died of sepsis.

Since the cause of this condition is not known, one cannot say which points in the family history are relevant and which not. Several facts in the family history of these patients may be recorded. The youngest sister in the family died at the age of 32 of a severe and generalized arthritis deformans. The only brother was epileptic and died in an institution at the age of 35. The oldest sister is living, aged 66. Patient 1 had scarlet fever with nephritis at 13 years and a hysterectomy for uterine fibroids at 45. Patient 2 had a long-standing bony ankylosis of the right hip, an arthritic deformity.

REPORT OF CASES

CASE 1—*First Attack*—Miss L. M., aged 63, short and rather obese, had a past history that was uneventful until the time shortly preceding the first attack of granulocytopenia. In December 1931, she had a fairly severe attack of herpes zoster and during the next two months a mild infection of the accessory nasal sinuses. These conditions seemed to clear up satisfactorily.

The present illness began rather indefinitely during the middle of April, 1932. The chief complaint was extreme fatigability in a woman who had always been very active. April 24, the patient fainted and was put to bed. The throat was very slightly reddened, the temperature was slightly elevated, and a tentative diagnosis of influenza was made. April 26 a blood count showed the leukocytes to number only 250 per cubic millimeter, with no granular cells to be seen on a stained smear. It was noted then that the patient had a number of small necrotic areas on the fingers which looked like abscesses but contained no pus. She was placed in a hospital, and on April 27 the blood count was as follows: hemoglobin (Newcomer), 75 per cent; red blood cells, 4,579,000; white blood cells, 350; lymphocytes, 100 per cent. She was given one treatment of roentgen exposure to the long bones and on April 28 leukocyte extract was started. This was given from two to four doses of 10 cc each day for six days. Later some pentnucleotide was obtained, but only a few doses were given, as the blood picture was improving. The return of immature granular cells began on the fifth day of treatment with leukocyte extract, a fact which was taken as evidence that it was the result of the therapy and not a spontaneous remission. The white cell count rose rapidly to a maximum of 31,000 per cubic millimeter in the next few days. The granular cells appeared first as myeloblasts and progressed to maturity through the stages of the myelocyte, the unsegmented juvenile form and, finally, the

mature segmented polymorphonuclear neutrophil. The details of the blood studies are shown in table 1.

During the first week of illness the patient was irrational and at times stuporous, had a high temperature and seemed very gravely ill. An area of superficial gangrene appeared in the right anterior axillary region and there developed a thrombosis of the venous channels of the right arm. After the

with a normal differential count. The patient seemed to be as well as before her illness.

Second Attack—About three weeks after the death of her sister, patient 2, and almost exactly one year after the initial attack, the patient had a recurrence. She was quite well, both subjectively and objectively April 13, 1933, but the next day complained that several small cuts and abrasions on her fingers

TABLE 1—Blood Studies in First Attack

Date	Hemo- globin per Cent	Red Blood Cells Thousands	White Blood Cells	Poly- morpho- nuclear Neutro- phils Segmented per Cent	Poly- morpho- nuclear Neutro- phils Un- segmented per Cent	Myelo- cytes per Cent	Myelo- blasts per Cent	Lympho- cytes per Cent	Mono- cytes, per Cent	Specific Therapy
4/27/32	7.0	4,500	300					100		Leukocyte extract 40 cc
4/28/32			700					100		Leukocyte extract 30 cc
4/29/32			400					100		Leukocyte extract 20 cc
4/30/32	7.0	4,300	300					100		Leukocyte extract 20 cc
5/1/32			800					93	2	{ Leukocyte extract, 10 cc Pentnucleotide, 10 cc
5/2/32	7.5	4,200	1,900		2	2	36	48	12	{ Leukocyte extract 20 cc Pentnucleotide 10 cc
5/3/32			4,100	1				48	1	{ Leukocyte extract 10 cc Pentnucleotide 10 cc
5/4/32			17,600	11	22	31	18	15	3	
5/5/32			31,200	49	16	7	5	21	2	
5/9/32	60.1	4,100	16,400	68	10			22		
5/10/32	50.2	4,400	5,900	44	16	2		38		
5/22/32			10,400	52	26			20	2	
5/26/32			14,900	74	13	4		8	1	
5/29/32			10,600	63	7	1		24	5	

TABLE 2—Blood Studies in Second Attack

Date	Hemo- globin per Cent	Red Blood Cells Thousands	White Blood Cells	Poly- morpho- nuclear Neutro- phils Segmented per Cent	Poly- morpho- nuclear Neutro- phils Un- segmented per Cent	Myelo- cytes per Cent	Myelo- blasts, per Cent	Lympho- cytes per Cent	Mono- cytes per Cent	Specific Therapy
4/14/33			2,000					100		{ Pentnucleotide 20 cc Liver extract 2 cc
4/15/33										{ Pentnucleotide 20 cc Liver extract 2 cc
4/16/33										{ Pentnucleotide 20 cc Liver extract 2 cc
4/17/33										{ Pentnucleotide 20 cc Liver extract 2 cc
4/18/33		4,900	1,700					100		Pentnucleotide, 20 cc
4/20/33							2	95		Pentnucleotide 10 cc
4/21/33							3	97		Pentnucleotide 10 cc
4/22/33			500				12	88		Leukocyte extract 30 cc
4/23/33			1,200				4	96		Leukocyte extract 20 cc
4/24/33								100		Leukocyte extract 20 cc
4/29/33			1,000				4	96		
5/1/33							7	96		Addisin 10 units
5/2/33							6	92	2	Addisin 10 units
5/3/33			600				4	94	2	
5/8/33				6	32	21	1	35	5	
5/9/33	40	750	8,900	24	30	22	2	18	3	
5/10/33			20,000	19	20	16	2	28	6	
5/16/33			36,300	81	7			9.5	2.5	
5/20/33	60	3,104	20,100	76	11.5			8.5	4	
5/29/33		2,100	11,200	60	34	1	2	12	1	
6/7/33			8,000	73	13			13	1	
6/10/33			14,800	63	23.5	1.5		5		

granular cells returned to the blood stream pus appeared in all the necrotic areas and a large slough occurred in the right axillary region. The resulting sinus finally healed after about six weeks. The temperature became normal about May 6 and remained so except for occasional insignificant rises in spite of a unilateral parotitis which developed on May 8. The patient became suddenly quite rational May 10 and although convalescence was slow, it eventually ended in what seemed a complete recovery by late summer. Occasional blood counts were made throughout the following year and the leukocytes always numbered between 5,000 and 7,000 per cubic millimeter.

were not healing properly and were somewhat painful. She also felt rather tired and had no appetite. A leukocyte count was made immediately and showed only 2,500 cells per cubic millimeter, with lymphocytes 100 per cent. Pentnucleotide was started at once, 10 cc being injected intramuscularly twice a day for five days and then once a day for several more doses. Ampoules solution liver extract No. 343 2 cc a day for four days was also given into the muscle. The patient was nauseated and uncomfortable for a short time after each injection. As there was no improvement in the blood picture, leukocyte extract was given for the next three days. April 20, two myelo-

blasts were seen in counting 100 white cells, and a few of these immature forms were seen in all subsequent smears made during the following two weeks, but there was no evidence of any tendency to maturation of these early granular cells.

Until April 21 the patient was fairly well except for weakness, her appetite was quite good, she had very little fever, and there was no soreness nor redness of the throat. A number of indurated, red areas developed in the skin, one at the mucocutaneous border of the right nostril, one in the left axillary region and many smaller ones on the body and arms. There was no pus formation in any of these, but a smear made of the secretion obtained from one lesion showed great masses of bacteria which in morphology and arrangement looked like staphylococci. April 21 the patient began to be quite sick, and on April 23 there was collapse, a fever of 103 F, auricular fibrillation, and rales at the bases of the lungs. The cardiac irregularity responded very well to digitalis therapy, but the signs in the chest persisted for some time. There was dyspnea and evidence of a pneumonic process in the right lung. The patient was irrational most of the time although she sometimes responded fairly well to questions.

The various skin lesions seemed to shrink and dry for a few days, but no pus developed and they did not heal. The prognosis was regarded as very poor. May 10 the patient was given 10 units of addisin, kindly furnished by Dr. Roger Morris of Cincinnati, and on May 3 an additional dose of 10 units. There was no change in the blood smears during the next three days except for the appearance of from 1 to 2 per cent monocytes. No count nor smear was made, May 7, but on May 8 there was a most surprising change in the blood picture. The smear showed segmented polymorphonuclears, 6 per cent unsegmented polymorphonuclears, 32 per cent, myelocytes 21 per cent, myeloblasts, 1 per cent, lymphocytes, 35 per cent and monocytes, 5 per cent. After this the leukocyte count increased rapidly, reaching at one time 36,300 per cubic millimeter, and maturation of the granular cells progressed steadily. The general condition of the patient did not change much, except for the fact that the indurated areas in the skin and subcutaneous tissues developed into abscesses that were characterized by collections of large amounts of pus with very little induration or inflammatory reaction around them. This was interpreted as evidence that the infection was blood borne. There was also present for some days a frequent, harassing cough productive of fairly large quantities of purulent sputum, so that the presence of a lung abscess was suspected. The abscesses in the skin were incised and evacuated as they became fluctuant, but new ones continued to form. There was a large one in the right groin, following later by a thrombophlebitis of the right femoral vein. During the last week of life fluctuation was detected in the lower part of the right thigh and an incision was made, through which about 500 cc of pus was evacuated.

Throughout the latter half of the illness the patient had a fever of from 100 to 103 F practically every day, she was more or less irrational or comatose most of the time, and, although the total leukocyte count and the differential formula were now quite in keeping with her condition, all hope for her recovery was abandoned. Death occurred June 15, after an illness of two months. Table 2 shows the detailed blood studies.

Pathologic Examination—An autopsy was performed about four hours after death, the body having been already embalmed. A midline incision was made through a thick panniculus of fat, and the breastplate was laid back.

The heart and pericardium were not remarkable.

There was a collection of pus along the intercostal space between the second and third ribs on the right and an adhesion of the right upper lung to the chest wall. On the left the parietal pleura was densely adherent to the parietal pericardium from the level of the fourth rib down. The lower left lobe was adherent to the chest wall. There was one abscess about 4 cm in diameter, and several smaller ones in the right upper lobe. Multiple small abscesses were scattered throughout the left lung.

The spleen was bound by adhesions to the omentum diaphragm and stomach. It was moderately enlarged weighing

312 Gm, and the pulp was rather friable. On section, several abscesses about 4 cm in diameter were seen.

The gallbladder and liver were not remarkable, aside from some fibrosis and perihepatitis.

The kidneys were small but appeared normal in structure. There was a perinephric abscess at the superior pole of the left kidney.

There was an organized blood clot, and some purulent exudate in the right femoral vein. In the right thigh was found a large abscess cavity, about 10 cm by 6 cm, around the lower end of the femur. The bone marrow of the femur was redder than normal.

Microscopic examination of the lung tissue showed areas of necrosis with some inflammatory reaction in the periphery. Many alveoli were filled with mucus and exudate.

Sections of the spleen showed marked congestion. The malpighian corpuscles could not be distinguished. The infiltrating cells were largely mononuclear, but some showed polymorphic nuclei.

In the kidneys there was considerable amount of destruction of the tubular epithelium, congestion of the glomeruli, and fibrosis of the interstitial tissue.

The gallbladder was normal. The liver tissue showed fibrotic changes and large numbers of round cells in the interlobular spaces and around the vascular structures.

Smears of bone marrow, taken from the lower end of the femur and sections of decalcified bone, taken from the sternum showed a very active regeneration of the marrow, with many granular cells present.

CASE 2—Miss A. M., aged 56, had had an arthritic deformity of the right hip and some deformity of the fingers. She had had crops of furuncles at various times in the past. Her illness started during the middle of March 1933 with what appeared to be a number of furuncles on the neck, hands and arms. These she treated herself, using home remedies. On March 21 she suddenly became very weak and sick, and it was noted then that the lesions in the skin were not abscesses but red, indurated nodules having necrotic centers. There were no lesions of any mucous surfaces. A blood count was made which showed a leukocyte count of 477 per cubic millimeter with no granular cells to be seen in the stained smear. Pent nucleotide was started at once, 10 cc being injected into the muscle morning and evening for a total of seven doses. The patient grew steadily worse, lapsed into coma, and died on the evening of March 24 before there was time for any regeneration of the blood. A smear made on the day of death showed only lymphocytes.

COMMENT

The points that were considered to be of particular interest in the cases reported may be summarized briefly. The absence of angina and the presence of skin lesions are, of course, not unique, an increasing number of such instances are being reported. The fact that two sisters should react in the same atypical way might, however, appear to be of significance to those students of the disease who are interested in determining its etiology. In this connection it may be stated that both these patients had been edentulous for many years, since a surprising number of cases have been reported as following the extraction of a tooth. Dennis¹ concludes that pyogenic bacteria may cause granulocytopenia under certain conditions of encapsulation. In the two cases here reported no known focus of infection was present, and none was disclosed at autopsy in case 1. The skin lesions were looked on as distinctly secondary to the lack of granulocytes.

The extremely low leukocyte counts followed by remission are interesting although comparably low counts are now being reported, also with recovery, following treatment.² I have seen no reports in which

¹ Dennis, E. W. Cited in *Experimental Agranulocytic Angina*, editorial J. A. M. A. 101: 368 (July 29) 1933.

² Jackson, Henry Jr., Parker, Frederic Jr., Rinehart, J. F. and Taylor, T. H. L. *Studies of Diseases of the Lymphoid and Myeloid Tissue*. J. A. M. A. 97: 1436-1440 (Nov. 14) 1931.

the patient lived for so long a time without demonstrable granulocytes in the circulating blood, as in case 1 during the second attack. For at least twenty-four days there was present only a very low percentage of myeloblasts a fact that also demonstrates the "maturation arrest" stressed by Fitz-Hugh and Krumbhaar.¹ The satisfactory response in case 1 to leukocyte extract in the first attack, and to addisin after pentnucleotide and leukocyte extract seemed to fail, in the second attack, are also points worthy of note.

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HODGKIN'S DISEASE OCCURRING SIMULTANEOUSLY IN TWO BROTHERS

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The two most common diseases that cause a progressive glandular enlargement in youth are tuberculosis and Hodgkin's disease. Consequently the diagnosis often lies between these two. These conditions may resemble each other so closely in the early stages of glandular enlargement that the clinical diagnosis between them is almost impossible. Furthermore there is no absolute evidence of inherited tendencies in Hodgkin's disease or of direct contagion, and the occurrence of more than one case in a single family is of the greatest rarity. The opposite is true of tuberculosis. In the literature are found only a few reports of Hodgkin's disease in more than one member of a family. In 1911 Ziegler¹ stated that there were no recorded cases of the disease in parent and child and that no hereditary predisposition had been demonstrated. Cases in twins have been reported by Peacock² and Senator.¹ Degen¹ saw a brother and sister with the disease. Braum,¹ in 1912, reported three cases of malignant disease of lymph glands in a woman and her two brothers. Arkin,³ in 1926, reported three cases of mediastinal lymphogranuloma in one family all men, a father, his son, and his nephew (the father's brother's son). In reporting these cases, Arkin states that it may be assumed that the three male members of the family possessed a familial predisposition to mediastinal Hodgkin's disease. Keeping these few introductory remarks in mind, we report two cases of Hodgkin's disease occurring almost simultaneously in two brothers, aged 11 and 13, respectively. As the clinical features and course of both of these cases were almost identical, reporting the case history of one will report that of the other except for a few minor details which will be mentioned during the course of the narrative.

REPORT OF CASES

G S aged 11 and P S aged 13 years, American born schoolboys of Swedish extraction were in good health until the onset of their present illness. Both boys had had measles and mumps, but aside from this the past history was negative.

The father is living and well. The mother died eight years ago of bronchopneumonia. According to the father there were no tumor masses or evidences of glandular enlargement in the mother. Two brothers are living and well, one brother died

at the age of 2 weeks of an unknown cause. Four sisters are living and well, one sister died in infancy of an unknown cause.

In January, 1931, the father of the two patients noticed a slight swelling on the right side of the neck of the younger of the boys, this swelling was situated over the right posterior auricular and upper right posterior cervical area, there was no soreness or tenderness of this mass, but it appeared to be getting larger from day to day. One week later, the father noticed the appearance of a similar swelling of the neck of the older of the two boys. The onset and course of the latter swelling was similar to that of the younger brother except that the mass was situated over the left side of the neck. The father took the boys to a local physician who naturally suspected tuberculous lymph glands and advised the boys to go to a sanatorium for tuberculosis. The boys were in such an institution for thirteen months and, while there the lymph glands in the neck became so large that they were unable to turn their heads. They lost a few pounds in weight but had no night sweats or chills. Occasionally they would elicit a dry cough but had no dyspnea nor palpitation of the heart. On exertion they both complained of a slight retrosternal pain. Repeated Mantoux tests at the sanatorium were negative and the diagnosis of tuberculosis was never verified. During their stay at the sanatorium they were treated with ultraviolet rays. Shortly before they left the sanatorium, biopsies of cervical tumor masses were made and the pathologic diagnosis was that of lymphoma.

In June 1932, the two boys came under our observation. At that time physical examination revealed the following picture. Both boys appeared to be well nourished and well developed, there was a very slight pallor of the skin and of the mucous membranes. The skeletal system was normal. On the right side of the neck of the younger boy were various sized multinodular masses involving the right cervical and posterior auricular chains of lymph glands, extending from the lower posterior aspect of the ear down to the root of the neck, there was no adherence of the masses to the skin and no puckered scars of the skin or draining sinuses were present. On palpation the tumors were not soft or fluctuant but had a resilient firm "art gum" feel. Aside from the glandular enlargement of the right side of the neck there were no other palpable lymph glands. The older boy showed the same lymph glandular change as the younger brother the only difference being that the left side of the neck was involved instead of the right. The teeth were in fair condition and the tonsils small and

Blood Count

	Younger Boy	Older Boy
Hemoglobin	71% (Dare)	64% (Dare)
Red blood cells	4,400,000	4,840,000
White blood cells	7,700	11,000
Neutrophils	72%	72%
Small lymphocytes	13%	12%
Large lymphocytes	10%	8%
Eosinophils	5%	8%

atrophic. Examinations of the lungs were negative. The heart, in both boys showed a soft hemic murmur at the apex. Pulses were regular but rapid. In each case the spleen was slightly palpable. Otherwise examination of the abdomen was negative. The extremities were normal. Examination of the nervous system revealed normal conditions. The temperatures of the two boys were 103.2 and 103.4 F (rectal) respectively. Their weights were 79 pounds (35.8 Kg) and 120 pounds (54.4 Kg), respectively.

Examinations of the urines were negative. Results of the blood count are given in the accompanying table. Shortly before death the hemoglobin dropped to 8 per cent (Dare) and the red blood cells in each case were less than 1,000,000. The blood pictures for both boys showed a slight anisocytosis, a slight poikilocytosis, no normoblasts or megaloblasts, no stippling and no abnormal leukocytes. The Arnett index was normal. There was moderate hypochromasia.³

Roentgen examinations of the lungs in both cases were negative.

3 Stewart S G. Eosinophilic Hyperleukocytosis in Hodgkin's Disease with Familial Eosinophilic Diathesis. Arch Int Med 44: 772 (Nov.) 1929.

¹ Fitz-Hugh Thomas Jr and Krumbhaar E B. Myeloid Cell Hyperplasia of the Bone Marrow in Agranulocytic Angina. Am J M Sc 183: 104 (Jan.) 1932.

² Cited by Arkin.

³ Arkin Aaron. Familial Mediastinal Lymphogranuloma. Am J M Sc 171: 669 (Mar.) 1926.

A biopsy was performed on both boys and a diagnosis of Hodgkin's disease was made on both specimens

Both patients were given palliative high voltage roentgen therapy with the usual results, characterized by a rapid recession in size of the tumor masses but followed by an equally rapid recurrence in the same areas. Symptomatically neither patient showed any improvement but continued to decline rather rapidly from month to month. The oldest boy would manifest a considerable reaction following each roentgen treatment, characterized by chills, high fever and marked weakness. Consequently he did not receive as much roentgen therapy as did his younger brother.

During the course of their illnesses each patient had a daily afternoon rise in temperature and both became progressively weaker, more cachectic and more anemic. One month before their respective deaths, each one showed marked edema of the face, eyelids and ankles, marked pallor (pale-blue-white) to the skin, deep bluish lips, hydrothorax, hydropericardium, loud blowing systolic murmur at the apex, ascites, an enormously enlarged spleen, generalized lymph adenopathy, hemorrhages from the nose, and petechiae. The petechial rash in both boys occurred first over the sternum and then appeared over the legs, arms and trunk, in the order named. The younger of the two brothers died in January, 1933, two years after the onset of his ailment, and the older of the two brothers died in March, 1933, two years and two months after the onset. Permission for postmortem examination in both cases was granted.

An autopsy was performed on P S, March 27. The body was well developed but markedly emaciated. The skin showed an icterus of 2+ on a basis of 4. The anterior aspects of the chest, abdomen and neck were covered with innumerable petechiae. There were also a moderate number of petechiae over the forearms, knees and feet. The cervical lymph nodes

were all moderately enlarged on the right and markedly enlarged on the left, especially the lower halves of the anterior and posterior cervical groups. They were of a firm, rubbery consistency. The axillary and inguinal nodes were barely palpable. Subcutaneous fat was nearly all absent. The abdominal cavity contained about 750 cc of clear amber fluid. The peritoneal surfaces were smooth and glistening. The liver was 4 cm below the xiphoid process and 3 cm below the rib margin at the right anterior axillary line. The liver weighed 2,275 Gm and was very pale, there were a few yellowish-white nodules through the liver substance, varying from 0.5 to 5 cm in diameter. The gallbladder was dilated to 13 cm in length and 5 cm in diameter at the largest dimensions, it was filled with pale green bile. There was a white nodule the size and shape of an almond in the proximal anterior part of the gallbladder wall. There was an irregular mass of large lymph nodes, together the size of a fist, about the duodenum and obstructing the common duct. All the abdominal lymph nodes, including the mesenteric and the preaortic, were enlarged to from 1 to 5 cm in diameter. The spleen was enlarged to 900 Gm. On both external and cut surfaces were many firm yellowish-white areas from 0.25 to 2 cm in diameter. The gastro-intestinal



Fig 1—P S aged 13 years seventeen months after onset

tract was normal throughout. The left kidney weighed 300 Gm, the right, 270 Gm. They were pale and flabby, with the markings decreased in prominence. The capsules stripped easily. The pancreas, bladder and suprarenals were grossly normal. The left pleural cavity contained about 300 cc of amber fluid and the right about 100 cc. Both lungs showed moderate posterior dependent congestion but were otherwise normal. The mediastinum contained several moderately enlarged nodes. The pericardiac cavity contained about 100 cc of dark amber fluid. The heart was normal throughout. The blood was very thin and pale, showing no postmortem clotting.

Microscopically, the lymph nodes showed fairly cellular Hodgkin's disease with a moderate number of eosinophils, Dorothy Reed cells, and many areas of necrosis. The spleen involvement was typical of Hodgkin's disease. The liver showed nodules of Hodgkin's disease with surrounding pressure atrophy.

The other organs showed no pathologic changes of importance. An autopsy was performed on G S, January 21. The conditions found were almost identical with those recorded for the older brother, with the following exceptions. The external lymph nodes were largest on the right rather than

on the left side. There was no involvement of the liver and no large mass of nodes obstructing the common duct as in the former, though the abdominal nodes were all markedly enlarged. The nodes were all somewhat firmer than those of the older boy.

Microscopic examination revealed extreme fibrosis of all the lymph nodes but especially so of the cervicals. The spleen involvement, though grossly similar, also showed more fibrous tissue than was shown in the other autopsy.

It will be remembered from the history that the younger boy had received more roentgen treatment than the older, and this may be a causative factor in the increased fibrosis revealed in the microscopic picture.



Fig 2—G S aged 11 years seventeen months after onset

Microscopic examination revealed extreme fibrosis of all the lymph nodes but especially so of the cervicals. The spleen involvement, though grossly similar, also showed more fibrous tissue than was shown in the other autopsy.

It will be remembered from the history that the younger boy had received more roentgen treatment than the older, and this may be a causative factor in the increased fibrosis revealed in the microscopic picture.

CONCLUSIONS

- 1 Two cases of Hodgkin's disease in brothers, aged 11 and 13 years, respectively, occurred simultaneously.
- 2 The onset was a week apart and death occurred about two years later, two months apart.
- 3 These cases demonstrate the value of an early biopsy, since tuberculosis was naturally the clinical diagnosis.
- 4 There is no evidence of Hodgkin's disease in any of the family history.
- 5 Our conception of Hodgkin's disease is that of a neoplasm rather than that of an infectious granuloma. The simultaneous occurrence of this condition in two brothers does not shake our belief, because these two cases make a total of only twelve cases in five families which we could find reported.

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DINITROPHENOL

ITS THERAPEUTIC AND TOXIC ACTIONS IN CERTAIN
TYPES OF PSYCHOBIOLOGIC UNDERACTIVITY

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In a recent report, Cutting, Mehrtens and Tainter¹ summarized their experimental and clinical studies of the pharmacologic properties of alpha-dinitrophenol (1-2-4) ($C_6H_3(NO_2)_2OH$) and concluded that

The outstanding actions [of the drug] are sustained increases in metabolism and body temperature, enormous activity of all metabolic functions, and fatal pyrexia with excessive doses. Doses within therapeutic range cause in man significant increases in metabolism without fever, which may be useful in treatment of obesity, hypothyroidism and similar depressed metabolic states.

In a later communication, Tainter, Stockton and Cutting,² reporting on their clinical experience with the use of the drug in the treatment of obesity, stated

The predominant action of dinitrophenol is to stimulate metabolism and heat production. An average loss of weight of between 2 and 3 pounds weekly was produced by an average daily dose of 0.3 Gm (5 grains) of the sodium dinitrophenol, in capsules taken with meals. The drug has been administered to individual patients by us continuously for as long as four months without demonstrable evidences of cumulative or toxic effects. A suitable regimen of dinitrophenol medication for adults would appear to be an initial daily dose of 100 mg of the sodium salt orally, taken with meals, with an increase at weekly intervals until a dose is established that causes a loss of body weight of between 2 and 3 pounds weekly or too marked or unpleasant symptoms of warmth and sweating.

With the pharmacologic action and safe dosage of dinitrophenol thus tentatively established, it appeared of importance to determine whether the drug would be efficacious in increasing the subnormal metabolic rates often found in dull, depressed, listless, apathetic psychiatric patients³ and thus prove of benefit, in a psychobiologic sense, in the empirical treatment of these patients. It is our purpose in this report to outline our experiences with the use of sodium dinitrophenol in eighteen such cases over a period of four months.

MATERIAL AND METHOD

Patients were selected who were between 18 and 40 years of age and free of gross organic disease. The finer nosologic differentiations were disregarded, the psychiatric criterion for inclusion in the group being a change within the previous year from an outwardly satisfactory and adaptable mental state to one characterized by listlessness, indifference, mild depression and otiose lethargy. Oxygen consumption tests were run on each patient before treatment was begun and repeated until a reading—generally the lowest—was obtained that seemed most closely to approximate the

true basal metabolic rate in each case. The patient was then given 60 mg (1 grain) of sodium dinitrophenol per day, and the dose usually increased 60 mg every third day until a maximum of 5 mg per kilogram in divided doses with meals twice a day was reached or until adverse symptomatology appeared to contraindicate further treatment. Routine blood counts and urine examinations were done twice a week and the oxygen consumption rates rechecked at approximately weekly intervals. In addition, the nonprotein nitrogen of the blood, and the icteric index and Van den Bergh reactions were determined when indicated. Each patient's temperature, pulse rate and respiratory rate were observed at eight half-hourly intervals after each dose during the first week and three times a day thereafter, and records of the weight, symptomatology, spontaneous activity and mental state were made twice a week throughout the treatment. Medication in each case was continued for three months, after which the physical, mental and laboratory examinations were repeated and any definite changes in the case summarized.

PSYCHOBIOLOGIC EFFECTS OF DINITRO-
PHENOL MEDICATION

Physiologic—With the exception of five cases, all patients were kept on a regular dosage throughout the three months study save for monthly rest intervals of one week inserted as control periods. The effects of sodium dinitrophenol on the thirteen patients given this full treatment may be summarized as follows. No gastro-intestinal or genito-urinary disturbances fairly attributable to the drug were observed in any instance. The pulse rate under full dosage rose from four to twenty-two beats per minute, but analysis of successive blood pressure readings in the thirteen cases showed no significant deviations from the individual norm. No persistent changes in blood cytology or urinary constituents were noted. In five cases a yellowish discoloration of the sclerae and skin was observed under full dosage, but the icteric index in each instance (when done so as to eliminate the seroanthochromic effect of the drug itself⁴) was normal.

Metabolic Rate The oxygen consumption rate of our patients rose from a pretreatment control mean of -69 ± 1.54 to 260 ± 2.95 under maximal dosage; the mean rise in metabolic rate being therefore 32.9 ± 3.31 and ranging from $+8$ to $+52$ in individual patients. Within a week after cessation of treatment, the mean metabolic rate in the thirteen cases had fallen to -1.8 ± 2.28 , a rate not significantly different from the control pretreatment mean, although two cases showed some persistent elevation of metabolic rate for fifteen days following treatment.

Weight The weight loss during medication varied considerably. Patients whose metabolic rate was elevated less than 15 per cent (three patients) either suffered little or no loss of weight or actually gained slightly as the result of an apparently increased appetite, other patients, excluding the patient who died, lost from one-half to approximately 2 pounds (from 227 to 917 Gm) a week. The grand mean rate of loss in our series was $9\frac{1}{100}$ pound (426 Gm) a week.

Psychologic—The effects of the dinitrophenol medication on the mental status of our patients varied widely. A study of the behavior charts and the successive mental examinations made on each patient revealed that in eight instances no psychologic change

From the Psychopathic Hospital, Baltimore City Hospitals.
1 Cutting W. C., Mehrtens H. C. and Tainter M. L. Action and Uses of Dinitrophenol. J. A. M. A. 101: 193 (July 15) 1933.
2 Tainter M. L., Stockton A. B. and Cutting W. C. Use of Dinitrophenol in Obesity and Related Conditions. J. A. M. A. 101: 1472 (Nov. 4) 1933.
3 (a) Hoskins R. G. and Sleeper F. H. Basal Metabolism in Schizophrenia. Arch. Neurol. & Psychiat. 21: 887 (April) 1929.
(b) Hoskins R. G. Oxygen Consumption (Basal Metabolic Rate) in Schizophrenia. Ibid. 28: 1347 (Dec.) 1932. (c) Hoskins R. G. and Sleeper F. H. Organic Functions in Schizophrenia. Ibid. 30: 123 (July) 1933. A summary of the previous literature is included in the e reports.

4 Mean \pm its probable error.

could definitely be attributed to the pharmacologic action of the drug, whereas in four cases the periods of medication were characterized by a decrease in spontaneous interest and activity and a deepening of the mental and physical indolence into lethargy and torpor. Conversely, maximal administration of the drug in six other patients was accompanied by a lightening of the mood, progressive clearing of the sensorium and definite increase in spontaneous awareness and activity, the evidences of improvement being checked by more or less well marked retrogressions during the first and second seven-day rest periods. Of the six patients, three manifested a tendency to remission toward their former mental state when the drug was finally discontinued, whereas the remaining three have maintained their initial improvement to date.

Toxic—Our series includes one death.⁵

A M., a Negress aged 31, weighing 130 Kg (288 pounds), on physical examination was normal except for an enormous panniculus adiposus. The blood pressure was 162 systolic, 108 diastolic. Routine blood, urine and spinal fluid examinations were negative. Wassermann tests of the blood and spinal fluid were negative. The patient was physically lazy, slothful and inert, mentally retarded, sluggish and apathetic. The intelligence quotient was 58. The basal metabolic rate Sept. 16, 1933 was -14 , September 17 it was -19 . Dinitrophenol medication 0.12 Gm with the noon meal, was begun September 19 and increased 0.06 Gm every day until by September 24, the patient received 0.42 Gm in divided doses daily. The temperature, pulse and respiratory rate taken every half hour for four hours after each dose showed no significant deviations from normal. September 26, the weight was 284 pounds (128 Kg), the basal metabolic rate $+15$. The patient had an increased appetite and was slightly more active, no other effects were apparent. The dosage increased to 0.3 Gm twice a day. October 1 the weight was 281 pounds (127 Kg), the basal metabolic rate was 19. The pulse ranged between 82 and 98. The rectal temperature readings every two hours were normal. There were no further changes in the behavior. October 2, the patient complained occasionally of difficulty in breathing and appeared confused and torpid. The pulse ranged from 96 to 110, the blood pressure was 142 systolic, 88 diastolic. Physical examination otherwise was negative.

Dinitrophenol was discontinued. October 3, the patient was stuporous and dyspneic, respirations ranged from 24 to 28, the pulse from 92 to 120, the blood pressure was 144 systolic, 68 diastolic. The cytology of the blood was normal, the non-protein nitrogen of the blood was 35 mg per hundred cubic centimeters. The icteric index was 5.5, and the carbon dioxide combining power of the blood was 30. The urine was clear. On two occasions 1000 cc of 10 per cent dextrose with 40 units of insulin was administered by vein without apparent improvement. Epinephrine, caffeine and atropine were given as seemed indicated. The highest rectal temperature was 100.4 F at noon, pulse 120. October 4 the patient was comatose, incontinent and cyanotic. Coarse rales were heard in the lung bases. The pulse ranged from 118 to 148, the respiratory rate, from 28 to 48. The highest rectal temperature was 102, just before death at which time the blood pressure had fallen to 36/0. The patient grew progressively weaker despite all supportive measures and died at 10 p.m.

At autopsy the only gross abnormal observations were obesity, fibrous pelvic adhesions, slight scarring of the tricuspid and mitral valves, hypertrophy of the right ventricle and small scattered fatty deposits in the aorta. There were no evidences of other gross lesions in any organ or of terminal pulmonary infection or cardiac failure. Unfortunately because of the patient's indigence the autopsy was necessarily delayed four days so that exact interpretations of the microscopic sections of the viscera were rendered impossible by tissue autolysis. Sections of the central nervous system showed no definite pathologic changes.

Since this case—one of the earliest in our series—presented evidence that dinitrophenol may possess a cumulative toxic activity which is not heralded by excessive sweating, dermatitis or pyrexia¹ but which seems, on the other hand, to be characterized by a fall in the blood pressure, tachycardia, the onset of acidosis and progressive torpor, we naturally stopped administration of the drug to all subsequent patients who, under any dosage, showed an accentuation of their lassitude, a persistent fall in blood pressure, or a pulse rate of over 100 for longer than six hours. Four additional cases showed these symptoms within from six days to three weeks after the beginning of treatment, further therapy was therefore discontinued in these cases. Possibly because the patients with an idiosyncrasy to the drug were thus eliminated, we observed no other unfavorable "side actions"¹ of the drug in the remainder of our series.

COMMENT

While it cannot at present be established that the rate of somatic metabolic activity, even of the central nervous system, furnishes a paradigm for the quantity or quality of psychodynamic energy, it is nevertheless interesting to note that Hoskins^{2b} in a careful experimental and statistical study, showed that the mean oxygen consumption rate in 214 cases of dementia praecox was 88.3 per cent of normal (11.8 per cent coefficient of variation), the rate being most depressed (87.9 per cent) in the sluggish, inactive catatonic group. It is also relevant to note that all our cases were readily classifiable as schizophrenic, hebephrenic or catatonic in type, the alternative possibility of a hypothalamic disturbance being prominent in only five instances. Our data concerning an initially depressed metabolic rate in this type of patient therefore confirm those of Hoskins and, allowing for the small number in our series, do not differ statistically from his.

Our experiences with the pharmacologic properties of sodium dinitrophenol coincide in general with those of its proponents.² The drug undoubtedly stimulates general body metabolism and, by inference, that of the central nervous system. In our series, however, its toxicity in the recommended dosage seemed to be considerably greater than heretofore reported, the primary warning signs of its noxious action being a fall in blood pressure, the onset of acidosis and progressive tachycardia and torpor.

An evaluation of the data at hand with regard to the psychotherapeutic activity of dinitrophenol is difficult, since the element of spontaneous variation cannot be absolutely excluded from so small a series. However, it was felt that lengthy citation of the case records in the present study would be of no additional advantage in forming a fair evaluation of the results obtained, since our judgment as to whether the psychiatric changes observed in an individual patient could or could not be attributed to the medication was predicated not only on a study of his behavior charts and formal mental status records but also on previous experience with each patient and close contact with him during the period of his treatment. One general observation, nevertheless, deserves mention. The six patients in our series who derived benefit from the medication were below the age of 30, and four of them had been suffering from the first occurrence of a retarded-aphathetic state. The problems raised by these observations are at present being studied in a larger series of cases.

⁵ One other death has been reported by J. C. Geiger (J. A. M. A. 101: 1333 [Oct. 21] 1933).

SUMMARY AND CONCLUSIONS

The pharmacologic and psychotherapeutic effects of sodium dinitrophenol were studied in eighteen patients whose psychobiologic status was characterized by sluggishness, passivity and apathy. In therapeutic dosage the drug caused a mean rise of 32.9 ± 3.31 per cent in the rate of oxygen consumption and a mean weight loss of $9\frac{1}{100}$ pound (417 Gm) per week. Toxic effects occurred in five cases and were characterized by a fall in blood pressure, tachycardia, acidosis, progressive stupor, and one death. Indeterminate or adverse psychotherapeutic effects were observed in eight and four cases, respectively, while six patients showed a definite improvement in their mental state apparently attributable to the medication. Dinitrophenol is therefore unpredictably toxic to some patients, but its careful administration may be of empirical benefit in certain types of recent and insecurely established psychobiologic underactivity.

NORMAL SLEEP PATTERN FOR
CHILDRENFACTORS WHICH DERANGE SUCH A PATTERN
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Sleep may be defined as a normal temporary loss of consciousness occurring periodically. During sleep the receptivity of the person to sensory stimulation is greatly diminished, but motor activity continues in an apparently automatic manner. There are several approaches to the study of sleep. Of these, the most commonly used in the past have been, first, investigation along the line of sensory response, as an example of which there are the experiments of Kohlschutter¹ and Michelson,² second, from the standpoint of chemistry, principally the work of Pieron,³ and third, the study of motor activity during sleep based on the reported work of Karger,⁴ Renshaw,⁵ Guttman,⁶ Mullin⁷ and Cooperman.⁸ In the present study I have used the latter method of study, namely that of motor activity during sleep. I have adopted this method because I agree with Sherman,⁹ Renshaw⁵ and others that an observer cannot tell with any sufficient degree of accuracy whether a person is awake or asleep at any given instance. I know of no method so far evolved of determining the exact moment at which a person is definitely asleep or at which moment he first awakens. I believe with Johnson and Weigand¹⁰ that an accurate record of all movements made by a person after retiring is the most

accurate index as to the character of that particular person's sleep. I further believe that no healthy person can return to the awakening state from sleep or be awake and remain in dorsal decubitus for more than a very short time without rearranging his position. I assume, therefore, that the depth of sleep is inversely proportional to the amount of sleep movement and I concur with Kohlschutter's¹ observations that the soundest sleep is reached within the first and second hour after retiring. For these reasons, such descriptive terms as "asleep" and "awake" are unsatisfactory, certainly from a standpoint of scientific investigation.

This paper is presented as a study of the sleep of twenty-eight children, aged from 9 to 14 years, equally divided as to sex, over a period of 364 nights. I have records of 8,736 child nights, or 78,624 hours, or 4,717,440 minutes, of sleep. My observations were begun in February, 1932, and may be completed during the present summer. This paper is presented as a preliminary report. In a study of sleep recorded by an instrument of precision, one is at once impressed by the number of variable factors that may disturb sleep. When one studies the various influences, such as noise and quiet, light and darkness and heat and cold, one has mentioned only a few of the factors that enter into the production of, or into the interference with, sleep, many of which are, of course, beyond one's control. In these studies an effort has been made to control these extraneous factors as thoroughly as possible. The sleep laboratory is located miles from a railroad or public thoroughfare, so that noises are reduced to a minimum. All of the children studied had identical beds, springs, mattresses, pillows and bed clothing. Barometric readings were made twice a day at the same hours, changes in temperature were noted by a continuously recording thermometer.

What happens when an individual or a child, goes to sleep? Does he go into a state of suspended animation and remain entirely motionless, or do the voluntary muscles contract in sleep just as the involuntary muscles continue their activity? If a child moves in his sleep does the movement vary from hour to hour and from night to night? Cannot these movements be observed and recorded in a definite sleep pattern for a child? Would this sleep pattern differ in children of the same and opposite sex? Does sound sleep mean quiet sleep? Does a child feel as refreshed after a night in which the sleep movements have been frequent, as when the sleep movements have been infrequent? What are the effects of the emotions on sleep? What is the effect of the various hypnotics on sleep? Are sleep movements affected in disease? What are the effects of the various physical agents on sleep? All of these questions, and many more, seem fit subjects for controlled investigation.

For the first three months of the investigation on sleep the data were obtained by direct visual inspection of the sleepers. Two night nurses were assigned to this duty, they noted any change of position of the children under observation. It seemed best to limit observations to change of position, as many minor movements eluded detection. A form using symbols for the various positions of the body was arranged for this, so that the nurse could rapidly fill in the night's observations and transcribe them the following morning. With this method it early became apparent that only a small part of the picture was being obtained. Therefore I began to use the electrically recording hypnograph.

Read before the Section on Pediatrics at the Eighty Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

Because of lack of space the article is abbreviated in THE JOURNAL by the omission of some of the illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

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METHOD AND APPARATUS FOR RECORDING
SLEEP MOVEMENTS

The machine used for recording sleep was originally described by Renshaw⁵ and Weiss in the *Journal of Psychology* in 1926. In brief, the principle involved is as follows: The bed mechanism attached to the bedspring consists of a perpendicular piece of metal containing alternate inserts of bakelite and brass. A small brass wheel travels up and down this piece, which makes or breaks an electric contact with the slightest movement of the person occupying the bed. This contact is conducted through cables into an adjoining room in which is placed the hypnograph itself. The hypnograph consists of a battery of twenty-four stylus pens (one for each bed) which write on a uniformly traveling roll of paper, 8 inches (20.32 cm.) broad. Two colors of ink are used in the pens, one for the male and another for the female subjects. As this paper passes under the pens, it is stamped electrically by a timer at one minute intervals, so that at the end of a night's observations this can be ruled out sixty minutes to the hour and each body movement accurately recorded, minute by minute, for the entire nine hours or 540 minutes that the subject is in bed. As the contacts are made or broken by the bed mechanism, electromagnets on each pen of the hypnograph make offsets from the base line on the record. Beside the hypnograph are relay boxes so arranged that if the circuit through any bed ceases functioning properly, the signal lamp will light and remain burning until the condition is corrected. Thus should a subject leave his bed for any purpose during the night, the relay lamp will at once notify the operator of this fact.

At the beginning of the work each child who was to be studied was given a physical examination and such laboratory tests as urinalysis, complete blood count, blood pressure, electrocardiographic tracing, basal metabolic rate, examination of the stool and the like. At this initial examination all foci of infection that were found were removed. Likewise, the children with organic defects were excluded from this group.

At the end of each night's observations the active minutes that is, any minute during which a sleeper makes any movement are counted hour by hour, and recorded for each of the

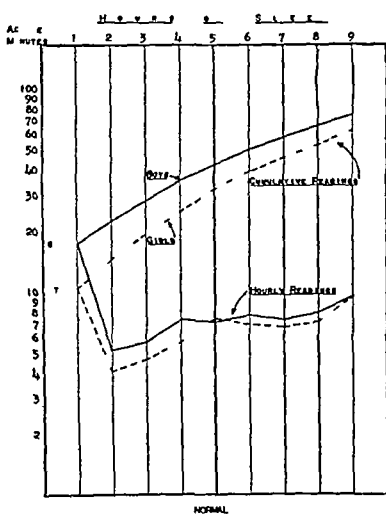


Fig. 13—Curves of sleep of twelve male subjects compared with twelve female subjects

a period of fifteen consecutive nights as registered by the hypnograph.

It is quite apparent that while certain evidence is gotten by observation alone, it is by no means as accurate or complete as when the movements are recorded electrically. For example, to date I have graphic records of about 78,624 hours of sleep, and the highest period I have found of any person sleeping without any body movement is 107 minutes (one hour and forty-seven minutes).

These observations of sleep movements in health are based on a study of 3,240 hours of normal sleep. Except in a very general way no two persons have the same sleep pattern. It is known that the first hour of sleep is the most active hour, and the next most active is the last regular hour of sleep. I can go further than this and say that the most active part of the night is the first thirty minutes after retiring, and the most quiet part is the second thirty to forty-five minutes. For example, if a person is in the habit of retiring at 10 p. m. and

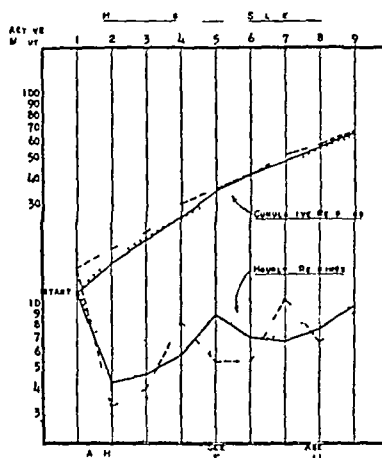


Fig. 14—Effect of warm water and cold water on the sleep pattern. The continuous curve is for normal sleep, the broken curve for sleep after the drinking of warm water, the dotted curve for sleep after the drinking of cold water.

of getting up at 7 a. m., he will show more activity—more sleep movements—between 10 and 11 p. m. and 6 and 7 a. m. than any other two hours of the night. Aside from this, generalities cease, and what is quite normal for one person may be distinctly abnormal for a second person, on the assumption that both are in normal physical condition. This variability of sleep patterns is equally true for males and females.

The graphs are all plotted on ratio paper. The hours of sleep are listed at the top of the graph with a scale showing the active number of minutes to the left of the graph. The lower limb of the graph shows the body movements, hour by hour, of the person under observation, the upper limb of the graph is a summation of the minute movements throughout the night.

Among the twenty-four children studied, the greatest variation in the normal sleep pattern was found in the male subjects. The most active boy studied showed an average of 110 active minutes of sleep during the night, while the most quiet one showed an average of only 53 active minutes, both over a period of fifteen consecutive normal nights. Figure 13 shows fifteen consecutive normal nights of sleep in male subjects as compared with those in twelve female subjects. It is seen that females are sounder sleepers than males, they not only get to sleep more quickly but sleep more quietly throughout the night. This substantiates observations by Ladame.¹¹ His conclusions, however, are based on direct observations, without recording apparatus and therefore are probably not so reliable.

If the entire group of twenty-four children is arbitrarily divided into three groups, based on their activity during sleep, the following facts seem to be true. Suppose the group averaging from fifty to sixty active minutes per night are called "quiet sleepers," the group between sixty-one and eighty-four active minutes per night "average sleepers" and the group between eighty-five and a hundred active minutes per night "restless sleepers." With this division, five children, or 20.8 per cent, will fall in the quiet group, sixteen, or 66.6 per cent, in the average group, and three, or 12.5 per cent, in the restless group. It is interesting to know that the

¹¹ Ladame, C. Du sommeil et de quelques unes de ses modalités chez les aliénés. *Schweiz. Arch. f. Neurol. u. Psychiat.* 13: 371, 1923.

children who were "restless sleepers" will move approximately two and a half times more in the first hour than the children who were "quiet sleepers." Furthermore, it is believed that after getting even a few nights of normal hypnograph records, a child can be definitely rated as to type of sleep. From observations with normal children, sleeping under controlled conditions, it can be stated that a child who is a "quiet sleeper" remains a "quiet sleeper," and that a child who is a "restless sleeper" will remain restless from week to week, month to month and season to season.

I shall present in this report principally the effect on sleep of various physical factors, namely, beverages, food, baths and weather temperature.

THE EFFECT OF CERTAIN BEVERAGES ON SLEEP

It has long been accepted that the drinking of certain beverages on retiring induces sleep. The taking of warm milk on retiring, more especially by neurotic persons, is a time-honored form of therapy. I thought that it might be interesting, therefore, to test the ingestion of warm milk and other beverages on retiring and determine by hypnographic observations just what effect this would have on sleep. This experiment was done on twelve normal children selected because it is believed that in children any psychic factor can be disregarded. Should any changes be noted in the children's sleep, would similar changes have been observed had the child taken cold water, warm water or any one of a number of other beverages? Therefore, in the first experiment, to the series of children mentioned 6 ounces (178 cc) of cold water was given on retiring, and the children were in bed and the lights were out at 8:30 p.m. This was repeated on five consecutive nights. Following this, warm water in a like amount, given at the same time, was repeated for five consecutive nights. From a study of these series it can be seen that the sleep movement was increased in some children, diminished in others and unchanged in the remainder. A typical example is seen in figure 14.

In making an estimate of the significance of the results obtained it seemed wise to adopt the biometric method which is widely used, namely, that of calculating the probable error. In explanation of the meaning of the probable error, it can be stated that it has been practically a universal custom among biometric workers that the difference (or constant) which is smaller than twice its probable error is probably not significant whereas the difference (or constant) which is three or more times its probable error is either "certainly" or at least "almost certainly" significant.¹² In the case of the experi-

ments with warm water the difference in the number of movements before and after the experiments was less than three times the probable error in 83 per cent of the children, was greater in the same percentage of children, and was less than twice the probable error in 83.3 per cent of the children. On nights on which cold water was received, there was decreased activity in 16.7 per cent of the children and an increase in 25 per cent, and in 58.3 per cent of the children there was no effect noted whatsoever. A similar experiment was done with 6 ounces of warm milk given on retiring to twelve normal children on five consecutive nights. From a study of the results obtained it can be seen that the sleep movement was increased in some children, diminished in others and unchanged in the remainder. Comparison of the action of warm water and warm milk is shown in figure 15. From the standpoint of the probable error it was seen that in 41.7 per cent of the children the activity was diminished, movement was increased in 83 per cent, and in 50 per cent there was no change noted whatsoever. A further experiment was done in which twelve normal children received 6 ounces of a cold caffeine-containing beverage on consecutive nights, the beverage containing approximately $\frac{3}{8}$ grain (0.03887 Gm) of caffeine and 20 Gm of sucrose to 6 ounces. Deductions made after estimating the probable error in this series showed that there was less activity in none of the children, in 18.2 per cent of the children there was an increased activity, and in 81.8 per cent there was no effect noted. A concluding experiment using 6 ounces of orangeade containing 20 Gm of sucrose was given to twelve normal children on consecutive nights. Deductions after determining the probable error in this series showed that there was less activity in none of the children and an increased activity in 18.2 per cent, and in 81.8 per cent there was no effect noted whatsoever. Figure 16 shows the comparative sleep patterns after receiving orangeade and cold caffeine-containing beverages as compared with the normal.

It is rather difficult to interpret these results. It seems fair to conclude that warm milk has a definite ability in lessening the number of sleep movements in normal children. Why there is increased sleep movement in the series receiving cold water greater than in the series receiving orangeade and cold caffeine-containing beverage is not understood. It would seem fair to conclude that if the restlessness was due to an increase of urination as a result of the intake of fluid on retiring, it should be the same in both instances, as the amount of fluid was identical in each of the five series. These observations are based on a series of sixty child nights, and it is possible that obtaining a

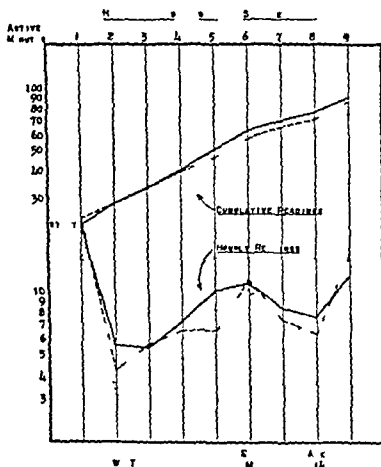


Fig. 15—Effect of the drinking of warm water and warm milk on the sleep pattern. The continuous curve is for normal sleep, the broken curve for sleep after the drinking of warm water, the dotted curve for sleep after the drinking of warm milk.

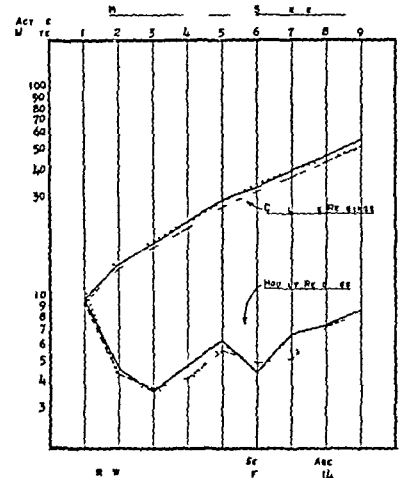


Fig. 16—Effect of the drinking of orangeade and a cold caffeine-containing beverage on the sleep pattern. The continuous curve is for normal sleep, the broken curve for sleep after the drinking of orangeade, the dotted curve for sleep after a cold drink.

¹² Pearl Raymond, *Introduction to Medical Biometry and Statistics* (Philadelphia: W. B. Saunders Company, 1923).

larger number of observations might change these figures to some degree

THE EFFECT OF A HEAVY MEAL ON A CHILD'S SLEEP

This experiment was done on a series of twenty-four children in order to determine what might be the effect on sleep of the taking of a heavy evening meal. Dinner was served at 6 30 p. m. and the children retired at the usual hour of 8 30 p. m. The meal was made up of comparatively plain food of considerable variety, and the children were allowed to eat as much as they wished, which in all instances was a considerable amount. The meals were not given on consecutive nights, but at intervals and consisted of a fruit course, then a meat, such as steak or turkey, several vegetables, including both green and starchy, and dessert, such as apple pie or ice cream and 1 ounce (28.35 Gm.) of candy. From a study of these experiments sleep

baths (temperature of the water, 60 F.) to the same subject on different nights. Twenty-four children were used in the observations. The child remained in each type of bath the same length of time, and the baths were completed five minutes before being put to bed, the lights were extinguished at the usual hour, 8 30 p. m. From the data obtained it can be seen that in some children activity was greater than normal after either type of bath. In some children warm baths seemed to have a quieting effect on sleep while in others cold baths resulted in an equal lessening of activity. The giving of baths to some children seemed to have no effect whatsoever either in increasing or in decreasing sleep movements. A typical example is seen in figure 18. Using the absolute values as established, it can be concluded that baths irrespective of the temperature, have no constant effect either in the production of or in the interference with, sleep in normal children.

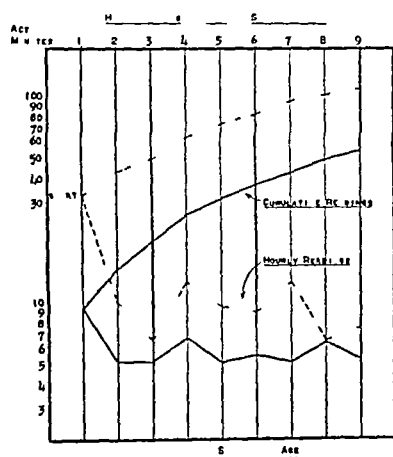


Fig. 17—Effect of a heavy meal on the sleep pattern. The continuous curve is for normal sleep; the broken curve for sleep after a heavy meal.

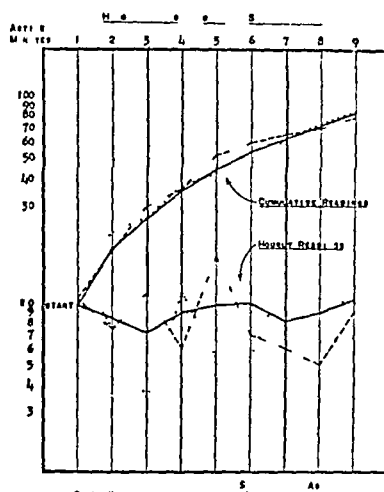


Fig. 18—Effect of a warm bath and a cold bath on the sleep pattern. The continuous curve is for normal sleep; the broken curve for sleep affected by a warm bath; the dotted curve for sleep affected by a cold bath.

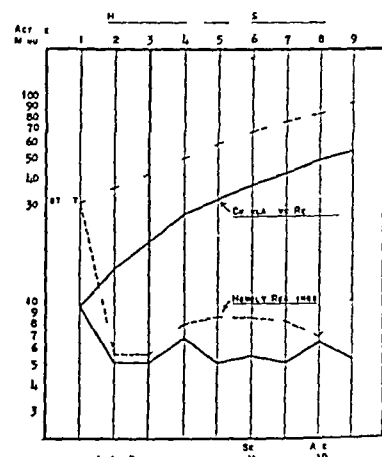


Fig. 19—Comparison between cold and warm weather normals. The continuous curve is for cold weather; the broken curve for warm weather.

motility was found to be definitely increased in twenty-three of the twenty-four children. A typical example is shown in figure 17. From the absolute values as shown on the graphs it was seen that in only one child was the sleep pattern unchanged. And while it cannot be said that all cases showed an increase in sleep movements greater than the probable error, yet a very high percentage of the children showed a much greater increase in movement than was seen after any of the experiments with a beverage. This increase in restlessness was especially noticeable in the first hour after retiring, for in only one instance did sleep motility in the first hour approach normal. Activity was much less marked in the second hour than in the first, but in eleven of the twenty-four children motility was still above normal. In many curves the increased activity continued throughout the night. It is concluded from these records that the ingestion of a very large evening meal may be a disturbing factor in normal children's sleep.

THE EFFECT OF BATHS ON CHILD SLEEP

Another procedure often used to induce sleep is the administration of warm baths on retiring, and an experiment was done to determine to what extent sleep motility might be influenced by giving not only warm baths (temperature of the water, 102 F.) but also cold

THE EFFECT OF WEATHER TEMPERATURE ON A CHILD'S SLEEP

An interesting series of experiments was done in order to determine the possible effect of the temperature of the weather on children's sleep. The normal sleep curve that heretofore has been quoted in the experiments mentioned was made during a period of cool or cold weather. This normal might be referred to as winter normal, since the minimum temperature during the period observed was 28 F., and the maximum temperature was 44 F. A warm weather normal was determined using twenty-four children over a like number of nights as the winter normal. During this period the temperature fluctuated from a minimum of 60 F. to a maximum of 84 F. The average temperature during the period, both day and night, was well above 70 F. Of the twenty-four children observed, only one child slept quieter during the hot weather. Fourteen had increased restlessness, and in nine children there was no effect. Considering these figures from a standpoint of probable error, it was found that 42 per cent of the children were less active, 58.3 per cent were more active, and in 37.5 per cent there was no appreciable effect on sleep. A typical example is seen in figure 19.

Attention is drawn to the fact that a normal child has a definite sleep pattern. His activity, once established, will practically always follow the same pattern. It is only when his sleep is disturbed by disease or when he is put under such experimental conditions as to affect his sleep that this pattern changes. Even under experimental conditions, the sleep pattern follows the same general outline, increasing or decreasing in activity as the case may be.

CONCLUSIONS

It is believed that the following conclusions may be drawn from these facts:

1 A child has a definite sleep pattern. This pattern is rarely disturbed except through sickness or certain experimental conditions.

2 The drinking of 6 ounces of warm milk at bedtime seems to produce quiet sleep in normal children. Of the other beverages tested, none seems to affect sleep consistently, one way or the other. The drinking of a beverage containing $\frac{3}{8}$ grain of caffeine produces no more restlessness than was seen after the drinking of an equal amount of orange juice.

3 The taking of a large amount of food at the evening meal, even though the food might be considered plain food, resulted in marked restlessness. In many cases the restlessness continued throughout the night.

4 The giving of baths either warm or cold, on retiring seems to have no constant effect either in the production of, or in the interference with, sleep in normal children.

5 A child sleeps definitely quieter in cold weather than in hot.

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ABSTRACT OF DISCUSSION

DR M LIVES ROBERTS, Atlanta, Ga. Why we fall asleep remains an unanswered riddle. The study of sleep, except in its grosser aspects, is so elusive we must be content with the investigation of certain of its physical manifestations and physiologic accompaniments in the hope of ultimately arriving at its essential features. The very multitude of theories which have been advanced speaks for their inadequacy. Most of these are now of historical interest, a few seem sufficiently comprehensive to encompass the known facts of our behavior and physiology during sleep. The essayist has brought to us the study of the measurement of muscular activity during sleep which may be accepted as a measurement of the depth of sleep. His work has been done with great care and precision. His studies of the normal sleep pattern seem sufficiently extensive to establish definitely certain general principles. Although motor activity during sleep cannot possibly give the whole picture of this intricate problem it is probably the most accurate method available at present for the investigation of the depth of sleep and the effect of physical agents on the sleep pattern. If his conclusions are correct that the so-called sleep pattern of the individual child is constant and unchangeable except when influenced by physical agents, the thought presents itself that probably such patterns are determined by the nervous make-up of the child—his spasmogenic aptitude. Many questions present themselves. What, for example, is the behavior of the various groups of children during their waking hours? Are the restless sleepers nervous high-strung children by day? What relation, if any, exists between the child's sleep pattern and his body build? Does the thin wiry child fall in the restless group while the average or overweight child belongs to the quiet group? What influence does heredity play? Does the high-strung nervous parent beget a restless sleeper? The essayist has given us much interesting data, some of it rather upsetting our preconceived notions concerning the effect of certain physical agents on sleep.

DR C LLYSEN MOORE, Portland, Ore. I should like to know whether a careful study has been made of the effects of

ovaltine on children. Cases of what we call "ovaltine nervousness" are reasonably frequent in our practice. This may, of course, be an allergic reaction to one of the elements in ovaltine. We occasionally find children who are allergic to chocolate in any form. Ovaltine for some reason appears to be a most common offender. Have others had a similar experience?

DR CHARLES GLENVILLE GIDDINGS, Atlanta, Ga. I cannot answer Dr Moore's question. I have never studied the matter and do not have any information about it.

HYPOCALCEMIA

ITS RELATIONSHIP TO MIGRAINE

G F NORMAN, M D

EUREKA, CALIF

Cases of idiopathic migraine are becoming fewer and fewer as various etiologic factors are being determined. The relation to allergy in a number of these unfortunate persons is well known and has been recently emphasized by Rowe.¹ The infectious factor, particularly as related to foci around the distribution of the fifth cranial nerve, also is well recognized. However, there exists an apparently unclassified group, and it is with this group that the present paper is concerned.

Observations over the past two and one-half years on patients with this complex, usually classified as migraine with respect to blood calcium determinations, have led to some interesting conclusions. It was first noted that a few of these patients exhibited degrees of tetany varying from very mild, almost imperceptible clinically, to very severe. Hyperventilation in a few very mild cases induced tingling of the extremities and occasionally a positive facial phenomenon. These conditions were quite constantly associated with low determinations of calcium in the blood. It is not assumed, however, that all cases of migraine exhibit these phenomena. As a matter of fact, cases of frank operative tetany that have been observed do not exhibit the characteristic migraine symptomatology.

Numerous cases are apparently associated with disease of the biliary tract. However, the failures of surgery on this system to relieve the unilateral headache are only too well known. The question is raised whether or not the biliary disturbance depresses the calcium regulating mechanism or, on the other hand, that the calcium disturbance per se favors pathologic changes in the biliary system. No attempt has been made in the present study to clarify this point.

For this complex I propose the term "migraine-tetanic syndrome" conforming to the idea that a degree of hypoparathyroidism exists and that the latter condition exists more frequently than is generally accepted.

The methods employed to estimate calcium in the blood were first the method of Tisdall² and more recently that of Roe and Kahn³ because of its simplicity.

Normals for each were established ranging from 10.5 to 11.5 mg for 100 cc of blood. This is practically confirmed by the recent work of Inskeep⁴ who employed calcium lactate in raising the calcium level.

Spinal fluid calcium representing the diffused fraction in the body has been estimated in a number of the

¹ Rowe A H. Allergic Migraine, *J A M A* 99 912 (Sept 10) 1932.

² (a) Kramer Benjamin and Tisdall F F. Simple Technique for the Determination of Calcium and Magnesium in Small Amounts of Serum. *J Biol Chem* 48 223 227 (Sept) 1921. (b) Tisdall F F. A Note on the Kramer-Tisdall Method for the Determination of Calcium in Small Amounts of Serum. *J Biol Chem* 56 439 441 (June) 1923.

³ Roe J H and Kahn B S. *J Biol Chem* 67 585 (March) 1926.

⁴ Inskeep L D. Etiology and Treatment of Migraine. *Northwest Med* 32 67 68 (Feb) 1933.

patients under observation in this series and found to parallel rather closely the total serum calcium. There has been no instance of nephritis or nephrosis with the possible exception of case 4, in which an albuminuria developed that disappeared with rest. The chemical reactions of the blood and spinal fluid, however, seem quite relevant, a low total serum calcium being accompanied by a correspondingly low determination in the spinal fluid, e. g., from 3.4 mg to 5 mg.

The close relationship of migraine to epilepsy⁵ has frequently been stressed in the past, and recently⁶ acidosis treatment has been instituted for the latter condition. Tetany is also an accompaniment of alkalosis together with low calcium ion values. Conversely acidosis increases the calcium ion concentration in the circulating blood. Observations have been made that epileptic attacks may be mitigated by the exhibition of calcium. This I have in a minor degree been able to confirm.⁷ On the basis of vascular contraction occasionally observed on the affected side in migraine, may one not assume the relaxing effect on the calcium ion?

Sterling⁸ observed a case in a boy of 9 years and makes the assertion that it is a question of cases of migraine complicated at times by a latent tetany, at times by crises of manifest tetany evolving at the height of attacks of migraine or quite independent of them. This, however, is not the impression gained by the present study, since it is felt that the two conditions are definite components of a definite syndrome.

Without entering into a discussion as to the mechanism of parathyroid function in relation to vitamin D, I assume that the latter may quite well substitute for the former in raising plasma calcium.^{2a} In this work both parathyroid extract and viosterol have been employed, but in most cases the latter because of its ease of administration. As previously observed, it is interesting to note that cases of operative tetany seen clinically do not exhibit the migraine syndrome. Consequently, the conclusion seems inevitable that in certain individuals a migrainous or convulsive tendency is held in check by the parathyroid glands by virtue of their power to maintain the proper level of serum calcium or by their apparently complementary factor, vitamin D.

In accordance with the work of Dragstedt,⁹ who observed that tetany could be induced by the ingestion of animal protein in parathyroidectomized dogs and inhibited by a diet of milk and bread, it was observed that an attack could be induced in a patient under treatment with viosterol by a diet high in protein value.

Objection has been raised recently to these studies¹⁰ in that mainly total calcium studies were employed and the diffusible fraction was not estimated. Parathyroid extract is known to increase both the diffusible and the nondiffusible fraction. It is admitted that in a given experiment "the total increase in the serum calcium after the ingestion of a calcium salt is due to an increase

in the diffusible calcium fraction alone, while the nondiffusible calcium remains unaltered throughout the experiment."¹¹ It will be observed in the cases cited and all those studied with the administration of viosterol that there was an increase in the total serum calcium. This increase has been assumed in the present study to occur in the diffusible fraction, since it has also been shown that this fraction is raised by ultraviolet irradiation of the body.¹² The same authors contend¹³ that tetany due to the alkaline shift in acid-base balance, viz., alkalosis shows no decrease in diffusible calcium and is probably not associated with a lowered ionization of calcium. The assumption is made that the diffusible and the ionized calcium are identical. According to Cantarow,¹⁴ this is by no means the case and as yet there is no entirely satisfactory method by which the concentration of calcium ionization may be determined, it probably depending on hydrogen, bicarbonate and phosphate ion concentration. Of the diffusible fraction, from 4.5 to 5.5 mg, according to various investigators, less than one half, namely, about 2 mg, exists in the ionized state.

The mechanism of action of parathyroid hormone and of vitamin D is naturally still speculative. It has been observed that vitamin D increases both the calcium and the phosphorus content of the blood in contradistinction to the former parathyroid, which causes, in conjunction with an increase in calcium, a primary drop in the phosphate value.

About seventy patients complaining of periodic headaches associated with nausea and vomiting have been studied and most of them have been improved by the oral administration of viosterol or the parenteral administration of potent parathyroid extracts. Naturally, many cases have been studied in which normal calcium values obtained and are not included here.

The following abbreviated typical case histories are cited.

CASE 1—J. J. N. a man aged 51, a meat cutter April 4, 1930, complained of recurring headaches, over a period of years, associated with vomiting. The attacks at this time were coming about every week. They lasted about one day. He was completely disabled from work at the time. Physical examination revealed no abnormalities except a slight tingling of the hands on hyperpnea. The urine and hemoglobin were normal, the blood Wassermann reaction was negative. The patient was given viosterol, three drops three times a day, with complete relief. He reported two years later that no more attacks occurred as long as he took the drops.

CASE 2—H. M. Z. a man aged 42, a farmer, April 15, 1929, complained that as long as he could remember he had had recurring headaches in the region of the right eye, associated with nausea and vomiting. The pain was occasionally generalized all over the head. There was marked photophobia during the attacks, with paresthesia of the hands and forearms but no cramping of the muscles. The family history revealed the same symptom complex in the mother. Physical examination revealed infected teeth which were removed. Roentgenologically the gallbladder was found to fill poorly and to empty slowly. There was no relief from the removal of foci of infection, and from the institution of a carefully studied diet with a view to the elimination of offending proteins. The blood calcium was 7.5 mg. The patient was given viosterol 4 drops three times a day. He reported a few months later that his headaches were absent as long as he took the medicine but reappeared when he discontinued it. The blood calcium

5 Bisgaard A. Parathyroid Gland and Epilepsy. *Acta med Scandinav.* 61: 433 (Jan.) 1925. Longo V. Potassium and Calcium Content of Blood Serum in Normal and Epileptic Subjects. *Boll. d. Soc. ital. di biol. sper.* 3: 112-114 (Jan.) 1928. Najera Vallejo. *Epilepsy*. J. A. M. A. 95: 1277 (Oct. 25) 1930.

6 Peterman M. G. The Ketogenic Diet in Epilepsy. *J. A. M. A.* 84: 1979 (June 27) 1925. Dennig H. Acid Treatment of Epilepsy. *Deutsche Ztschr. f. Nervenh.* 103: 275 (May) 1928.

7 Calcium studies are available in one case of operative parathyroid tetany which finally terminated in death because of poor cooperation on the part of the patient. There was no heredity suggesting epilepsy, but the condition gradually progressed in severity. At first only slight spasms were present. These became associated with unconsciousness at a late date, the patient finally succumbing in typical status epilepticus. The serum calcium here normally read around 5 mg per hundred cubic centimeters.

8 Sterling M. W. *Rev. neurol.* 2: 485 (Sept.) 1928.

9 Dragstedt L. R. *Am. J. Physiol.* 77: 296 (July) 1926.

10 Greenberg D. M. and Gunther Lewis. *California & West Med.* 39: 206 (Sept.) 1933.

11 Greenberg D. M. and Gunther Lewis. Diffusible Calcium of the Blood Stream. *Arch. Int. Med.* 50: 855-875 (Dec.) 1932.

12 Clark Janet H. The Effect of Ultraviolet Light on the Conduction of Calcium in the Blood. *Am. J. Hyg.* 3: 480-482 1923.

13 Greenberg D. M. and Gunther Lewis. Diffusible Calcium of the Blood Stream in Tetany. *Arch. Int. Med.* 47: 660-673 (April) 1931.

14 Cantarow Abraham. *Calcium Metabolism and Calcium Therapy*. Philadelphia: Lea & Febiger 1931. p. 40.

was again determined while viosterol was being taken and found to be 95 mg

CASE 3—Mrs J A H aged 28, a housewife, March 5, 1932, complained of headaches of increasing severity, always localized around the right temple and eye, associated with nausea and vomiting and of definite periodicity. At times the feet would become cramped severely. There was no family history of migraine. Physical examination revealed essentially nothing abnormal. There were no discoverable foci of infection and the usual laboratory tests were negative. There was apparently no eyestrain and I was assured that her glasses were properly fitted. Elimination diets were likewise instituted without effect. The blood calcium during an attack read 65 mg. Ten units of parathyroid extract was administered as soon as the determination was made, supplemented by 10 drops of viosterol three times a day. There were no headaches until two months later. At this time the patient had also become pregnant and had partaken of a heavy meal of venison. Bread, milk and fruit juices were reinstituted and the attack passed off readily, the patient reported that the headaches "were not nearly what they used to be." Shortly thereafter the blood calcium read 12 mg. Two months later, in which interval she had contracted influenza and had experienced high fever with pain in the head, she reported that this pain was entirely different from the old sick headache. The blood calcium rose to 15.99 mg, at which time viosterol was discontinued. She was subsequently delivered of a normal child and without further administration of viosterol remained perfectly well until July, 1933. A sick headache developed at this time and the same medication was reinstituted, again with relief.

Blood and Spinal Fluid Readings in Case 4

Date	Medication	Total Serum Calcium	Spinal Fluid Calcium	Symptomatology
11/15/33	None for four days	7.5	3.5	Headache nausea vomiting and mild carpopedal spasm
11/21/33	Viosterol 10 drops t i d	10.0		No headache or nausea slight muscle hyper irritability
11/25/33	Viosterol 10 drops t i d	9.11	4.64	Perfectly well blood pressure cuff readily induced paresthesia of arm

September 26 after the drug had been discontinued for fifteen days, a typical attack of migraine developed. The blood calcium was 8.6 mg and the spinal fluid calcium was 4.2 mg. Resumption of the usual medication in 5 drop doses has prevented further spells, but the patient reported recently a dull pain in the occipital region on stooping but none of the old disabling attacks. November 22 the blood calcium was 9.6 mg.

CASE 4—Mrs S A, aged 26 a nurse, Aug 13, 1932 referred by Dr J F W for thyroidectomy, complained of severe attacks of headache, nausea and vertigo which were worse with the menses, becoming more frequent and more severe, there was extreme nervousness tingling of the extremities and cramping of the calf muscles. Satisfactory determination of the basal metabolism could not be obtained, owing to extreme nervousness. The condition had existed since she was 10 years of age. The appendix and the gallbladder had been removed elsewhere in an effort to overcome the headaches. There was no history of food idiosyncrasy and no demonstrable foci of infection existed. Physical examination revealed a fine tremor of the hands and a small enlargement of the thyroid. The pulse was 120 and the blood pressure 220 systolic 130 diastolic. The Chvostek sign was slightly positive as was also Trousseau's. Hyperpnea induced marked tingling of the extremities. A diagnosis of hyperthyroidism and hypoparathyroidism was made and a partial thyroidectomy performed without serious reaction. The patient's nervous condition was improved, the blood pressure receded to 164 systolic 120 diastolic and the pulse to 76. However the headaches and vomiting continued unabated and were of such severity as to require large doses of morphine to control them. The blood calcium was found to be 7.6 mg. This was taken during a particularly severe paroxysm of pain which was the first real attack that I observed. At this time

the patient complained of numbness everywhere and exhibited carpopedal spasm. Parathyroid extract, 20 units, was immediately administered, with dramatic relief. This was supplemented with 10 drops of viosterol three times a day. She was able to return to work in two days and reported complete cessation of the head pain and nausea. After about one month the dosage of viosterol was reduced to 7 drops, which promptly resulted in a mitigated attack. Ten drops was immediately resumed and, in addition, parathyroid extract 10 units every other day for eighteen doses. This again resulted in complete relief. The latter medication was administered elsewhere and no chemical determinations were available. An attack of albuminuria with hypertension compelled her to resort to bed rest and a restricted diet. Nov 15, 1933 after interruption of viosterol for four days, the headaches and nausea associated with mild carpopedal spasm recurred. The blood pressure readings had receded to 156 systolic, 90 diastolic, and examination of the urine revealed no pathologic changes.

The blood and spinal fluid readings in the accompanying table seem very significant, revealing a symptomless case with the chemistry of calcium approaching normal.

CASE 5—R K, a schoolboy, aged 12 years, May 16, 1932, complained of irregular respiration on falling asleep cramping of the hands and feet, and a severe boring pain in the region of one eye or the other associated with nausea and vomiting, all coming in definite attacks. A severe attack of scarlet fever six months prior to the present illness was followed by tonsillectomy. Headache was particularly noted when the patient awakened suddenly from a spell of apnea. Apnea was always followed by a period of hyperpnea. Physical examination revealed blurred disk margins in each fundus with some exudate on the vessels. Tingling in the extremities was readily induced by hyperpnea. The Chvostek sign was then positive. No other abnormalities were noted. Spinal puncture revealed clear fluid under normal pressure, the cell count showed 37 mononuclears and globulin strongly positive. The blood and spinal fluid Wassermann tests were negative. The blood calcium was 6.5 mg. Examination of the urine was negative. There was an immediate improvement when viosterol was administered. The attacks of irregular respiration ceased and there were no further headaches. One month later the blood calcium was 13.33 mg. Medication was discontinued without consent and the symptoms all recurred. A dosage of 15 drops was commenced again with relief. Calcium then read 12.5 mg. Despite medication after a period of complete freedom, the patient experienced a very severe spell and died in convulsions following a period of apnea.

The impression gained from this case was that the condition was chronic encephalitis complicated by a latent hypofunction of the parathyroids or that the type of respiration induced reduced the ionized calcium to the point of hyperirritability.

CASE 6—Mrs P E J, a housewife aged 63, complained, Oct 13, 1931, of attacks at night characterized by convulsions, cyanosis and loss of consciousness followed by deep sleep, all associated with severe one-sided headache but no nausea. The onset had been recent. She also complained of some cramping of the calf muscles and drawing in of the thumbs. Physical examination revealed some cardiac enlargement with a blowing systolic murmur. The blood pressure was 166 systolic, 110 diastolic. The usual laboratory tests all gave normal results and the blood calcium was 8.8 mg. Viosterol 3 drops three times a day, was administered and two months later the patient had experienced only one attack and felt much improved, with the calcium reading 9.6 mg. The dosage was then increased to 5 drops and in November, 1932, the patient reported that there had been only one additional spell, and that this was definitely followed by a right-sided headache but no nausea. Again she discontinued medication completely on her own initiative and in two weeks the symptoms recurred, again to be held in check only by resumption of medication. July 20, 1933, the blood calcium was 9.7 mg. September 20, after interruption of the drug for one week the blood calcium was 10.2 and the spinal fluid calcium 4.2. October 22, the patient reported one attack.

followed by a very severe right-sided headache despite the 5 drops of iosterol. The thumbs cramped vigorously and this was particularly noticeable previous to the spell. The blood calcium was 7.9 mg. Apparently in this case a larger dose was required, and this has been instituted.

SUMMARY

A number of cases of typical so-called idiopathic migraine have been studied with respect to blood calcium values, which have been found to be uniformly somewhat depressed. Six cases have been chosen at random, ranging from relatively mild to very severe, the last being associated with epileptiform convulsions. This entire group has been benefited by means taken to raise the values of calcium to normal.

CONCLUSIONS

1 It is assumed that symptoms of migraine and tetany are maintained dormant in this group by the calcium regulating mechanism.

2 One or the other complex may predominate. Whether unilateral headache and nausea with or without vomiting should be included in the picture recognized as tetany remains for further study.

350 E Street

Clinical Notes, Suggestions and New Instruments

THE USE OF SALYRGAN IN ONE PATIENT OVER A PERIOD OF THREE YEARS FOR RECURRING ASCITES AND EDEMA ASSOCIATED WITH CARDIAC FAILURE

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From the Cardiac Clinic of Emory University School of Medicine

Mercurials have been used as diuretics for many years. More recently salyrgan, an aqueous solution containing about 37 mg. (one-half grain) of metallic mercury to the cubic centimeter, has been used in treating patients with abnormal collections of fluid in the tissue or body cavities.

That mercury may be a renal irritant is a well known fact. Salyrgan, however, has been used repeatedly over long periods of time even in those with previously existing renal disease without untoward effects.¹ Occasionally patients are encountered who have an idiosyncrasy to mercury and reactions such as convulsions or anuria may occur. Only one such instance has been recorded in the literature,² and this patient made an uneventful recovery. Because of this very infrequent idiosyncrasy caution must be used in administering the initial dosage of this drug. It should be given first in 0.5 cc. doses intramuscularly. If no reaction occurs within forty-eight hours it may then be given in doses of from 1 to 4 cc. intravenously or intramuscularly.

The present case report is added to the literature to show that salyrgan may be used at frequent intervals over a long period of time without causing renal damage and that it may be quite efficacious in the removal of ascites and edema and thereby increase circulatory efficiency.

M. W., a native Negress, aged 19 years, was admitted to the Grady Hospital in May 1929. The diagnosis was rheumatic heart disease with mitral stenosis and an acute circulatory failure. She stated that she had experienced attacks of rheumatism all her life. The last attack of acute polyarthritis occurred six months before. Symptoms of cardiac failure first began three months before.

She was rather small and very dark and was in an advanced state of cardiac decompensation. There was moderate dyspnea and cyanosis. There was very little orthopnea. The peripheral

veins were distended. There was a moderate pitting edema of the lower extremities. The liver was about 6 cm. below the costal border, tender and pulsating. The abdomen was tense with ascites. The heart was considerably enlarged. A teleroentgenogram showed the supracardiac width to be 4 cm., the right margin 6 cm. and the left margin 12.5 cm. The total diameter of the chest was 28 cm. There was a systolic vibration at the apex. No definite thrills were detected. The apical first sound and the pulmonary second sound were accentuated. There was a harsh (grade 4) systolic murmur over the entire precordium but was best heard at the apex. In the left lateral position a mid diastolic murmur was heard at the apex. The heart rate was 120 per minute and the rhythm was regular. The blood pressure was 115 mm. systolic and 70 mm. diastolic. There was no evidence of arteriosclerosis.

There was 2 plus albumin in the urine and there were a few red blood cells and casts in the sediment. The phenolsulphonphthalein excretion was 60 per cent in two hours. The blood constituents were normal. The blood Wassermann was negative and the blood count was not abnormal.

The abdomen was tapped and 5 liters of straw-colored fluid with a cell count of 170 lymphocytes per cubic centimeter was withdrawn.

There was an irregular elevation of temperature, and blood cultures made on three successive days showed a growth of nonhemolytic streptococci. Positive blood cultures were never obtained again.

The patient remained in the hospital five weeks, the abdomen was tapped at weekly intervals, she was digitalized, and circulatory competence was finally established. During the next fourteen months there were thirteen admissions to the hospital for recurring cardiac failure and an abdominal paracentesis was necessary every seven to fourteen days, from 3,000 to 5,000 cc. of fluid being withdrawn each time. One year after her first admission to the hospital she developed another attack of acute polyarthritis. There was an irregular elevation of temperature for about five weeks and subcutaneous painful nodules occurred over the long bones. These appeared and disappeared within a period of forty-eight hours. Cardiac failure became marked even with complete rest in bed.

Treatment thus far had consisted of rest in bed, digitalis, sedatives, diuretics by mouth, and salyrgan at infrequent intervals. Abdominal paracentesis was necessary almost every week during the first year of her illness.

During the second year of the patient's illness the regular administration of salyrgan intramuscularly was begun in doses of 1 to 2 cc. at intervals of three to seven days. Diuresis was always prompt and profuse, about 5 liters of urine was excreted during the first eighteen hours after an injection. Preceding the injections with ammonium chloride in 1 Gm. doses did not increase the diuresis. After the regular administration of salyrgan was begun paracentesis of the abdomen was no longer necessary. Circulatory competence was greatly improved. During the second year of her illness the hospital admissions were reduced from thirteen to two and during the third and fourth years there was only one entry into the hospital. During the past three years she has been given 175 cc. of salyrgan. No abdominal paracenteses have been done during this time and her circulatory competence has been such as to allow the performance of light household duties.

A study of the patient's renal function after the prolonged administration of salyrgan shows no evidence of renal damage. There is now only a trace of albumin in the urine, no red cells are seen and only an occasional cast. The blood chemistry is within normal limits and the phenolsulphonphthalein excretion is 50 per cent in two hours.

Salyrgan has proved of inestimable value in removing ascites and edema and improving circulatory efficiency in this patient and no evidence of renal damage can be demonstrated after its continuous use for three years. We believe that it should be used more often for the removal of abnormal accumulations of fluid in the body tissues or cavities and that it may be used without fear of renal damage even in those with preexisting renal disease.

384 Peachtree Street, N. E.

¹ Wiseman, J. R. Prolonged Use of Salyrgan as a Diuretic. Report of 270 Injections in Five Year in One Case. J. A. M. A. 99: 114-115 (July 9) 1932.

² Andrews, C. P. Toxic Effects of Intravenous Salyrgan. Lancet 2: 131-132 (July 18) 1931.

A SKIN MANIFESTATION FROM THE EXCESSIVE
ADMINISTRATION OF VITAMINS

F F PFISTER MD WEBSTER S D

Skin eruptions of the eczematous type are not unusual in early childhood. Rashes at all akin to true eczema are classified as eczema, and the usual routine of local applications is followed with various manipulations of diet, it being accepted as a fact that the condition is an eczema without a doubt. I do not say that eczema is caused by excessive doses of vitamins but that certain cases which are classified with eczema are readily cleared up by the discontinuance of the vitamin with no local applications whatever.

The type of rash to which I refer may be described as a fine papular rash superimposed on an erythematous base, looking much like many of the early eczemas. I have not seen any that presented a weeping surface. The face has been the most common site for the eruption.

The causative factor may be a particular idiosyncrasy to vitamin solutions, but I believe it is due to an excess of vitamins. It has been noted chiefly since the use of concentrated vitamin solutions such as viosterol and halibut liver oil. I do not believe the excessive ingestion of fat need be considered, as the cases to which I refer had been treated with vitamin concentrate.

I think the impression prevails among medical men that vitamins can be given in any amount, almost with impunity. But I believe that as more and more is known about vitamins it will become obvious that they too have their limitations. Until a definite measuring stick is found to outline the limits of vitamin dosages, this possible source of some of the difficulties must be kept in mind.

I shall report here only two cases which to me are striking examples of a skin manifestation from the excessive administration of vitamin. I am exceedingly familiar with the first case to which I refer, as it occurred in my own family.

CASE 1—F P, a boy, aged 11 months, had progressed nicely and enjoyed normal growth and development. In addition to his diet he had been given cod liver oil, 3 teaspoonfuls a day. His skin was perfectly clear and there had been no eruptions. When the patient was 11 months old, halibut liver oil with viosterol was started in place of cod liver oil. I noticed on the fourth day after the oil was started that there was an eczematous eruption, very fiery red and with a papular rash showing through the reddened area. At this time I questioned about the various articles of diet there had been no deviation, no change in soap or anything unusual except that haliver oil with viosterol had been given instead of cod liver oil. Further inquiry revealed that through a mistake the baby had received 3 teaspoonfuls of haliver oil with viosterol daily for the four days instead of a few drops as ordered. If I had been purchasing the haliver oil I would have noticed the error before the baby had had sufficient vitamin solution to blossom out in such a rosy eruption. The baby's uncle, a salesman of this preparation had supplied him with a liberal quantity of samples. The oil was stopped and without any treatment the rash cleared up entirely in a few days. He was not given any haliver oil or other vitamin solution for a couple of weeks, until my curiosity caused some experimentation. I again gave the baby 3 teaspoonfuls daily of haliver oil with viosterol and on the third evening the redness recurred and on the fourth day a full-blown eczematoid facial eruption appeared. It cleared again by the mere stopping of the oil. He was again put on haliver oil with viosterol, 15 drops a day and the skin showed no eruption whatever. However, about five months later with a clear skin in the interim he got hold of some gelatin capsules containing 3 minims (0.2 cc) each of haliver oil with viosterol, and as near as I could check up he had eaten twenty-seven capsules at one time. The next evening he again presented the eczematoid rash which cleared in a few days after removal of haliver oil from the daily regimen. Since I have exercised more caution in the amount of haliver oil given him he has had no eczematoid eruptions whatever. Nothing was noted in regard to the rest

of the body—no gastro-intestinal upset and no abnormal manifestations of any kind were noticed.

CASE 2—P S, a boy, aged 10 months the son of a minister, was brought to me with a skin eruption on the face, of two weeks' duration. It appeared to be much like an eczema—a papular rash over a reddened area. The baby's uncle, a druggist, had given calamine lotion and white tar ointment with absolutely no relief or clearing of the rash. Since I had been on the watch for these certain types of eczematous rashes, the first question I asked was the kind of vitamin solution given the baby. The mother answered that she had given the child cod liver oil until just a few days previously, when she had started the baby on viosterol giving 3 teaspoonfuls daily. The parents had also been the recipients of two large size bottles of viosterol, which had been given them and not purchased, and consequently there was a delay in noticing the error in dosage. The baby was taken off viosterol no local applications were given and within four days the skin was entirely clear.

These two cases, of course are the extreme both in dosage and in the severity of the rash. My experience with skin conditions associated with vitamin overdosage has prompted me to be on the lookout for this manifestation, and I have encountered many facial rashes of varying degrees of severity which have cleared up after the vitamin solution was discontinued and the dosage was later adjusted. I have reported these observations at a medical society and I have several letters from physicians in the nearby towns who had noted several cases that cleared up after the vitamin solution had been stopped or the dosage adjusted.

No attempt has been made to go into the theoretical causative factors concerned in this group of cases. A general belief among both the medical profession and the public is that large doses of vitamin preparations can be given without any deleterious effects. The observations in the cases reported will tend to refute this belief.

THE PROTECTION OF BODY CASTS BY CELLOPHANE

BERNARD N F COHN MD PHILADELPHIA

The adequate handling of children to prevent soiling of body casts presents a difficult problem even in orthopedic institutions where the nursing personnel is especially trained to care for such patients. In general hospitals one depends on a regimen of watchful waiting to cope with such a situation often without success. It taxes the patience of the surgeon who applies a satisfactory body cast only to find it so soiled in a few days that a new one is required. In order to obviate such altogether too frequent occurrences a simple and inexpensive means was sought.

Various methods for accomplishing this purpose are already in vogue the most common of which is shellacking the part around the perineal region or covering it with oiled silk. Neither of these is entirely satisfactory from the standpoint of time and expense involved. It has been found that cellophane affords the easiest and most inexpensive means to protect a cast.

After a cast has been trimmed and has set sheets of cellophane are cut to conform with the configuration of the perineal region. The edges are then held in proper position with adhesive tape. It is best to use sufficient cellophane to extend at least ten inches above the opening for the genitalia and for the same distance along the medial surface of the thighs especially in young children. This procedure can be executed easily by any nurse even without special training in the care of children in body casts.

The cellophane should be changed at least every other day, since exposure to moisture for longer periods renders it moldy and foul smelling.

It is not necessary to purchase sheets of new cellophane for this procedure. Today many articles are wrapped in cellophane and the wrappers may be stored in a dry place until needed. Cellophane covers from loaves of bread, for example serve adequately.

Special Article

INTRAVENOUS HYDROCHLORIC ACID IN THE TREATMENT OF DISEASE

More than thirty years has passed since Metchnikoff¹ proposed his now famous thesis of phagocytic immunity. The stimulus furnished by his work was of inestimable value to the subsequent rapid development of immunology, but the original views held by Metchnikoff and some of his followers have been modified in the light of more recent investigations. It is now generally appreciated that certain humoral factors are necessary even for the phagocytic reaction. As stated by Topley and Wilson,² "The views of the extreme 'cellular' school are obsolete in their original dogmatic form." Despite present teachings as to the complex nature of immune reactions, the principle of phagocytosis in the original restricted sense has enjoyed periodic recrudescence in its practical applications to therapeutics.

About five years ago, stimulated by the results of Hanes³ in the treatment of pruritus ani by the local injection of hydrochloric acid, Burr Ferguson⁴ of Montgomery, Ala., proposed the parenteral use of this therapeutic agent in other diseases. Ferguson⁵ wrote

For several years I had been searching for a better agent than various preparations of mercury, arsenic, quinin or vaccines, for the control of the white cells, the administration of which agents was frequently attended with much pain or a pronounced inflammatory reaction. In November, 1927, I had the good fortune to find this better agent for the stimulation of the phagocytes in hearing a discussion of pruritus ani and its treatment by the local injection of a 1:3000 solution of hydrochloric acid, by Dr. Granville S. Hanes of Louisville. Seven years before, the speaker said he had determined that pruritus was an infection and that he would attempt the elimination of the infecting organisms by the injection of this acid solution under the site of the foci of pruritus. Plates were shown of many cases of pruritus and prolapse of the rectum, before and after this therapeutic procedure, which left one in no doubt of its efficacy. Apparently the germs had been burnt up by their immersion in the acid solution and the manifestation of their presence were healed. Dr. Hanes, however, said that this purely local effect in no way explained the improvement he had seen in some of these patients who had eczema or wounds in other parts of the body, in which the clinical results were quite as good as at the site of the injection of the acid, and that he was utterly unable to explain these phenomena.

This talk of Dr. Hanes furnished the clearest confirmation of the truth of the generalization of Metchnikoff that "the one constant element of immunity, whether innate or acquired, is phagocytosis" that I had yet heard, and I knew that the agent for which I had searched had been found. For it was reported that there had been few reactions after the injection of very large quantities of this solution, and I further knew that such clinical results could only be seen with the accompanying marked stimulation of the white cells. Further it was fascinating to think of putting this normal reagent of the stomach into the body by its injection.

Determinations done in the City Venereal Clinic with a variety of infections the next day proved that the subcutaneous injection of the acid solution was immediately followed by an increase in the numbers of the white cells. During the

following days the expected clinical results were seen in a wide variety of infections. Any therapeutic procedure, however, is always attended with objections. With this procedure these complaints came from the patients, many of whom did not like the swelling or bumps that were left for several days after the subcutaneous injection of the acid. To overcome this untoward effect, the acid was injected intramuscularly. This procedure was too uncomfortable and could not be done more than about twice a week, and frequently a patient would be seen who really needed a more frequent stimulation of the phagocytes.

About two years ago, letters were exchanged frequently by the writer and Dr. Francis E. Park of Boston on the use of the hydrochloric acid in infections. In one of Dr. Park's letters he asked why the acid solution might not be injected intravenously. I could see no reason why it might not be done safely. So I took two Negro patients from the clinic, my assistant and myself, for the determinations, following the injection of 10 cc of hydrochloric acid in distilled water 1:1,500 with much benefit to the patients and no harm or inflammatory reaction to the controls. However, the following leukocytosis was not as well maintained as that after the intramuscular injection. This objection was trivial, however, as the cells could be much oftener stimulated. I am delighted to take this opportunity to thank Dr. Park for his question.

To use the hydrochloric acid intravenously one must overcome a number of inhibitions, first that acid cannot be put directly into the alkaline blood, for fear of the dreaded acidosis, secondly that one must use a specific poison or anti-toxin, for its particular effect against the infecting organisms, and, last that some allergic reaction may follow the injection of an acid.

The report in the foregoing pages shows that there is no danger in the injection of this acid into the blood stream. Further, that this intravenous injection of this drug that has been used since the time of Glaber as an aid to digestion, is altogether comparable to the intravenous use of mercury and arsenic in this generation. These drugs had been used for several hundred years by the mouth, or by injection, but one rarely hears of them in any way now. The promptness of the clinical results caused this change. The bismuthide, calomel and other mercurial preparations and the various preparations of arsenic did stimulate the white cells, but mercurochrome, metaphen and other intravenous injections with this same active principle were much more potent creators of hyperleukocytosis.

Following Ferguson's glowing reports⁶ of clinical recovery in practically every disease in which the new remedy was tried, enthusiastic support came from other physicians, several of whom apparently believe that they have found in this simple solution a long sought for panacea.

It would be surprising indeed if intravenous therapy of this sort, so assiduously and earnestly supported and promoted by reputable clinicians and by at least one manufacturer of solutions for intravenous use, should not long ago have been subjected to careful scrutiny by its proponents from the standpoints both of pharmacology and of immunology. Yet it appears that this new treatment was tried on human beings on a purely empirical basis and without known experimental background of any kind.

The idea of stimulating phagocytosis in the prevention and treatment of disease is not new. This problem

6 Ferguson Burr J. *Intrav. Therap.* 1:9 1932. *Clin. Med. & Surg.* 39:814 (Nov.) 1932.

7 Smith N. M. *Clin. Med. & Surg.* 36:388 (June) 1929. Salter W. M. *Am. Med.* 25:386 (June) 1930. Howell W. I. *Clin. Med. & Surg.* 39:683 (Sept.) 1932. Colby C. de W. *Southern Med. & Surg.* 94:264 (May) 1932. J. *Intrav. Therap.* 1:7 1933. Howell W. I. and Ferguson Burr M. *World* 51:238 (June) 1933. Case reports submitted to the editor by Burr Ferguson and by W. I. Howell. D. de Bezedits. Coyuca de Catalan Mexico. F. R. Clemson. Thornville Ohio. R. A. Douglas. Huntingdon Tenn. Burr Ferguson. Montgomery Ala. P. L. Gordon. Mount Savage Md. O. G. Harrington. Niagara Falls N. Y. W. I. Howell. Lexington Tenn. F. J. James. Paris Ill. J. W. Jervey. Greenville S. C. T. B. Taylor. Bastrop Texas.

1 Metchnikoff E. *Immunité dans les maladies infectieuses* Paris 1901.

2 Topley W. W. C. and Wilson G. S. *Principles of Bacteriology and Immunity* New York William Wood & Co. 2:632 1929.

3 Hanes G. S. *Clin. Med. & Surg.* 35:581 (Aug.) 1928.

4 Ferguson Burr. *Clin. Med. & Surg.* 35:563 (Aug.) 1928.

5 Ferguson Burr. *Am. Med.* 37:244 (April) 1931.

has been the subject of extensive investigation by a host of workers for many years

Mikulicz,⁸ for instance, thirty years ago, tried with indifferent success the effect of a number of substances on mobilization of leukocytes in peritoneal exudate in an attempt to protect the peritoneum against infection, a project more recently brought to successful consummation by Steinberg and Goldblatt.⁹

Gehrig¹⁰ in 1915 presented a detailed and comprehensive list of substances used by various observers including himself, which comprises a large portion of the active agents known to pharmacology and immunology. Curiously enough hydrochloric acid is listed among the agents found to be inactive in this respect.¹¹ True, reference to the original paper, published forty-five years ago, reveals that the acid was given by mouth and not parenterally, yet if Ferguson's thesis as to the mode of action of this agent on the acid-base equilibrium is correct, the acid should be quite as active orally as by any other route, as will be brought out later. While some of the substances used for this purpose do undoubtedly produce a mobilization of white cells in the blood stream, the work of Wright and Douglas¹² and of others has demonstrated that phagocytosis can occur only in the presence of the proper humoral factors ("opsonins").

Leukocytosis *per se* therefore does not necessarily mean increased resistance to disease. Wells¹³ has said "Many substances have been used to increase the number of leukocytes in the circulating blood in the hope of increasing resistance to infections, a result that does not seem to follow artificial leukocytosis with any recognizable uniformity."

To establish claims of therapeutic benefit through the agency of leukocytosis, it is necessary to demonstrate that mobilization of white cells actually occurs (and in the light of recent work, this is far more difficult than is commonly supposed),¹⁴ that extensive phagocytosis of the organism in question may take place,¹² that recovery occurs in treated animals or patients in substantially greater proportion than in parallel controls. This of course would not prove in any case that the leukocytes were entirely responsible for recovery but would merely indicate that there is a reasonable probability that they have aided in the improvement.

In evaluating the results claimed by Ferguson and his adherents, a number of pertinent questions must be answered:

1 What is the precise nature of the therapeutic agent, what is meant by "1 1,000" or "1 1,500" hydrochloric acid?

2 Does this solution actually produce leukocytosis? If so, by what mechanism?

3 If a leukocytosis is produced, is phagocytosis materially increased?

4 What, if any, dangers are involved in the intravenous injection of hydrochloric acid?

5 Do such injections have effects of possible therapeutic value other than the alleged stimulation of phagocytosis?

6 Is the clinical use based on adequate experimental evidence?

7 Is there satisfactorily controlled evidence of therapeutic benefit in clinical cases?

THE THERAPEUTIC AGENT

To describe a solution of hydrochloric acid as "1 1,000" is ambiguous. This may mean, for instance 1 part by weight of hydrogen chloride in 1,000 parts by weight or by volume of water, or 1 part by weight or by volume of a solution of concentrated hydrochloric acid (about 35 per cent by weight of hydrogen chloride) diluted to 1,000 parts by weight or by volume with water.

With but a single exception, a brief note by J H Hendren,¹⁵ no mention is made in the literature of the possible ambiguity involved in the statements of acid content. According to Hendren "one drop of C P hydrochloric acid in three ounces of distilled water will make the desired solution [1 1,500]" Apparently "1 1,500" in this case is intended to mean one part by volume of approximately a 35 per cent solution (by weight) of hydrogen chloride, made up to about 1,500 parts by volume with water. If such confusion exists among the proponents of this therapy, those interested in estimating its true status must necessarily meet with great difficulty at the outset.

In order to determine accurately the nature of the solution widely employed, the A M A Chemical Laboratory was asked by THE JOURNAL to examine specimens of ampules purchased on the open market. These were manufactured by the Loeser Laboratory, New York, active commercial proponent of intravenous hydrochloric acid. The A M A Chemical Laboratory reported as follows:

"LOESER'S INTRAVENOUS SOLUTION"

Original specimens of Loeser's Intravenous Solution, Hydrochloric Acid 1-1000 and Hydrochloric Acid, 1-1500 (Loeser Laboratory, New York) were submitted to the A M A Chemical Laboratory for examination at the request of THE JOURNAL.

The labels on the ampules for the respective concentrations bore the following statements:

Hydrochloric Acid
1 in 1000
10 cc Plus

A sterile solution of one part C P Hydrochloric Acid in 1000 parts of distilled water for injection purposes

Loeser Laboratory
New York

Hydrochloric Acid
1 in 1500
10 cc Plus

A sterile solution of one part of C P Hydrochloric Acid in 1500 parts of distilled water for injection purposes

Quantitative determinations yielded the following:

	Ampules labeled			
	1 in 1000	1 in 1500		
Per cent by weight of HCl found	0.0322	0.0216		
Gm of HCl found per liter	0.3209	0.2156		
Gm of HCl found per 1000 Gm of solution	0.3222	0.2164		
Minims of diluted hydrochloric acid U S P per 10 cc (based on upper and lower U S P limits)	0.47-0.52	0.31-0.35		
Per cent by weight of claimed contents for 1 liter of solution	(A) 78	(B) 69.9	(A) 78.6	(B) 70.5
(1 1000 and 1 1500 by volume respectively)				
Per cent by weight of claimed contents for 1000 Gm of solution	(A) 92.1	(B) 83.7	(A) 92.7	(B) 84.3
(1 1000 and 1 1500 by weight respectively)				

NOTE.—(A) This figure is based on a strength of hydrochloric acid of not less than 35 per cent by weight of HCl, as

1 Hendren J F Clin Med & Surg 39 815 (Nov) 1932

8 von Mikulicz J Arch f Klin Chir 73 147 1904
9 Steinberg B and Goldblatt H Surg Gynec & Obst 57 15 (July) 1933
10 Gehrig Ztschr f exper Path u Therap 17 161 1915
11 Pohl J Arch f exper Path u Therap 25 51 1889
12 Wright A E and Douglas S K Proc Roy Soc 72 357 1904
13 Wells H G Chemical Pathology ed 5 Philadelphia W B Saunders Company 1925 p 279
14 Shaw A F B J Path & Bact 20 1 (Jan) 1927

required according to the Report of the Committee on Guaranteed Reagents of the American Chemical Society

(B) This figure is based on a strength of 38.5 per cent HCl, indicated on the label of the product of a reputable manufacturer as the upper limit of HCl content

It will be noted that wide variation (e. g., 92.7 to 70.5) in per cent by weight of claimed contents is evident, depending on what strength of acid was used and whether or not the acid was diluted in proportion by weight or by volume. If the percentage of HCl in the concentrated acid was above 38.5, the percentage by weight of claimed content found present in the ampules would be still less.

It is to be noted that 10 cc of the solution in the 1,000 ampule contains the equivalent of about $\frac{1}{2}$ minim of diluted hydrochloric acid U. S. P., 10 cc of the solution in the 1,500 ampule contains the equivalent of about $\frac{1}{3}$ minim.

Not only, then, is there ambiguity in the statements of concentration in the literature, but the commercial solutions that were examined for *THE JOURNAL* appear not to contain the claimed amount of HCl, no matter on what basis calculated. It is not difficult to estimate the probable therapeutic effects of $\frac{1}{3}$ to $\frac{1}{2}$ minim of diluted hydrochloric acid U. S. P., which the A. M. A. Chemical Laboratory found to be the equivalents of the Loeser solutions.

PRODUCTION OF LEUKOCYTOSIS

It seems not unreasonable to demand that, in order to establish a claim for alteration in the level of the white cell count by a pharmacologic agent, the change must exceed the probable error of the method used for counting and must exceed also the maximum range of the variations that are known to occur in the normal individual from hour to hour during the day. In none of the material presented by Ferguson or by his colleagues is there a description of the method used for estimation of the cells, nor is there anything which indicates an appreciation of the large error inherent even in the most meticulous technic. Many of the alleged leukocytoses obtained by these clinicians fall within the usual error of counting (probably at least 10 per cent), others fall readily within the range of the large natural fluctuations demonstrated by Shaw¹⁴ to occur in normal persons, independent of food intake, exercise, sleep or body temperature. As reported by Piney¹⁶: "during the twenty-four hours, the total leukocytes of man exhibit two tides, each of about twelve hours' duration. The day tide begins in the forenoon, reaches its flood in the afternoon, and ebbs during the evening. The night tide begins in the evening, reaches its height in the hours after midnight, and falls away in the morning." According to Kolmer and Boerner¹⁷: "A count made during the afternoon may be 2,000 higher than one made in the morning." Shaw's work indicates that even a greater normal range is possible. There is no evidence in the literature examined that this important source of error was even considered by the proponents of intravenous hydrochloric acid.

As the reported changes in cell count following the acid injections appear in large part to tend in the upward direction, it seems not improbable although this is by no means definitely proved, that a leukocytosis of small magnitude actually does occur in some cases. But as stated by Jordan,¹⁸ "the production of

leukocytosis is in itself of little value unless at the same time the amount of opsonin in the blood, the specific opsonic index, is high enough to favor phagocytosis."

The published literature reviewed on intravenous hydrochloric acid does not reveal a single determination of the opsonic index.

It has been claimed that the acid mediates its effect through changes in the acid-base equilibrium of the blood. Analogy has been drawn⁵ between the effect of this treatment and the nitrohydrochloric acid treatment of allergic conditions proposed several years ago by Beckman¹⁹. Reference to the latter's work reveals that a dose of 0.6 cc of nitrohydrochloric acid (N. F. V.) was administered orally, properly diluted, four times a day, or a total daily dose of 2.4 cc. This is equivalent in acidity to about 8.9 cc of diluted hydrochloric acid, U. S. P., about 400 times as much acid as was found in 10 cc of Loeser's "1,500" hydrochloric acid, or about 270 times the amount in 10 cc of the "1,000" solution.

Whereas the quantity used by Beckman might conceivably alter the acid-base equilibrium, it is difficult to see how the quantities injected as the Loeser solutions tested by the A. M. A. Chemical Laboratory could have any appreciable effect on this balance. Any significant pharmacologic action of such a solution must be mediated through some other mechanism. If it were intended to cause a shift in the equilibrium toward the acid side, it seems surprising that the parenteral route should have been used at all, J. B. S. Haldane²⁰ and others have shown that it is quite possible to produce marked changes of this nature by the oral administration of ammonium chloride, for instance.

The "1,000" Loeser solution examined by the A. M. A. Chemical Laboratory is about 0.008 normal and the "1,500" about 0.006 normal. Not only are these solutions greatly hypotonic, which alone could result in hemolysis on contact with blood, but according to Ponder²¹ it requires only a 0.002 normal solution of hydrochloric acid to produce destruction of erythrocytes. It appears, then, that at least one irreversible change in the blood stream which such solutions produce is laking of red cells passing the immediate vicinity of the needle point during the injection. In addition, changes would probably take place in the wall of the vein itself and might set up noxious reflexes²². Essentially the same effects, but possibly to a somewhat lesser degree might be expected from the injection of distilled water.

More than thirty years ago, it was claimed by Gilbert and Herscher²³ that the intravenous injection of distilled water in a dog produced a marked and lasting leukocytosis. The quantity of water injected (21 cc per kilogram) was much larger than the amounts of hydrochloric acid solution used clinically by Ferguson and others, but the changes induced in the blood stream are no doubt similar and probably differ only in degree. As was pointed out in *THE JOURNAL*²⁴ some time ago,

19 Beckman H. Treatment in General Practice Philadelphia W. B. Saunders Company 1930 pp. 339-340.

20 Haldane J. B. S. Lancet 1: 537 (March 15) 1924. Possible Worlds Harper and Brothers New York 1928 Chapter XVII.

21 Ponder Eric. The Erythrocyte and the Action of Simple Haemolysins Oliver and Boyd Edinburgh and London 1924 p. 121.

22 Intravenous Injections—Loeser's Products Queries and Minor Notes J. A. M. A. 101: 544 (Aug. 12) 1933.

23 Gilbert and Herscher Compt. rend. Soc. de Biol. 54: 615 1902.

24 Treating Gonorrhea by Colloidal Mercury Sulphide and Intravenous Hydrochloric Acid Queries and Minor Notes J. A. M. A. 97: 1983 (Dec. 26) 1931.

16 Piney A. Recent Advances in Haematology ed. 2 Philadelphia P. Blakiston's Son & Co. 1928 p. 118.

17 Kolmer J. A. and Boerner F. Approved Laboratory Technic New York D. Appleton & Co. 1931 pp. 75-76.

18 Jordan E. O. Textbook of General Bacteriology ed. 10 Philadelphia W. B. Saunders Company 1931 p. 175.

the effect produced is in all likelihood that of a non-specific protein, as the result of liberation of the contents of erythrocytes. Probably the humoral mechanisms of defense would thereby also be stimulated in addition to the mild leukocytosis that appears to occur, but this is purely conjecture. If the effect desired is that of the acid itself, assuming that there is some valid reason for choosing the intravenous route, it would seem preferable to dissolve the hydrochloric acid in physiologic solution of sodium chloride, if the effect is to be that of a hypotonic solution, plain distilled water should do practically as well. It is not recorded that either was tried by the propagandists for this form of therapy.

In the report of a special committee of the Council on Pharmacy and Chemistry on the status of intravenous therapy,²⁵ it was cautioned "all solutions [for intravenous use] should conform as closely as possible to the reaction of the normal blood" and "solutions should generally be nearly isotonic with the blood."

CLINICAL EVIDENCE

The clinical reports encompass a variety of different diseases that include practically the whole field of medicine. It need only be said of the clinical evidence reported so enthusiastically by Ferguson and his followers that it is uniformly uncontrolled. The simple and necessary expedient of retaining in each case a group of control patients similarly afflicted was apparently not used by any of the authors. In not a few of the cases, other treatment was used about the same time. Occasionally this was even specific or non-specific protein therapy,²⁶ in others the results reported, while apparently good, are no better than often occur with other treatments or even spontaneously. It is therefore quite impossible to judge whether or not the intravenous hydrochloric acid was responsible for the claimed clinical improvements.

CONCLUSIONS

It may be concluded that

1 The hydrochloric acid solution recommended for intravenous use is described in such terms that it may be of indefinite and variable composition.

2 In commercial specimens of the acid sold for this purpose by one firm, the acid content is too low to have any significant effect on acid-base equilibrium but it is present in concentration possibly sufficient to reinforce the hemolytic tendency of the distilled water in which it is dissolved.

3 Any alleged therapeutic effect in all likelihood is produced by alteration in blood colloids such as hemolysis.

4 It has not been demonstrated beyond reasonable doubt that an appreciable leukocytosis is produced by such injections.

5 The reputed causative relationship of the alleged leukocytosis to clinical improvement is derived entirely from so called *post hoc* reasoning and remains unproved.

6 Adequately controlled evidence of clinical benefit from such treatment is completely lacking.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

TYPHOID VACCINE (See New and Nonofficial Remedies, 1933 p 391)

The National Drug Co., Philadelphia

Typhoid Vaccine (See New and Nonofficial Remedies 1933 p 394) Also marketed in three vial packages (one immunization), the first dose containing 750 million killed typhoid bacilli and the second and third doses containing respectively 1 500 million killed typhoid bacilli.

Typhoid Paratyphoid Combined Vaccine (See New and Nonofficial Remedies 1933, p 394) Also marketed in packages of thirty vials (ten immunizations) being ten sets of three doses the first dose containing 500 million killed typhoid bacilli and 250 million each of killed paratyphoid A and B bacilli the second and third doses containing respectively twice the number of bacilli in the first dose in packages of 150 vials (fifty immunizations) being fifty sets of three doses the first dose containing 500 million killed typhoid bacilli and 250 million each of killed paratyphoid A and B bacilli the second and third doses containing respectively twice the number of bacilli in the first dose.

ANTIRABIC VACCINE (See New and Nonofficial Remedies 1933, p 371)

The Gilliland Laboratories Inc., Marietta, Pa.

Rabies Vaccine Gilliland (Semple Method)—(See New and Nonofficial Remedies 1933 p 372)—Also marketed in packages of fourteen vials each containing 2 cc. The content of a vial is administered daily over a period of fourteen days.

VENTRICULIN (New and Nonofficial Remedies, 1933, p 264)

The following dosage form has been accepted.

Ventriculin 500 Gm Bottle

COD LIVER OIL (See New and Nonofficial Remedies 1933, p 271)

Ucoline Standardized Cod Liver Oil—Cod liver containing 0.5 per cent of a mixture of equal parts of oil of peppermint and oil of wintergreen as flavoring, and having a vitamin A potency of not less than 1000 units (U S P X) per gram and a vitamin D potency of not less than 333 units (A D M A) per gram.

Dosage—For adults 2 to 4 cc (30 to 60 minims) three times a day, for children 1 to 2 cc (15 to 30 minims) three times a day.

Manufactured by the Ucoline Products Co. Chicago. No U S patent or trademark.

Ucoline standardized cod liver oil complies with the standards of the U S P X. In addition it is required to have a content of fat soluble vitamin A as determined by the method of the U S P X of not less than 1000 units per gram and an antirachitic potency as determined by the method of the American Drug Manufacturers Association of not less than 333 vitamin D units per gram.

DEXTROSE (See New and Nonofficial Remedies, 1933, p 267)

The following dosage forms have been accepted.

Ampoule Sterile Solution Dextrose U S P 50 Gm. 100 cc Each ampule contains dextrose U S P 50 Gm in distilled water to make 100 cc.

Prepared by the E S Miller Laboratories Inc. Los Angeles

Ampoule Vial Sterile Solution Dextrose U S P 10 Gm 20 cc Each rubber capped vial contains dextrose U S P 10 Gm in distilled water to make 20 cc.

Prepared by the E S Miller Laboratories Inc. Los Angeles

Ampoule Vial Sterile Solution Dextrose U S P 25 Gm 50 cc Each rubber capped vial contains dextrose U S P 25 Gm in distilled water to make 50 cc.

Prepared by the E S Miller Laboratories Inc. Los Angeles

Ampoule Vial Sterile Solution Dextrose U S P 50 Gm 100 cc Each rubber capped vial contains dextrose U S P 50 Gm in distilled water to make 100 cc.

Prepared by the E S Miller Laboratories Inc. Los Angeles

EUCATROPINE (See New and Nonofficial Remedies, 1933 p 84)

Euphthalmine Hydrochloride—A brand of eucatropine-N N R

Manufactured by Schering Kahlbaum A G Berlin Germany (Schering & Glatz Inc New York distributor) U S patent 663 754 (expired) U S trademark 35 541

²⁵ Hunt Reid McCann W S Rowntree I G Voegtlin Carl and Eggleston Cary. The Status of Intravenous Therapy. J A M A 88 1798 (June 4) 1927

²⁶ Salter W M. Am Med 25 386 (June) 1910. Howell W I. Clin Med & Surg 39 653 (Sept) 1912

TABLETS COD LIVER OIL CONCENTRATE-LEDERLE—A cod liver oil concentrate in the form of sugar-coated tablets, each containing not less than 1,000 U S P units of vitamin A and not less than 500 A D M A units of vitamin D. This is equivalent in vitamin A potency to at least one-half teaspoonful, and in vitamin D potency, to at least one teaspoonful, of a cod liver oil containing at least 400 U S P units of vitamin A per gram and 133 A D M A units of vitamin D per gram.

Actions and Uses—Tablets cod liver oil concentrate-Lederle possess properties similar to those of cod liver oil so far as these depend on the fat soluble vitamin content of the latter.

Dosage—The dosage should be regulated according to the needs of the individual patient. The usual dosage for adults is two to three tablets after meals, for children, one to two tablets after meals.

Manufactured by the Lederle Laboratories Inc., Pearl River, New York. No U S patent or trademark.

The basic concentrate is obtained from cod liver oil by concentration of the unsaponifiable fraction of the latter. Each batch is assayed by the U S P method (weight and xerophthalmia) for its vitamin A content and by the A D M A method for its vitamin D content. Biologic assays are repeated on the finished tablets.

triETHANOLAMINE-CRUDE—A mixture containing approximately 75 per cent triethanolamine, $(\text{C}_2\text{H}_5\text{OH})_3\text{N}$, 20 per cent diethanolamine, $(\text{C}_2\text{H}_5\text{OH})_2\text{NH}$, and 5 per cent monoethanolamine, $\text{C}_2\text{H}_5\text{OH NH}$.

Actions and Uses—Triethanolamine-crude is an excellent emulsifying agent for use in the preparation of ointments and other dermatologic medicaments. When added to certain preparations used on the scalp, for example, oil of cade, it facilitates their subsequent removal. Triethanolamine-crude combines with fatty acids to form soaps with good detergent properties, which are soluble not only in water but also in gasoline, kerosene and oils. It is claimed to have the power of increasing the penetration of oily substances and to possess a certain amount of bacteriostatic action.

Dosage—In the preparation of emulsions, the fatty acids are dissolved in oil, and the triethanolamine-crude in water, after which the two solutions are mixed. Emulsions are made in concentrations of from 20 to 40 per cent, which may be diluted subsequently. For emulsions containing olive oil, the proportions are 2 per cent triethanolamine-crude to 15 per cent oleic acid. The same proportions are used for the majority of vegetable oil emulsions. For mineral oils, less fatty acid is required.

Triethanolamine crude is a colorless to pale yellow viscous hygroscopic liquid with a slight ammoniacal odor. It is miscible with water and alcohol and is soluble in chloroform. Immiscible with ether, benzene and purified petroleum benzine. The specific gravity is from 1.115 to 1.124 at 25°C. The refractive index is from 1.480 to 1.485 at 20°C.

To 1 cc. of triethanolamine crude add 0.1 cc. of copper sulphate solution, a deep blue color forms. Add 5 cc. sodium hydroxide solution and concentrate to $\frac{1}{3}$ volume by boiling; the color remains. To 1 cc. of triethanolamine crude add 0.3 cc. of cobalt chloride solution, a carmine red solution forms. In a test tube place 1 cc. of triethanolamine crude and by means of a slotted cork suspend a piece of moistened red litmus paper in the air space slot the side of the cork to let air escape, and place the tube in the steam bath; the paper turns blue. To 2 cc. of a 2 per cent aqueous solution of triethanolamine crude add 2 drops of phenolphthalein indicator solution, an alkaline reaction is indicated.

Transfer 50 cc. of triethanolamine-crude accurately weighed to a suitable Ladenburg distilling flask, attach the flask to a suitable condenser with receiver and slowly and carefully fractionate at a pressure of 10 mm. of mercury, not more than 8 per cent by weight of distillate is obtained below 89°C. of which 1 Gm. consumes not more than 15.4 cc. nor less than 14.3 cc. of normal hydrochloric acid when titrated as indicated for triethanolamine-crude, not more than 5 per cent by weight of residue is left after distillation below 209°C.

Transfer 2 to 3 Gm. of triethanolamine crude accurately weighed to an erlenmeyer flask. Add 75 cc. of water and 0.1 cc. of methyl red indicator solution and titrate with normal hydrochloric acid, not less than 6.7 cc. nor more than 7.8 cc. of normal hydrochloric acid is consumed per gram.

The weight of the ash obtained from 1 Gm. of triethanolamine crude accurately weighed is not more than 0.0001 Gm.

Transfer about 15 Gm. accurately weighed of triethanolamine crude to a 100 cc. beaker, add 50 cc. of solution A (dehydrated alcohol saturated with triethanolamine hydrochloride) and agitate the contents until the sample is dissolved. Add 10 cc. of solution B (100 cc. of solution A treated with dry hydrogen chloride until the weight increases 20 Gm.). Stir the contents well and set the mixture aside five minutes. Filter the solution through a prepared gooch crucible and complete transfer of the precipitate by washing with five to ten 1 cc. portions of solution A, then cover the precipitate by adding slowly 40 cc. of solution A, at the same time applying gentle suction to the crucible. Follow by washing with five 10 cc. portions of solution C (a mixture of 6 volumes of anhydrous ethyl ether and 4 volumes of dehydrated alcohol saturated with triethanolamine hydrochloride). Finally remove all liquid by suction, allow air to be drawn through the crucible for several minutes and dry to constant weight at 105°C. The weight of triethanolamine calculated from the weight of triethanolamine hydrochloride precipitate obtained is not less than 75 per cent of the weight of the sample.

Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
RAYMOND HERTWIG Secretary

NOT ACCEPTABLE

BALDINGER'S RAZAVA BREAD

(VALUABLE IN THE TREATMENT OF DIABETES, OBESITY AND CONSTIPATION)

H Baldinger and Company, St. Paul, submitted to the Committee on Foods a bread called Baldinger's Razava Bread, prepared from rye bran, shortening, salt and water without the use of any special leavening agent.

Analysis (submitted by manufacturer) —

	per cent
Moisture	56.9
Ash	1.9
Fat (ether extraction method)	1.8
Protein (N \times 6.25)	7.0
Starch (diastase method)	8.1
Crude fiber	2.6
Carbohydrates other than crude fiber (by difference)	29.8

Discussion of Label and Advertising—The first label submitted bore the statement "Valuable in the treatment of diabetes, obesity and constipation for diabetes and indigestion" and a number of testimonials of physicians recommending the bread for diabetes, dyspepsia and constipation. The company was advised that a label of this character was not compatible with the requirements of the Committee, whereupon proof for a revised label carrying the following statements was submitted:

Diabetics under the care of a physician will find that they can make provision for 2 or 3 slices of Razava Rye Bran Bread at every meal. You can eat 5 slices of Razava to 1 slice of any other bread if you wish to avoid fat producing foods.

It is not known whether this proposed new label was ever adopted, as the company has not replied to requests for information.

An advertising leaflet, "Eat Baldinger's Razava Bread," states:

In the treatment of diabetes The patient's whole difficulty lies in the fact that he cannot eat sugars and starches. For that reason the doctor prescribes very little or none of the foods that have a large amount of starch. These are mainly foods that contain wheat flour and potatoes. If the individual with diabetes must eliminate starches from his diet then the difference must be made up by eating more proteins and fat in order to satisfy his food requirement. Razava Bread and Razava Toast are particularly rich in these substances. Doctors prescribe at least two to three slices with each meal. Helps to reduce sugar. Several very good reasons why Baldinger's Razava Bread is truly a health builder and an excellent tonic for diabetes and constipation. Baldinger's Razava Diabetic Bread is rich in natural extract of free nitrogen protein and fat, contains practically every element of nutrition and highest form of nourishment the body needs in approximately right proportions. It has a tendency to regulate both Stomach and Intestinal digestion and therefore aids in the digestion of other foods. puts back into the diet the things that modern milling methods have taken out. is a natural food and produces a natural result. Purifies the blood. is recommended and used by physicians and hospitals for diabetes. is remedial and is in the highest sense a Diabetic Food.

The advertising states or implies that this bread is a specific cure for diabetes, indigestion and dyspepsia. Many of the claims are incorrect and misleading. Persons with diabetes can eat sugars and starches within their tolerances. Wheat flour and potatoes are not the "main foods" high in carbohydrate. The diabetic patient who "must eliminate starches" is not helped by the replacement of all starches or carbohydrates by proteins. Metabolized proteins may yield as high as 58 per cent carbohydrate in the form of dextrose. The claim that Razava Bread is "particularly rich" in fat and protein (which it is not) does not recommend the food for diabetic patients. Doctors in general do not prescribe "two or three slices" of Razava Bread "with each meal." The bread does not reduce sugar in the blood and is not a "health builder" or an "excellent tonic" for diabetes. The claim that "Razava Bread is rich in natural extract of free-nitrogen" is meaningless. The allegation "contains practically every element of nutrition and highest form of nourishment in approximately right proportions" is absurd and false. It does not "regulate stomach

and intestinal digestion," "aid in the digestion of other foods" or "put back into the diet the things that modern milling methods have taken out." A nutritionally important part of the wheat, the embryo, is not a component of Raza Bread. The statements "a natural food and produces a natural result" and "purifies the blood" are misleading vagaries, borrowed from quackery nostrum advertising. The product is not "truly a muscle builder." Allegations that the bread is "used by physicians and hospitals for diabetes" implies specific curative values not possessed. The bread is not "remedial" or "in the highest sense a diabetic food." The designation of a food as a diabetic food merely because it is low in carbohydrates is unwarranted and misleading and gives the erroneous impression that the food taken by diabetic patients in unrestricted quantities is harmless or that it has remedial action.

The advertising represents an attempt to exploit the diabetic or the dyspeptic patient by misinforming him of the true values of the bread or the proper treatment of these pathologic conditions. It promotes self diagnosis and self treatment by the sick who should be under the care of the physician. Advertising is incapable of prescribing the diet or treatment of the sick. Advertising of this character is a menace to public health.

The manufacturer was advised of the Committee's report but has ignored its recommendations and criticisms for correcting the advertising and labels. This product will therefore not be listed among the Committee's accepted foods.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION. RAYMOND HERTWIG, Secretary.



CERTIFOODS CERTIFIED NURSERY FOODS— CARROTS (SIEVED)

VITAMIN CONTENT GUARANTEED, NO ADDED
SEASONING OR SUGAR

Distributor—Certifoods Inc., New York, a subsidiary of the Maltine Company, New York.

Packer—Curtice Brothers Co., Rochester, N. Y.

Description—Sieved carrots prepared by methods efficient for retention in high degree of the natural mineral and vitamin values, no added seasoning or sugar.

Manufacture—Fresh carrots are washed, blanched, mechanically peeled, inspected, trimmed by hand, again washed, diced, cooked with a small quantity of water in an atmosphere of live steam at 116 C, sieved in an atmosphere of nitrogen gas, canned, processed and packed as described for Certifoods Certified Nursery Foods—Green Beans (THE JOURNAL, Oct 3, 1931, p 1003). The processing is for forty minutes at 116 C.

An alternative is the use of carrots that have been previously diced, packed solid in No. 10 tins, covered with water, exhausted at 71 C, sealed and processed at 116 C for fifty-five minutes. The canned carrots before sieving are heated to 82 C, sieved in an atmosphere of nitrogen gas and subsequently treated as described above.

Analysis (submitted by manufacturer) —

Moisture	92.6
Total solids	7.4
Ash	0.5
Fat (ether extract)	0.1
Protein (N X 6.25)	0.6
Reducing sugars before inversion as dextrose	1.7
Reducing sugars after inversion as dextrose	3.7
Sucrose (copper reduction method)	2.1
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	5.6
Calcium (Ca)	0.03
Phosphorus (P)	0.03
Iron (Fe)	0.0026

Calories—0.3 per gram, 9 per ounce

Vitamins—The methods of preparation, sieving and processing are efficient to conserve the natural vitamins in high degree.

The product is guaranteed to contain 350 units of vitamin A (Sherman method), approximately 1 unit of vitamin B (Chase and Sherman method) and 3 units of vitamin G (Bourquim and Sherman method) per ounce.

Claims of Manufacturer—See this section for Certifoods Certified Nursery Foods—Green Beans (THE JOURNAL, Oct 3, 1931, p 1003).

VAN CAMP'S PURÉED MIXED VEGETABLES WITH CEREAL AND BEEF BROTH

(ADDED SALT)

Manufacturer—Van Camp's, Inc., Indianapolis

Description—Blend of sieved carrots, peas, spinach, celery, potatoes, lima beans and tomato juice, with beef broth, rice and barley flours, slightly seasoned with salt, largely retains the natural minerals and vitamins.

Manufacture—Good quality carrots and potatoes are washed, peeled, finely cut and sieved in a steam atmosphere through a screen with openings of a size to produce the desired fineness and texture. Medium size canned peas and small green canned lima beans are similarly sieved. Fresh spinach, whenever available, is inspected, trimmed, washed, cut and sieved. If fresh spinach of high quality is not available, Van Camp's Pureed Spinach is used. Celery stalks are cleaned and ground to medium fineness. The tomato juice is prepared to retain largely its natural vitamin content (Van Camp's Tomato Juice, THE JOURNAL, Nov 28, 1931, p 1627). The beef broth per pint contains approximately the meat extractives from a pound of lean beef and a portion of bone. The beef broth, vegetables, barley and rice flours and salt in definite proportions are thoroughly mixed, heated and filled into enamel lined cans, which are sealed and processed.

Analysis (submitted by manufacturer) —

Moisture	per cent 85.0
Total solids	15.0
Ash	1.4
Sodium chloride	0.8
Fat (ether extract)	0.1
Protein (N X 6.25)	3.0
Reducing sugars as dextrose	1.0
Sucrose (copper reduction method)	0.5
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	10.0
Alkalinity of ash	
(cc of normal acid per gram ash)	1.8
pu	5.7

Calories—0.5 per gram, 14 per ounce

Claims of Manufacturer—An easily digestible food for supplementing the infant milk diet, has a smooth consistency, and supplies bulk without roughness.

BEECH-NUT STRAINED PEAS

(SLIGHTLY SEASONED WITH SALT)

Manufacturer—Beech-Nut Packing Company, Canajoharie, N. Y.

Description—Sieved peas retaining in high degree the natural vitamin and mineral values, slightly seasoned with salt.

Manufacture—Illinois and Wisconsin peas are mechanically separated from the pods, cleaned, passed through a tank of cold water to float out any foreign matter, graded by machine, blanched in hot water at a minimum of time and temperature to prevent any significant leaching out of nutrients, inspected, canned, covered with hot brine, cooked in retorts, cooled and stored. The canned peas are strained, processed and packed as described for Beech-Nut Strained Carrots (THE JOURNAL, Nov 11, 1933, p 1562).

Analysis (submitted by manufacturer) —

Moisture	per cent 86.1
Total solids	13.9
Ash	0.8
Sodium chloride	0.5
Fat (ether extract)	0.3
Protein (N X 6.25)	3.5
Crude fiber	1.0
Carbohydrates other than crude fiber (by difference)	8.3

Calories—0.5 per gram, 14 per ounce

Vitamins and Claims of Manufacturer—See these sections for Beech-Nut Strained Carrots (THE JOURNAL, Nov 11, 1933, p 1562).

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SATURDAY, FEBRUARY 17, 1934

MENTAL EFFORT AND METABOLISM

In the Science of Nutrition, Graham Lusk stated that the source of mechanical work must be the metabolism, for mechanical energy cannot be derived from nothing. The necessary energy might be obtained in one of two ways: either at the expense of a proportionate reduction in the quantity of heat liberated by the resting organism or by an increase in the amount of the metabolism. In the former case, work would diminish the heat production and might cool the tissues, which is not observed to take place. If work were done at the expense of increased metabolism, and if this increase were completely converted into mechanical effect, the heat production in the organism might remain the same as in the resting state. If, however, the result of mechanical effort should be a stimulation of metabolism to the extent of not only enabling the body to do work but also causing it to produce more heat than when at rest, the tendency of the tissues would be to grow warmer, perhaps with a resulting outbreak of sweat to reduce the body temperature through physical regulation. The last named is the actual process.

The fact that under conditions of muscular exercise an augmented metabolism ensues is consonant with the early discovery of Lavoisier indicating an increased uptake of oxygen when work is done. What is to be said about the effects of mental effort? The influence of heightened mental activity on metabolism has long been debated. Muscular contraction, the fundamental feature of mechanical work by the organism, is attended with evidences of chemical changes. The output of carbon dioxide is increased, the intake of oxygen must sooner or later be augmented, heat production is an inevitable by-product. For many years it was impossible to demonstrate conclusively that such metabolic alterations attend the function of at least certain parts of the nervous system. With the development of more delicate methods of measurement, however, evidences of small changes indicative of metabolism seemed to be obtainable when peripheral nerves were provoked to manifest their characteristic functions. The nervous

structures constitute only a small part of the "active" tissues of the body, hence it is quite conceivable that relatively small chemical transformations would escape detection in estimations of the metabolism of the body as a whole.

The situation is well summarized in studies of the Benedicts¹ in the Boston Nutrition Laboratory of the Carnegie Institution of Washington on the metabolism during special types of mental effort by university trained subjects. The mental effort, continued for four consecutive fifteen minute periods, consisted chiefly in the multiplication of pairs of two digit figures. Before and following the mental effort, metabolism measurements were made with the subjects in complete mental repose or during "attention," the attention consisting of closing an electric contact whenever a white or a red light appeared in the field of vision. The metabolism was the same during repose and attention. Sustained, intense mental effort for one hour caused an increase in heart rate, a hardly measurable increase in respiration rate, a marked alteration in the character of the respiration, a considerable increase in the apparent total ventilation of the lungs, a small increase in the carbon dioxide exhalation, a smaller increase (on the average, 4 per cent) in the oxygen consumption and the heat production, and a slight increase in the apparent respiratory quotient. In the repose periods following mental effort all the factors measured, except in a few instances of physical discomfort or fatigue, were lower than during mental effort and tended to return to the original levels prevailing before the mental effort. The results of the second mental effort series on the same experimental day, duplicated for the most part those of the first. There was no indication of a summation effect or of a greater increase in the second series. Furthermore during the progress of the four consecutive fifteen minute periods of mental effort there was no evidence of any greater effect on the factors measured in the later periods. Skin temperature measurements on the forehead indicated that there was no appreciable alteration in the blood supply to the skin of the head. No change in the insensible perspiration during mental effort was noted. According to the Boston physiologists the small increases in oxygen consumption and heat production are in large part to be accounted for by the increased muscular activity accompanying the increased ventilation of the lungs and the increased heart rate.

On the basis of all these carefully established observations, one may well agree with the conclusion reached by the Benedicts that mental effort per se is without significant influence on the energy metabolism. Mental achievement therefore need not be curtailed because of the high cost of living—at least so far as calories are concerned.

¹ Benedict F. G. and Benedict Cornelia G. Mental Effort in Relation to Gaseous Exchange, Heart Rate and Mechanics of Respiration. Publication 446. Carnegie Institution of Washington. 1933.

THE PROBLEM OF DENTAL CARIES

Progress in the preservation of health and in the repair of bodily defects has in many instances involved change from empirical makeshifts to scientifically established prophylactic and curative procedures. Such innovations have gradually been introduced into the practice of medicine. They are destined to become equally prominent in dentistry. Dental caries, commonly known as decay of the teeth, has been called "the most prevalent disease of mankind." Evidence of its early appearance has been found in Egyptian mummies. It has been pointed out¹ that, since there has not been any known means of preventing the disease, dentists during the past hundred years or so have been endeavoring to the best of their ability to preserve the teeth by filling the cavities as they appear and by restoring the lost dental tissues with artificial substitutes. Dental caries is unique as a disease in several respects. There is no other pathologic process that even remotely resembles it. Dental caries is not comparable to caries of the bone. It is not a true necrotic process nor is it attended by inflammatory reactions in the affected tissues. It is characterized by the formation of progressive lesions in the teeth, simple decalcifications by acids formed locally as a result of the fermentation of carbohydrates by certain aciduric types of bacteria.

The teeth are remarkable in having "outer fortifications"—the enamel—that act as a protective agency. Harm usually comes from the exterior. When the protective layer of enamel is broken or otherwise disintegrated, the less resistant dentin underneath falls an easier victim to disintegrating forces. One reason why the problem of tooth decay has been approached in the past mainly from the reparative standpoint is that the enamel in particular was not supposed to be penetrable by fluids, whereas other structures of the body are in some sort of physiologic communication with the blood and lymph. From the point of view of the supposed "static" character of the enamel it is not easy to assume that the latter can be readily affected by the nutritive processes. The nonvitalistic theory of the nature of enamel and dentin is not universally accepted. The existence of "lymph channels" making it possible for the supposedly permanent calcareous structures to be affected by the blood is maintained by some dental investigators. Disintegration of tissue is a characteristic of certain degenerative diseases, hence in earlier years dental caries was considered to be a necrotic process resulting from inflammatory processes in the tooth itself. With the development of dental histology it became evident, in the words of Bunting,¹ that the dentin and enamel contain no circulatory systems capable of inflammatory reaction. Still, the old humoralistic idea remains even today, in the form of a belief by

many that the activity of dental caries is largely controlled by the hardness and softness of the teeth. The fact that clinical and experimental evidence has clearly shown that the activity of the disease is not necessarily related to the perfection of tooth structure, Bunting adds, seems not to have been universally grasped or its significance realized. The admonition "Feed your teeth" for the prevention of dental caries is still being heard, but the great majority of students in this field have agreed that the determinant causative factors in dental caries are not resident in the tooth itself.

In a review of some of the modern aspects of tooth preservation, THE JOURNAL has pointed out that the results of studies on children are at least unanimous in showing that efforts to provide an improved diet are in the main rewarded with increased resistance to tooth decay. This in itself is cause for gratification and should be an incentive to further study. Whether the prophylactic substance is one of the vitamins or some other factor, either known or as yet unrecognized, or even a combination of these in optimal amounts, must await future research.

If it is true that the enamel is not in direct contact with the circulation or the immunologic as well as nutritive and reparative factors thus provided, there remains the intermediation of the secretions of the salivary or mucous glands. Admitting, for the purpose of argument, that acid produced locally on the teeth by certain bacteria is the fundamental cause of the caries, its effective development might be determined by at least three features. These are, first, the chemical constituents of the salivary and oral secretions, second, the possible immunologic principles of the saliva, and, third, the character of the retained food debris remaining about the teeth. According to the conclusions of laborious researches at the University of Michigan,¹ whatever controlling influence the saliva may have on dental caries is not by virtue of its total calcium, total phosphorus or pH . Furthermore, in a correlated study of a small number of cases, no differences could be found in the total calcium, inorganic phosphorus, pH or carbon dioxide combining power of the blood. These observations, Bunting insists, strongly negate the hypothesis that dental caries is the result of low calcium or low phosphorus content of either the blood or the saliva or is due to a condition of acidosis, statements frequently made but unsupported by adequate scientific evidence.

The Michigan studies have demonstrated anew the occurrence of carious and noncarious groups of persons. Corresponding with this is the discovery that, contrary to the widely accepted view, *Bacillus acidophilus*, the active causative agency in dental caries, does not inhabit all mouths alike. In some persons the organism is totally absent and, when implanted repeatedly, does not grow but promptly disappears. In others

¹ Bunting, R. W. Recent Developments in the Study of Dental Caries. *Science* 78: 419 (Nov. 10) 1933. Many of the statements given above are taken from this paper.

it appears either intermittently or in small numbers. In persons in whom dental caries is active, as a rule, it grows luxuriantly and is constantly found on the teeth and in the saliva. Bunting reports that the intensive bacteriologic and clinical studies of thousands of cases over a period of five years by the University of Michigan group leave no room for reasonable doubt as to the specificity of *Bacillus acidophilus* as an active etiologic factor in dental caries. This view has been corroborated by the work of Rodriguez, Thompson and Enright. Acid fermentation and decalcification of teeth are thus firmly correlated. The amount and character of carbohydrate food debris in the mouth and about the teeth constitutes, therefore, an important factor in this dental disease. These studies are in harmony with prevalent expert opinion that the occurrence of dental caries is not determined by the structural quality of the tooth or by the degree of cleanliness of the mouth but that dental caries is definitely favored by certain phases of civilized life. There are other factors, such as hereditary constitution and general nutrition, that continue to deserve intensive research in relation to the welfare of the teeth. According to Bunting, at the present time the greatest promise for the ultimate solution of the problem seems to lie in the study of the chemistry of the saliva and its immunologic reactions against the organism of dental caries, and in a further study of diet in its relation to dental disease. To this end it is highly desirable that group studies be made in which the allied sciences of chemistry, nutrition, bacteriology and dentistry may be correlated in a truly scientific attack on this difficult and important problem in human welfare. It is only by studies of this broad nature, Bunting concludes, that any adequate concept of the nature of this disease or the means of its prevention may be attained.

ALPHA-DINITROPHENOL—A METABOLIC STIMULANT

A year has elapsed since alpha-dinitrophenol was introduced into therapeutics as a metabolic stimulant by Tainter and his collaborators of the Stanford University School of Medicine. In experimental animals, large doses of this chemical increase the metabolism as much as 1,200 per cent,¹ thus generating more heat than the animal can eliminate and resulting in fatal fever. Smaller doses increase the metabolism proportionately, without, however, any apparent deleterious effects on vital functions. Fat and carbohydrates are burned in about equal proportions with little if any effect on proteins. Particularly striking is a practically negligible effect on the circulation, in contrast to the

pronounced effects on this function from equivalent doses of thyroid.

In patients, the drug stimulates metabolism similarly to the increases that occur in animals, with little or no symptoms following subfebrile doses.² This metabolic stimulation is useful in the treatment of obesity,³ as shown by a fairly extensive series of cases. Particularly interesting is the fact that the drug appears to be effective regardless of the cause of the obesity, and even when the usual types of treatment are ineffective or inapplicable.³ However, dinitrophenol cannot replace thyroid secretion when this is definitely lacking.

Considering the potency of the drug, few untoward results or accidents have been reported. One death has occurred, that of a physician who took a total of 9 Gm in two doses, or about thirty ordinary daily doses.⁴ His dying statements left no doubt that the drug was not taken for therapeutic purposes but probably with suicidal intent. The only definite side-action from the therapeutic use of the drug is a skin rash, which occurs in about one out of every fifteen cases.⁵ The rash is uncomfortable for a few days and then disappears without sequelae. Even in the hands of a group that reported one case in which there was an unusually severe rash,⁶ the drug caused loss of weight in thirteen other cases in accordance with the general experience. There have been no deleterious effects observed so far on the kidneys, but rather the contrary.³ Likewise the liver appears not to be damaged.⁵ True, one suspected case of liver injury has been reported,⁶ but in this case the essential sign was a "jaundice," which, the physician failed to realize, might be only the color of the yellow dye he was administering. It is reassuring, therefore, that serious injury has not been demonstrated from therapeutic uses of this benzene derivative.

The introduction of dinitrophenol into therapeutics has aroused widespread interest in metabolic stimulants in general, and in substitutes for this drug, in particular. Already certain British workers⁷ are proceeding to test the therapeutic actions of a related cresol. From the limited evidence available, the British drug appears to be more cumulative than dinitrophenol and not to be as well tolerated in high doses. Its general order of activity is not, however, greatly different. No information is at hand on the frequency of undesirable effects from this cresol, nor is its clinical toxicity or efficiency established. Therefore the dinitrocresol is still in the experimental stage and not ready for general therapeutic use. In contrast, the past year's experience with dinitrophenol has shown it apparently to be a

1 Cutting W. C. and Tainter M. L. *Proc. Soc. Exper. Biol. & Med.* **29** 1268 (June) 1932. Tainter M. L., Boyes J. H. and DeEds Floyd. *Arch. internat. de pharm. et de therap.* **45** 235 (May) 1933. Tainter M. L. and Cutting W. C. *J. Pharmacol. & Exper. Therap.* **45** 410 (Aug.) **49** 187 (Oct.) 1933. Hall V. E. *Field J. Sahyun M.* Cutting W. C. and Tainter M. L. *Am. J. Physiol.* **106** 432 1933. Cutting W. C. and Tainter M. L. *Proc. Soc. Exper. Biol. & Med.* **31** 97 1933.

2 Cutting W. C., Mehrrens H. G. and Tainter M. L. *Actions and Uses of Dinitrophenol* *J. A. M. A.* **101** 193 (July 15) 1933.

3 Tainter M. J., Stockton A. B. and Cutting W. C. *Use of Dinitrophenol in Obesity and Related Conditions* *J. A. M. A.* **101** 1472 (Nov. 4) 1933.

4 Geiger J. C. A. Death from Alpha Dinitrophenol Poisoning *J. A. M. A.* **101** 1333 (Oct. 21) 1933.

5 Anderson H. H., Reed A. C. and Emerson G. A. *Toxicity of Alpha Dinitrophenol* *J. A. M. A.* **101** 1053 (Sept. 30) 1933.

6 Haft H. H. *Toxicity of Dinitrophenol* *J. A. M. A.* **101** 1171 (Oct. 7) 1933.

7 Dodds E. C. and Pope W. J. *Lancet* **2** 352 (Aug. 12) 1933. Dodds E. C. and Robertson J. D. *ibid.* **2** 1137 (Nov. 18) 1933.

relatively safe and reliable metabolic stimulant with which the practitioner may obtain therapeutic results. This does not mean that dinitrophenol should be given to every obese patient. In those cases in which diet has failed and thyroid is either not needed or not tolerated, dinitrophenol may be used with good prospects of benefit. However, as pointed out in the preliminary report of the Council on Pharmacy and Chemistry,⁸ this agent must be used only under carefully controlled conditions and with due regard for the possibility that more extensive use may bring to light as yet unsuspected toxic effect. Particularly, patients should be cautioned of the dangers of overdosage, its indiscriminate use by the public will undoubtedly lead to serious accidents.

Current Comment

POTENT BACTERIA-FREE VACCINE VIRUS GROWN ON CHICK EMBRYO MEMBRANES

Goodpasture and his co-workers¹ in the Vanderbilt University Medical School have shown that vaccine virus can be grown on the chorio-allantoic membrane of the chick embryo. These results have been confirmed with dermal strains of vaccine.² It now appears that this method can be used for the production of vaccine virus on a large scale.³ At present, vaccine virus is obtained from calves artificially inoculated on the skin of the abdomen, where the lesions of vaccinia or cowpox develop. The main objection to the calf virus is that it is not free from bacteria and other contaminants. In order to obtain absolutely pure virus, Goodpasture and Buddingh ground up embryo chick membranes, on which the virus was growing after inoculation with a dermal strain, and filtered the suspension through the Berkefeld N filter. The bacteria-free filtrate was centrifugated and the sediment inoculated on chick membranes, giving a pure strain of vaccine virus, which in fifteen months was carried through eighty-five successive generations in the chick without any intervening mammalian passage. Thus chick vaccine was found to have the same effects on rabbits and monkeys as the calf vaccine. In experiments on human beings with vaccine virus of the sixth and seventy-fifth chick membrane passage, after storage at 0 C for five months and three months, respectively, typical vaccinia lesions developed in the regular manner, the lesions being on the whole milder than those of the control inoculations with commercial calf vaccine virus. Revac-

inations with calf vaccine of the persons vaccinated with chick membrane virus and with the chick virus of the persons vaccinated with calf virus gave typical reactions of immunity in both groups. Further tests of the duration of immunity are under way. The advantages of the chick embryo vaccine virus over the calf virus appear to be the far greater ease of production and particularly freedom from contamination.

Association News

MEDICAL BROADCAST FOR THE WEEK

National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4 15, Central standard time (5 o'clock, Eastern standard time, 3 o'clock, Mountain standard time, and 2 o'clock, Pacific standard time). The subject for Monday, February 19, is "A Growing Menace." The speaker will be Dr W W Bauer, director, Bureau of Health and Public Instruction.

Columbia Broadcasting System

The Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4 30 to 4 45, Central standard time. The subject for Thursday, February 22, is "Some Popular Health Delusions." The speaker will be Dr Bauer.

Radio Talk from Station WBBM

The Association broadcasts on Tuesday mornings from 8 55 to 9 o'clock, Central standard time, over Station WBBM (770 kilocycles, or 389 4 meters). The subject for Tuesday, February 20, is "Freak Accidents."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION PUBLIC HEALTH ETC)

CALIFORNIA

Discussion of Amebiasis—The San Francisco County Medical Society devoted its meeting, February 13, to a discussion of amebiasis. Speakers were Dr Jacob C Geiger, city health officer, on "Public Health Aspects of Amebiasis," Dr Alfred C Reed, "Clinical Amebiasis," and Chauncey D Leake, Ph D, "Chemotherapy of Amebiasis."

Outbreak of Typhoid—Fifty-one cases of typhoid with three fatalities were reported in a recent outbreak in Santa Barbara and vicinity. Most of the patients were hospitalized, but many have now been released from quarantine. Members of the state department of health and the U S Public Health Service assisted in the search for the source of the epidemic, which was not determined. No cases with date of onset later than December 7 have been reported.

Personal—Dr William F Stein, Fresno, became health officer of Fresno County, January 16, succeeding Dr James E Pendergrass, Clovis.—Dr Alfred C Reed, professor of tropical medicine, University of California Medical School, San Francisco has been appointed consultant in that specialty to the San Francisco Department of Health.—Dr Ernest C Foster has been appointed health officer of Kings County, succeeding Dr Cecil G Newbecker.—Dr Palmer D Miller has been named health officer of Dinuba, in Tulare County, to succeed Dr Charles S Mitchell.—Dr James L Faulkner, Red Bluff, has been appointed health officer of Tehama County, succeeding Dr Ernest E Thompson.

8 Alpha Dinitrophenol. Preliminary Report of the Council on Pharmacy and Chemistry. J A M A. 101: 210 (July 15) 1933.

1 Goodpasture E W, Woodruff Alice M and Buddingh G J. Vaccinal Infection of the Chorio-Allantoic Membrane of the Chick Embryo. Am J Path S 271 (May) 1932.

2 Nauck, E. G. and Paschen E. Weitere Ergebnisse der Vakzine viruszüchtung in der Gewebekultur. Zentralbl f Bakt I O 128: 171 (April 28) 1933. Stevenson W D H and Butler G G. Dermal Strain of Vaccinia Virus Grown on Chorio-Allantoic Membrane of Chick Embryos. Possible Large Scale Production of Bacteria Free Virus. Lancet 2: 228 (July 29) 1933.

3 Goodpasture E W and Buddingh G J. Human Immunization with a Dermal Vaccine Cultivated on the Membranes of Chick Embryos. Science 78: 484 (Nov 24) 1933.

COLORADO

Annual Registration Due March 1—All practitioners of medicine and surgery holding licenses to practice in Colorado are required by law to register annually before March 1, with the secretary-treasurer of the Board of Medical Examiners, and to pay a fee of \$2, if a resident of Colorado, or \$10, if a nonresident. Failure to pay this fee within the time stated automatically suspends the right of a licensee to practice while delinquent. If he nevertheless continues to practice, he is subject to the penalties provided by law for practicing medicine without a license. Failure to pay this fee for three consecutive years results in the automatic cancellation of a delinquent practitioner's license to practice.

Institutional Advertising—A resolution has been adopted by the board of councilors of the Colorado State Medical Society which states the attitude of the society toward members who are associated with institutions that advertise for or solicit the patronage of the public. It was pointed out that while the society cannot maintain direct control of the hospitals and sanatoriums guilty of unethical advertising this coming under the jurisdiction of the Colorado Hospital Association, it can exclude from membership those physicians who are affiliated with them. The resolution became effective on its publication in the February issue of *Colorado Medicine*. The Colorado Hospital Association December 28 adopted a code of ethics to govern the practice of hospitals in relation to one another, advertising, rights of patients and public health programs. This code went into effect immediately.

DISTRICT OF COLUMBIA

Dr Patterson Honored—An honorary membership in the American Academy of Ophthalmology and Otolaryngology was presented to Major General Robert U. Patterson at the Army and Navy Club in Washington Nov. 21, 1933. Dr. Burt R. Shurly, Detroit, was toastmaster at the banquet and speakers in addition to Dr. Patterson, included Surg. Gen. Perceval S. Rossiter, U. S. Navy, and Drs. Harris P. Mosher, Boston, and William Thornwall Davis. Dr. Patterson was presented with a silver platter.

Medical Bills in Congress—S. 2006 has passed the Senate authorizing the Commission on Licensure to Practice the Healing Art in the District of Columbia to license Della D. Ledendecker to practice chiropractic notwithstanding the provision in the healing arts practice act requiring applications from candidates for licenses to practice chiropractic to be filed within ninety days from the date of the approval of the act provided that Della D. Ledendecker shall otherwise be found by the commission to be qualified to practice under the provisions of the act.

Second Graduate Clinic—The George Washington University School of Medicine will conduct its second annual graduate clinic, February 23-24. Sessions will be held in the Gallinger Municipal Hospital, University Hospital and the medical school. The program includes a symposium on jaundice by Drs. Charles S. White, Walter A. Bloedorn and Edward B. Vedder, and one on cystostomy and ureterography by Drs. Claude Moore, Lyle M. Mason, Miles P. Omohundro, Thomas C. Thompson and Gilbert Ottenberg. Under the classifications of demonstrations, ward rounds and clinics the following subjects among others, will be treated:

Psychological Factors in Disease Dr. William A. White
Leukemia, Endocrine Disorders Dr. Stuart O. Foster
New Growths of the Colon Drs. Archibald I. Riddick and William W. Chase
Surgery in Sterility of Women Dr. Jacob Kotz
The Present Status of Serum Therapy Dr. George W. McCoy, director of National Institute of Health
Amebic Dysentery Drs. Vedder, Roger M. Choisser and Herman S. Hoffman
Use of Galactose in Diabetic Patients Joseph H. Roe, Sc.D. and Dr. John A. Reed

GEORGIA

Prizes Awarded—At the twenty-ninth annual meeting of the Fulton County Medical Society, January 4, the Dr. L. C. Fischer Awards for 1933 were presented. For the best original research, one prize went to Drs. James Fletcher, Hanson, William K. Purks and Ruskin G. Anderson for "Electrocardiographic Studies of the Dying Human Heart." For their paper on "Congenital Heart Block," Drs. Launcelot Minor Blackford and Henry M. McGehee were awarded a second prize for the best written paper. These prizes have been offered for several years by Dr. Fischer to "stimulate original and research work." Papers must be presented before the society before being submitted for consideration in the contest.

ILLINOIS

Abortionist in Penitentiary—Sherman T. Lewis, alias J. C. or J. G. Littlefield, formerly of Chicago, is now serving a sentence of fourteen years' imprisonment in the Illinois Penitentiary, Joliet, having been convicted of murder by abortion. Although a 1892 graduate of Northwestern University Medical School, Lewis was practicing without a license in Illinois. He was licensed in Wisconsin, but his license was revoked, April 17, 1928, following a conviction of manslaughter. He had been acquitted of a previous charge of manslaughter growing out of an alleged illegal operation, it was reported. He had also been licensed to practice in Nevada and Colorado.

Increase in Laboratory Tests—There were 171,638 tests made for all diseases in the diagnostic laboratories of the state department of public health in 1933 as compared with 162,325 in 1932. Of these, 25,856 were positive in 1933 and 24,727 in 1932. The number of specimens examined for tuberculosis totaled 17,395 last year as compared with a previous figure of 15,033, and the proportion of positive tests increased from 15 to 17 per cent. More specimens were examined for diphtheria and typhoid in proportion to cases reported than ever before, but the percentage found positive was lower. Tests of animal heads for rabies went up from 505 in 1932 to 611 last year and the proportions found positive were 35 and 45 per cent, respectively. Of the 99,352 specimens examined for syphilis, 17,630 were positive, an increase of 2,697 in the number of tests made for this disease.

Chicago

Society News—Speakers before the Chicago Gynecological Society, February 16, were Drs. Henry Schmitz on "Treatment of the Bleeding Uterus Due to Benign Lesions with Radium and Roentgen Rays," William C. Danforth, Evanston, Ill., "Treatment of Fibroids: Report of a Series of 443 Cases," and David S. Hills, "Fibroids in Pregnancy."—"The Emotional Difficulties of Unemployed Women" was the subject discussed at a meeting sponsored by the Illinois Society for Mental Hygiene, February 16, by Dr. David B. Rotman, Dr. Douglas G. Campbell and Ruth O. Potter, social worker.—"The Chicago Society of Allergy will be addressed February 19, among others, by Dr. Milton B. Cohen, Cleveland, on 'The Mechanism of the Asthmatic Attack in Allergic Asthma'."—Dr. Hilmer William Elghammer will address the Chicago Pediatric Society, February 20, among others on "Erythrocyte Sedimentation Rate in Rheumatic Infection."—At a meeting of the Chicago Urological Society, February 21, the speakers will include Dr. John Talbot Gernon on "A New Antigen in the Treatment of Gonorrhea."

INDIANA

Society News—At a meeting of the Floyd County Medical Society in New Albany, January 8, Dr. Harry E. Voyles spoke on "The Use of Insulin in the Nondiabetic Malnourished Patient."—Dr. Thurman B. Rice, Indianapolis, discussed public health before the Adams County Medical Society in Decatur, January 12.—"The Tippecanoe County Medical Society was addressed in Lafayette January 12, by Drs. Oscar N. Torian and Joseph W. Ricketts, Indianapolis, on "Colds and Their Complications in Children" and "Amebic Dysentery," respectively.—"Dr. James O. Beavis, Dayton, Ohio, discussed 'Harelip and Cleft Palate' before the Wayne-Union Counties Medical Society in Richmond, January 11."—At a meeting of the Elkhart County Medical Society in Elkhart, January 4, Dr. Orus R. Yoder, Ypsilanti, spoke on "The Psychological Management of the Patient."—Dr. Ernest R. Carlo, Fort Wayne, addressed the Northeastern Indiana Academy of Medicine, January 25, on "Pneumonia in Children."—A medico-legal symposium constituted the meeting of the Indianapolis Medical Society, January 9, with Mr. Alfred E. Evans of the Indiana University School of Law discussing compensation laws and Mr. Albert Stump, expert testimony.

KENTUCKY

Society News—A symposium on amebiasis will be presented before the Jefferson County Medical Society, Louisville, February 19, by Drs. Morris Flexner, Herbert H. Hagan and Harry S. Frazier. A discussion of public health plans and policies was presented at a meeting, February 5, by Drs. Arthur T. McCormick, Hugh R. Leavell and John D. Trawick, health commissioner of the state city and county, respectively.

Bills Introduced—S. 204 and H. 428 propose to reorganize the executive branches of the state government. Among other things, these bills propose to create a Department of Health to "exercise all administrative functions of the State."

in relation to food and drug control, sanitation and vital statistics, the appointment and control of County Board of Health, the prevention and control of communicable diseases. The State Board of Health, the Board of Chiropractic Examiners, the Board of Dental Examiners, the Kentucky Pharmaceutical Association and the Board of Pharmacy are to be deemed to be included within the Department of Public Health and constitute parts thereof, but each of said boards shall continue to exercise all the powers rights and functions with relation to their respective professions."

LOUISIANA

Personal—Sir Aldo Castellani, director, Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine returned to New Orleans recently to begin his duties at Louisiana State University Medical Center as professor of tropical medicine, he will spend part of each year at the university.

Society News—At a joint meeting of the staff of the Baptist Hospital and the New Orleans Gynecological and Obstetrical Society, November 28, with members of the Second District Medical Society as guests, the speakers included Drs Henry B Alsobrook on 'Extra-Uterine Pregnancy Complicated by Intestinal Obstruction,' and John T Sanders, Bicornuate Uterus with Twin Pregnancy. The Fifth District Medical Society was addressed in Monroe, December 1, by Drs Victor Carey on "Cultural, Spiritual and Material Medicine" and Fred Rankin, Lexington Ky 'Diagnosis and Surgical Treatment of Cancer of the Colon and Rectum'. Dr Melville W Hunter, Monroe, also spoke. Speakers before the East and West Feliciana Bi Parish Medical Society in Clinton in December were Drs James M Bamber, New Orleans, and Carl A Weiss, Baton Rouge, on "Arteriosclerotic and Hypertensive Heart Diseases" and "Commoner Diseases of the Eye and Their Relation to General Systemic Diseases," respectively.

MAINE

Clinical Meeting—The staff of the Eastern Maine General Hospital, Bangor, will present a clinical program for the Maine Medical Association, February 20-21, consisting of clinical case demonstrations, ward walks and surgical operations. There will be no papers. On the evening of February 20 the state association will meet jointly with the Penobscot County Medical Society.

Society News—At a meeting of the Portland Medical Club, December 5, Dr Arthur Paul Wakefield Fairfield spoke on 'Public Health in China and the United States'. Speakers before the Kennebec County Medical Association at Augusta, December 21, were Drs Samuel H Kagan, Augusta and John O Piper, Waterville, on 'Massage and Mobilization in the Treatment of Recent Injuries and Spontaneous Meningeal Hemorrhage,' respectively.

MARYLAND

Society News—Speakers before the Maryland Academy of Medicine and Surgery, recently, were Drs Albert S Hyman, New York and Walter E Dandy, Baltimore on 'Coronary Arterial Disease and Its Treatment' and 'Lesions of the Cranial Nerves,' respectively. Justin M Andrews, Sc D, associate professor of protozoology, Johns Hopkins School of Hygiene and Public Health, addressed the Baltimore City Medical Society, January 5, among others on 'Epidemiology and Control of Amebiasis'. At a meeting of the Caroline County Medical Society, December 14, Dr Henry V Wilson, Jr, Dover, spoke on 'Surgical Considerations of Gallbladder Disease'.

DeLamar Lectures—Warder C Allee, Ph D, professor of zoology, University of Chicago, opened the current series of DeLamar Lectures in Hygiene at Johns Hopkins University School of Hygiene and Public Health, December 19, with a talk on 'Recent Studies in Experimental Populations'. Speakers and their subjects comprising this series are as follows:

- Dr James Ewing, professor of oncology, Cornell University, 'The Prevention of Cancer', January 9.
- Dr Mark F Boyd, field director, International Health Division, Rockefeller Foundation and director station for malaria research, Tallahassee, Fla., 'Research Opportunities Provided by Naturally Induced Malaria Therapy', January 16.
- Dr Waller S Leathers, dean, Vanderbilt University School of Medicine, Nashville, Tenn., 'An Investigation of Hookworm Disease in a Southern State', January 31.
- Dr Lewis W Hackett, assistant director, International Health Division, Rockefeller Foundation, 'New Light on the Epidemiology of Malaria', February 20.
- Robert Spurr Weston, Boston, sanitary engineer, 'Recent Developments in the Art of Water Purification', March 6.
- Dr Earl B McKinley, dean, George Washington University School of Medicine, Washington, D C, 'Etiology of Leprosy', March 20.

MASSACHUSETTS

Dr Washburn Becomes Commissioner of Institutions—Dr Frederic A Washburn, who recently resigned as superintendent of the Massachusetts General Hospital, Boston, after holding the position since 1922, will become commissioner of institutions of Boston, effective March 1. He will have jurisdiction over the Hospital of the Chronic Sick and the Alms House at Long Island, child welfare, placing of children in foster homes, and the registration of the insane.

Memorial to Dr Kline—In tribute to the memory of Dr George M Kline, commissioner Massachusetts State Department of Mental Diseases, from 1916 until his death last year, an oil portrait of him has been placed in the administration building of the new Metropolitan State Hospital, Waltham. In addition, the trustees of the hospital have named the assembly building in the new institution the Kline Memorial Hall and an inscribed bronze tablet will be placed at the entrance to commemorate his services to the hospitals and schools of the department of mental diseases. An enlarged photograph of Dr Kline has also been presented to each of the sixteen institutions of the department.

MICHIGAN

Personal—Henry F Vaughan, Detroit, Dr P H was made an honorary member of the St Louis Medical Society, December 19, at a meeting which he addressed on the Detroit plan. Dr Vaughan is a native of Missouri. Dr Charles A Neafie, formerly health officer of Pontiac, has been appointed medical director of Pontiac General Hospital. Dr Don W Gudakunst, Detroit, was named president of the newly organized Michigan Association of School Physicians, Nov 10, 1933.

Dr Jennings Honored—The Wayne County Medical Society will give a dinner, February 28 at the Book-Cadillac Hotel, Detroit, in honor of Dr Charles G Jennings, Detroit, who has completed more than fifty years in the practice of medicine. Dr Walter R Parker, Detroit, will be toastmaster and Hon James O Murfin, former judge of the circuit court of Wayne County, will be a speaker. Dr Jennings graduated from the Detroit Medical College in 1879. He was professor of medicine and chief of the department at his alma mater from 1897 to 1917. He was president of the American Pediatric Society in 1904 and of the American Therapeutic Society in 1922.

Plan for Medical Service for Unemployed—Under a plan authorized by the Federal Emergency Relief Administration, a Medical-Dental Bureau has been established in the headquarters of the Wayne County Medical Society, which furnishes the services of physicians, dentists, pharmacists and nurses to unemployed welfare patients. William J Burns, executive secretary of the Wayne County Medical Society, has been named head of the bureau. Cooperating agencies are the medical society, the Detroit District Dental Society, Detroit Nurses Association and the Detroit Pharmaceutical Association. Home and office care is provided for unemployed persons on welfare rolls but does not include hospitalization. A switchboard has been installed in the society's headquarters, and a clerical staff added to handle this service. According to the plan, the patient gets in touch with his family physician, who telephones the bureau for an authorization, which is given verbally and subsequently sent to him through the mail. All authorizations are limited to emergency service, the relief of pain and treatment of acute conditions.

MISSOURI

Clinics Award—The St Louis Clinics will offer an award of \$100 and a certificate to the member of the St Louis Medical Society presenting the best paper before the latter during the coming year. The competition opened January 1 for one year. The presentation will be made at the Clinical Conference of the St Louis Clinics in 1935, which will probably take place in May.

Cancer "Specialists" Assessed Damages—Two St Louis physicians were ordered to pay damages of \$6,500 in November as the result of a suit brought by the husband of a woman who died in 1931, following nine months' treatment with a so called cancer paste. It is reported Drs Edward C and John E Westaver, father and son, graduated from the St Louis College of Physicians and Surgeons in 1898 and 1918, respectively. This institution's charter was revoked in 1927 on a charge of being a diploma mill. The recent case was tried before a jury, which gave a unanimous verdict. The physicians promised a cure with their salves charging \$2 a treatment. It

was stated. Members of the state medical association testified that 'the 'paste' was a futile effort to cure real cancer but might heal certain kinds of noncancerous tumors and sores'.

Hodgen Memorial Unveiled—A bronze plaque was unveiled in the building of the St. Louis Medical Society, January 9, as a memorial to Dr. John T. Hodgen. It is the work of Malvina Hoffman, sculptress, and is the gift of the St. Louis Surgical Society and the Medical Fund Society. The plaque was unveiled by Dr. Hodgen's grandson, Dr. John T. Hodgen of Grand Rapids, Mich., who is an honorary member of the surgical society. This ceremony followed the presentation of the annual Hodgen lecture by Dr. Walter B. Cannon, George Higginson professor of physiology, Harvard Medical School, Boston, on "Significance of the Emotional Level." The lecture is sponsored by the Surgical and the Medical Fund societies which were established in 1891 and 1872 respectively. Dr. Hodgen died about fifty years ago.

NEW JERSEY

Bills Introduced—S. 94, to amend the law providing liens in certain cases for hospitals, proposes to raise to 50 cents the fee required to be paid on filing a claim of lien. A. 115 proposes to authorize any judge, either on his own motion or on the motion of counsel to appoint one or more expert witnesses not exceeding three, to examine and investigate, and to testify relative to, matters as to which such expert evidence will be required. A. 125, to supplement the pharmacy practice act, proposes to authorize courts to issue injunctions to restrain the unlicensed practice of pharmacy. A. 126 to supplement the pharmacy practice act, proposes to provide for the suspension or revocation of a license to practice pharmacy if the holder has been convicted of a crime involving moral turpitude. A. 132 proposes that nothing in the state emergency relief act shall be construed to prohibit or limit any licensed physician occupying a position as a state, county, municipal or school physician from being compensated by the state for the care and treatment of emergency relief patients.

NEW YORK

Bills Introduced—S. 348 proposes to make it unlawful for any person to give any false police alarm or false call for a physician or hospital. S. 505, to amend the provisions of the medical practice act with respect to the licensing of physiotherapy technicians, proposes to permit any person engaged in the practice of physiotherapy prior to May 17, to be licensed without examination, to practice physiotherapy if he is a graduate of a legally chartered school or college of physical therapy. S. 514, to amend the law providing exemption from the payment of registration fees for hospital ambulances, proposes that such exemption shall extend only to ambulances used exclusively to carry sick or injured persons. A. 490 and A. 561 propose to create a board of barber examiners and to regulate the practice of barbering. A. 570, to amend the workmen's compensation act, proposes, in effect, to make compensable all occupational diseases arising out of any employment covered by the act.

New York City

Afternoon Lectures at the Academy—Recent afternoon lectures in the series at the New York Academy of Medicine were:

Dr. Abernethy Benson Cannon December 22 Early Diagnosis and Treatment of Syphilis
Dr. Edwin Beer January 5 Calculous Disease of the Urinary Tract
Dr. Maximilian A. Ramirez January 12 Newer Work in Allergy of Interest to the General Practitioner
Dr. John H. Wyckoff January 19 The Tachycardias: Diagnosis and Treatment
Dr. George R. Minot Boston January 26 The Anemias—Etiology and Treatment

Hospital Doubles Number of Patients—The annual report of New York Hospital covering the year 1932 made public January 2, showed that the number of patients doubled after the hospital moved into its new quarters in September 1932. In that month the hospital had 5,901 pavilion patients and 663 private patients, in October the pavilion patients had increased to 12,118 and private patients to 1,372. Outpatients increased from 10,825 in September to 17,425 in December. The report stated that 38 per cent of the ward service and 39 per cent of the outpatient service were rendered free.

Health Report for 1933—The lowest death rate in the history of New York, 10.23 per thousand of population, was reported by the department of health in its report for 1933. There were 75,153 deaths, of which the largest number 18,667, were caused by diseases of the heart. Other important causes were pneumonias 7,679 deaths, cancer, 8,929 tuberculosis 4,057 Bright's disease, 3,639 accidents all forms 4,234 and

diabetes, 2,139. A new low death rate for tuberculosis was registered, 55.21 per hundred thousand, in 1928 this rate was 69.12. During the year there were only 1,895 cases and 83 deaths from diphtheria, a result attributed to the department's intensive campaign of immunization. There were 588 cases of typhoid with 70 deaths, most of which resulted from bathing in polluted waters or eating shellfish taken surreptitiously from forbidden areas. Automobile accidents caused 1,135 deaths, a record low rate of 15.45 per hundred thousand. Diabetes, with a rate of 29.1, showed a notable increase since 1928, when the rate was 24.8. The suicide record showed improvement with 1,325 or a rate of 18.04, as compared with 1,595, a rate of 22.1 for 1932. The infant mortality rate was 53.2 per thousand births, an increase over 1932, when the rate was 50.91. Maternal mortality was 6.41 per thousand live births, as compared with 6.09 in 1932 and 5.29 in 1928.

NORTH CAROLINA

Personal—Dr. Crete N. Sisk, Henderson, has been appointed health officer of Vance County to succeed Dr. Clarence H. White, who resigned to spend a year at Harvard School of Public Health under a fellowship from the Rockefeller Foundation.

Society Establishes Award—The Guilford County Medical Society at its December meeting in High Point voted to establish an annual award of a silver cup and a complimentary dinner to be given to the member who has produced during the year an exceptionally creditable piece of work related to the medical sciences. A committee was to be elected to select the recipient of the award. At this meeting Dr. Paul P. McCam Senatorium addressed the society on early diagnosis of tuberculosis by the roentgen ray.

The Control of Psittacosis—The state board of health December 5, promulgated regulations governing methods of controlling psittacosis. It is ordered that cases of psittacosis must be reported within twenty-four hours and that patients must be isolated. Among other things, persons exposed to the disease should be kept in quarantine five days and under observation for three weeks. It is advised that all birds be regarded as potentially dangerous when they have been exposed and be kept under quarantine. Shipment of birds into the state must conform to federal regulations.

OKLAHOMA

Special Health Projects—Three public health projects are now under way in Oklahoma under the auspices of the state health department in addition to its regular program of disease prevention. Under the direction of sanitary engineers, fifty-two drainage projects to eliminate breeding places of malaria mosquitoes are in progress, and others are being prepared. For this work 3,500 men are being furnished by the Civil Works Administration. One hundred and ninety community sanitation projects have been approved and about 1,600 men are employed on them. The third is a state-wide immunization campaign against diphtheria, typhoid and smallpox, in which the vaccines are furnished by the board to any physician in the state. It is estimated that about 200,000 children have been immunized against diphtheria. The number immunized against typhoid and smallpox will be smaller because of previous work in this field, according to Dr. George N. Bilby, Oklahoma City, state health officer.

Society News—The Southeastern Oklahoma Medical Association met in Durant, December 14 with the following speakers among others: Drs. Leonard S. Willour, McAlester, 'Organized Medicine'; George W. West, Eufaula, 'Defects in Medical Education'; and Forrest P. Baker, Tahlequah, 'Tuberculosis in Childhood'.—Members of the staff of General State Hospital, Norman addressed the Okmulgee County Medical Society, December 18 as follows: Drs. James J. Gable, on "Acute Neurasthenia"; Charles R. Rayburn, "Circulation of the Central System"; and John L. Day, "Mental Hygiene".—Speakers at the meeting of the Southern Oklahoma Medical Association at Shawnee, December 5, were, among others: Louis A. Turley, Ph.D., Norman, "Pathology of Encephalitis"; Drs. John B. Morey, Ada, "Circulatory Diseases of the Extremities"; and Carl T. Steen, Norman, "The Mental Hygiene Movement".—Dr. Floyd S. Newman, Shattuck, addressed the Woodward County Medical Society, Woodward, December 15 on blood transfusion.—Drs. Everett F. Jones and John R. Reagan, Wichita Falls, Texas, addressed the Jefferson County Medical Society, Waurika, December 4 on "Ten Years' Experience with Radium in Uterine Conditions" and "Electrical Treatments for Prostatic Conditions," respectively.

PENNSYLVANIA
Philadelphia

Students Want Health Service Abolished—The *Daily Pennsylvanian*, student publication of the University of Pennsylvania, in a recent editorial recommended that the student health service of the university be abolished. The editorial stated, it is said, that the situation seems to be without remedy, that students cannot boycott the health service because the charge is prorated on their bills each semester no matter what their wishes. The charge to students is said to be \$10 a year, \$5 a semester.

Hospital News—The Women's Homeopathic Hospital celebrated its fiftieth anniversary, October 27—Dr Morris B. Cooperman will give a public lecture at Mount Sinai Hospital, February 28, on "Backache and Flat Feet," one of a series of nine health talks—Jefferson Hospital has become a member of the Circulating Picture Club of the Philadelphia Art Alliance. It is said to be the first institution of its kind to take advantage of the lending library of paintings to be hung in sickrooms and convalescent wards.

Personal—Dr Charles A. E. Codman was elected president of the Medical Club of Philadelphia, January 19—Dr and Mrs John M. Barthmaier celebrated their fiftieth wedding anniversary, January 8—Dr Randle C. Rosenberger reports that a valuable Stradivarius violin has been stolen from his office at Jefferson Medical College—Dr Charles A. Moriarty has been appointed a coroner's physician—Dr Morton McCutcheon was recently elected president of the Pathological Society of Philadelphia, and Herbert L. Ratchiffe, Sc.D., secretary.

TEXAS

Society News—Dr Claude C. Cody, Houston, was elected president of the Texas Ophthalmological and Otolaryngological Society at its annual meeting in Dallas, December 8-9, and Dr Oscar M. Marchman, Dallas, secretary. Among speakers were Drs Harry S. Gradle, Chicago, on "Evaluation of So Called Ophthalmic Advances," James B. Costen, St. Louis, "Conditions of the Jaw," and Lieut. Col. George R. Callender, Fort Sam Houston, "Malignant Tumors of the Eye." The next session will be held in San Antonio, in connection with the meeting of the Southern Medical Association—Dr Walter B. Reeves, Greenville, was elected president of the North Texas Medical Association at its semiannual meeting in Dallas, December 5-6. The June meeting will be held in Terrell.

Health at El Paso—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million for the week ended February 3, indicate that the highest mortality (215) appeared for El Paso, and the rate for the group of cities as a whole, 123. The mortality rate for El Paso for the corresponding period last year was 172, and for the group of cities, 121. The annual rate for eighty-six cities for the five weeks of 1934 was 125, as against a rate of 129 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

VIRGINIA

Bills Introduced—H. 23 to amend the optometry practice act, if enacted apparently would make it unlawful for physicians to prescribe lenses or ocular exercises for the correction or relief of any ocular refractive deficiency or deformity, or visual or muscular anomaly of the human eye. A bill introduced in the House of Delegates, February 6 by Mr. Scott and referred to the Committee on General Laws proposes to amend the law making it unlawful for any tobacco manufacturer to employ opium, either in the tobacco used or in the paper wrappers of cigarettes, by forbidding also the like use of marihuana, loco weed or any other sedative, narcotic or hypnotic drug, like chemical or substance.

WEST VIRGINIA

Society News—Dr Cyrus C. Sturgis, Ann Arbor, Mich., addressed the Ohio County Medical Society, Wheeling, January 19, on "Diagnosis and Treatment of the Macrocytic Anemias." Dr Porter P. Vinson, Rochester, Minn., addressed the society, January 5 on diagnosis and treatment of cardiospasm—Dr Russell B. Bailey, Wheeling, addressed the Marshall County Medical Society, January 9 on cancer of the breast.

—Dr William V. Wilkerson, Montgomery, addressed the Fayette County Medical Society, Oak Hill, December 12, on neurologic diagnosis.

Rural Sanitation Program—Dr Frederick T. Foard, Jr., of the U. S. Public Health Service, has been assigned temporarily to the West Virginia State Department of Health to assist in the organization and supervision of a state-wide rural sanitation program. The plan, which is being carried out by the health department in cooperation with the Public Health Service and the Civil Works Administration, has as its objective improvement of sanitary conditions in all farm homes and homes at mining camps. About 3,000 men are already at work and it is expected that about 8,000 will be employed on the project by March 15.

WISCONSIN

Personal—Dr George H. Conklin, Superior, has been selected as superintendent of the Douglas County tuberculosis sanatorium—Dr Harry Beckman, professor and director of the department of pharmacology, Marquette University School of Medicine, Milwaukee, has been appointed American collaborating editor of *Clínica y Laboratorio*, published in Zaragoza, Spain.

GENERAL

Radium Lost—A package containing 50 mg. of radium in the form of four standard monel metal needles, each measuring about 27 by 175 mm. in diameter, was mailed to Dr. Donald D. Stoner, Flatonia, Texas, by Dr. Harold Swanberg, Quincy, Ill. Thus far, Dr. Swanberg reports, it has not been received by Dr. Stoner and has apparently been lost or stolen. The package was dispatched by special delivery insured mail.

Change in Status of Licensure—The California State Board of Medical Examiners reports the following action taken at a meeting, Oct. 19, 1933:

Dr. George B. Dewees, Fresno, found guilty of habitual intemperance and placed on probation for five years, ordered to report at each San Francisco meeting and not to violate any laws.

Dr. Robert S. Friend, Long Beach, license revoked for narcotic violation.

The Florida State Board of Medical Examiners reports the following:

Dr. Vladimir K. Jindra, Miami, license revoked Nov. 13, 1933 on the basis of several criminal charges including a criminal operation in 1933, a felony in 1917, a narcotic violation in 1933 and a conviction of the crime and offense of culpable negligence, 1930.

Valley Meeting—The thirty-ninth annual session of the Sioux Valley Medical Association convened in Sioux City, Iowa, January 23-24, under the presidency of Dr. Sidney A. Slater, Worthington, Minn. Papers were presented by the following physicians:

Alfred W. Adson, Rochester, Diagnosis and Treatment of Spinal Cord Tumors.

Austin C. Davis, Rochester, The Myxedema Problem.

Charles M. McKenna, Chicago, Significance of Blood and Pus in the Urine.

Philip C. Jeans, Iowa City, Certain Aspects of the Feeding Problem.

Owen H. Wangersteen, Minneapolis, Acute Bowel Obstruction.

Robert O. Schrock, Omaha, Fractures of the Tibia and Fibula.

Solon Marc White, Minneapolis, Nonpainful Features of Coronary Occlusion.

Frederick H. Falls, Chicago, Premature Detachment of the Placenta.

Numerous clinics were also included in the program.

Golden Jubilee of Annals of Surgery—The fiftieth anniversary of the *Annals of Surgery* is commemorated with a special volume, containing an editorial tribute on Dr. Lewis Stephen Pilcher, Brooklyn, who has served continuously as editor. The *Annals of Surgery* is the outgrowth of the *Annals of the Anatomical and Surgical Society*, which was the transactions of the Brooklyn Anatomical and Surgical Society, established in 1878. The first volume bears the date 1878-1879, but in the following year it became the *Annals of Anatomy and Surgery*, a monthly periodical under Dr. Pilcher's editorship. This arrangement continued until 1884, when he went abroad for special study in surgery. After he returned, however, the publication was issued as the *Annals of Surgery*. Dr. Pilcher received his degree in medicine at the University of Michigan in 1866 and the degree of doctor of laws from the same institution in 1900. He was adjunct professor of anatomy at Long Island College from 1879 to 1883, and professor of surgery at New York Post-Graduate Medical School from 1885 to 1895. In 1892 he was president of the New York State Medical Society and of the Medical Society of the County of Kings in 1900. He was president of the American Surgical Association in 1918. He was a member of the Board of Medical Examiners of the State of New York from 1913 to 1928. He retired from the U. S. Navy in 1872, having served since 1867 as assistant surgeon.

Medical Bills in Congress—Change in Status H R 7527 has passed the Senate, making an additional appropriation for the continuation of the Civil Works program. As passed by the Senate, the bill provides, in part, that the United States Employees' Compensation Commission "is hereby authorized in its discretion to provide for the initial payments of compensation and the furnishing of immediate medical attention through the local authorities of the Civil Works Administration." *Bills Introduced* S 2476, introduced by Senator Capper, Kansas, proposes that for the purposes of promotion, longevity pay, and retirement there shall be credited to the officers of the Veterinary Corps, and former officers of the Veterinary Corps now on the retired list, all full time service rendered by them as veterinarians in the Quartermaster Department Cavalry or Field Artillery S 2571, introduced by Senator Johnson California proposes to authorize the Secretary of the Interior to arrange with the several states for the education medical attention, relief of distress, and social welfare of Indians S 2574, introduced by Senator Walsh Massachusetts, proposes that all officers of the Dental Corps of the Navy who entered the service prior to July 1, 1918, and who had not on that date attained such minimum age as to provide for their eligibility for appointment to the Dental Corps of the Navy, and whose active service has been continuous, shall for purposes of precedence, be credited with their total active commissioned service S 2602, introduced by Senator Lewis, Illinois, proposes to include the name of Gustaf E Lambert among those honored by "An Act to recognize the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever" S 2688, introduced by Senator Sheppard, Texas, proposes to validate payments heretofore made by disbursing officers of the Army for the medical and hospital treatment of members of the Reserve Officers' Training Corps and of the Citizens' Military Training Camps who contracted disease in line of duty while en route to or from and while at camps of instruction H R 7259, introduced by Representative Celler, New York, proposes to confer additional benefits on veterans Among other things the bill provides that any World War veteran employed in the active military or naval service between April 6 1917, and Nov 11 1918, not dishonorably discharged in need of hospitalization or domiciliary care and unable to defray the necessary expenses thereafter, may be furnished the necessary hospitalization or domiciliary care in any Veterans Administration facility, irrespective of whether the disability was due to service A statement by the veteran that he is unable to defray the expenses necessary for hospitalization or domiciliary care must be accepted by the Administrator of Veterans' Affairs as conclusive evidence of that fact H R 7262, introduced by Representative Gasque, South Carolina and H R 7335, introduced by Representative Gillette, Iowa, propose to grant pensions and increases of pensions to certain soldiers, sailors and nurses of the war with Spain the Philippine insurrection or the China relief expedition, and their widows and dependents H R 7313 introduced by Representative Mitchell, Tennessee proposes to authorize the erection of a veterans hospital in middle Tennessee H R 7350, introduced by Representative Ludlow, Indiana, proposes to grant pensions and increases in pensions to certain soldiers and sailors of the war with Spain the Philippine insurrection, or the China relief expedition, to certain maimed soldiers, to certain widows, minor children and helpless children of such soldiers and sailors H R 7802 introduced by Representative Black New York provides for the further development of vocational education in the several states and territories H R 7804, introduced by Representative Cochran, Missouri, proposes to authorize the Reconstruction Finance Corporation to make loans to any public or private hospital organized under the laws of any state

Deaths in Other Countries

Angel Brioso Vasconcelos, Mexico City professor of hygiene, Military School of Medicine, 1923-1933 clinical professor of venerology, National School of Medicine, 1925-1927, for many years chief of the department of disinfection in public health service, editor of *Gaceta Medica* 1919-1927, correspondent to THE JOURNAL, 1919-1925 member of many scientific societies and author recently aged 50—**Sir Donald Mac alister**, since 1904 president General Medical Council, chairman, British Pharmacopoeia Committee author, London, January 14, aged 79—**Sir William Bate Hardy**, biologist and refrigeration expert, aged 69, died in Cambridge, January 23 Sir William delivered the Flexner Lectures at Vanderbilt University School of Medicine, Nashville, Tenn, in 1931—**Dr Bernard Hollander**, founder and president of the Ethnological Society and past president of the Societe Inter-

nationale de Philologie, Sciences et Beaux-Arts, editor of the *Ethnological Journal*, and formerly clinical assistant to Professor Kraft-Ebing, Vienna, and author of numerous tracts on psychotherapy, aged 69, following an operation

Government Services

Dr Whitehead Named Director of Aeronautics

The appointment of Dr Roy E Whitehead, Indianapolis, as chief of the medical section of the aeronautics branch of the U S Department of Commerce, Washington, D C, succeeding Dr Eldridge S Adams, resigned, has been announced Dr Whitehead, who is 40 years old, graduated from the Indiana University School of Medicine in 1920 He is also a graduate of the army school of aviation medicine and is at present the Indiana governor of the National Aeronautics Association

Monthly Meetings of Naval Officers

Rear Admiral Perceval S Rossiter, surgeon general of the U S Navy, has initiated monthly meetings for the medical officers living in and near the District of Columbia At each meeting a subject of medicomilitary or scientific interest will be presented and a social hour will follow At the first meeting, October 2, the surgeon general discussed current activities of the department and at the second, November 6, Dr Victor G Heiser of the Rockefeller Foundation spoke on "Medical Observations During the Past Year in Many Lands" Dr Maurice C Pincoffs, professor of medicine University of Maryland, Baltimore spoke, January 8, on "Clinical Aspects of Various Types of Respiratory Difficulty"

Federal Expenditures for Emergency Medical Relief

The Federal Emergency Relief Administration expended \$3,291,970 for medical care throughout the country from July 1 to Nov 30, 1933, according to a report issued January 27 Expenditures by months were as follows July, \$921,137, August \$989,489, September, \$941,486, October, \$911,666 November, \$852,882 A table of amounts allocated to individual states for November shows that the largest amount went to Indiana, which received \$115,906 31 Illinois, \$84,797, Wisconsin \$63,062 38, Massachusetts \$47,219 61 and New Jersey \$43,004 71 No funds were expended by Idaho, Michigan, Oklahoma, Texas or Wyoming These figures do not include expenditures of the government for medical treatment for occupational injuries sustained by the 4,500,000 persons temporarily employed by the Civil Works Administration who come within the scope of the Federal Employees Compensation Act

Medical Center for U S Penal System

The opening of the U S Hospital for Defective Delinquents, Springfield, Mo, marks the completion of a program of prison improvement authorized by Congress in May 1930 The new hospital is considered an essential unit in the government's attempt to specialize the treatment of persons committed to its care It will be used only for prisoners over whom the federal government has assumed jurisdiction When the prisoner finishes his term he will be returned to the state of his domicile for further care and treatment Said to be the only one of its kind in the world, the institution will serve as a medical center for the entire federal penal system The first prisoners to be transferred will be a group of mental patients now cared for at St Elizabeth's Hospital, Washington D C, and later the sick and insane prisoners now inadequately housed in federal prison hospitals The institution will also care for prisoners who during the time of their detention, become afflicted with an incurable or chronic degenerative disease, or become so defective mentally or physically as to require special medical care and treatment not available in an existing federal institution The site, consisting of 445 acres donated by citizens of Springfield, was selected as the most suitable of about thirty sites offered Besides being located centrally with reference to all the widely scattered institutions in the federal system, the hospital has a favorable climate because of its location in the Ozarks region and its elevation Eight buildings have been erected thus far at a total cost of \$2,040,983 The center will accommodate 705 patients and the average bed cost per patient will be about \$2,900 Dr Lawrence Kolb of the U S Public Health Service will be in charge The hospital was formally dedicated September 22

Report of Surgeon General of Navy

For the third year in succession, motor vehicle accidents were responsible for more deaths and noneffectiveness among the personnel of the United States Navy than any other group of hazards, being responsible for 70 deaths and 1,149 admissions to the sick list, according to the report of the surgeon general for the calendar year 1932. In 1932 only 34 deaths, including two suicides, were caused by drowning, which until 1930 was the leading cause of death in the navy. Of 371 deaths in the service, a decrease from 391 in 1931, 186 were caused by disease, 113 by accidental injuries and 3 by poisoning. There were 15 homicides and 19 suicides. Three war casualties were reported from the Marine Corps expeditionary forces in Nicaragua. Among diseases the leading causes of death were diseases of the circulatory system 35, pneumonia, 26, tuberculosis, 22, abscess, 10, appendicitis, 9, and influenza, 6. One death occurred from septicemic plague on a ship at Kuikang, China, and one from smallpox in Shanghai. The hospital admission rate for 1932 was 554.06, as compared with 565.92 for 1931. Of 61,344 admissions, 30.81 per cent were for communicable diseases transmitted by oral and nasal discharges, 24.12 for venereal disease, and 10.84 for wounds and injuries. There were 18,902 admissions in the first class, of which 13,110 were classified as cases of acute catarrhal fever, a term used to include the common cold. In this type of infection there was a 25 per cent increase over 1931, but the entire group showed a lower incidence than for the previous year. Influenza accounted for 1,637 admissions, compared with 2,384 for 1931. A moderately severe epidemic occurred, however, in July 1932 in the forces afloat, which assumed such proportions that movement of ships, gunnery exercises and other fleet activities were affected. These so-called minor infections are of more importance from the standpoint of the health of the navy than diseases such as measles, scarlet fever and diphtheria, the report says. Mumps was less prevalent than for the preceding ten years, with 124 admissions, a rate of 112 per hundred thousand, the median rate for the preceding five years was 427. Scarlet fever was unusually low, with a rate of 33 per hundred thousand, as compared with 71 for 1931. The lowest admission rate since 1924 was reported for Vincent's angina, 543 per hundred thousand. Three cases of smallpox and three of acute anterior poliomyelitis were reported. Venereal disease was second in number of admissions with 14,794, a slight reduction from the previous year. Wounds and injuries were third with 6,588. The report noted 3,684 surgical operations. During the year 63,152 persons were cared for in naval hospitals with a total of 2,621,429 treatment days. Of the number treated, 37,504 were patients of the Veterans' Administration, 20,679 of the navy and 4,969 of supernumeraries. A total of 1,259 persons were invalided from the service during the year. In a report covering activities of the medical department for the fiscal year ended June 30, 1933 the surgeon general reports the closing of the Naval Hospital at Great Lakes, Ill. and the beginning of construction of a new hospital at Philadelphia in February 1933. The loss of the airship *Akron* April 4, 1933, resulted in the death of sixteen officers, one warrant officer and fifty-five enlisted men. At the close of the fiscal year the force consisted of 891 medical officers, 192 dental officers, 140 warrant officers, 466 nurses and 3,794 hospital corpsmen. Two hundred and nine medical officers were on duty with the Civilian Conservation Corps but will be gradually returned to duty. There were forty-nine qualified flight surgeons in the division of aviation medicine at the close of the fiscal year. There were 508 medical officers and 188 dental officers in the reserve corps. During the year eleven new officers were commissioned and twenty-four were separated from the service—eleven by retirement, eight by resignation and five by death. Research projects of the year concerned the use of the submarine lung, deep sea diving, chemical warfare, ventilation of ships and physiologic effects of sudden changes in speed and direction of airplane flight.

CORRECTION

Discussion by Dr. Gutierrez—In the abstract of discussion in *THE JOURNAL*, January 20, page 192, the word 'cystoscopy' is incorrectly used for the word 'cystostomy' in the discussion of Dr. Robert Gutierrez of New York. In the fourth line from the end of this discussion the part beginning with 'first removing the obstruction' should read as follows: 'first a cystostomy is performed to relieve the infection and back pressure, secondly a prostatectomy to remove the obstruction and thirdly, a diverticulectomy.'

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan 20, 1934

The Voluntary Sterilization of Mental Defectives

In 1932 the minister of health received a deputation from the Association of Municipal Corporations, the County Councils Association and the Mental Hospitals Association, because of the growing burden on the community imposed by mental defectives. The result was that a sterilization committee was appointed to consider the prevention of the propagation of defectives. Among the members were Mr. Wilfred Trotter, sergeant surgeon to the king, eminent both as a surgeon and as a philosopher, Dr. A. F. Tredgold, an authority on mental deficiency, Prof. R. A. Fisher, and Dr. R. H. Crowley, senior medical officer of the board of education. They made careful inquiries into the causes of mental deficiency and mental disorder and heard the evidence of sixty witnesses among whom were representatives of the Royal Colleges of Physicians and Surgeons, biologists, geneticists, psychiatrists and social workers. Nearly all the witnesses agreed in principle as to the legalization of voluntary sterilization and the undesirability of permitting mental defectives and persons liable to recurrent attacks of insanity to become parents. The committee's report has just been published. It considers that a calculation previously made by another committee that the number of mental defectives in England and Wales was not less than 300,000 is not an overestimate. As far as the committee can see, the incidence of mental deficiency is increasing, though not at a rapid rate and there is no ground for the alarmist talk of wholesale racial deterioration. It finds that inheritance plays a large part in the causation, in not less than 80 per cent of the cases it is a contributory factor, although in many instances unfavorable environment is also a cause. The committee made an inquiry, which it considers of great importance. For the first time, instead of asking what kind of parents the defectives had, the investigators asked what the children of defectives were like. They found that of 1,800 children of mental defectives between 7 and 13 years of age, 40 per cent were subnormal mentally, and of 1,850 children over 13 years of age, 45 per cent were mentally subnormal. As one fourth of the children of the mentally defective parents under review had died and the percentages apply only to survivors, it is submitted that the figures indicate an urgent problem. In regard to what is comprehensively termed 'insanity' by the public, the committee considers that inheritance here also plays a large part in causation.

THE COMMITTEE'S RECOMMENDATION

The committee was impressed by two things: the dead weight of social inefficiency and individual misery entailed by such a large and increasing number of defectives and the injustice of refusing those who may have good grounds for believing that they may transmit mental defect and who are in every way unfitted for parenthood the only effective means of escaping from a burden they dread. Compulsory sterilization the committee rejects, as it could be justified only if it could be shown that some of the offspring of a particular person were bound to be mentally deficient. In the present state of scientific knowledge this cannot with certainty be predicted by examination of one partner of a union. Also compulsion would defeat itself, for if public opinion is favorable it would be unnecessary, if indifferent compulsion would tend to turn indifference into hostility and mental deficiency would be driven under ground. The committee therefore recommends that voluntary sterilization be made legal. Voluntary absti-

nence is not a remedy. It is idle to expect that the section of the community least capable of self control will restrain one of the strongest impulses of mankind. When the patient is not competent to give consent, that of the parents or guardians must be obtained. When the patient cannot bear the full cost of the operation, this will be paid by the authorities concerned. In all stages the procedure is to be treated as confidential. The patient, when married, must notify the spouse of the application. The committee points out that legislation in America has been effective only in those states in which sterilization is performed on a voluntary and not on a compulsory basis. The committee's recommendations are wider than its terms of reference—that sterilization should be legalized also for persons suffering from or liable to transmit a grave physical disability, such as blindness, deaf mutism, hemophilia and brachydactylia. "The case for legal sterilization," it says, "rests on the broad principle that no person, unless conscience bids, ought to be forced to choose between complete abstinence from sexual activities and risking bringing into the world children whose disabilities will be a burden to themselves and to society." In the case of a person who has suffered from mental disorder, the operation should not be performed until a competent psychiatrist has reported that in his opinion no injurious results will be likely to follow. In all cases in which the patient is capable of giving consent he should sign a declaration of willingness to be sterilized. Physicians in recommending sterilization should have protection similar to that accorded in the certification of lunacy. Two medical certificates are to be required for each operation, one from the family physician and one from a physician on a list approved by the minister of health. Doubtful cases are to be referred by the minister to a small advisory committee of physicians and geneticists.

As there may be considerable difficulty in determining the applications of persons who are suffering from or are believed to be the carriers of inherited diseases and disabilities, the committee advises the appointment of a small advisory committee of physicians and geneticists to which the ministry of health may refer doubtful cases. It is recommended that sterilization shall not be performed in any mental hospital or mental deficiency institution, so that the impression may be avoided that it is in any way connected with the institution.

Increase of Road Accidents

Every day in 1933, 19 persons were killed and 592 injured on the roads of Great Britain—an increase in the deaths of more than one per day over those of 1932. This alarming toll is shown in the official figures for 1933, just issued:

	1933	1932	Increase
Total road accidents in Great Britain	191 829	184 006	7 823
Total deaths	7 125	6 667	458
Injured persons	216 401	206 450	9 951
<i>London</i>			
Killed	1 409	1 266	143
Injured	56 967	52 447	4 520

The streets of the big cities and towns are the most dangerous, with London the worst.

This increase of accidents is disappointing, in view of the fact that the government has attempted to deal with the terrible road peril by legislation and that such devices as one-way traffic, marking of the roads, danger signals and automatic control of traffic by colored lights have been introduced. Concern has been expressed in many quarters. Sir A. K. Butterworth, chairman of the Pedestrians Association, is more convinced than ever that, until speed on the roads is reduced, improvement cannot be expected. The increase of accidents does not imply more dangerous driving, for it may be due to the greater number of automobiles. A census taken last summer by the Automobile Association showed an increase of a million vehicles over 1928.

Improvements in X-Ray Technic

At the congress of the British Institute of Radiology, Dr. A. Bouwers of Eindhoven delivered a lecture on "Modern X-Ray Developments" and showed one of the smallest x-ray machines in the world, an instrument weighing only 7 pounds and capable of taking perfect photographs in two seconds. He described the chief objects of modern developments as the obtaining of still better results and greater simplicity of method. The Geiger counter was a highly sensitive device for dose measurement but so far had been used exclusively for other radiation. Referring to the disintegration of atoms, he said that if the application of the neutrons in combating cancer proved successful it was still an open question whether the interesting method of Lawrence or the method of the high tension generator would constitute the best source.

Inferiority of Artificially Prepared Vitamins to Fresh Foods

Lecturing to the Edinburgh Women's Citizens' Association, Dr. Chalmers Watson said that the clinical value of vitamins prepared in the laboratory fell far short of expectations based on the claims made. The impression was gaining ground that by far the best way of administering vitamins was to give a sufficiency of good fresh foods.

PARIS

(From Our Regular Correspondent)

Jan 3, 1934

Vaccination Against Diphtheria

It will be recalled that Mr. Ramon and Mr. Debre, by increasing the potency of antidiphtheritic anatoxin (toxoid), were able to reduce the number of injections and to confer, at the same time, a stronger and more durable immunity. Several hundred children have been vaccinated, in Belgium, France and Tunisia, by means of two injections (1 and 2 cc., respectively, with an interval of three weeks) of a diphtheritic anatoxin with a potency of twenty antigenic units. One month after the second injection, 99.5 per cent of the children had become immunized, as shown by a negative Schick test. The conferring of immunity by means of two injections of an anatoxin, with a potency of at least twenty units, does not render superfluous the precaution of giving a third injection, six months or a year or more, after the vaccination. By this precaution one reinforces the immunity of certain children in whom the amount of antitoxin received was scarcely sufficient immediately after the vaccination or in whom the immunity conferred has become reduced, and one strengthens in this manner the resistance of vaccinated subjects toward diphtheria. The immunity is further strengthened if, at the same time, an injection of antityphoid vaccine is given. This fact was discovered by Mr. Crouzon, but Mr. Ramon has fully confirmed that the two vaccinations (antidiphtheritic and antityphoid) given simultaneously, instead of inducing an antagonism, mutually strengthen each other in a remarkable manner. One secures in this manner a much stronger and more durable immunity.

Treatment for Operative Shock

Professor Pauchet recently recommended a treatment for accidents ascribable to operative shock, with which he states that he has secured excellent results. Blood transfusion aids only in the event of fall of arterial pressure or loss of blood cells through hemorrhage. Pauchet decided to use embryonic tissues, which are rich in trephones. Embryonic tissues of cows—which exert a cytogenic action on the cells of all tissues—had already been employed. Pauchet, finding that those trephones do not keep well, used the trephones of a chicken embryo, prepared as occasion requires. He selects embryos from eggs that have been incubated from nine to eleven days. He grinds them up

with physiologic solution of sodium chloride, filters the mixture, and then transfers it to ampules containing 100 cc each, without sterilization. It should be used within forty-eight hours by the buccal route or, which is still better, by rectal injection. Pauchet administers one ampule a day for the two days preceding the operation, in order to increase the resistance of the subject. In case of shock during the operation, he prescribes another ampule. Then, if signs of shock appear after the operation, he prescribes an ampule at the end of 36 and of twelve hours. The observations reported by Pauchet are extremely convincing. It was a question of patients who had undergone long operations for gastric or intestinal ulcers, with extensive resections of the digestive tract, who nevertheless, on the following day, were in good condition, with normal blood pressure and good color.

Sedentary Diseases

The recent session of the Société de pathologie comparée was devoted to a single topic, the disorders incident to a sedentary life. Dr. Bellin du Coteau, an ardent sport advocate, began his remarks with the statement that intensive physical culture belonged only to youth, and primarily to the period that precedes the completion of body growth. Later, its role is merely to preserve, by proper training, the results acquired. One should not expect, when taken up late in life, that it will modify the constitution. Mr. de Chaisemartin emphasized the need of medical supervision of all intensive sport activities. Professor Marcel Labbé discussed the effects of a sedentary life on organic equilibrium. The disorders are manifested by the development of a type of obesity which differs from that due to excessive diet. The locomotor apparatus—muscles, bones, joints—is deeply affected, which is manifested by muscular atrophy and the weakness of movements, stiffness of joints, and fragility of the bones. The respiratory functions are diminished and the thorax does not develop properly. The circulatory functions are retarded and the extremities are cold. Digestion is poor. Finally, the intellectual energy and the morale become impaired. Mr. Boigey, who described the situation with even greater preciseness, said that in some persons who have led a highly sedentary life for a long time and have abandoned all forms of physical exercise there develops an infiltration of the cellular tissues by the body fluids. One observes in them a sort of general inhibition of the movability of the smooth muscles, a condition resulting in tenacious algias in the areas of the infiltrated cellular tissue. In this process no trace of inflammation or infection can be discovered. There is never any rise of temperature. Such a condition is due solely to algias associated with cellular infiltration. Hereditary tuberculosis, chronic alcoholism and syphilis frequently predispose these subjects to cellular infiltration. But it is chiefly hereditary deficiency of elastic tissue that constitutes the predisposing cause. In many subjects so affected there are concomitant ptoses, hernias, gastric dilatation, varices and livid streaks on the thighs and breast.

The treatment may be summed up in two words: exercise and massage. Exercise increases metabolism and favors the fixation of oxygen in the tissues. It checks in this manner the production of acidity and prevents hydrophilia of the tissues from manifesting itself.

Deaths

Dr. Leopold Lévi, who has died at an early age, was the best known specialist in endocrinology in France. His book, *Ophothérapie endocrinienne*, was awarded a prize by the Académie of Sciences. Professor Achard had created for him a special consultation service in endocrinology in his department at the Hôtel Dieu.

Dr. Boureau, the chief anesthetist of Professor Gosset, has died under peculiar conditions. During sleep a dental bridge

became detached and entered the lung. In spite of three interventions to remove the foreign body, which roentgen examination revealed clearly, the patient succumbed to pulmonary gangrene.

BERLIN

(From Our Regular Correspondent)

Jan 1, 1934

The Health of the Youth of Germany

According to statements of Dr. Hans Hoske, consulting physician for the department of juvenile welfare connected with the public works administration, health conditions among the youth of Germany pursuing a gainful occupation are unfavorable. In general, about a third of the juveniles do not present a full capacity for work. The percentage of apprentices who are in need of treatment or prolonged relaxation is much higher in the large cities (43.3 per cent) than in the cities with a population under 20,000 (33.04 per cent). The cities of East Prussia, surrounded by a healthy rural population, present a much lower proportion of persons in need of treatment (22.2 per cent) than the average of the small cities (33.47 per cent). The damaging effects of city life, as regards air and light conditions, are especially marked in the girls. Dr. Hoske calls attention to the circulatory disturbances in juveniles and to the nervous conditions especially in girls. Only 38 per cent of the girl apprentices and 37.5 per cent of the boy apprentices take systematic bodily exercise. From this neglected class of persons come later those who constitute a heavy burden for the social insurance system. It will be necessary, with respect to the juveniles who have just finished their schooling, to introduce frequent vacations into the working period, and gradually, at the end of the apprenticeship, to accustom them to the working hours of adults. Furthermore, large numbers of young persons gainfully employed do not have an adequate legally regulated paid vacation. This problem is absolutely in need of federal regulation. It appears that, in the future, supervised vacations (that is to say, control with a view to enforcing proper rest and recreation) will have to be inaugurated.

The Law Pertaining to the Protection of Animals

In May 1933, through changes in the penal code, increased protection was given to animals (*THE JOURNAL*, Sept. 23, 1933, p. 1011), and now the federal law, which becomes effective, February 1, has been published. The law states that "Unnecessary tormenting or rude treatment of animals is prohibited," and that is explained in the next provision: "Any person who causes an animal long continued or repeated pain or suffering of a noteworthy degree is guilty of tormenting such animal. Tormenting of an animal is unnecessary if it serves no reasonable justified purpose. Any person who causes an animal considerable pain maltreats such animal. Maltreatment is rude when it results from a lack of feeling." Certain forms of tormenting are prohibited in detail: neglecting an animal that is being cared for so that it suffers from such neglect; noteworthy pain or marked damage using an animal unnecessarily for the performance of work that is evidently beyond its strength; and causes it noteworthy pain, this applies also to animal training, preparation of motion pictures, and the like, when associated with noteworthy pain or damage to health, the disposing of or acquiring of a domestic animal that is ill, weak, worn out or old and for which continued existence is a torment, for any other purpose than immediately to put it out of its misery by a painless process, the exposing of an animal to the elements, in order to get rid of it, the training of dogs by inducing them to chase living cats, foxes, or other animals, or testing them in such manner the clipping or cutting of the ears or tail of a dog more than 2 weeks old except under anesthesia, the shortening of the dock of a horse, except in

case of disease (and then only by a veterinarian under anesthesia), the carrying out of any painful intervention on an animal in an unsuitable manner and without anesthesia, as painful interventions may be mentioned in detail the castration of horses, bovines or swine (if more than 3 months old) or pubescent rams and he-goats. Anesthesia is not required in interventions on animals if the pain involved is but slight or if similar interventions are commonly performed on man without anesthesia or if, in the opinion of veterinarians, anesthesia is impracticable. The application of forced feeding to poultry is prohibited, likewise the detachment of legs of living frogs.

Regulations concerning experiments on living animals, as finally adopted, supersede the temporary provisions announced a few months ago (*THE JOURNAL*, Oct 28, 1933, p 1404). In principle, persons are prohibited from performing interventions on living animals or applying treatments to them if such interventions are associated with noteworthy pain or damage; this prohibition covers all painful and operative experiments including bloodless or other experiments. The term "experiment" comprises not only the first intervention or the first treatment but also the whole course of an experiment extending over a longer period of time. These special regulations are designed for the speedy elimination of unauthorized persons who have heretofore engaged in animal experimentation. The federal minister of the interior may extend to certain scientific institutes permission to perform animal experiments, if all requirements have been met. Any person however who undertakes such experiments without permission shall receive a prison sentence up to six months, in addition to the imposition of a fine. Only reliable persons who have completed a course in a university will be regarded as responsible directors of institutes. Experiments may be carried out only on the full responsibility of the scientific director or his specifically empowered representative, and only by properly trained persons or under their direction, and then only with the avoidance of all unnecessary infliction of pain. Experiments for research purposes may be undertaken only in case they promise a definite result not yet confirmed by science or serve to clarify previously unsolved problems. Experiments may be performed only under anesthesia (local or general) unless, in the opinion of the scientific director, the purpose of the experiment absolutely excludes anesthesia or in case, by the application of anesthesia, an animal would be worried more or its well being would be more impaired than by the intervention to be performed. In the exceptional cases in which a severe operative or bloodless painless experiment must be undertaken, no second experiment of the kind may be performed on the same animal. In extensive interventions or in the event of extreme pain, animals should be killed at once. Experiments on horses, dogs, cats or monkeys may be performed only when through experiments on other animals the objective cannot be attained. Animal experiments for instruction purposes are permitted only in the event that pictures, models, prepared specimens and films do not suffice. Reports should be made of animal experiments—which should include a clear statement of their purpose. Exceptions to these provisions lie in favor of experiments connected with the administration of justice, and vaccinations and blood withdrawals for diagnostic purposes or for the obtaining or testing of serums or vaccines in accordance with recognized or officially approved procedures. Here too, if conditions require it, animals should be painlessly killed.

Dr Giese, the administrator in the federal ministry of the interior, stated that, through the application of these strict officially controlled measures a guaranty would be furnished that experiments on living animals will no longer be regarded by a large portion of the population as cruel or immoral acts but rather as an important link in the chain of research methods. Accordingly, the daily press is expected to refrain from publish-

ing reports of experiments on living animals, and the medical press is urged to describe, if occasion arises, all animal experiments in such a manner that it is apparent that all possible consideration was shown the experimental animals.

The penalties have been greatly increased. Unnecessary tormenting or the cruel treatment of an animal renders a person liable to a prison sentence up to two years, in addition to a fine. It may be ordered also that the tormented animal shall be cared for elsewhere, up to three months, at the expense of the guilty party. If any individual wilfully or through carelessness shall neglect to restrain children or other persons under his (or her) supervision, and belonging to the same household, from acting in violation of this law, he shall be subject to punishment.

Another result of the new law is the official merger of the 679 societies for the protection of animals to form the *Reichstierschutzbund* the president of which is Dr Buttman, the director of the department of public instruction associated with the federal ministry of the interior.

The Hygienic Conditions of Sanatoriums

The economic situation of the convalescents' homes and sanatoriums of the carriers of the federal insurance system has become so unfavorable that an investigation and reorganization committee with participation of the *krankenassen* has been appointed to improve the sanitary conditions in these institutions. A general shifting of patients and a reassignment to be effected by a central committee are planned. Institutions that, from an economic and a medical point of view, have proved to be impracticable will either be closed or used for other purposes. In 1931 the homes of the *krankenassen* were occupied only up to 50 per cent of capacity and in 1932 only up to 30 per cent so that many *krankenassen* have had to raise their rates charged in these homes in order to pay operating expenses. The mistake that has caused the most trouble is that many *krankenassen* thought that they ought to have a convalescents' home or a sanatorium of their own (or sometimes more than one) so that, in many regions, more homes exist than there is need for, with the result that all in recent years, have been only partly occupied.

BUENOS AIRES

(From Our Regular Correspondent)

Dec 5, 1933

Treatment of Hydrocyanic Acid Poisoning

The experimental work of Dr Enrique Hug shows that an antidote for hydrocyanic acid poisoning is the association of sodium thiosulphate and sodium nitrite. Sodium nitrite injected intravenously changes some of the hemoglobin into methemoglobin. The methemoglobin, in turn, combines with hydrocyanic acid to form a less toxic cyanhemoglobin. Then sodium thiosulphate is injected. If used alone intravenously, sodium nitrite or sodium thiosulphate may save persons poisoned by hydrocyanic acid but if given together their efficacy increases. Amyl nitrite may be given by inhalation at first to get rapid action but its value is less than that of sodium nitrite intravenously. These studies have been made in a large number of rabbits poisoned by ingestion and in dogs poisoned by the subcutaneous and intravenous routes. Two human cases at Montevideo and at Rosario have been observed. In man it is advisable to give doses of from 0.1 to 0.2 Gm. of a 2 per cent solution of sodium nitrite, intravenously, alternating with injections of from 2 to 3 Gm. of a 20 per cent solution of sodium thiosulphate. The injection of sodium nitrite should never exceed 1 Gm. The life of one of the patients was saved after the injection of 1.5 Gm. of sodium nitrite but severe cyanosis appeared.

Study of Hydatidosis

Dr Juan Bacigalupo, associate professor of parasitology in the Faculty of Medicine of Buenos Aires, has reported to the Societies of Biology and Surgery some important work on echinococcosis. He observed that the scolices introduced either in the stomach or in the rectum of rabbits or guinea-pigs migrate through the intestinal mucosa and some reach the peritoneal cavity. A few days later numerous scolices are found in the lung, where they give the lung the appearance of having pneumonic or miliary foci. He believes that the probable route of the scolices is through the intestinal lacteals to the thoracic duct and then through the large veins to the lung. These experiments show that the presence of scolices in the intestine of mammals is as dangerous as the presence of ova of *Taenia*, as they lead to infestation of the organism, with the production of hydatid cysts. The partial rupture of hydatid cysts into the biliary system, allowing the passage of numerous scolices into the intestine, is a frequent occurrence. The scolices then can traverse the intestinal wall, causing the reinfestation of the patient and the production of new cysts. The rupture of hydatid cysts into the bronchi may also permit the ingestion of some scolices.

Congress of Medicine to Discuss Amebiasis

The fifth Congress of Medicine will take place in Rosario, September 2-9. The national government has given 100 000 pesos (\$25 000) for this purpose. The committee on organization, presided over by Dr Camilo Muniagurria, decided that amebiasis will be the official topic to be discussed. Drs O da Fonseca of Rio de Janeiro, Guido Izar of Milan, Dobell of London, Greenway Castele and Marotta of Buenos Aires and Mazza of Jujuy have been invited as official speakers. Drs Ludwig Aschoff of Freiburg and C de Moura Campos of São Paulo have also been invited to present papers on the subject. There will be discussions on anatomy, physiology and biochemistry, pathology, internal medicine, surgery and several specialties, and medical education.

Dysentery

Dr Sordelli has reported cases of bacillary dysentery in Las Varillas, Córdoba, Entre Ríos, Goya, Corrientes and the federal capital. The outbreaks have been local and with little mortality. Bacilli of the Flexner, Shiga, Sonne and some other types were isolated.

Exanthematous Typhus

Although there are epidemics of exanthematous typhus in Chile and Bolivia up to the present no cases have been observed in Argentina. Nevertheless some cases which do not seem to be of an endemic form have been reported from the provinces of Tinogasta, Catamarca.

Mottled Enamel

Dr Damon has collected data concerning the regions of Argentina in which 'mottled enamel' is observed. Muñoz has verified the increase of fluorides in the water supply of those regions.

Validity of Foreign Diplomas in Argentina

The College of Physicians and other similar local associations have asked that the requirements for revalidation of foreign diplomas be increased, demanding a minimum of five years stay in the country before the candidates are permitted to take the examination for practice. A law proposed by Senator Serrey has passed the senate, but it will not be passed, it seems by the chamber of deputies. This has caused great excitement among graduates of Argentine universities. This bill proposes that all Argentineans graduated in foreign countries may practice in Argentina without examination, their

diplomas would be considered valid by a simple declaration of the government. At present foreign physicians must take theoretical and practical examinations in clinical medicine, surgery and obstetrics in the faculties of medicine. Even this simple examination would be suppressed by the proposed law. The universities have protested, as they have the exclusive right to issue diplomas that permit professional practice in Argentina.

Lectures by Foreign Guests

Lectures have been recently given in Argentina by Professor Haen of Berlin on hygiene, Prof Faure Fremiet of the College of France, in Paris, on physicochemistry of the cell, and Prof Ludwig Fraenkel of Breslau on pathology and clinical pathology in women. During the year, Argentina will be visited by Filippo Bottazzi of Naples, L Binet of Paris, A Chatton of Montpellier and Ludwig Aschoff of Freiburg. Drs García Lagos, García Rossello, García Otero and Velasco Lombardini, all of Montevideo, have recently given lectures in Argentina on gastric ulcer, pulmonary radiology, photosensitivity, bronchial obstruction and electrocardiography, respectively.

RIO DE JANEIRO

(From Our Regular Correspondent)

Nov 20, 1933

Lecture on Yellow Fever

Dr Fred L. Soper gave a lecture before the National Academy of Medicine on yellow fever. He demonstrated that the endemic index does not always correspond with the culex index, which includes probably *Culex mansoni*, *Aedes aegypti* and *Psorophora*. He reported on studies made in the valley of Chanaan at Espirito Santo, where he had the opportunity of verifying the foregoing facts. The previous existence of yellow fever there was confirmed by immunologic studies on the blood of cured persons and by pathognomonic lesions of the liver found in persons who died.

The author pointed to the necessity of organizing, in suspected localities, a service of systematic necropsies of all persons who die in less than ten days of a febrile disease. This service has already been established by a law of the provisional government, and a laboratory of the Rockefeller Foundation in Bahia has made 29,000 postmortem verifications. Dr Soper reviewed the status of the yellow fever problem, which is not only Brazilian or continental but international, especially in relation to the west coast of Africa and to Central and South America. Dr Soper stated that new measures must be taken to eradicate yellow fever from the American continent. He praised the yellow fever services rendered by the department of public health and the spirit of cooperation of Brazilian sanitarians who have so nobly helped the Rockefeller Foundation. He recommended (1) the organization of an antilarval service in all cities, towns and villages suspected of being infected, (2) the creation of the postmortem service, (3) organization of the campaign against mosquitoes by a classification as complete as possible of the species found and verification of the possibility of transmission of the disease through them, (4) the organization of a service of rural sanitation, and (5) sanitary and economic measures to attain the proposed objects.

Opening of Surgical Tuberculosis Service

A few days ago the new surgical tuberculosis service of the General Polyclinic of Rio, directed by Prof A. MacDowell, was inaugurated. Numerous persons participated in the celebration. The new surgical section consists of a spacious and well equipped operating room, a modern sterilizing room, wards and an emergency kitchen. The new organization is an innovation here. It is the first surgical organization devoted especially to the treatment of pulmonary and bone tuberculosis installed in the country.

BELGIUM

(From Our Regular Correspondent)

Nov 25, 1933

Treatment of Detachment of the Retina

Mr H Coppez, addressing the Royal Academy of Medicine, recalled that the new treatment for detachment of the retina has awakened great interest, as this disorder was formerly regarded as incurable. He surveyed the factors involved in this serious problem, which is approaching a satisfactory solution.

Gonin, about 1923, in attempting to remedy a laceration of the retina with the thermocautery, produced adhesions that attached the retina to the outermost coat of the eye. He then brought about adhesive chorioretinitis, by the Sourdille method, but confined it to the laceration and to the neighboring tissues. It will be recalled that Sourdille produces adhesive chorioretinitis by injecting under the conjunctiva a solution of mercuric cyanide and puncturing the outermost coat of the eye in several places.

Both of these operations, though they give satisfactory results, present serious inconveniences. The method of Guist and Lindner of Vienna, who inject a small drop of a 3 per cent solution of potassium hydroxide between the choroid and the sclera, and the more recent methods of using diathermy, led Leon Coppez to propose a new operative technic, which has given such results that the speaker did not hesitate to advocate giving it a trial. The technic consists of extraocular applications with the aid of a special electrode (pyrometric electrode), which enables the operator to measure exactly the dose of diathermocoagulation.

After determining the extent of the detachment and noting the retinal laceration, one prepares a diagram of the lesions. After three or four days' rest to bring about a temporary reapplication of the retina to the choroid, the sclera is denuded over the whole area corresponding to the detachment. The laceration is encircled by contiguous diathermic applications to form a continuous barrage of choroiditis. Diathermic applications are then made in parallel rows both vertically and horizontally throughout the denuded scleral area. Thus the laceration is remedied and the retina becomes attached throughout the whole detached area. In order to assure permanent contact of the retina and the choroid, it is necessary to evacuate the subretinal fluid, at the time of the operation and after the operation, by "trepaning" two or more of the lowest diathermic foci and incising crosswise the layer of scleral tissue that has been left.

Intestinal Tuberculosis

In the *Revue belge de la tuberculose*, Warmoes discusses secondary intestinal tuberculosis, which occurs in a considerable number of cases of arrested pulmonary tuberculosis. The intestinal lesions continue their evolution, whereas the pulmonary lesions are arrested. Intestinal tuberculosis takes three forms: ulcerous, fibrous (or hypertrophic), and ulcerofibrous (a mixed type).

Of 260 cases of pulmonary tuberculosis examined at Sysele, near Bruges, intestinal tuberculosis was found in seventy-two, or 27.6 per cent, of forty-three cases with beginning pulmonary lesions, in one, of fifty-seven cases with slightly evolutionary unilateral lesions, in two, of 108 cases of extensive evolutionary lesions, in thirty. In itself, intestinal tuberculosis does not always present an immediate grave prognosis. Some types develop slowly but produce a deterioration of the patient's general health.

Warmoes proposed forms of treatment: vitamins, roentgenotherapy, heliotherapy, surgery. He emphasized that, by means of radiology, it is possible to detect intestinal lesions and that consequently a radiologic examination is advisable in all cases

of pulmonary tuberculosis in which the general condition of the patient is worse than the condition of the lungs would lead one to expect.

Results Secured with Anatoxin

Numerous trials have been made in Belgium with antidiphtheritic vaccination by means of the specific anatoxin of Ramon, Timbal and Nelis, and particularly with immunization in two stages with diphtheritic anatoxin naturally rich in antigenic units (from 20 to 30 units). From the systematic application of vaccination with anatoxin, such as has been carried on for several years, and from the total number of observations made in 14,000 children vaccinated, these authors conclude that

Antidiphtheritic vaccination with anatoxin has been found virtually harmless. The anatoxin if properly prepared and controlled is incapable of provoking a specific intoxication of the slightest nature. The reactions that one may observe in certain persons are associated particularly with the amount of anatoxin in the form of specific antigenic substance, they are always transient and never dangerous. The vaccination never has any bad influence on the later development of the vaccinated child.

The injection of anatoxin is not followed by a negative phase, it does not make the vaccinated subjects more sensitive to diphtheritic infection or to other diseases.

If it possesses a sufficient number of flocculation units and is injected according to the prescribed technic, in the doses and in the intervals of time recommended, anatoxin produces immunity in a high percentage of vaccinated subjects.

The immunity conferred by the anatoxin is of long duration. The percentage of subjects immunized does not diminish during the years following the vaccination.

When applied in the form of two injections (from 1 to 2 cc., with an interval of three weeks, the anatoxin having a potency of at least 20 antigenic units), the vaccination is capable of developing an immunity that gives a negative Schick reaction in from 99 to 100 per cent of the vaccinated subjects. Thus, the reduction of the injections of anatoxin from three to two, and the immunity conferred on practically all the subjects vaccinated constitute a twofold improvement.

The numerous examples here given, which are drawn from an extensive application, prove that vaccination with anatoxin, undertaken systematically and properly, diminishes considerably the morbidity of diphtheria. It checks the progress of endemic and epidemic diphtheria. It constitutes, therefore, the preferred method for the individual and collective prophylaxis of diphtheria.

Marriages

CHARLES H. HALLIDAY, Baltimore, to Miss Frances Allen Steger of University Va., at Gettysburg, Pa., Dec 1, 1933.

GEORGE EDWARD URBAN, Baltimore, to Miss Ellen Josephine Stafford of Catonsville, Md., at Media, Pa., Sept 23, 1933.

FRANCIS WILCOX GLUCK, Baltimore, to Miss Jean Harvey Anderson of Port Deposit, Md., February 2.

MARTIN F. STEIN, New York, to Miss Cynthia Ruth Van Atten of East Orange, N. J., January 20.

JAMES GRADY FAULK, Pembroke, N. C., to Miss Sallie Jane Williams, at Wingate, Dec 27, 1933.

HYMAN MORRIS HUREVITZ, Iowa City, to Miss Edith Robinson of New York, Nov 12, 1933.

BYRON EUGENE BOYER to Miss Margaret Hall Richardson, both of Cincinnati, Nov 4, 1933.

WILLIAM WARREN SOUTHWICK, Marshalltown, Iowa, to Miss Vera Clark, Nov 17, 1933.

CHARLIE NEWTON WADDEN to Miss Eugenia Coleman, both of Macon, Ga., Dec 30, 1933.

SHELDON WILSON REAGAN to Miss Maryan Bryan, both of Elgin, Ill., January 20.

Deaths

Arthur David Dunn ☉ Omaha, Rush Medical College, Chicago, 1902, member of the House of Delegates of the American Medical Association, 1922-1929, professor and chairman, department of clinical research, University of Nebraska College of Medicine, formerly professor of medicine and clinical medicine and vice dean, Creighton University College of Medicine, member of the Association of American Physicians and fellow of the American College of Physicians, past president of the Missouri Valley Medical Society and president-elect of the Omaha Mid-West Clinical Society, on the staff of the Clarkson Hospital formerly on the staff of the Creighton Memorial, St Joseph's Hospital, at one time coroner's physician in Omaha, member of the council on medical education and as such member was active in making the survey of Nebraska hospitals, aged 60, died, January 8, of heart disease

George Edwin McKean ☉ Detroit, University of Michigan Medical School, Ann Arbor, 1894, professor of medicine, Detroit College of Medicine and Surgery, fellow of the American College of Physicians, past president of the Wayne County Medical Society, served during the World War, on the staffs of the Harper Hospital Woman's Hospital, St Joseph's Mercy Hospital, Evangelical Hospital and the Highland Park (Mich) Hospital, aged 65, died, February 4, of pneumococcal meningitis, acute otitis media and mastoiditis

Frederic William Sears, Burlington, Vt., University of Vermont College of Medicine, Burlington, 1888, member and past president of the Vermont State Medical Society, professor of neurology at his alma mater member of the New England Society of Psychiatry, president of the Burlington Health Commission, 1914-1917 neurologist to the Mary Fletcher, Fanny Allen and Bishop de Goesbriand hospitals, formerly superintendent of the Lakeview Sanatorium, aged 74, died, January 2

Robert Young Sullivan ☉ Washington, D C, Georgetown University School of Medicine, Washington, 1905, formerly associate professor of obstetrics and professor of gynecology at his alma mater fellow of the American College of Surgeons, on the staffs of the Georgetown University and Providence hospitals, Columbia Hospital for Women, and the U S Veterans Hospital, Diagnostic Center, aged 52, died, January 16, at Saranac Lake, N Y

Royal Tharp ☉ East St Louis, Ill., St Louis College of Physicians and Surgeons, 1906, past president of St Clair County Medical Society, member of the American Urological Association, on the staff of St Mary's Hospital, served during the World War, aged 49, was killed, Dec 21, 1933, in an automobile accident

Edward Mahlon Palmer ☉ Wichita Kan., University Medical College of Kansas City, 1904, member of the American Academy of Ophthalmology and Oto-Laryngology, fellow of the American College of Surgeons, on the staff of the Wesley Hospital, aged 59, died, Dec 31, of angina pectoris

Otto O Svebakken ☉ Decorah, Iowa, American College of Medicine and Surgery, Chicago, 1906, past president of the Winneshiek County Medical Society, on the staff of the Decorah Hospital, aged 58, was killed, January 12, in an automobile accident near Chiefland, Fla

Michael Shelly Picard ☉ Shreveport, La., Tulane University of Louisiana Medical Department, New Orleans, 1903, past president of the Caddo Parish Medical Society, on the staff of the Shreveport Charity Hospital, aged 54, died, Dec 31, 1933, of heart disease

Logan Lightfoot Thomas, Dawson, Ga., Georgia College of Eclectic Medicine and Surgery, Atlanta, 1897, member of the Medical Association of Georgia, veteran of the Spanish-American War, aged 68, died, Dec 11, 1933, of chronic nephritis

George Hempstead Kennett ☉ Kellogg, Idaho, Rush Medical College Chicago 1902 president of the Shoshone County Medical Society formerly physician and owner of the Wardner Hospital, aged 56, died, Dec 1 1933 of heart disease.

Harry English Shaw, Long Branch, N J., Bellevue Hospital Medical College, New York, 1898, fellow of the American College of Surgeons consulting surgeon to the Monmouth Memorial Hospital, aged 61 died, January 17 of pneumonia

Walter Winfield Widener, Mountain City, Tenn., Tennessee Medical College Knoxville 1900 member of the Tennessee

State Medical Association, served during the World War, aged 62, died, Dec 23, 1933, of cerebral hemorrhage

Arthur Jewett Lougee, Fryeburg, Maine, Columbia University College of Physicians and Surgeons, New York, 1896, member of the Maine Medical Association, aged 63, died, Dec 21, 1933, in Malden, Mass., of bronchopneumonia

Moses George Kotler, Malden, Mass., Tufts College Medical School, Boston, 1920, member of the Massachusetts Medical Society, aged 38, on the staff of the Malden Hospital, where he died, January 7, of pneumococcus meningitis

Joseph Hubert Ambrose Matte ☉ North Adams, Mass., Laval University Faculty of Medicine, Quebec, 1876, member of the school board, on the staff of the North Adams Hospital, aged 85, died, Dec 9, 1933, of pneumonia

John Christopher Smith ☉ Stacyville, Iowa, St Louis University School of Medicine, 1915, secretary of the Mitchell County Medical Society, formerly mayor of Stacyville, aged 45, died suddenly, Dec 29, 1933, of heart disease

Cecil W Brown, Clinton, Iowa, Western University Faculty of Medicine, London, Ont., Canada, 1906, member of the Associated Anesthetists of the United States and Canada, aged 57, died, January 8, of coronary thrombosis

Thomas Stamps, Lumber Bridge, N C., University of Louisville (Ky) School of Medicine, 1888, member of the Medical Society of the State of North Carolina, aged 85, died, January 24, in Norfolk, Va., of pneumonia

Delbert Warren McCrary, Lake City, Iowa, State University of Iowa College of Medicine, Iowa City, 1893, formerly connected with a hospital bearing his name, aged 65, died, January 8, in Pharr, Texas, of heart disease

George Henry Carveth, Toronto, Ont., Canada, Victoria University Medical Department, Coburg, 1884, member of the Associated Anesthetists of the United States and Canada, aged 75, died, January 27, of heart disease

Bryant M Tower, Conneaut, Ohio, Western Reserve University Medical Department, Cleveland, 1883, member of the Ohio State Medical Association, aged 75, died, January 9, in St Petersburg, Fla., of heart disease

Alexander Ambrose MacDonald, Boston, Georgetown University School of Medicine, 1895, member of the Massachusetts Medical Society, aged 69, died January 7, in St Martha's Hospital, Antigonish, N S., Canada

Bartlett Uttimus Sims, Bryan, Texas, Tulane University of Louisiana Medical Department, New Orleans, 1901, served during the World War, aged 55, died, January 6, of injuries received in an automobile accident

Andreas A Wipf ☉ Freeman, S D., Rush Medical College, Chicago, 1894, formerly member of the state legislature, aged 65, died, Dec 21, 1933, in the Sioux Valley Hospital, Sioux Falls, of lobar pneumonia

Horace Bradford Denman, Springfield, Vt., Hahnemann Medical College and Hospital of Philadelphia 1894, member of the Vermont State Medical Society, aged 64, died, Nov 26, 1933 in Peru, of heart disease.

John William Bosman, Kalamazoo, Mich., University of Michigan Medical School, Ann Arbor, 1885, member of the Michigan State Medical Society, aged 72, died, January 16, of cerebral hemorrhage

Emmett Johnson, Kinta, Okla., University of Tennessee Medical Department, Nashville, 1900, member of the Oklahoma State Medical Association, aged 67, died, January 1, of cerebral hemorrhage

David Bigger Best ☉ Wheeling, W Va., Rush Medical College, Chicago 1889, on the staff of the Ohio Valley General Hospital, aged 71, died, January 11, in Bridgeport, Ohio, of myocarditis

Isaac Reber Wolfe, Espy, Pa., Jefferson Medical College of Philadelphia, 1895, member of the Medical Society of the State of Pennsylvania, aged 69, died recently, of cerebral hemorrhage

William J Greene, Ringgold Ga., Chattanooga (Tenn) Medical College, 1896, member of the Medical Association of Georgia, aged 63, died, January 8, of nephritis and renal calculi

James Benton Messer, Bluestone, Ky., American Eclectic Medical College, Cincinnati, 1894, member of the Kentucky State Medical Association, aged 73, died, January 13, of heart disease

Ernest Leland Peet, Scranton Pa., Hahnemann Medical College and Hospital of Philadelphia 1896, aged 65, died, January 24, of injuries received when struck by an automobile

Albert Augustus Redelin ♂ Greeland, Pa., Jefferson Medical College of Philadelphia, 1893, served during the World War, aged 64, died, Dec 26, 1933, of cerebral hemorrhage

Oliver Wilson Spicer, Colorado Springs, Colo., Chicago Medical College 1873, member of the Colorado State Medical Society aged 85, died January 3, of cerebral hemorrhage

John Dike, Melrose, Mass., Boston University School of Medicine, 1888 formerly member of the school committee, aged 78, died, January 2, of carcinoma of the liver

Prince Albert Hobbs, Edgerton Kan., Louisville (Ky.) Medical College, 1890 aged 64, died Dec 7, 1933, in St Margaret's Hospital, Kansas City of heart disease

John W Cannon, Boise, Idaho College of Physicians and Surgeons, Keokuk Iowa 1873 aged 84 died Nov 26, 1933 in St Luke's Hospital, of cerebral hemorrhage

Friend Cook Suter ♂ La Crosse Wis State University of Iowa College of Medicine, Iowa City 1885 aged 76, died January 14, in New Orleans, of heart disease

Allen Cone ♂ Syracuse N Y Detroit College of Medicine, 1890 aged 69, on the staff of the General Hospital where he died January 8 of heart disease

Walter Thompson Bobo, Battle Creek, Mich., Marion-Sims College of Medicine, St Louis, 1899, aged 57, died January 17, of a self-inflicted bullet wound

Richard Emory Yellott, Benson, Ariz., Medical College of the State of South Carolina Charleston, 1906, aged 58 died, Nov 28, 1933, of heart disease

Henry Daniel Cunyers, Rome, Ga., Louisville (Ky.) Medical College, 1872, Confederate veteran, aged 85 died Dec 31, 1933, of chronic nephritis

Edward Otto Bang ♂ South Canaan, Pa Temple University School of Medicine, Philadelphia, 1906, aged 59 died, January 10, of coronary thrombosis

Le Roi Scott Syphers, Cornish Maine Medical School of Maine, Portland, 1904, aged 59 died, January 16, in a hospital at Portland of pneumonia

Ernest Levesque, Sudbury, Ont., Canada School of Medicine and Surgery of Montreal, Que., 1923 aged 35, died Oct 27, 1933, of cerebral hemorrhage

Nemours Caire, Westwego, La., Tulane University of Louisiana Medical Department, New Orleans 1895, aged 52 died, January 8 of heart disease

Christian Henry Brown, Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1878, aged 76, died Dec 11, 1933, of heart disease

Amphas Milton Countryman, Cincinnati, Pulte Medical College, Cincinnati, 1881, aged 79, died, January 15, of diabetes mellitus and myocarditis

Fred Charles Dana, Fond du Lac Wis Chicago College of Medicine and Surgery, 1915, aged 47, died January 16 of acute dilatation of the heart

Burgess E Scruggs, Huntsville, Ala Meharry Medical College, Nashville, Tenn, 1879, aged 76, died, January 21, of myocarditis and influenza

John C Mitchell, Waldo Kan., Ensworth Medical College, St Joseph, 1897, also a druggist, aged 59 died, Dec 30, 1933 of heart disease

Benjamin Franklin Cox, Palmersville, N C College of Physicians and Surgeons, Baltimore, 1886, aged 83, died, January 4, of heart disease

James I Pollum, Du Bois, Pa Western Pennsylvania Medical College Pittsburgh, 1906, aged 57, died, Dec 30, 1933, of angina pectoris

Jay Lucullus McLaren ♂ Bell Calif Long Island College Hospital, Brooklyn, 1888, aged 72, died, January 23, of heart disease

Kossuth Tinker, Columbus, Ohio Medical College of Ohio Cincinnati, 1877, aged 78, was found dead, Dec 13, 1933, of heart disease

James C Banfield, Huntington, W Va., Eclectic Medical Institute, Cincinnati, 1885, aged 74, died January 12, of nephritis

H Eugene Delavergne, Kankakee, Ill Keokuk (Iowa) Medical College, 1896 aged 72, died, Dec 26 1933, of coronary disease

Duncan McNab, Troy, N Y Albany (N Y) Medical College 1892, aged 63, died, Nov 12, 1933 of heart disease


Robert Milton Fields Goldsboro N C (licensed North Carolina 1909) aged 64 died, January 2, of erysipelas

Bureau of Investigation

A MICRO-DYNAMICS PRACTITIONER

C Roland PerDue Makes Another Bid for Fame

Readers of this department of THE JOURNAL will doubtless remember the extended article that was published in the issue of January 6 on "Micro-Dynamics" It dealt with the evolution of a device known as the 'Micro-Dynameter' invented by Mr F C Ellis, who is not a physician but who has described himself as a consulting engineer The article also discussed not only the background on which the device is projected, but the claims made for it



**Nothing Is Hidden
from the
Micro-Dynameter**

This instrument makes a complete analysis of your health before your very eyes

It shows you the condition of your blood, nerves, muscles, glands and the different organs of the body

Locates disease — acute, chronic or hereditary—in any part of the body

Tells what drug or treatment will benefit you

Seeing Is Believing

The findings of this wonderful instrument are seen by every one alike. They are dynamic, scientific and accurate and can not be influenced by opinion or belief

CONSULTATION FREE

C. R. PerDue, M. D.

411 State Life Bldg
Established Here 8 Years
Copyright 1933 by C. R. PerDue M D

Photographic reproduction (reduced) of a PerDue advertisement in an Indianapolis newspaper. Diagnosis reduced to the simplicity of a nickel in the slot gum vending machine

Following the appearance of the article, Mr Ellis issued *Special Laboratory Bulletin No 17*, in which, among other things, he says

The American Medical Association fully understood the experimental nature of Mr Ellis' early activities and evidently endorsed his scientific qualifications as late as 1928 when they sold him exhibit space at their National Convention at Minneapolis and carried his advertising for months in THE JOURNAL of the American Medical Association and in all of the State Medical Journals. Although advertising returns were unsatisfactory from those media, nothing personal whatever was contemplated by us in electing to make a dignified presentation of the Micro-Dynameter to the medical profession before the Inter State Post-graduate Medical Assembly and in *Clinical Medicine and Surgery*

There seem to be two obvious implications in this paragraph. First, that the American Medical Association in its official organ had carried advertisements of some of the preposterous devices exploited by the Electronic Research Laboratories or the Ellis Research Laboratories; second, that the recent article by the Bureau of Investigation on Micro-Dynamics was prompted by pique because Ellis did not advertise in THE JOURNAL. The answers to these implications are, first, that THE JOURNAL never advertised any of the fantastic devices dealt with in the Micro-Dynamics article and second, that Mr Ellis couldn't get into the advertising pages of THE JOURNAL at any price

It is a fact that a carbon arc lamp put out by the Ellis Manufacturing Company was advertised in a few issues of THE

JOURNAL between March 24 and June 30, 1928 This was during the period that the Council on Physical Therapy had the lamp under investigation When the Council completed its investigation of this lamp, however, it declared the device "unacceptable and "the policy of the company" which put it out "detrimental to public welfare" After Mr Ellis had received the Council's unfavorable report, he first wrote canceling his contract—which was unnecessary—and then asked to withdraw his cancellation and be permitted to continue to advertise He was told that his advertising was not acceptable to the pages of THE JOURNAL!

But the present article is not concerned with Micro-Dynamics or with Mr Ellis, but rather with a practitioner of Micro Dynamics and his professional methods The matter was brought to the attention of the Bureau of Investigation by the Better Business Bureau, Inc, of Indianapolis which, after receiving the tear-sheets of the Bureau of Investigation's article on Micro-Dynamics, wrote as follows

"In a recent tear-sheet we noticed an article on Micro-Dynamics We are enclosing an advertisement which appeared in a local newspaper and was inserted by C R PerDue, M D, a doctor with whom you are no doubt familiar, for your opinion"

It should be said in explanation that each week the Bureau of Investigation sends to every Better Business Bureau in the country, including the national organization, tear-sheets from THE JOURNAL containing articles prepared in the Bureau of Investigation and dealing with persons, products or methods of dubious scientific standing The advertisement that the Indianapolis Better Business Bureau sent with the letter just quoted is reproduced in miniature with this article

C Roland PerDue, according to his stationery, is a "Dermatologist, Plasto Cosmetic Surgeon" who has an office in the State Life Building in Indianapolis, Ind His stationery also carries the statements X-ray Therapy, Quartz Light Therapy, Electro Therapy, Skin Lesions, Facial Blemishes, Facial Surgery"

About the middle of December Dr PerDue wrote to the Bureau of Investigation of the American Medical Association as follows 'Please give me information regarding the Ellis Micro Dynamometer as advertised in *Clinical Medicine and Surgery*' As an article on Micro-Dynamics was in preparation and as the Bureau of Investigation had long had Dr PerDue's name in its files it was assumed, justly or unjustly, that the inquiry was not written in good faith, and it remained unanswered until the article on the Micro-Dynamometer was published, at which time Dr PerDue was sent pages from THE JOURNAL containing the article

The files of the American Medical Association have long contained material on Dr C Roland PerDue including several clippings from Indianapolis newspapers in which his name appears According to the records he was born in 1874 and holds a diploma issued by the Central College of Physicians and Surgeons Indianapolis, in 1897 He has an Indiana license granted in 1903

In THE JOURNAL for Nov 29, 1924 under "Indiana News," it was reported that a jury in the Superior Court of Indianapolis awarded one William A Trainor \$2,250 damages against Dr C Roland PerDue who was reported to have operated on Trainor's face Trainor had alleged that PerDue ruined his appearance and health by injecting paraffin

In 1928 a woman living in Indianapolis wrote to the American Medical Association stating that she had read an article in a lay magazine suggesting that persons who were considering taking X-ray treatment for the removal of superfluous hair write to the Association before undergoing such treatment The woman then went on to state

I went to Dr C Roland PerDue Plasto Cosmetic Surgeon 411 State Life Building this city expecting to take the Tricho treatments which he has been giving about ten years

Readers of this department of THE JOURNAL may remember that an article was published in the issue of Jan 19 1929 detailing the viciousness of the Tricho System of depilation

This article was later reprinted in extended form detailing a large number of additional cases of X-ray burns following the use of this method

In 1931 the state medical authorities of California reported that Orin Joslin, the quack who dabbled in such fakeries as "Intermittent Chromatic Radiant Ray" the 'Bio-Dynamo-Chromatic' charlatanism and various other fads, was in California using a marvelous machine that he called the "Ethereic Animator" This device was said to be the reincarnation of the Bio-Tactos" which he used when he was in the east, before he was arrested by the authorities of New York and run out of that state Joslin was arrested in California, and in an attempt to emphasize his respectability, it was reported that he showed the authorities a letter from C Roland PerDue, M D, 411 State Life Building, Indianapolis, endorsing Joslin and his methods

In August, 1931, the Department of Public Health of the State of Illinois reported to the Bureau of Investigation that C Roland PerDue of Indianapolis was using the Hoxsey "cancer cure" That PerDue dabbled in this form of quackery is evident from advertisements that appeared a year later (in 1932) in a Wheeling, W Va, paper at the time that Hoxsey was working his quackery at Wheeling In this advertisement it was stated that a group of Wheeling citizens took an automobile trip west with Hoxsey to visit what they called the Hoxsey Clinics located in various cities One of the stops, according to the story, was in Indianapolis To quote

'On the way back we stopped at Indianapolis and interviewed Dr C Roland PerDue who maintains a clinic for Mr Hoxsey and himself'

In 1932 a piece of advertising was put out by a concern known as the Institute of Aetheronic Therapy which had one 'Dorr Eldred Wood, LL B, D O, O D, M-T D, D C, M D' for its 'director' The 'Aetheronics' method of treatment was said to be by radio—a sort of mechanized Christian Science absent-treatment In the booklet already referred to there were quoted what purported to be the opinions of a number of physicians on the virtues of Aetheronics One of these was credited to C Roland PerDue, M D, 411 State Life Building, Indianapolis

In 1933 PerDue, according to information received, had joined the ranks of those faddists who would have one believe that the use of aluminum cooking utensils produces dire results, from what is loosely described as stomach trouble" to cancer

In 1934, as the advertisement which we reproduce shows, Dr PerDue is exploiting the mysteries of Micro-Dynamics This seems to be a fitting consummation to the doctor's previous professional record

Correspondence

BIOCHEMORPHIC VERSUS CHEMO- PHARMACODYNAMIC

To the Editor —I have read with great interest the admirable address of Prof C D Leake on "The Role of Pharmacology in the Development of Ideal Anesthesia," published in THE JOURNAL, January 6 To me one of the most interesting parts of this paper is the first footnote, in which Dr Leake suggests the coming of a new word "biochemorphic" Devotees of the basic medical sciences, and particularly of pharmacology, should be grateful to Dr Leake for emphasizing one of the most important aspects of pharmacology—in my opinion, the most important aspect of that science—namely, the relationship between the chemical constitution or structure (including physical properties) and the physiologic or biologic effects of drugs This is a field in which I have been active in a modest way, and in connection with my work I have often felt the greatest need of an adequate term, substantive and adjective which would succinctly convey this idea of relationship between chemical structure and pharmacologic action The word 'bioche-

morphic," proposed by my friend Professor Leake, does not seem to me satisfactory. To begin with, the first component of the word "biochemorphic" is somewhat redundant, as the term "chemical" without the prefix "bio" would more accurately express the idea intended. There is no longer any distinction made between chemical compounds, inorganic, organic or biochemical. More unsatisfactory is the second component of the word "biochemorphic," which conveys no idea regarding the functional or physiologic response of a living test object to the action of a chemical compound, and yet it is this physiologic effect of chemical groups in which we, as pharmacologists, are primarily interested. The physiologic effect of chemicals, or their "drug" action, is often spoken of as pharmacodynamics, and for this reason, on sound philological grounds, as well as in the interest of scientific accuracy, I have applied to the particular subject under discussion—that is, to the relationship of chemical structure to pharmacologic action—the term chemopharmacodynamics and the adjective derived therefrom, chemopharmacodynamic. Thus, for instance, the title of a recent paper by Macht and Harden in the *Journal of Pharmacology and Experimental Therapeutics* (47:377 [April] 1933) is 'Comparative Pharmacology of Some Condensation Products of Phenols with Aliphatic Aldehydes. An Inquiry into Chemopharmacodynamic Relationships.' Again, in the *Journal of Pharmacology and Experimental Therapeutics* for January 1934, the title of a paper by Macht and Davis reads "Toxicity of Alpha- and Beta-Nicotines and Nornicotines. An Inquiry into Chemopharmacodynamic Relationships." Although rather clumsy and excessively long, this word, in my opinion, does express more accurately the idea Dr. Leake intends to convey. The old word "chemotherapy," as employed by Ehrlich in a very restricted sense, is being slowly extended to denote and connote much more than is comprehended in *therapia sterilisans magna*. There is no valid reason in modern experimental therapeutics for not applying the term chemotherapy to every clear-cut pharmacologic effect produced by a definite chemical compound on a specific physiologic function, and this is the sense in which the word is employed by modern investigators as, for instance, in the "Handbook of Chemotherapy," by Fischl and Schlossberger, the first volume of which has recently been translated into English by Schwartzman (H. G. Roebuck and Son, publishers, Baltimore).

DAVID I. MACHT, M.D., Baltimore

USE OF OPIUM IN THE COMMON COLD

To the Editor—It might be of interest to the readers of THE JOURNAL to know that De Quincey made somewhat the same observations as were mentioned in the article on the medicinal treatment of the common cold, by Diehl (THE JOURNAL, Dec 23, 1933, p. 2042).

Concerning the use of morphine and its effect on acute colds sometime about 1800, he said: 'It is remarkable, also, that during the whole period of years through which I had taken opium, I had never once caught cold, as the phrase is, nor even the slightest cough.' After stopping the use of morphine, he wrote: "Now a violent cold attacked me with a cough soon after."

This quotation is from De Quincey's "Confessions of an English Opium Eater," published by the Internationale Bibliothek Berlin West 66, volume 9, page 292 and was called to my attention by the head nurse at the Murphy Memorial Hospital in this city, Miss Mary L. Wright.

M. F. MCCARTHY, M.D., Cincinnati

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted, on request.

TOXICITY OF CINCHOPHEN

To the Editor—I have a patient a man aged 55, who was suffering from lumbago and for whom I prescribed atophan four tablets a day. Suddenly he developed a severe urticaria with swelling of the wrist joints. A few days later typical joint pains set in and the temperature was 101 F. Was this all a typical reaction from atophan, or might it have been inflammatory rheumatism? I felt that the urticaria and swelling could be explained on that basis but the joint pains which have persisted have puzzled me. Are atophan and cinchophen identical in their action and toxicity? WILLARD P. BOWSER, M.D., Berea, Ohio.

ANSWER—Cinchophen is the U. S. P. name for the product originally introduced under the trade name Atophan. Atophan costs much more than the identical substance sold as cinchophen. Similarly, neocinchophen (ethylmethylphenylquinolinicarboxylic acid) is sold under trade names of "tolysin" and "novatophan."

In gout, cinchophen or its derivatives frequently are highly effective. In chronic arthritis or acute rheumatic fever arthralgias and myalgias these products are seldom as effective as the salicylates. In the last few years, clinical data have accumulated to indicate that cinchophen is a very toxic drug, causing serious damage particularly to the kidneys and liver. Numerous instances of injury to the liver, ranging from mild jaundice to fatal acute yellow atrophy, have been reported. Many physicians have ceased the use of this drug entirely. Allergic reactions of the nature of urticaria, dermatitis, abdominal pain and joint pains occur fairly frequently. In the latter respect this reaction does not differ from that of many other drugs, such as the salicylates.

In the particular case cited in the query, the symptoms of joint pains, urticaria and fever speak for an allergic reaction. In all probability this was due to the atophan. It is also possible for an allergic response of this type to occur as a result of bacterial allergy, such as streptococcal sore throat. The details of this case would justify the suspicion that the probable course of events were: first, an allergic reaction due to atophan, followed by an arthritis of infectious origin, which had been in the process of developing.

INFECTION WITH TUBERCULOSIS

To the Editor—I was taught that a tuberculous infection in older adults say 40 years of age or more is the result of infection received in infancy, harbored all this time but unable to develop until body resistance happens to be lowered as following some intercurrent ailment. Is this theory exploded? Please explain briefly the latest theory on tuberculous infections and give reference books or articles. Please omit name.

M.D., Iowa.

ANSWER—Probably many of the tuberculous infections manifested by positive tuberculin reactions in adults of 40 years or more were contracted in infancy or childhood. However, it is also possible that the individual received his first infection during a subsequent year of life. Forty years or more ago, little was done to prevent infants and children from becoming contaminated with tubercle bacilli.

Today the number of open foci of tuberculosis, both in cattle and in man, is relatively small. Area testing of cattle and slaughter of the positive tuberculin reactors has greatly reduced the possibilities of contamination of infants and children with the bovine type of tubercle bacilli. Moreover, pasteurization ordinances in cities have been effective. The reverse was true forty years ago. Large numbers of human cases of tuberculosis have been isolated; many of these persons have been taught how to prevent the spread of their bacilli, and recent advances in collapse therapy have closed off many lesions, so that they do not disseminate tubercle bacilli. Isolation was not practiced on a large scale, and the present-day methods of treating pulmonary tuberculosis by collapse therapy, such as artificial pneumothorax, phrenic exeresis and extrapleural thoracoplasty, had not been introduced in this country forty years ago. Therefore large numbers of infants and children were contaminated with both the human and the bovine type of tubercle bacilli formerly, whereas today in many communities the vast majority do not become contaminated until adult life is reached. Many may even pass through adult life without infection.

The first infection with tubercle bacilli is tolerated well by the human body. In fact, it brings the vast majority of the

lesions produced by the first infection under control without the appearance of any outward manifestations of tuberculosis. If the person is adult, he apparently develops the same benign first infection type of disease as he would have from infection in infancy or childhood. As the first infection type of lesion develops, the tissues of the body become sensitive or allergic to the protein fraction of the tubercle bacillus and thereafter react positively to tuberculin which contains this fraction. It is possible that allergy may eventually disappear in some individuals, but the percentage is not known. Unfortunately, this allergy, like allergy to ragweed pollen, makes further exposure dangerous to the individual, whether an infant, child or adult. While he may be able to tolerate some exposure to tubercle bacilli, just as the hay fever patient may tolerate some ragweed pollen, he falls ill from a clinical type of tuberculosis if the exposure is too great.

The ultimate goal is to reduce the number of foci of tuberculosis so that the vast majority of people will pass through infancy, childhood and even adult life without contamination. It is becoming possible to avoid outside sources of exposure to tubercle bacilli, but unfortunately the bacilli which cause the first infection type of disease often remain alive and virulent in the original focus and in the regional lymph nodes over a long period, even for the lifetime of the individual. These at any time may escape into the blood stream, the bronchial tree or elsewhere and set up a reinfection type of tuberculosis. It is not known why these bacilli escape in some cases and not in others, that is, why the caseous material burrows into a blood vessel or a bronchial ramification in one case and not in another. In any event, once tubercle bacilli are allowed to enter the body and set up foci of disease, thereafter one is at their mercy. The fortunate fact is that the capsules surrounding them are adequate in the majority of cases.

PROSTATITIS AND PROSTATIC HYPERTROPHY

To the Editor—A white man aged 27, married since Oct 11 1933 suffered from weak and dizzy spells almost every day and sometimes several times a day. He has had these attacks on and off for the past three years but they had been getting worse for the three weeks previous to his coming to see me. The attacks consist of feeling vertigo for a few minutes with black spots in front of the eyes. Then he feels weak. He has never fainted or felt nauseated. He went to a physician two and one half years ago who informed him that he had an enlarged prostate and he had the prostate massaged a few times but soon gave this up. He had had an occasional feeling of fullness in the perineum. He also has frequency of urination in the morning. The appetite and bowels are normal. There is no discharge from the urethra. I examined him and could find nothing wrong except an enlarged prostate gland more than twice the normal size the right lobe being much larger than the left. The gland was rather sensitive to pressure of the finger. Urinalysis gave normal results. The blood pressure is 125 systolic 70 diastolic. I have continued to massage the prostate at intervals of three or four days since. The patient appears to be improving, the frequency of urination has disappeared and he is able to begin urination without any delay. However, the prostate is still enlarged and is still somewhat tender to the touch. It has improved somewhat in these respects but not sufficiently to make me feel satisfied. Besides massage I have passed sounds through the urethra and have also instilled weak silver nitrate solutions into the prostatic urethra. There is no history of gonorrhea or any other venereal disease. I am at a loss as to how to explain the chronic prostatitis. The only fact I can lay my hand on is that the patient told me he had a prolonged engagement with his wife, whom he married about three years ago. This engagement lasted about three years and he was constantly aroused sexually without gratification. Can this be a cause of chronic prostatitis? I would appreciate your telling me of a plan of treating an enlarged prostate such as this. Will you be good enough to tell me also whether I can expect to reduce the size of the gland?

M D New York

ANSWER—The attacks of vertigo, with black spots in front of the patient's eyes are probably not due to disease in the prostate gland. They may be due to migraine, petit mal or some disturbance of the eyes, and this part of his complaints should be investigated by a medical man or an eye man or both. The fullness in the perineum and the frequency of urination are best explained by the presence of the enlarged prostate.

It is not quite clear from the evidence submitted whether the enlargement is due to a chronic prostatitis or to a congestion of the prostate since no information is given regarding the character of the prostatic strippings. If a microscopic examination of the prostatic strippings shows the presence of pus the diagnosis of chronic prostatitis is justified.

Chronic prostatitis may be due to many causes other than gonorrhea, such as a metastatic infection of the prostate from acute grip or acute tonsillitis and occasionally from chronic foci of infection, such as the teeth and sinuses. If the patient has chronic prostatitis it might be well to advise the use of heat by rectum by means of a prostatic heater either an electric heater or the hot water heater or one may resort to hot

rectal irrigation or sitz baths. In this particular case it might be advisable to discontinue the use of silver nitrate. The massage may be given twice a week and, later on as improvement sets in, once a week, and finally every ten days until the strippings are free from pus on microscopic examination.

On the other hand, the enlargement of the prostate may be due to bad sexual relations, such as prolonging the act or withdrawing without ejaculation. Bad sexual hygiene is suggested in this case by the statement of the long engagement with much sexual excitement and no sexual gratification. Bad sexual practices often lead to serious prostatic disturbances. If the enlargement in this case is due to any one of these causes, it must be corrected.

If the patient's prostatic enlargement is due either to chronic prostatitis or to bad sexual hygiene, the size of the prostate will return to normal with the treatment that has been outlined.

Finally, if the treatment as outlined fails to relieve the patient and the prostate does not return to its normal size, one must think of the possibility of some unusual lesion of the prostate, as, for example, a sarcoma, because of the age of the patient and failure of treatment.

STERILITY—DYSMENORRHEA—PRURITUS VULVAE

To the Editor—1 A woman aged 36, married for sixteen years and sterile had a dilation and curettage eight years ago without relief of sterility or dysmenorrhea (the patient has low abdominal cramps the first day and flows three days). Physical examination reveals a projection from the anterior lip of the cervix the size of an orange seed and of the same color and consistency as the remainder of the cervix. The uterus is acutely ante flexed. How should this small projection be removed for biopsy? Are there any other procedures that would help the sterility and dysmenorrhea other than dilation of the cervix? 2 The patient has had marked intermittent pruritus vulvae for eight years and occasional burning micturition. The urine is normal except for high specific gravity (1.030) and a pink dusty sediment consisting of the urates. The vulva shows many fine fissures and abrasions from scratching. How could the uric acid sediment be decreased or eliminated? The patient consumes about half a pint of alcoholic liquor during the week. Should this be eliminated? The pruritus is relieved by a cleansing douche for about twenty four to thirty six hours but there is no vaginal discharge. Does this suggest anything as to etiology? Please omit name and address.

M D, Massachusetts

ANSWER—1 The growth on the cervix may be a small fibroid, a malignant growth or a benign tumor resulting from manipulation with a tenaculum. The correct diagnosis in most of these conditions can usually be made with the naked eye but, regardless of this, the entire mass should be removed. This may be done with a sharp knife or an electrical cautery but, regardless of which method is used, the incision for removal should be made at least one eighth inch all round the mass. In steadying the growth during its removal, one should not use an instrument that will crush it, even lightly. Allis forceps are suitable for holding the mass. After removal of the tumor with a knife, it is nearly always necessary to suture the edges of the cervix, but if the cautery is used, this is generally not needed. The tumor should, of course, be subjected to microscopic examination without delay. Most likely the projection is a benign one due to manipulation of an instrument such as a vulsellum or tenaculum. Usually these nodules are cystic and contain blood. They frequently are mistaken for carcinoma, especially because they may recur after removal.

Sterility, dysmenorrhea and pruritus vulvae are the three most baffling problems in gynecology and all usually require intensive study. In the cases of sterility and dysmenorrhea this includes not only a careful physical examination but also an investigation of the patient's past history. The combination is frequently found in women who have underdevelopment of the uterus. For the relief of the sterility it is essential to be certain that the husband's spermatozoa are satisfactory from the point of view of number, motility and normal contour. If the semen examination is satisfactory and no abnormalities are found on bimanual examination of the woman, a Rubin tubal insufflation test should be performed. This test often relieves dysmenorrhea. If the tubes are impermeable to gas, especially on repeated examinations and after the use of atropine to relax a possible spasm of the uterotubal junctions, iodized oil should be used to determine the site of obstruction. If a block is found, an operation may be performed to relieve this, but the chances for a pregnancy are not good, especially in a woman 36 years old who has been sterile for sixteen years. If the tubes are patent, it may be necessary to regulate the diet of both the wife and the husband to explain the most favorable time for conception, and to give other information. Recently endocrine preparations have been used successfully in some cases of dysmenorrhea and sterility but thus far the results have been too inconsistent to recommend them.

2 Evidently the pruritus of the vulva in this case is not serious or it would have been associated with marked and perhaps ominous changes in the vulva and labia after a period of eight years. Stubborn itching in this region is frequently associated with leukoplakia, which in many cases leads to the development of carcinoma. Since examination of the urine is negative, diabetes may be ruled out. Since there is no vaginal discharge, *Trichomonas vaginalis* and monilia may be eliminated as causes. However, because douches give relief, a hanging drop examination should be made of some of the vaginal secretion and, if any abnormal organism is found, appropriate treatment should be instituted. Alcohol should be eliminated for a time to see what effect this will have. Simple cleansing with a mild soap and water may suffice to give relief and the occasional local application of a weak silver nitrate solution may help.

GRANULOMA INGUINALE AND LYMPHOGRANULOMA INGUINALE

To the Editor—Please enlighten me on the differential diagnosis, etiology, pathogenesis, treatment and prognosis of granuloma inguinale (Donovan bodies) and lymphogranuloma inguinale (Frei test). The more I read the current literature the more confused I become. Please omit name.

MD New York

ANSWER—Granuloma inguinale and lymphogranuloma inguinale have but two points of resemblance. They are both classed as venereal diseases and, unfortunately, they have names that are so much alike that they are confusing. Otherwise the diseases are totally dissimilar.

Granuloma inguinale is due to inclusion bodies at present called Donovan bodies. There is some discussion in regard to what these inclusion bodies are, but, for the purposes of a short reply, the use of the term Donovan bodies is sufficient.

Lymphogranuloma inguinale, on the other hand, is due to a filterable virus that can be transferred to several of the lower animals by way of subdural injections causing an encephalitis. The incubation period of lymphogranuloma inguinale is from one to two or three weeks. The exact incubation period for granuloma inguinale is not exactly known but probably varies from a few weeks to a month.

With lymphogranuloma inguinale there may be a primary lesion of the type of a papule or a pustule, of herpetic process or of a specific urethritis which may be confused with gonorrhea. Following this primary lesion which is usually evanescent in character, there is an involvement of the draining lymph nodes. The adenitis of lymphogranuloma inguinale is characteristic. The nodes in a chain become fused together in a large mass, which may reach half the size of a fist, and then the process breaks down with multiple fistulous openings. Along with the local adenitis there may be systemic symptoms of malaise, loss of appetite, loss of weight, rheumatic symptoms, eruptions on the skin, and a temperature elevation which may be of the intermittent remittent or continuous type. Occasionally the elevation of temperature will persist over a long period, successive flare ups accompanying the involvement of fresh lymph nodes.

In the female affected with lymphogranuloma inguinale the picture may be somewhat different owing to the fact that most of the lymph channels running from the vulva drain into the nodes around the lower part of the rectum, resulting in an inflammatory reaction of these nodes and a secondary involvement of the rectal wall. It has been found that certain of these female cases, as a result of the local process later present an inflammatory stricture of the lower rectal walls, which may be annular or tubular in character. Rarely in a female, along with a stricture of the rectum there may be excrescences developed round the anal orifice sometimes accompanied with fistulas, and there may also be more or less elephantiasis of the vulva and fistula formation going under the term *esthiomene*.

Clinically there should be no difficulty in making a differential diagnosis between granuloma inguinale and lymphogranuloma inguinale. Lymphogranuloma inguinale is essentially a disease of the lymph channels and of the lymph nodes, while granuloma inguinale is a disease affecting the skin itself, there is never an involvement of the lymph nodes in granuloma inguinale. In the latter disease one finds a beefy red generally somewhat raised rather rugose, moist proliferation of the tissues which is most characteristic in appearance. Instead of spreading by the lymph nodes, the disease spreads by contiguity and may spread by contact from the genitalia to the inside of the thighs. Or the process may spread from the genitalia down over the perineum and perhaps up into both groins by way of the skin. At no time however will there be an involvement of the nodes themselves. As a rule there

are no systemic symptoms in connection with granuloma inguinale. One is assisted greatly in making a diagnosis of granuloma inguinale through making a smear from the local inflammatory tissue or removing a specimen of the tissue and making a smear on a glass slide with the undersurface of this tissue, the same as one would make a blood smear. The slide is then stained with either Giemsa's stain or Wright's stain and specific Donovan inclusion bodies will be found, though probably with some difficulty unless the physician is accustomed to the microscopic picture. One is assisted in making a diagnosis of lymphogranuloma inguinale by the so called Frei test. This is a specific intradermal test performed the same as one makes a tuberculin test. The antigen consists of some of the sterilized pus taken from a bubo just before it is going to break down. Naturally, a test could not be made with pus taken from the patient who is to be tested. One tenth cubic centimeter of this material is injected intradermally, and in forty eight hours there will be a raised erythematous tubercle, from 0.5 to 1 cm in diameter in a positive case.

The prognosis and outlook in either of these diseases is some what guarded owing to the fact that in granuloma inguinale there is such a frequent tendency for recurrence and that in lymphogranuloma inguinale one of the serious complications such as stricture of the rectum, may result before the disease is finally cured. It is true, however, that once lymphogranuloma inguinale is cured the patient ordinarily has no further difficulty and it is a question whether he is not immune for the rest of his life. Strangely enough antimony seems to be the best preparation for treatment of either of these diseases. In the past this has been used in the form of antimony and potassium tartrate, a 1 per cent solution being employed and an injection given intravenously of 3 cc plus 7 cc of saline solution. The antimony and potassium tartrate is stepped up 1 cc at a dose the injections being given once in three or four days until a maximum dose of 10 cc of the 1 per cent solution is given and this may be continued for ten to fifteen or more injections, the kidneys being watched for evidence of irritation. Recently a new antimony preparation Fuadin has come on the market (*THE JOURNAL* May 27, 1933, p. 1685). Fuadin is much easier to administer since it may be given intramuscularly and with little discomfort to the patient. The injections are given once in two or three days starting with a dose of 2 cc and working up to a maximum dose of 5 cc, a total of from 45 to 50 cc of the preparation being given which constitutes a course. A course may be repeated within a month if found necessary. With a case of lymphogranuloma inguinale rest in bed is quite essential, and it may be necessary that some minor surgical procedure such as opening necrosing lymph nodes or even partial removal of a broken down lymph node, may be necessary.

CYANOSIS OF FINGER NAILS

To the Editor—In what conditions other than cardiac decompensation and pneumonia is cyanosis of the finger nails of clinical significance? Please omit name.

MD Pennsylvania

ANSWER—Cyanosis of the finger nails may be part of the picture of general cyanosis on the basis of inadequate oxygen saturation of the blood, or it may result from various types of local venous stasis.

General cyanosis is often the result of disease of the oxygenating organs, i. e., the lungs. In this event, sufficient oxygen is not available to the blood. In addition to the acute conditions mentioned, certain chronic diseases in various stages of their evolution exhibit more or less cyanosis. Examples of this group include hypertrophic emphysema, chronic bronchitis, bronchial asthma, pulmonary neoplasms and sclerosis or syphilis of the pulmonary artery and its branches, or Ajerza's disease.

Cardiac decompensation and other conditions, occasionally hypertension with early left ventricular failure, result in pulmonary stasis. Congenital malformations of the heart or great blood vessels with shunt of the blood flow in part past the lungs will result in inadequate oxygenation and cyanosis.

In many of these conditions, compensatory types of polycythemia occur in the effort to supply greater oxygen carrying capacity to the blood for the existing oxygen want. This only results in incomplete oxygenation of a greater amount of hemoglobin. Likewise, such diseases of the blood as polycythemia vera cause cyanosis because the total amount of hemoglobin is so great that it cannot be completely oxygenated. Cyanosis is but rarely seen in severe anemia.

Intoxication often results in stable compounds of hemoglobin, which cannot be readily oxidized. Poisoning with gaseous compounds of sulphur, particularly hydrogen sulphide, with the formation of sulphhemoglobin show marked cyanosis. Acetanilid

poisoning is another common example of cyanosis of this type. Carbon monoxide is a similar poison, but instead of cyanosis the color imparted to the skin is a cherry red, cyanosis may occur. Likewise, asphyxia by inert gases or tracheal obstruction may cause temporary cyanosis. Carbon dioxide and nitrogen compound gases are examples.

Local venous stasis involving the upper extremities may occur as the result of pressure on the veins from extravascular causes, of which mediastinal tumors or aneurysm interfering with the flow of blood in the superior vena cava is an example. Intravascular causes are arteriovenous aneurysm, thrombosis and thrombophlebitis.

In functional circulatory disorders such as the stage of asphyxia in Raynaud's disease, cyanosis is present. It also occurs in acrocyanosis, for which Layang believes that a functional stasis in the venules is responsible. The hands are involved, they are cold and moist and purplish red rather than a definite blue.

TREATMENT OF GONORRHEA

To the Editor—I have under my care a young graduate nurse who says that she has had a profuse purulent vaginal discharge for at least six months. The smear is positive for gonococci. The vaginal mucosa is intensely inflamed looking while the membrane covering the cervix looks as though it were absent entirely, with a raw looking surface which bleeds easily. There is a purulent looking discharge oozing from the urethra although the patient says it is only rarely that she has any discomfort on urinating. Besides this she has a four plus Wassermann and a positive Kahn reaction. In regard to the treatment of this case to douche or not to douche if so with what solution? Vaccines for the gonorrheal infection? Any injections into the urethra while the discharge is so profuse seems too dangerous. She has no symptoms from her syphilis that I can find except palpable inguinal and epitrochlear glands. There is no history of chancre or indolent sore. There is no eruption. Please give as full directions as possible for the latest treatment for both these conditions and any special treatment for the combination if there is such. The patient is busy most of the time. How about her resting? How many intravenous treatments would she have before she takes another case in justice to her patients? Also please omit name if you answer this in THE JOURNAL.

M D Pennsylvania

ANSWER—It is not stated whether there is palpable evidence of infection of the upper pelvic zone, so it is assumed that the tubes and ovaries are normal.

Active antisyphilitic treatment should be instituted at once. It will be impossible to determine how much of the trouble is ascribable to gonorrhea until the results of antisyphilitic treatment are evident. Rest in bed is almost imperative.

There is no great objection to douches in a case such as this provided the douches are given gently, without undue force. It should be understood, however, that douches have little therapeutic value. They are of help chiefly in keeping the parts clean and in making the patient more comfortable. The Elliott method (Holden, F C, and Gurnee W S. *Am J Obst & Gynec* 22:87 [July] 1931) would probably be beneficial in this case but, if used great care will be required to avoid heat sufficient to produce necrosis.

In general, nonsurgical care of the gonorrheal infection is indicated, at least until all active symptoms have subsided. But search should be made for hidden foci of infection, particularly pus pockets in Skene's ducts and blocked drainage from the cervix. (Passage of a dilator beyond the internal os in a patient with such virulent infection of the lower genital tract is rather hazardous.)

The value of specific therapy has not yet been demonstrated. Despite the fact that use of vaccines and the injection of sterile milk and other foreign proteins have many warm advocates, the efficacy of these remedies is open to serious question.

POISONOUS SAFETY MATCHES

To the Editor—I note that in 1913 an act was passed placing a prohibitive tax on poisonous matches. Several cases have come to my notice lately of infants eating the heads of both safety matches and of the self-igniting sorts. Are there any poisonous matches obtainable at retail? How many match heads may be safely consumed by a year old infant?

S A BRITEN, M D Syracuse N Y

ANSWER—The elimination of white phosphorus from the match industry in this country went far toward protecting the match maker against industrial poisoning but by no means freed the public from the dangers following the ingestion of match heads.

Phosphorus is not the only toxic agent entering some matches and certain instances of poisoning must be attributed to other constituents, such as antimony compounds. Safety matches are likely to contain phosphoric acid, sulphur, potassium chlorate, zinc carbonate, antimony compounds, powdered glass and glue. The striking surface may contain red phosphorus.

At the present time "strike anywhere" matches are likely to contain phosphorus sesquisulphide along with potassium chlorate, zinc oxide, ochre, powdered glass, paraffin and glue.

Red phosphorus and the sesquisulphide may retain some white phosphorus as an impurity (0.6 per cent). Although the tax regulation of 1913 practically eliminated the use of white phosphorus, it cannot be said that all exposure has been eliminated.

Tourists returning from Europe may innocently bring with them casual supplies of matches from countries tolerating the use of white phosphorus.

In a standard work on toxicology in this country, published in 1923, the following statement is found: "The Lucifer matches commonly sold are tipped with waxy or poisonous phosphorus mixed with potassium chlorate, sand and glass, but the safety match is tipped with potassium chlorate and antimony sulphide, without phosphorus."

Poisoning after ingesting safety matches is probably traceable to antimony. Cases from "strike anywhere" matches are probably traceable to phosphorus sesquisulphide or to white phosphorus present as an impurity.

No match heads can be safely consumed by a year old infant. Two match heads ingested by a child are said to have caused death. This low figure should not be accepted as necessarily dangerous as other instances are known wherein scores of matches were sucked or ingested without fatal results.

UROTEX

To the Editor—What is Urotex? I assume you have others of this same company. However I am enclosing one of the many sheets I have received from this particular company.

M D Seattle

ANSWER—Enclosed by our correspondent was a carton for Urotex, together with a circular letter addressed to the physician asking for case reports. According to the formula on the label, Urotex consists of two tablets, A and B. The formula for tablet A (gray) is as follows:

Hexamethylenamine	2½ gr
Ext. Nux Vomica	½ gr
Acid Benzoic	¼ gr
Atropine Sulphate	1600 gr
Excipients and coating	q s

The formula for tablet B (brown) is as follows:

Ext. Buchu 14	½ gr
Ext. Corn Silk 15	¼ gr
Ext. Triticum 13	¼ gr
Pot. Bicarbonate	1 gr
Sodium Borate	½ gr
Caffeine	⅛ gr
Atropine Sulphate	1600 gr
Excipients and coating	q s

These formulas of course, are an insult to the intelligence of the medical profession. They represent the shotgun type of proprietary sold to physicians in the period preceding 1906 except that the composition appears on the label.

The carton also contains therapeutic recommendations, so that the physician who prescribed the product would simply be serving as an advertising tool in the hands of the manufacturer.

The product has not been submitted to the Council on Pharmacy and Chemistry for consideration. It goes without saying, however, that the Council would not approve such a product.

The circular letter addressed to the physician is an imposition and an affront. Note the following paragraphs, for example:

"I would like to have 100 case reports on Urotex to report to physicians of your state. So far I have 37 reports from your state. I would like to have 63 more."

"That brings me to the favor I have to ask of you. I would just like to have you tell me what results you have had with Urotex. (Your name will be held in confidence, if you desire.)"

Surely thinking physicians would not permit their names to be used in the promotion of such an unscientific mixture.

PHOTOSYNTHESIS

To the Editor—I have been searching for an explanation of the process of photosynthesis. There are several theories which are not convincing. The subject is either sidestepped or ignored by such authors as McCollum, McLester, Sherman, Parsons and Lusk. Will you kindly give me the latest information on the subject and state which theory is considered the most tenable?

N PHILIP NORMAN, M D New York

ANSWER—There are no theories which adequately or in accepted detail explain the processes of photosynthesis in plants or, for example, the mechanism whereby certain substances may become possessed of antirachitic power by ultraviolet irradiation. Probably it is the formation of vitamin D from the ergosterol in the skin that accounts for the antirachitic action.

of ultraviolet rays In the light of modern theories of matter and energy (Einstein, Planck and Bohr) it is postulated that the absorption of energy produces changes in either electronic or molecular activity Probably before any reaction of this character can take place the substances taking part in it must acquire a certain amount of extra energy The activated molecules do not lose their energy increment on combining but produce an activated compound that is capable of imparting its energy to other molecules Inert molecules are closed systems, energized atoms and molecules are systems that are opened up and react Fundamentally the activation of inert atoms and molecules may be conceived of as being due to radiant energy, which, when absorbed, ionizes or energizes atoms (that is, either causes an addition or subtraction of an electron or changes the energy level of an electron according to the Bohr theory), initiates chemical reactions or so changes molecular configurations as to endow them with new activities or properties

URTICARIA AFTER USE OF PITUITARY PREPARATION

To the Editor—I have a patient who apparently had an endometrial hyperphasia and who was treated with Antutrin S with complete relief Following the last injection about three weeks ago she had apparently a redness around the site of the injection This was followed about two days later by giant urticaria which has persisted clearing and recurring every day I have treated her by hypodermic injections of epinephrine 8 minims (0.5 cc) twice daily along with three eighths grain (0.025 Gm) of ephedrine three times daily Could you suggest more efficient therapy? How much longer is it possible for this annoying condition to exist? Would theelin or any other ovarian preparation be indicated? Please omit name

M D, California

ANSWER—The urticaria is most likely due to some substance in the "Antutrin-S" to which the patient is hypersensitive, or to some product produced by the Antutrin-S at the site of injection The Council on Pharmacy and Chemistry has accepted no "ovarian" preparation (See report on Estrogenic Substances Theelin, *THE JOURNAL*, April 29, 1933, p 1331) The manufacturers of Antutrin-S are still doing experimental development work and have therefore delayed submission of the product to the Council If there is a small abscess at the place of the last injection, this should be opened and drained Otherwise there is no specific remedy The effects of Antutrin-S and similar substances are nearly always temporary, because these substances are usually substitutional in character Hence the untoward effects, just like the beneficial ones, should soon wear off Of course, a search should be made for some other source of the urticaria, for it is possible that the sequential occurrence of this troublesome symptom and the injection of Antutrin-S may have been accidental It is not known whether theelin or other ovarian preparations will overcome the urticaria

ETIOLOGY OF DIABETES

To the Editor—I am anxious to collect some data on the etiologic factors in diabetes mellitus A physician aged 65 has suffered from diabetes mellitus for a period of fifteen years He enlisted in the United States Army in 1917 Up to that time he had enjoyed perfect health The previous history was negative except for diseases of infancy Thirteen months after he enlisted glycosuria appeared Further investigation proved the cause to be diabetes mellitus The family history is negative as to diabetes The change from hospital practice to military duties involved considerable increase in work and effort During the period of enlistment the patient was under constant strain both physical and mental What is the general view as to the part played by overwork and mental stress in the causation of diabetes? Can you refer me to authorities on the etiology of diabetes mellitus? Please omit name and address

M D California

ANSWER—The commonest years for the onset of diabetes in men are between 51 and 53 Decrease of work and effort are more apt to precede the onset of diabetes than the reverse Physical and mental strain such as occurred in the German and American armies did not appear to favor diabetes, according to German and American authorities The following references may be consulted

- Grafe *Metabolic Diseases and Their Treatment* Philadelphia Lea and Febiger 1933
Joslin E. P. *The Treatment of Diabetes Mellitus* Philadelphia Lea and Febiger 1928
Lichtwitz *Lehrbuch der inneren Medizin Krankheiten des Stoffwechsels und der Ernährung* Berlin Julius Springer 1931
Rabinowitch *Toronto Macmillan Company of Canada* 1933
Thannhauser *Stoffwechsel und Stoffwechsel Krankheiten* Munich J F Bergmann 1929
Von Noorden and Isaac *Die Zuckerkrankheit* Berlin Julius Springer 1927
Von Noorden *Neuzeitliche Diabetesfragen* Berlin Urban & Schwarzenberg 1933

TOXICITY OF DINITROPHENOL

To the Editor—I have been following the recent literature on the use of dinitrophenol in obesity with interest Has any work been done to determine its mode of excretion or destruction in the body? Likewise what are the possibilities of its storage in or deleterious effect on the liver, such as is known to occur with trinitrophenol? When such a drug as cinchophen is used one is at least fully aware of the possibility of damage to the liver Can as much be said for dinitrophenol or are we still wholly in the dark? Please omit name

M D New York

ANSWER—Dinitrophenol appears in the urine promptly and is rapidly excreted, probably within one or two days after administration Its fate in the body is not certain, but possibly a part is converted to the less toxic aminodinitrophenol Continuous administration for as long as six months has not resulted in perceptible harm to the liver or other vital organs The only alleged liver damage so far reported in patients is one case in which a physician undoubtedly mistook the yellow color of the dye dinitrophenol for bile pigments In this case the supposed evidence of liver injury disappeared at once when the drug was discontinued So far it is not known whether continuous administration over periods of years might be harmful, but it is significant that workers engaged in making it during the war, when there was continuous exposure for several years at a time did not show evidence of injury to the liver or other vital organs

EATING OF CANDY BY CARDIAC PATIENT

To the Editor—Please advise me as to whether there is any contra indication to giving candy in small quantities to a cardiac patient who is in a state of decompensation Kindly omit name

M D Michigan

ANSWER—There is not only no contraindication to giving candy in small quantities to cardiac patients but good reasons for giving it, so long as the candy is in a digestible form All muscle needs an abundant supply of carbohydrate for its metabolism and this is especially true of the heart muscle the needs of which are greater than those of the other muscles

TREATMENT OF RECTAL GONORRHEA

To the Editor—In *THE JOURNAL* Dec 23 1933 page 2069 is a query regarding the treatment of rectal gonorrhea In the answer given to the doctor from West Virginia no mention is made of the use of diathermy in the treatment of the urethral and cervical infection Because of this fact I am writing to bring this omission to your attention as the method first described by Dr Elkin P Cumberbatch who is director of electrotherapeutics at St Bartholomew's Hospital in London has proved to be a definite advance in the treatment of gonorrhea in women Dr Cumberbatch has been doing this work for over fifteen years and published a book on the subject which probably has not been widely read in this country I have been using his technique for about ten years with phenomenal success and we at the Medical Center in New York have used it as a routine procedure in all cases I can most highly recommend this technique from actual experience in a large number of cases which will be reported from our clinic next year and on behalf of my interest in physical therapy I think that some recognition of the effect of diathermy in these conditions should be given in the answers to queries that come in to *THE JOURNAL* As a pretty good proof of the action of this form of treatment, I have had one case of rectal gonorrhea in which there was no infection of the urethra cervix or vagina I treated this patient for about a month attempting to clear up the rectal infection with similar technique and made definite progress During all this period there was no transference of the infection interiorly which would strongly point to the fact that as she got the Cumberbatch method of diathermy to the urethra and cervix this procedure was able to keep the cervical canal free of infection On the advice of her family the patient went to another doctor who guaranteed a cure and within two weeks she had a virulent cervical and urethral infection This later spread into the tubes and the patient had to have one removed The effectiveness in keeping the anterior parts clean during the time she was under my observation should be definite evidence as to the effectiveness of the heat created by the Cumberbatch technique

NORMAN E TITUS M D, New York

SENSITIVITY TO EPHEDRINE

To the Editor—I should like to add to the answer in *THE JOURNAL* January 6 page 67 to the query on the possible ill effects from ephedrine In addition to other evidences of sensitization skin eruptions sometimes of a very extensive nature may develop (Abramowitz E W and Noun M H *Ephedrine Dermatoses Clinical and Experimental Study of a Personal Case with a Review of the Literature Brit J Dermat & Syph* 45 225 [June] 1933)

E WILLIAM ABRAMOWITZ M D New York

PREPUTIAL INFLAMMATION

To the Editor—Several inquiries have appeared regarding preputial inflammation Many of these cases are due to fungi and are easily cured by frequent application of sodium thiosulphate 10 per cent solution

MALFORD W THEWLIS M D Wakefield R I

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY Cleveland, June Sec. Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written (Group B Candidates)* The examinations will be held in various cities of the United States and Canada April 7 *Oral* (all candidates) Cleveland, June 12 Sec. Dr Paul Titus 1015 Highland Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY Cleveland June 11 Sec. Dr William H Wilder 122 S Michigan Blvd, Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland, June 11 Sec. Dr W F Wherry, 1500 Medical Arts Bldg, Omaha

CALIFORNIA Los Angeles Feb 26 March 1 Sec. Dr Charles B Pinkham 420 State Office Bldg, Sacramento

CONNECTICUT *Regular* Hartford March 13 14 *Endorsement* Hartford, March 27 Sec. Dr Thomas P Murdock 147 W Main St Meriden *Homeopathic* New Haven March 13 Sec. Dr Edwin C M Hall 82 Grand Ave, New Haven

IDAHO Boise April 3 Commissioner of Law Enforcement Hon Emmitt Pfost 205 State House Boise

ILLINOIS Chicago, April 10 12 Supt. of Regis Mr Eugene R Schwartz, Springfield

IOWA Des Moines Feb 26 28 Dir. Division of Licensure and Registration Mr H W Grefe, Capitol Bldg, Des Moines

MAINE Portland, March 13 14 Sec. Dr Adam P Leighton Jr, 192 State St Portland

MASSACHUSETTS Boston, March 13 15 Sec. Dr Stephen Rushmore 144 State House Boston

MINNESOTA *Basic Science* Minneapolis April 3-4 Sec. Dr J Charnley McKinley, 126 Millard Hall University of Minnesota Minneapolis *Medical* Minneapolis, April 17 19 Sec. Dr E J Engberg 350 St Peter St. St. Paul

MONTANA Helena April 3 Sec. Dr S A. Cooney 7 W 6th Ave Helena

NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates May 7 9 (limited to a few centers) June 25 27 and Sept. 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

NEW HAMPSHIRE March 15 16 Sec. Dr Charles Duncan State House Concord

NEW MEXICO Santa Fe April 9 10 Sec. Dr P G Cornish Jr 221 W Central Ave., Albuquerque

OKLAHOMA Oklahoma City March 13 14 Sec., Dr J M Byrum, Mammoth Bldg Shawnee.

PUEERTO RICO San Juan March 6 Sec. Dr O Costa Mandry Box 536 San Juan.

RHODE ISLAND Providence April 5 6 Dir. Dr Lester A. Round 319 State Office Bldg Providence

TENNESSEE Memphis March 26 27 Sec. Dr H W Qualls, 130 Madison Ave. Memphis

WEST VIRGINIA Charleston March 12 State Health Commissioner Dr Arthur E McClue Charleston

WISCONSIN *Basic Science* Madison March 24 Sec., Prof Robert N Bauer, 3414 W Wisconsin Ave., Milwaukee *Reciprocity* Milwaukee April 5 Sec. Dr Robert E Flynn 401 Main Street LaCrosse.

New Jersey June Examination

Dr James J McGuire, secretary, New Jersey State Board of Medical Examiners, reports the written examination held in Trenton June 20 21, 1933 The examination covered 9 subjects and included 90 questions An average of 75 per cent was required to pass One hundred and twenty candidates were examined, 116 of whom passed and 4 failed The following schools were represented

School	PASSED	Grad Year	Per Cent
George Washington University School of Medicine	(1931)	80 8	
Georgetown University School of Medicine	(1932)	75,	
75 2 75 4 77 3, 78 1 78 4, 78 8 79 6 79 8 80 81 3			
82 1 82 2 82 6 83 83 1, 87 6 88 (1933) 75 1			
Loyola University School of Medicine	(1933) 75	81, 81 4	82 3
Rush Medical College	(1932) 82 2,	(1933)	82 5
State University of Iowa College of Medicine	(1932)	82 1	
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932) 79 3	85 6	
Boston University School of Medicine	(1932) 77	77	
Tufts College Medical School	(1932) 77 2	82 2	
St. Louis University School of Medicine	(1932)	77 2	
77 8 80 6 82 83 7			
Washington University School of Medicine	(1932)	83 2	
Columbia Univ. College of Physicians and Surgeons	(1931)	78 4	
81 (1932) 77 3 81 1 81 5 82 7 83 6 85 6			
Long Island College of Medicine	(1932) 81	81 4 85 7	85 8
New York Homeopathic Med College and Flower Hosp	(1932)	81 2	
83 4 84 2			
New York University University and Bellevue Hospital Medical College	(1932) 78 5	83 8	
University of Rochester School of Medicine	(1932)	78 5	
Hahnemann Medical College and Hosp of Philadelphia	(1932)	78 4	
40 6 80 7 81 8 82 2 82 5 82 6 83 2 83 2 83 6			
83 7 84 1 84 5 84 6 87 1 87 2 89 2 91 1			
Jefferson Medical College of Philadelphia	(1931)	79 4	
83 2 (1932) 79 2 80 80 3 80 8 82 2 83 8 85 6			
85 8 85 8 86 6			

Temple University School of Medicine	(1931)	81 8,
85 7 (1932) 77 3, 78 8 82 83 5 84 5 85 2		
University of Pennsylvania School of Medicine	(1930)	82 1
(1931) 84 7 (1932) 81 4 83 7		
Woman's Medical College of Pennsylvania	(1932)	78 2
University of Tennessee College of Medicine	(1932)	82 6
Medical College of Virginia	(1932) 77 5,	79 1
University of Virginia Department of Medicine	(1932)	76 2
University of Toronto Faculty of Medicine	(1931)	82 5
Universidad de la Habana Facultad de Medicina y Farmacia	(1928)	78 6
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1923) 75 8	(1924) 75
Regia Università di Pavia Facoltà di Medicina e Chirurgia	(1921)	76 3
Regia Università di Roma Facoltà di Medicina e Chirurgia	(1929) 79 8 (1931) 86 6*	(1932) 83 8
University of Edinburgh Faculty of Medicine	(1931) 82 5	(1932) 83 8

* Verification of graduation in process

† Average grade not reported Verification of graduation in process

Connecticut November Examination

Dr Thomas P Murdock, secretary, Connecticut Medical Examining Board, reports the written examination held in Hartford, Nov 14-15, 1933 The examination covered 10 subjects and included 70 questions An average of 75 per cent was required to pass Thirty-two candidates were examined, 23 of whom passed and 9 failed The following schools were represented

School	PASSED	Year Grad	Per Cent
George Washington University School of Medicine	(1931)	76	
Georgetown University School of Medicine	(1933)	75 6	
Johns Hopkins University School of Medicine	(1921)	80 1	
Boston University School of Medicine	(1933)	75 * 80 9	
Tufts College Medical School	(1931)	81 4	
(1932) 77 8 (1933) 75 * 76 3 77 8 * 80 82 1 *			
University of Michigan Medical School	(1925)	77	
St. Louis University School of Medicine	(1933)	75 4	
Long Island College of Medicine	(1932) 83 1	(1933) 80 9	
N Y Univ Univ and Bellevue Hospital Med College	(1933)	87 2	
University of Rochester School of Medicine	(1932) 75	(1933) 82 2 *	
Jefferson Medical College of Philadelphia	(1932)	83	
Mechary Medical College	(1932)	76 7 *	
University of Vermont College of Medicine	(1932)	79 6	
McGill University Faculty of Medicine	(1932)	83 6	
School	FAILED	Year Grad	Per Cent
Georgetown Univ School of Medicine	(1932) 64 5,	(1933) 70 3	71 5
University of Vermont College of Medicine	(1933)	71 2	
Queen's University Faculty of Medicine	(1924)	71 9	
Laval University Faculty of Medicine	(1933)	58 5	
University of Montreal Faculty of Medicine	(1933)	70 2	
Osteopaths (2) †			

School	FAILED	Year Grad	Per Cent
Georgetown Univ School of Medicine	(1932) 64 5,	(1933) 70 3	71 5
University of Vermont College of Medicine	(1933)		71 2
Queen's University Faculty of Medicine	(1924)		71 9
Laval University Faculty of Medicine	(1933)		58 5
University of Montreal Faculty of Medicine	(1933)		70 2
Osteopaths (2) †			

Fifteen physicians were licensed by endorsement during December The following schools were represented

School	LICENSED BY ENDORSEMENT	Year of Grad	Endorsement
Yale University School of Medicine	(1932) N B M Ex		
Georgetown University School of Medicine	(1933) New York		
Emory University School of Medicine	(1930) Georgia		
Northwestern University Medical School	(1928) Illinois		
Johns Hopkins University School of Medicine	(1929) N B M Ex		
(1930) Maryland			
Harvard University Medical School	(1931) Massachusetts	N B M Ex	
Columbia Univ College of Physicians and Surgeons	(1932) N B M Ex		
Cornell University Medical College	(1924) New York		
Fordham University School of Medicine	(1921) New York		
New York University University and Bellevue Hospital Medical College	(1931) N B M Ex.		
University of Vermont College of Medicine	(1931) N B M Ex		
Université de Paris Faculté de Médecine	(1927) Vermont		
Medizinische Fakultät der Friedrich Wilhelms Universität, Berlin	(1898) New York		

* License has not been issued

† Examined in medicine and surgery

Florida November Examination

Dr William M Rowlett, secretary, State Board of Medical Examiners, State of Florida, reports the examination held in Jacksonville, Nov 13-14 1933 Forty-one candidates were examined, 40 of whom passed and 1 failed The following schools were represented

School	PASSED	Year Grad	Per Cent
University of Arkansas School of Medicine	(1932)	85 4	
College of Medical Evangelists	(1933)	82 6	
Yale University School of Medicine	(1931)	80 4	
Georgetown University School of Medicine	(1931)	80 1	
Howard University College of Medicine	(1932)	80 8	

Emory University School of Medicine	(1932) 76	(1933)	86 4
University of Georgia School of Medicine	(1932) 80 7	(1933)	80 1
Loyola University School of Medicine		(1933) 84 6,*	92*
Rush Medical College		(1931)	86 6
University of Illinois College of Medicine		(1931)	86*
University of Louisville Medical Department		(1898)	79 7
University of Louisville School of Medicine		(1931)	83 1
Tulane University of Louisiana School of Medicine		(1930)	82 6
(1931) 88 2 (1932) 83 8, (1933) 90 3			
Johns Hopkins University School of Medicine		(1928)	88 1
University of Maryland School of Medicine and College of Physicians and Surgeons		(1922)	89 1
Harvard University Medical School		(1896)	78 7
University of Michigan Medical School		(1929)	86
University of Nebraska College of Medicine		(1921)	86 5
Western Reserve University Medical Department		(1910)	79 1
Jefferson Medical College of Philadelphia		(1896)	77 5
(1904) 87 5 (1922) 81 7, (1929) 84 9			
Univ. of Pennsylvania School of Medicine	(1923) 91 1	(1932)	83 9
Medical College of the State of South Carolina		(1931)	82 8
Univ. of Tennessee College of Medicine	(1931) 77 5	(1933)	82 7
Vanderbilt University School of Medicine		(1913)	86 6
Medical College of Virginia		(1931)	87 6
Univ. of Virginia Department of Med	(1930) 85 5	(1932)	89 7
Universidad de la Habana Facultad de Medicina y Farmacia	(1913) 75 2 †	(1920)	75 8†
School	FAILED	Year	Per Cent
Long Island College Hospital		(1908)	73 9

* This applicant has completed his medical course and will receive his M.D. degree on completion of internship
† Verification of graduation in process

Book Notices

The Principles of Treatment of Muscles and Joints by Graduated Muscular Contractions. By Vinton Smart C.A.O. D.S.O. M.D. Cloth Price \$3.75 Pp 217 with 4 illustrations New York & London Oxford University Press 1933

The object of this book is to present the treatment of injuries to muscles and joints and their sequelae by the method of graduated muscular contractions and to describe the electrical unit used and the technic of its application. The author emphasizes the importance of the restoration of muscle function after all types of injuries. He calls attention to the fact that when a joint is injured nearly every other component part receives some kind of treatment. While graduated muscular contraction treatment is not new, it was popularized by the author. A muscle, he points out, is a highly sensitive structure with power to respond to a variety of stimuli and when in a healthy state is capable, by its tone and its inherent power to contract, of acting as a guard to a joint by intercepting any sudden stresses that might cause damage to other joint structures. A knowledge of physiology is therefore essential to the study and treatment of injuries to muscles and joint structures. Although graduated muscular contractions are produced by means of an electric current it must be understood that no virtue of curative power whatever is claimed from the use of electricity per se. In the foreword, William O'Neill Sherman says that graduated muscular contraction is the greatest advance in physical therapy since the introduction of massage as a therapeutic measure and can be used to the exclusion of the latter in the treatment of the various injuries. The method is indicated in the treatment of injuries of the soft parts, including muscle and ligament strains, sprains and hematoma, myositis, torticollis, atrophy of disuse, synovitis, periarticular adhesions, synovial adhesions and fibrous ankylosis. Sherman says that massage has been dispensed with in his clinic because of its limited value in comparison with graduated muscular contraction. He says also that the Smart unit permits of painless and graduated control of the muscle contraction from its origin to its insertion. The author has given his results with this method of treatment covering a period of thirty years of study of muscles and joints. The basic feature of the apparatus is that it permits the operator to have complete and accurate control of the strength of the stimulation throughout its whole range so that he can cause the muscle to contract and relax with accuracy of time and degree. The book contains chapters on general physiology of muscle, trauma, posture, strain, sprain, manipulation of joints and after-treatment, adhesions following injury to the shoulder joint, technic in the manipulation of the shoulder joint and description of the unit for producing graduated muscular contractions.

Diet and Personality. Fitting Food to Type and Environment. By L. Jean Bogert Ph.D. With an Introduction by Lafayette B. Mendel Ph.D. Sc.D. Sterling Professor of Physiological Chemistry in Yale University. Cloth Price \$2.10 227 New York Macmillan Company 1931

This book is intended to stress the fact that diet must be adjusted to individual conditions. It is really an elementary book of general hygiene and includes discussions of rest, sunshine and mental habits, in addition to the discussions of diet. Its title is misleading, and the subtitle even more so, although some of the chapters deal with structural types—the stocky, the slender, the underweight and the middle aged. The writers' descriptions of the personalities that go with these types are naive, and they are quite far from the beliefs of modern psychiatry. There are other chapters, which treat of such subjects as susceptibility to infections, indigestion and constipation, which, although they may affect the personality, are not of such moment, nor is their connection with it so well known, as to warrant their being included in a book supposedly on personality. The fact that the author stresses the effect of worry and strain on physical well being, and her references to the effect of improper hygiene on mental capacity, would give this book some value, and she deserves a word of praise for stressing the psychologic factors of metabolism and assimilation. Also it must be admitted that the book is easy reading. On the other hand the psychologic material is unsatisfactory. For instance, the chapter entitled "Nervous Strain. The Great American Enemy" points out the real problems of overwork and fatigue but the author suggests the elimination of worry by such broad and indefinite methods as a "change of mental habits." There is some discussion of the physiology of the body fluids as well as the nervous system, scattered throughout the book, which are satisfactory and simple. Physicians will probably find this book no more useful than the usual book of hygiene intended for the layman, psychiatrists will probably reject it because the inferences it draws have yet to be justified but some individual patients may be helped by reading certain chapters.

Once lecciones sobre el reumatismo. Por C. Marañón profesor de la Universidad Central Instituto de patología médica del Hospital General de Madrid. Paper Price 10 pesetas Pp 249 with 51 illustrations Madrid Espasa Calpe, S. A., 1933

The popular term "rheumatism" includes articular and muscular conditions. These two types are divided into subgroups on the basis of etiology—the articular into the endogenous, the exogenous, the symptomatic and those of doubtful origin. The muscular variety is the result of endogenous or exogenous agencies. There are eight lectures devoted to the articular form. The discourse on the cardio-articular, focal and symptomatic rheumatisms is the best. Of interest is the portion concerning the traumatic variety. Trauma may produce the ordinary signs and symptoms of acute articular rheumatism, but this is not a true rheumatic condition. In the chronic deforming arthritides a history of injury is often obtained. These subtypes are of great import in cases in which the question of compensation becomes paramount. There is one lecture on the muscular rheumatisms. The last lecture has to do with treatment. It is essential that the underlying cause of the disease be determined in each case so that it may be treated. In this way the best results may be obtained. Each lecture is supplemented with an extensive bibliography. There is also a helpful glossary of rheumatic terms.

The Digestive Tract. A Radiological Study of Its Anatomy, Physiology and Pathology. By Alfred E. Barclay O.B.E. M.A. M.D. Lecturer in Medical Radiology University of Cambridge. Cloth Price \$12 Pp 392 with 275 illustrations New York The Macmillan Company Cambridge The University Press 1933

This is a radiologic study of the anatomy, physiology and pathology of the digestive tract. There are also several chapters on technic. The text is written clearly. The illustrations are numerous especially is this true of the normal position of the viscera seen on fluoroscopic and plate examination. One, therefore, will be able to detect deviations from the normal. The book is to be recommended as a useful one for the office or the laboratory.

Medicolegal

Hair Dyes Right of Court to Require Disclosure of Ingredients—The plaintiff brought suit against Inecto, Inc., and another, alleging that a hair dye manufactured by the corporation was inherently dangerous and that it injured her when it was applied to her scalp eyelashes and eyebrows. The taking of testimony before trial under certain restrictions, is sanctioned by a New York statute if such testimony is material and necessary to the plaintiff's cause of action. Acting thereunder the plaintiff served notice on the corporation that, before trial its testimony would be taken at a specified time and place, and the supreme court of New York ordered the corporation to submit to this pretrial examination and to give testimony concerning the chemicals, poisons, drugs and other ingredients of the hair dye. This order was affirmed by the appellate division, and the corporation appealed to the Court of Appeals of New York.

The plaintiff, said the Court of Appeals to succeed in her action must prove the presence of inherently dangerous and poisonous ingredients in the hair dye. *Karr v. Inecto, Inc.* 247 N. Y. 360, 160 N. E. 398. If proof of the presence of such ingredients can be obtained only by an examination of the defendant corporation, it cannot be held as a matter of law that an examination before trial is not necessary. If other methods of ascertaining the presence of the poisonous ingredients are available, the examination before trial of the corporation is not necessary. The corporation contended that if its dye contained poisonous ingredients such a fact may be established by analysis. If this be true, and the record disclosed nothing to the contrary, the court said the plaintiff does not have a right based on necessity, to examine the corporation with respect to the presence of these ingredients. The formula employed in the manufacture of the dye is property and if the secret compound contains nothing except harmless ingredients and its alleged injurious effect on the plaintiff was due to her idiosyncrasy, then the corporation's property right is entitled to preservation. Generally disclosure of legitimate trade secrets will not be required except to the extent that it appears to be indispensable for ascertaining the truth. There can be no legal sanction for the circulation of poison throughout the community, continued the court and if the dye does include inherently dangerous substances, the secrecy of its manufacture ought not to be protected. An examination of the corporation before trial however may and probably will the court said, have a tendency to disclose not only the ingredients of the dye which may be entirely harmless to the normal person, but it may also uncover other facts which might lead to destruction of valuable property rights vested in the corporation by their transfer through such a publication, to trade rivals. Since the record disclosed a total lack of evidence bearing on any necessity for an examination of the corporation before trial, both the supreme court and the appellate division were without discretionary power to order it, concluded the Court of Appeals. Accordingly the order permitting the examination was reversed. —*Drake & Herrman (N. Y.) 185 N. E. 687*

Workmen's Compensation Acts Award No Bar to Action for Malpractice—The Tennessee workmen's compensation act provides that whenever an employee has sustained an industrial injury under circumstances creating liability in some other person than the employer the employee may, at his option claim compensation from his employer or proceed at law against such other person or proceed against both the employer and such other person. He may not however collect from both. If compensation is awarded under the workmen's compensation act and the employer pays the compensation or becomes liable therefor he may collect in his own name or in the name of the injured employee from the other person against whom legal liability for damages exists the amount paid the employee. This provision said the Supreme Court of Tennessee, does not prevent an employee from suing a physician whose malpractice has aggravated his industrial injury even though the employee has previously recovered compensation from his employer by reason of a settlement, if in such settlement the

employer expressly waives his right of subrogation and if no part of the compensation paid was for loss of time and for injuries suffered by the employee because of the physician's negligence.

The workmen's compensation act continued the court was enacted for the benefit of employers and employees. It has little concern with the rights of third parties, negligent wrongdoers. The provision discussed is clearly for the benefit of the employer to prevent the employee from recovering damages from a third party and at the same time recovering compensation under the act from his employer. It gives an employer, paying compensation under the act, a right of action against the wrongdoer inflicting the damages. An employer may waive his right of subrogation and no rights of the wrongdoer are affected. The right of action against the wrongdoer accrues to the employee. The employer paying compensation may take this right of action from the employee or he may leave it with the employee. If, in a settlement between the employer and the employee, it is agreed that the right of action against the third party wrongdoer shall be left with the employee, the third party wrongdoer cannot complain. In any event, the wrongdoer can be held only for such damages as he has inflicted whether he be sued by the employer or by the employee. If the suit is by or for the employer, the statute limits recovery to the amount paid by the employer to the employee. An employee may recover full damages for the tortious injury inflicted on him by the third party.

The physician defendant in this case concluded the Supreme Court, may not question the motives that influence and the considerations that support a settlement between the employee and his employer. The physician's liability to the employee is just what it was before compensation proceedings were begun. The decision of the trial court against the employee was therefore reversed and the case remanded for further proceedings. —*Keen & Allison (Tenn.), 60 S. W. 2d 158*

Malpractice Sponge Left in Operation Wound—The plaintiff sued the defendant-physicians, alleging that they negligently left a large piece of towel or surgical gauze in his abdomen following a herniotomy and that an infection followed which incapacitated him for two years. The trial court directed a verdict for the defendants, and the plaintiff appealed to the Supreme Court of Wyoming.

At the trial a nurse, who was in charge of the hospital in which the herniotomy was performed and who attended the plaintiff, testified that she removed the dressings on the operation wound October 15 ten days after the operation and that there was stitch pus and the dressing was soiled from drainage. The wound was closed and she saw no rubber tubing or gauze in it. On October 22, she further testified, she removed from the wound a towel about 12 by 24 inches similar to the towel furnished by the hospital for use in operations. The hospital record of the daily condition of the patient, prepared by the nurse, showed an entry for that date 'Retained sponge removed'. On cross examination she stated that all dressings used in the operation were sterile. The plaintiff called both defendants for cross-examination, a procedure authorized by statute. The defendant Hilton testified that he performed the operation and that in a large percentage of cases it is bad practice for a physician to leave a foreign substance in a wound. He testified that he left no towel in the incision but that he did leave gauze drainage because of fear of pus. This constituted good practice, he said. Both he and the defendant Earle, who assisted in the operation and who was called for cross-examination under the statute testified that the leaving of a sterilized towel in a wound would not cause infection. There was no other medical testimony.

Before a plaintiff can recover for malpractice, said the Supreme Court he must show by affirmative evidence that the defendant was unskillful or negligent and that his want of skill or care caused injury to the plaintiff. If either element is lacking in the proof, the plaintiff has presented no case for the consideration of a jury. Where evidence is as consistent with the absence as with the existence of negligence the case should not be left to the jury. What is or is not common practice on the part of a physician is a question for experts and can be established only by their testimony. In the case

at bar, continued the court, claim was made that the infection resulted from the alleged failure of the defendants to remove a towel or surgical gauze from the operation wound. The burden of proof rested on the plaintiff to show that a towel or surgical gauze was negligently left in the operation wound. The testimony of the nurse was relied on to establish this fact. She was not present at the operation and did not of course know what was then done. She did testify that a towel was removed from the wound, October 22. Nevertheless, on the hospital record which she testified she made herself, she noted "Retained sponge removed." Nothing was entered about a towel. The defendant Hylton, who performed the operation, denied that any towel was left in the incision but testified that necessary gauze drainage was left. Thus this defendant's testimony, observed the court, coincided with the hospital record. If the defendant Hylton's testimony be true, then there was no proof of negligence in leaving the foreign matter in the wound. The nurse's oral testimony was in conflict with the statement in the hospital record, which she made. The jury would have been obliged to guess whether a towel or a sponge was removed from the wound. The court considered it at least doubtful whether the burden of proof was sustained by the plaintiff to show negligence on the part of the defendants.

There still remained the question, continued the court, whether the plaintiff established any causal connection between the alleged negligence and the damage suffered. Both defendants testified that a sterile towel left in a wound would not cause infection, and there was no evidence to the contrary. Furthermore, the nurse testified that all dressings used in the operation were sterile. In the absence of evidence on the subject it will be presumed that a physician or surgeon discharged his full duty to the patient, including the exercise of reasonable care and skill in his treatment. It devolved on the plaintiff in order to justify the submission of the case to the jury, to produce evidence that the towel was not sterile and this was not done. Accordingly, the Supreme Court affirmed the action of the trial court in directing a verdict for the defendant physicians—*Rosson v Hylton (Wyo)* 22 P (2d) 195.

Workmen's Compensation Acts **Compensability of Traumatic Neurosis**—On June 17, 1929, a slab of rock fell a distance of about six feet on to Sykes' shoulders and back, knocking him down. He was able to walk to a car and was taken home. Within a week he returned to work and worked until August 22 when he was compelled to quit because of severe pains in his back and neck. He remained in bed for five or six weeks under the care of a chiropractor. His left leg became partially paralyzed. His employer paid him compensation for one year. In August 1930, Sykes refused the employer's offer of light work and thereupon the employer ceased making payments. Sykes then instituted proceedings before the industrial accident board.

All the physicians who testified before the board agreed that Sykes showed symptoms of an injury to his spinal column and partial paralysis of the left leg. They could however, find no evidence of any bony lesion. They declared the disability to be functional rather than organic. The medical witnesses acquitted Sykes of malingering and testified that he was partially disabled but that he would eventually recover. The industrial board concluded that while Sykes was suffering from a partial disability at the time of the hearing, the disability would end on or about May 1, 1931 and ordered the payment of compensation until that time. Sykes then appealed to the district court, Musselshell county, Montana where the case came to trial, apparently, after May 1, 1931, the date set by the industrial commission for the termination of Sykes' disability. In the district court, lay witnesses testified that Sykes was then unable to perform any labor that he became exhausted driving a car, and that he was in no better condition than at the time of the hearing before the board. The physicians who testified at the board hearing had re-examined Sykes and testified in the district court that Sykes' condition was due to traumatic neurosis and that it was uncertain how much of the condition was due to physical causes and how much attributable to psychic and mental causes. The district court concluded that the industrial board erred in finding that Sykes' disability would end May 1 and thereupon awarded compensation for partial dis-

ability permanent in character. The employer appealed to the Supreme Court of Montana.

The neurotic condition incapacitating Sykes, if solely the result of an industrial accident, entitles him to compensation, said the Supreme Court. The fact that he, but for the want of sufficient will power, could throw off his condition, brought about by hysteria and neurosis caused by the injury, cannot deprive him of compensation based on his inability to work. If the disability could be overcome by a simple operation, or by definite treatment, and continues only because the injured workman refuses to submit thereto, no compensation would be allowable. The foregoing rule is not applicable to the present case, however, said the court. The evidence shows that the recovery of Sykes is highly problematic, being dependent on a change of mental condition to be brought about through the operation of some stimulus impossible of accurate application and dependent solely on chance and the efforts of the workman. Furthermore, the court said, the evidence gives no assurance that Sykes though he exercises his mental processes to the utmost could by the exertion of will power "snap out of it." Under a liberal conception of the workmen's compensation act, concluded the court, if it is shown that an injured workman will suffer disability for an indefinite period his disability is permanent in character. The district court, therefore, did not err in awarding Sykes compensation for a partial disability permanent in character—*Sykes v Republic Coal Co (Mont)*, 22 P (2d) 157.

Malpractice **Jury May Not Disregard Expert Testimony**—The plaintiff sued the defendant-physician for alleged malpractice in treating a complicated Pott's fracture. At the trial the plaintiff called a physician who, on cross examination, testified that under the circumstances the result obtained by the defendant was excellent and that there was nothing to criticize in the defendant's treatment of the case. There was no other medical testimony introduced. Nevertheless the jury returned a verdict for the patient and the physician appealed to the Supreme Judicial Court of Maine. It is difficult to understand why said the Supreme Judicial Court, in view of the only expert testimony adduced at the trial, the case should have been submitted to the jury. True, the expert witness had been summoned by the plaintiff and the important features of his evidence were in answer to questions propounded by the attorney for the defense, but neither his professional knowledge nor his integrity was attacked. The expert witness was apparently frank unprejudiced unbiased and fair in all of his statements. His testimony stood uncontradicted. The verdict assumed it to be of no value whatever. The jury was not justified in disregarding it. The judgment in favor of the patient was accordingly reversed—*Burns v Haskell (Maine)*, 166 A 384.

Society Proceedings

COMING MEETINGS

- American Association of Anatomists Philadelphia March 29-31 Dr George W. Corner University of Rochester School of Medicine Rochester N. Y. Secretary
- American Association of Pathologists and Bacteriologists Toronto Canada March 29-30 Dr Howard T. Karsner, 2085 Adelbert Road Cleveland Secretary
- American Laryngological Rhinological and Otolological Society Charleston S. C. April 3-5 Dr Robert L. Loughran Bridgewater Conn. Secretary
- American Orthopsychiatric Association Chicago Feb. 22-24 Dr George S. Stevenson 450 Seventh Avenue New York Secretary
- American Physiological Society New York March 28-31 Dr Frank C. Mann Mayo Clinic Rochester Minn. Secretary
- American Society for Experimental Pathology New York March 28-31 Dr C. Phillip Miller Jr 950 East 59th Street Chicago Secretary
- American Society of Biological Chemistry New York March 28-31 Dr H. A. Mattill Chemistry Building State University of Iowa Iowa City Secretary
- Federation of American Societies for Experimental Biology New York March 28-31 Dr Frank C. Mann Mayo Clinic Rochester Minn. Secretary
- Louisiana State Medical Society Shreveport April 9-12 Dr P. T. Talbot 1430 Tulane Avenue New Orleans, Secretary
- Pacific Coast Surgical Association Portland Oregon Feb. 21-24 Dr Edgar L. Gilcrest 384 Post St. San Francisco Secretary
- Southeastern Surgical Congress Nashville Tenn. March 5-7 Dr B. T. Beasley 1019 Doctors Building Atlanta Ga. Secretary

Current Medical Literature

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, St. Louis

16 945 1040 (Nov.) 1933

- Some Remarks on Etiology of Cataracts. Silt Lamp Studies. A. J. Bedell. Albany, N. Y.—p. 945.
- Possible Influence of Immunologic Factors in Production of Cataract. A. C. Woods and E. L. Burky, Baltimore.—p. 951.
- Experimental Study of Corneal Vascularization. L. A. Juhanelle, M. C. Morris and R. W. Harrison. St. Louis.—p. 962.
- Changes in Astigmatism. E. Jackson. Denver.—p. 967.
- *Use of Calcium Gluconate in Diseases of Eye. Georgiana D. Theobald. Oak Park, Ill.—p. 975.
- Very High Astigmatism in Keratoconus and Postcataract Cases. B. Y. Alvis and M. Wiener. St. Louis.—p. 981.
- Contribution to Problem of Enzyme Action in Mechanism of Cataract. A. Saueremann. New York.—p. 985.

Use of Calcium Gluconate in Eye Diseases.—Theobald gives the results in twenty-four cases of inflammatory ocular disease in which calcium gluconate was used. She observed that pain ceased usually two hours after the first injection after the second injection in severe cases there was a definite rapidity of absorption of exudates, breaking down of adhesions and dilatation of the pupil, the improvement in the general health was definite and the patients gained in weight and acquired a feeling of well being. It was necessary to remove as thoroughly as possible all foci of infection. When this was not done, after the first general improvement progress was retarded or there would be recurrent attacks, which required more frequent doses of calcium and finally the removal of these foci. The course of the recurrent corneal ulcers was shortened with calcium therapy.

American Journal of Public Health, New York

23 1017 1114 (Oct.) 1933

- Radium Poisoning. Review of Present Knowledge. R. D. Evans. Berkeley, Calif.—p. 1017.
- Mechanism of Infection in Poliomyelitis. H. K. Faber. San Francisco.—p. 1024.
- Natural and Induced Variations in Vitamin Values of Milk. H. C. Sherman. New York.—p. 1031.
- Toxic Amblyopia and Accompanying Physiologic Disturbances in Carbon Tetrachloride Intoxication. Z. T. Wirtschafter. Cleveland.—p. 1035.
- Food Poisoning. Public Health Problem. J. C. Geiger and J. P. Gray. San Francisco.—p. 1039.
- Ten Years of Public Health Administration in Ohio. R. G. Paterson. Columbus, Ohio.—p. 1045.
- Industrial Dermatitis in the United States. L. Schwartz. New York.—p. 1049.
- Antigenic Value of Commercial Diphtheria Toxoids. W. Levin and Helen A. Cary. Portland, Ore.—p. 1067.

American Journal of Surgery, New York

22 397 602 (Dec.) 1933

- Thirty Nine Extramedullary Tumors of the Spinal Cord. K. Tamaki. San Francisco.—p. 397.
- Cranio-cerebral Injuries. J. M. Foster Jr. and D. Prey. Denver.—p. 420.
- Neurogenic Imbalance of Pelvic Organs. Treatment with Sympathetic Ganglionectomy. W. D. Abbott and R. O. Pfaff. Des Moines, Iowa.—p. 426.
- Neurogenic Appendicitis. Study of One Hundred and Ninety Five Cases of Appendicular Neuromas. K. Hosoi. New Orleans.—p. 428.
- Technic of Phrenicectomy. Use of Short Incision. W. E. Delaney. Jr. Williamsport, Pa.—p. 447.
- Combined Phrenic Exeresis and Scalenotomy. T. B. Aycock. Baltimore.—p. 451.
- Femoral Hernia. Review of Operative Technic and New Method of Repair. C. P. Cooper. Bedford, N. Y.—p. 458.
- Treatment of Laparotomy Incisions. K. Roberts and W. W. Johnson. New York.—p. 461.
- Intussusception. H. Foster. Brooklyn.—p. 463.
- Control of Inaccessible Hemorrhage. H. Lilienthal. New York.—p. 476.
- Peritonitis. Pathologic Physiology Involved in Treatment. E. H. Mensing. Milwaukee.—p. 478.

- Early Treatment of Equinus in Congenital Clubfoot. J. C. McCauley Jr. and A. Krida. New York.—p. 491.
- Osteitis Deformans Affecting the Bones of the Face. G. B. New and F. R. Harper. Rochester, Minn.—p. 500.
- *Method of Treatment of Upward Dislocation of Acromial End of Clavicle. G. H. Copher. St. Louis.—p. 507.
- Avertin Anesthesia in Bone and Joint Surgery from the Surgeon's Point of View. G. E. Haggart. Boston.—p. 509.
- Chemical Attack on Cancer. C. Voegtlin. Washington, D. C.—p. 512.
- Early Diagnosis of Carcinoma of Large Intestine. J. T. Priestley and J. A. Bergen. Rochester, Minn.—p. 515.
- *Validity of Present Criteria for Diagnosis of Carotid Body Tumor with Especial Reference to Branchiogenic Cysts. E. I. Greene and J. M. Greene. Chicago.—p. 521.
- Vascular Obstruction of Ureter in Juveniles. M. F. Campbell. New York.—p. 527.
- Role of Ureter in Renal Tuberculosis. R. V. Dav. Los Angeles.—p. 542.
- Advanced Bladder and Urethral Tuberculosis. Treatment by Urethral Transplantation Following Preliminary Colostomy. R. M. Nesbit. Ann Arbor, Mich.—p. 547.
- Carbuncle of the Kidney. Metastatic Staphylococcus Abscess of the Kidney. W. N. Taylor. Columbus, Ohio.—p. 550.
- Urachal Cysts and Fistulas. Marion Douglass. Cleveland.—p. 557.
- Panhysterectomy. Clinical Analysis of One Hundred and Fifty Cases from the Vaginal and Abdominal Approach. J. T. Witherspoon and Virginia W. Butler. New Orleans.—p. 561.
- Hematemeses from Phytobezoar. L. A. Smith. Indianapolis.—p. 565.
- Auto Blood Transfusion Apparatus. A. W. Cornell. New York.—p. 568.

Phrenicectomy. Use of Short Incision.—Delaney states that it is possible to avulse the phrenic nerve through an incision one-half inch long. Never should it be necessary to extend the incision to more than seven-eighths inch. He presents a technic in which phrenicectomy is performed through an incision of minimal length. After the administration of a capsule of sodium amylal two hours preceding the operation, and of a hypodermic of one-sixth grain (0.01 Gm.) of morphine sulphate and $\frac{1}{150}$ grain (0.0004 Gm.) of atropine sulphate before being sent to the operating room, the patient is placed on the table reclining at an angle of about 30 degrees. The face is turned away from the operator, who stands on the affected side. After the skin is prepared, the patient is asked to begin to raise the head with the face remaining turned away. The border of the clavicular insertion of the sternocleidomastoid muscle can be easily palpated and the incision is to be made along the lateral border of this portion of the muscle. A 1 per cent solution of procaine hydrochloride is infiltrated in the skin, beginning at a point one fingerbreadth above the clavicle. The infiltration may continue for about an inch upward, following the border of the clavicular insertion of the sternocleidomastoid muscle. An incision one-half inch (1.25 cm.) long is then made. The tissues are separated by blunt dissection with two plain thumb forceps. The platysma muscle is separated in the direction of its fibers. The cervical fascia is opened. Dissection is toward the anterior scalenus muscle. After the fascia has been penetrated retractors are used. The dissection continues down on a pad of fat. It is essential to dissect through this pad of supraclavicular fat in order to come directly down on the anterior scalenus muscle in the normal location of the phrenic nerve. The phrenic nerve is grasped gently with the thumb forceps. The nerve is freed from the surrounding areolar tissue and infiltrated high up with a 1 per cent solution of procaine. The nerve is then clamped with an avulsor the shank of which has been passed through the finger loop of an ordinary hemostat. The latter serves as a fulcrum as the avulsor is being rotated. The nerve is cut with scissors as high above the avulsor as possible and then slowly twisted on the shank of the avulsor as the handle is rotated. The baffle at the distal end prevents the nerve from slipping off the instrument. Attachments of fascia to the nerve should be freed from the nerve with a tissue forceps as the avulsion progresses. After a few inches has been removed there is a characteristic snap and the nerve can be lifted out of the incision. There should be no hemorrhage after the removal of the nerve. The tissues are sponged and if dry they are closed. A few interrupted sutures of number 0 plain catgut close the fascia and the platysma muscle. The skin may be closed with one skin clip, which is removed on the third day.

Combined Phrenic Exeresis and Scalenotomy.—Aycock describes an operative method a combined phrenic exeresis and scalenotomy in which the level of the incision is determined by placing the fore and middle fingers just above the upper border of the clavicle. At this junction the scalenus anterior

muscle is palpated and at this level from 4 to 5 cc of 0.5 per cent solution of procaine hydrochloride is injected in the cutaneous and subcutaneous tissue. The line of incision extends from a point about one-fourth inch in front of the dorsal border of the sternomastoid muscle to a point just in front of the ventral border of the trapezius muscle, approximately $1\frac{1}{2}$ inches in length. The knife is used only through the skin, superficial fascia and platysma muscle and then dissecting scissors are used to uncover the ventral surface of the anterior scalenus muscle. Small blunt hook retractors are inserted and retracted in the line of incision. Once the muscle has been uncovered the phrenic nerve is located, injected with procaine lifted out of its bed dissected free, cut and slowly avulsed. Subsequent to the avulsion, the scalenus anterior muscle is dissected free and a small periosteal elevator passed behind it leaving the fifth, sixth and seventh cervical nerve trunks uninjured. All the fibers of this muscle are severed in this way except a few that come off from the transverse process of the sixth cervical vertebra. These fibers are picked up with rat tooth forceps and teased apart with scissors. The fifth cervical nerve trunk is gently retracted downward and toward the midline. The scalenus medius and posterior are picked up and either cut or teased apart with blunt pointed scissors. The fibers originating from the transverse process of the seventh cervical vertebra must be severed. There is usually no bleeding except slight oozing from the severed muscle fibers. The author points out that the results in his seventy cases indicate that this combined operation has had a distinct advantage over phrenic exeresis alone.

New Method of Repair for Femoral Hernia—Cooper nail uses the same technic for simple and strangulated hernias except in the manner of dealing with the intestine and in the selection of the anesthetic. His procedure is as follows. An incision is made through the skin from 10 to 12 cm long parallel with and about 3 cm above Poupart's ligament. After the fascia is exposed the lower flap of the skin is dissected downward until the hernial sac is completely isolated. The sac is opened, if it contains adherent omentum, this is separated and reduced. If the sac contains intestine and the constriction is tight enough to prevent easy reduction no attempt is made to reduce it until the constricting band is cut later on. The upper flap is retracted and an incision is made through the aponeurosis of the external oblique parallel to Poupart's ligament from 2 to 3 cm above the inguinal canal. An opening is made through the internal oblique and transversalis muscles in a line parallel with that of their fibers. After the peritoneum is exposed and an incision from 4 to 6 cm long is made in it, a finger is hooked under the strangulated intestine. If gentle traction combined with slight pressure from below does not release the intestine, the constriction is cut from below. After the constriction is released and the strangulation relieved, the injured intestine is lifted out of the abdominal cavity along with as much of the healthy intestine as is necessary if resection is to be performed. If a resection is necessary, there is no danger of injury to the anastomosis as there is in reducing it in the low operation. The hernial sac is freed completely in the canal so that it can be inverted into the abdominal cavity. The sac is picked up with the forceps and pulled up through the abdominal incision, and the peritoneum is sutured all around it, closing the abdominal cavity. The sac is then amputated flush with the fascia. It may be necessary to ligate one or two small vessels in the sac. The separated muscles are sutured together, the sutures passing through both walls of the sac, over this the fascia is then sutured with interrupted chromic catgut sutures with an occasional deep suture passing through the stump of the sac. The skin is closed in the usual manner without drainage unless there is an excess of adipose tissue or any danger of infection.

Treatment of Upward Dislocation of the Acromial End of the Clavicle—Copher points out that the rational position for fixation of the shoulder after reduction of an upward dislocation of the outer end of the clavicle is backward and upward. This position is accomplished by the use of an elastic bandage placed about the shoulders in a figure of eight. Before the elastic bandage is applied a pad of cotton and saddle felt 1 or 2 inches thick and about 2 inches in diameter is

placed over the outer end of the dislocated clavicle and held in place by adhesive plaster. The axillary folds and spaces are padded with cotton for comfort and to absorb perspiration. The elastic bandage is applied about the shoulders in the manner of a figure of eight, making pressure on the pad overlying the outer end of the dislocated clavicle. It is desirable to use a bandage containing rubber. The elastic bandage pulls the scapulas and at the same time effectively depresses the pad and the dislocated end of the clavicle. The bandage is prevented from slipping by the insertion of safety pins at points where the bandage crosses. The tension of the elastic bandage is made more effective by placing the forearm on the injured side in a fairly tight sling. The sling displaces the weight of the extremity from the shoulder to about the neck and helps to elevate the shoulder above its normal level. An axillary pad is used to prevent inward displacement of the shoulder.

Diagnosis of Carotid Body Tumor—The present criteria of the Greenes in arriving at a diagnosis of tumor of the carotid body are (1) the position of the tumor (2) its movement laterally but absent vertical mobility, and (3) its transmitted but nonexpansile pulsation. Because of the proximity and frequent attachment to the underlying great vessels of the neck, branchiogenic cysts may fulfil all these criteria. Heretofore the diagnosis of a tumor of the carotid body as well as branchiogenic cysts has been made with difficulty, and most frequently the true condition was not established until the neck had been opened when the exact nature of the lesion became apparent. The ability to make a correct preoperative diagnosis is of utmost importance because of the inequality in the surgical difficulties encountered in the two lesions: the branchiogenic cysts are usually relatively simple, while a tumor of the carotid body requires skilled surgical ability. The mortality and morbidity in the two conditions vary: the former is practically nil, while the latter is extremely high. The history and physical observations in the two conditions may be insufficient to determine the exact status of the lesion. The introduction of an 18 gauge needle will help greatly in arriving at the proper diagnosis. By this means the contents may be aspirated, if the tumor is cystic and by demonstrating the presence of cholesterol crystals a diagnosis of branchial cyst is established. Should the diagnosis still be in doubt, an opaque medium may be introduced through the needle and a roentgenogram taken which will be of further aid. If the tumor is discovered to be solid a syringe may be attached to the needle and some of the material aspirated and immediately examined, thus establishing its specific identity. Should the lesion be an aneurysm or should the needle enter any of the large vessels no damage can result.

Archives of Ophthalmology, Chicago

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- Indications for Treatment for Combined Lateral and Vertical Strabismus J. W. White New York—p. 585
Mixed (Teratoid) Tumors of the Lacrimal Caruncle D. T. Vail Jr. Cincinnati—p. 593
Retraction Syndrome R. Aebli New York—p. 602
Metastatic Carcinoma in Both Optic Nerves Simulating Retrobulbar Neuritis T. L. Terry and E. B. Dunphy Boston—p. 611
Visualization of Foreign Bodies in the Iridocorneal Angle Simple Method of Stereoscopic Gonioscopy G. M. Bruce New York—p. 615
National Society for Prevention of Blindness Lay Movement for Conservation of Vision W. C. Posey Radnor Pa. and L. H. Carr New York—p. 621
Chemistry of the Lens. III. Autolysis of the Lenticular Proteins A. C. Krause Baltimore—p. 631
Effect of Stereopsis Produced by Disparate Retinal Images of Different Luminosities F. H. Verhoeff Boston—p. 640
*Function of Reattached Retina P. C. Kronfeld Chicago—p. 646
*Actinomycosis of the Orbit M. N. Beigelman Los Angeles—p. 664
*Use of Nupercaine in Ophthalmology E. E. Dillon and C. Greer Chicago—p. 674

Function of Reattached Retina—Kronfeld states that, in partial or complete macular detachments of a duration of less than two months and also in partial macular detachment of more than two months the prognosis concerning restoration of function is favorable. He studied the function of the reattached retina in six cases of partial sector-shaped retinal detachment of more than one month which yielded to Gonn Lindner or Weve diathermic operations. The 2 degree white isopter was normal outside its limitation at the area of opera-

tion The 0.17 degree white isopter was found constricted in each case the degree of radial constriction apparently strictly depending on the duration of the detachment and perhaps on the age of the patient The dark field paralleled the isopter for 0.17 degree closely, outside of the fact that in one case of long standing the dark field (taken with the usual target) remained at zero over the entire reattached area The longitudinal extent of the constriction for white colored and light targets in the dark room paralleled the extent of the detachment No definite signs of remote, permanent noxious effect from uncomplicated operations after Gonn Lindner Lindner-Guist and Weve Safar were found

Use of Nupercaine in Ophthalmology—Dillon and Greer used nupercaine in ten cases of pterygium by instillation and injection None of the patients complained of severe after-pain, and in a number there was no postoperative discomfort whatever With nupercaine a somewhat longer time is necessary for the induction of anesthesia, from fifteen to twenty minutes in cases of pterygium In some cases sufficient anesthesia could be obtained by instillation alone while in others the injection of from 2 to 3 drops of a 1:1,000 dilution was necessary The freedom from after-pain was quite definite as compared with that in patients operated on under cocaine anesthesia A 1:500 ointment of nupercaine was used and freedom from after pain was noted in cases of corneal abrasions pterygium and other conditions Particularly because of its prolonged anesthetic effect nupercaine is a valuable drug in certain ophthalmologic procedures

Arkansas Medical Society Journal, Little Rock

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- Cysts of Ciliary Processes and Cysts of Superficial Layer of the Iris Report of Two Cases E H Cary Dallas Texas—p 92
Management of Cavities in Treatment of Pulmonary Tuberculosis L J Moorman Oklahoma City—p 97

Canadian Public Health Journal, Toronto

24 455 504 (Oct.) 1933

- Specific Prevention of Measles Scarlet Fever and Diphtheria J G Fitzgerald Toronto—p 455
Form of Canadian Medical Certificate of Death T E Ashton Toronto—p 465
Tuberculous Infection in Two Thousand Four Hundred and Ninety Two Persons with Especial Reference to Younger Adult Age Groups G C Brink M H Brown Toronto and K G Gray Mimico Ont—p 471
Federal Inspection of a Municipal Meat Supply A Wilson Saskatoon Sask.—p 479
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- The Food Factor in Allergy G Piness and H Miller Los Angeles—p 405
Blood Pictures in Average Healthy Infants During the First Six Months A H Washburn Denver—p 413
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Fifteen Years of Country Practice W B Hardesty Berthoud—p 420
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Allergy in Relation to Dermatology I J Frank Sioux City—p 554
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Conduct and Management of Labor by General Practitioner T H Johnston Spencer—p 562
Malarial Therapy of Neurosyphilis W E Ash Council Bluffs—p 566

Journal of Clinical Investigation, New York

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Effect of Splenic Contraction on the Formed Elements of the Blood in a Case of Anemia and Splenomegaly D K Miller and C P Rhoads New York—p 1009
Proteins of Blood and Subcutaneous Lymph in Dogs A A Weech E Goettsch and E B Reeves New York—p 1021
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Electrolytes in Human Tissue III Comparison of Normal Hearts with Hearts Showing Congestive Heart Failure W E Wilkins Nashville Tenn and G E Cullen Cincinnati—p 1063
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Formula and Nomogram for Estimation of Osmotic Pressure of Colloids from Albumin and Total Protein Concentrations of Human Blood Serums H S Wells J B Youmans and D C Miller Jr Nashville Tenn—p 1103
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Magnesium Metabolism in Hyperparathyroidism H A Bulger and Florence Gausmann St Louis—p 1135
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Rate of Excretion of Urine in Subjects with Different Amounts of Renal Tissue D A Rytand San Francisco—p 1153
Salt and Water in Treatment of Diabetic Acidosis D M Kydd New Haven Conn—p 1169

Sedimentation Test in Rheumatoid Arthritis—The results of Stansby and Nicholls investigation of 597 cases indicate that the corrected sedimentation index (Rourke and Ernste) is a reliable criterion of the activity or severity of the arthritic process at the time of testing and that any fundamental change in the clinical condition produces an immediate corresponding change in the sedimentation rate Patients with a greater degree of involvement of the joint and a longer duration of the disease have higher sedimentation rates than those with less involvement of the joint and shorter duration of the disease Considerable variation occurs, however, in individual cases The phenomenon that the average sedimentation rate progressively increases with advancing age appears to be due primarily to the increasing accumulation of patients having severe arthritis in whom the disease began at some earlier age From a study of seasonal variations in the sedimentation rate over a long period it was deduced that the rate was higher in winter than in summer, while spring and autumn occupied intermediate positions No relationship was found between the sedimentation rate and the streptococcus agglutination reaction The sedimentation test is a reliable measuring rod of the activity or severity of the arthritic process By repeating this test at regular intervals, the progress of the patient may be determined The sedimentation test provides a ready aid for correctly estimating the value of the treatment instituted

Oxygenation of Concentrated Versus Normal Bloods—The studies of Ray and his associates of the dissociation curves of normal and artificial polycythemic bloods show no difference in the tension of oxygen required to produce a given saturation When these types of blood are oxygenated by the perfused lung, the normal blood becomes completely oxygenated while the concentrated blood is never fully saturated Increasing the oxygen tension increases the saturation of the concentrated blood The authors ascribe the difference between the two bloods to the greater rate at which hemoglobin in the polycythemic blood passes through the lungs coupled with a delayed diffusion resulting from capillary dilatation

Immunity in Diabetes—Richardson states that complement in the blood of diabetic patients does not differ in amount

from that in the blood of nondiabetic patients. This is true whether or not infection is present. The antibacterial power of the blood of diabetic patients as measured by standard methods tends to be less than that of nondiabetic. Diabetic patients are less able than nondiabetic controls to form agglutinins following their inoculation with typhoid vaccine. From these studies the author concludes that any deficiency in the antibacterial reactions of the blood of the diabetic patient comes rather from impairment of the amboceptor than from any lack of the amount or the activity of the complement. This is true of both the natural amboceptor as shown by the bactericidal test and of the acquired amboceptor as shown by the formation of agglutinins.

Journal of General Physiology, Baltimore

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- Studies on Tissue Reactions in Immunity VII Quantitative Measure of Skin Sensitivity R L Kahn Ann Arbor Mich—p 295
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 Occurrence of Bacteria in Filtrable State in Active Bacteriophage Studies in Bacterial Metabolism CIV A I Kendall and A W Walker Chicago—p 355
 *Normal Flora of the Prepuberal Vagina H Pettit and C H Hitchcock Philadelphia—p 372
 Purification of Diphtheria Toxoid G F Leonard and A Holm New Brunswick N J—p 376
 Klebsiella Paralytica New Pathogenic Bacterium from Moose Disease G I Wallace A R Cahn and L J Thomas Urbana Ill—p 386

Schwartzman Phenomenon Heretofore Undemonstrated Antitoxins in Man.—Klein presents evidence that, in patients recovering from systemic gonococcal infections and from typhoid specific antitoxins developed spontaneously, as demonstrated by the Schwartzman phenomenon. It appeared highly suggestive that in these patients recovery was related to antitoxin formation. Serum of certain patients with previous meningococcal infections and of certain controls was shown to possess meningococcus antitoxin. This was group specific. The capacity of antigenococcus serum to neutralize meningococcus reacting factors and of antimeningococcus serum to

neutralize gonococcus reacting factors is further evidence of the biologic relationship between the gonococcus and the meningococcus. The author is extending these investigations to other diseases caused by bacteria possessing toxins potent in eliciting the Schwartzman phenomenon. His aim is to study whether spontaneous formation of antitoxin takes place. If further studies are fruitful, attempts should be made to confer immunity against this entire group of diseases, actively by prophylactic injections of toxoid and passively by the administration of immune serum to actively ill patients.

Prophylaxis Against Tetanus.—The experiments of Bergey and Etris on guinea-pigs with tetanus toxoid showed that three doses of 1 cc each bring about a high degree of protection. From the results obtained in guinea pigs, it is believed that human beings may also be protected against tetanus by the administration of several doses of toxoid. This method of protection obviates the hypersensitization against horse serum that may occur from passive immunization with tetanus antitoxin.

Normal Flora of the Prepuberal Vagina.—Pettit and Hitchcock made six cultural examinations of the vaginal flora of forty-six children between the ages of 14 months and 11 years. The majority of these cultures were obtained with sterile cotton tipped applicators. The swab was rolled gently on a portion of a 5 per cent rabbit blood infusion agar plate of pH 7.4 after this a smear was made on a clean glass slide. The plates were at room temperature for from fifteen to twenty minutes until they could reach the laboratory incubator. Sterile glass spreaders were used to distribute the organisms over the surface of the agar. Incubation was at 37.5 C. Smears were stained by Gram's method. The authors' studies show that the flora is predominantly diphtheroid in character. Gram-positive cocci, such as nonhemolytic streptococci and non-pigment-forming staphylococci, are present less frequently and in smaller numbers. Organisms of the intestinal flora seldom if ever occur in healthy children though in severely ill patients there is a distinct tendency for them, together with *Streptococcus aureus*, to overgrow the normally occurring flora.

Maine Medical Journal, Portland

24 209 228 (Nov.) 1933

- Radium Treatment of Uterine Carcinoma A P Leighton Jr, Portland—p 210
 Endocervicitis H M Goodwin Bangor—p 215

Minnesota Medicine, St Paul

16 661 714 (Nov.) 1933

- Undulant Fever (Brucellosis) W M Simpson, Dayton Ohio—p 661
 Role of Vitamins in Nutrition G O Burr Minneapolis—p 668
 Skin Manifestations of Avitaminosis S E Sweetzer Minneapolis—p 670
 Eye Manifestations of Avitaminosis D L Tilderquist Duluth—p 675
 Systemic Manifestations of Avitaminosis H Oerting St Paul—p 679
 Treatment of Malnutrition in Adults M Barron Minneapolis—p 681
 Vitamin Deficiency in Childhood P C Jeans Iowa City—p 688
 Observations on Deep Q Wave in Lead III of Electrocardiogram J F Borg St Paul—p 694
 Calcium Deficiency Associated with Functional Gastrointestinal Disturbances in Adults E L Gardner Minneapolis—p 698

New Jersey Medical Society Journal, Orange

30 689 750 (Oct.) 1933

- Injuries of the Infant During Delivery P B Bland Philadelphia—p 695
 New Method for Relieving Prostatic Obstruction V P Butler Jersey City—p 701
 Methods for Improving Results in Cancer of Large Intestine and Rectum V Farmer Hackensack—p 704
 Pneumothorax the Treatment of Choice in Pulmonary Tuberculosis M J Fine Newark—p 706
 Metastatic Lateral Sinus Thrombosis H Z Goldstein Newark—p 716
 Acetarsone (Stovarsol) in Treatment of Congenital Syphilis N B Heller Newark—p 718
 Treatment of Infantile Eczema B M James Newark—p 721
 Dietetics in Gastrointestinal Disease V Knapp Asbury Park—p 724
 Medicolegal Aspects of Bone Injury M Kummel Newark—p 728
 Surgery of Vegetative Nervous System A Strelinger Elizabeth—p 739
 Perforated Gastric Ulcer J A Visconti Hoboken—p 743

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

6 577 640 (Oct.) 1933

- Duodenal Diverticula. Commentary and Report of Six Cases. C D Costello—p 577
Evaluation of 'Depth Doses' of Gamma and Roentgen Rays. W J Rees and L H Clark—p 588
Three Problems of Gamma Ray Therapy. Notes. W V Mayneord—p 598
Radiosensitivity of Nondividing Cell. J C Mottram—p 615

British Journal of Tuberculosis, London

27 147 194 (Oct.) 1933

- Tuberculosis in Canada. H Rolleston—p 147
Closure of Cavities in Pulmonary Tuberculosis. B Hudson and F H Hunnard—p 150
Retrospect of Twenty Years in Tuberculosis Service. A C Watkins—p 155
Pulmonary Tuberculosis of Bovine Origin. Critical Survey. W M Cumming—p 159
Tuberculosis Movement in the United States. K Emerson—p 162

British Medical Journal, London

2 717 766 (Oct. 21) 1933

- Clinical Science. T Lewis—p 717
Puerperal Fever. Its Etiology and Prevention. L Colebrook—p 723
Diagnosis of Puerperal Sepsis. L C Rivett—p 726
Treatment of Puerperal Sepsis. E F Murray—p 728
Control of School Myopia. A Sorsby—p 730
Maternal Mortality in New Zealand. T L. Paget—p 739

2 767 806 (Oct. 28) 1933

- Surgical Diseases of Biliary Tract. D P D Wilkie—p 767
*Some Experiences of Sympathectomy in Anterior Poliomyelitis. E D Telford and J S B Stopford—p 770
*Bilateral First Thoracic Ganglionectomy in Two Cases of Parkinson's Syndrome. G Harrower and K C Ghosh—p 772
Fractures of the Spine. Treatment and Transportation. W S Houghton—p 774
Hemangioma of the Spine. F S Heaney and P H Whitaker—p 775
'March Foot' Case. H Dodd—p 776
Role of Fusion Operations as Applied to the Hip Joint. G R Girdlestone—p 777
Chloroform Capsules During Labor. L C Rivett—p 778

Sympathectomy in Anterior Poliomyelitis—The result in Telford and Stopford's three experimental cases of total paralysis of one or both lower extremities shows that sympathectomy has been of great benefit to the patients. During the whole winter their limbs have remained warm and there have been no distressing chilblains or a period of incapacity for school or work. They are most enthusiastic about their greatly increased comfort and happiness, even in the coldest weather, the warmth is most striking and in a paralyzed limb seems quite unnatural. The color has improved in all, but when the patient has been standing for a time there is still a trace of cyanosis, mostly in the calf, showing that in the erect position there is still some lag in the venous return. Although the number of cases is small and but one winter has passed since the operation, the authors think it likely that sympathectomy will prove of real value in patients who have had anterior poliomyelitis and who are subject to recurrent chilblains and ulceration. They maintain that if ganglionectomy is adequately done there is no question that the result is complete and permanent. By now there is ample support for this contention in the literature of ganglionectomy in both man and animals.

Thoracic Ganglionectomy in Parkinson's Syndrome—Harrower and Ghosh removed the first thoracic ganglion in two cases of Parkinson's syndrome. The operation effected an improvement much more marked in the woman than in the man, but neither subject was improved to such an extent as to become a useful member of the community. The condition in the woman was not of long duration. She was improved to such an extent that she was able to attend to her own wants. The results point to the fact that the heart is intrinsically controlled. In the past, the sympathetic system has been blamed for all sorts of ills, but, judging from the results of sympathectomies in various parts of the body, the action of the sympathetic system is a subsidiary one in the normal human economy. When the sympathetic nerve is causing spasm in

disease conditions, as in carcinoma of the bladder or Raynaud's disease, section of the nerves involved has a beneficial result, but in the normal economy the sympathetic nerves, like the appendix or gallbladder, can be dispensed with.

East African Medical Journal, Nairobi

10 189 220 (Oct.) 1933

- *Vitamin A and Infection. Review of Recent Work. F W Fox—p 190
Observation on Mosquito Breeding in Pawpaw Trees. J E Mountjoy—p 214

Vitamin A and Infection—Fox states that an animal's resistance to infection depends among other things on an adequate supply of vitamins in the diet. While other vitamins take some share in maintaining this resistance, the part played by vitamin A is unquestionably of greatest importance, it is best regarded not so much as a positive anti-infective agent, indiscriminate in its action, but rather as a constituent in the diet a deficiency of which leads to increased susceptibility to infection. Regarding the important practical question as to the amount of the vitamin that is required, it would appear that 1 The rarity with which the more characteristic signs of vitamin A deficiency, such as xerophthalmia and night blindness, are encountered among civilized races suggests that the minimal requirements are probably small. 2 There is no doubt that people in different parts of the world are living on diets which are dangerously near and sometimes temporarily below this minimal requirement. 3 The body possesses considerable powers of storing this vitamin and hence the person can if necessary be comparatively independent of the immediate supply in the food. On the other hand, allowance should be made for the fact that in some persons this absorbing or storing capacity is curiously defective. 4 Whether the diet often falls short of the optimal requirement for the maintenance of full health and vigor is at present a debatable question. The fact that the more generally recognized symptoms disappear so rapidly when treated with small amounts of the vitamin, together with a certain amount of direct evidence that the use of large amounts does not lead to the development of unusual resistance to the common infections, makes it probable that no more of this substance is required than is provided by a well chosen diet containing a moderate amount of fresh food. 5 Such evidence as is at present available indicates that no dramatic demands are made on the vitamin reserves during the course of infectious disease, but the possible value of vitamin A therapy calls for the fullest investigation. The manner in which vitamin A influences resistance to infection is but little understood.

Edinburgh Medical Journal

40 445 496 (Oct.) 1933

- Study of Lymphogranulomas. J Fraser and E C Mekié—p 445
Clinical Studies in Pathology of Bone. D M Greig—p 482

Journal of Neurology and Psychopathology, London

14 97 192 (Oct.) 1933

- Neurologic Abnormalities. Their Occurrence and Significance as Illustrated by an Examination of Five Hundred Mental Defectives. R G Gordon, R M Norman and R J A Berry—p 97
Papilloma Choroideum with Diffuse Central Nervous System Metastases. G W Hall and T L Fentress—p 108
*Propriety of Diagnostic Lumbar Puncture in Intracranial Hypertension. W F Schaller—p 116
Military Aspects of Narcolepsy. Remarks on Pathogenesis of Narcolepsy and on Fatigue. M Levin—p 124
Some Relationships Between Personality and Body Chemistry. G J Rich—p 132

Diagnostic Lumbar Puncture in Intracranial Hypertension—Schaller presents clinical and experimental evidence to support the contention that there is no proof of sudden wedging or movement of the contents of the posterior fossa into the foramen magnum following spinal tap in open craniospinal pathways, even in the presence of increased intracranial pressure. There is, however, reason to believe that so-called herniation is an expression of general brain swelling and edema and may be due to changes in intracranial pressure and vasomotor paralysis and shock from various causes. Sudden and excessive withdrawal of fluid by spinal tap may produce such edema, as well as similar withdrawal of fluid from other parts of the cerebrospinal fluid system. Of the four deaths in the

series, two can be excluded as due to properly performed diagnostic punctures, two may or may not have been determined by diagnostic punctures. The incidence of postpuncture accidents is greater in supratentorial than infratentorial tumors, and the incidence of sudden death is greatest in vascular lesions. The author admits that even a properly performed lumbar puncture may in exceptional cases hasten the course of a prognostically serious and often hopeless pathologic condition found in intracranial hypertension, but this is not a just criterion by which to designate the procedure as unsafe, rather the accumulated experience of late years would justify the opinion that when properly done the procedure is reasonably safe because of the low mortality—only two reported cases (Putnam) in recent years—and justifiably indicated because of the valuable diagnostic information it affords.

Japanese Journal of Gastroenterology, Kyoto

5 79 114 (Oct.) 1933

- *Clinical and Experimental Study on Dietetic Therapy of Disease of Gallstone S. Saiki—p. 79
- Experimental Studies in Sodium Chloride Metabolism Report IV Metabolism of Several Diuretics H. Saito—p. 85
- Effect of Injection of Glucose on Green Bile K. Kawasaka—p. 91
- Experimental Studies in Absorption of Pigment by Intestines Report I S. Kawasaka—p. 101
- Id. Report II Behavior of Lymphatic Vessels S. Kawasaka—p. 108
- Gastric Juice of Natives of Japanese South Sea Island Report I Gastric Juice of Healthy Persons K. Nagasaki—p. 111

Dietetic Therapy of Gallstone Disease—Saiki produced calculi in the bile duct, the kidney and the urinary bladder of animals fed a deficient vitamin D diet. He corroborates this fact clinically by presenting a case of late rickets complicated with gallstone. The patient received a diet deficient in vitamin D. The gallstone was experimentally dissolved *in vivo* by adding an adequate amount of vitamin D to the diet. Thus it was shown definitely that vitamin D is the most important nutritive element which is kept in closest connection with the therapy and the prevention of gallstones.

Presse Medicale, Paris

41 2077 2092 (Dec 23) 1933

- Generalized and Dissociated Types of Recklinghausen's Disease (Neuro Ectodermatosis) L. Cornil, P. Kassel, A. Beau and J. Alliez—p. 2077
- Difficulties of Extensive Gastrectomy and Means of Overcoming Them S. Judine—p. 2079
- Observations of Exudative Tuberculosis Treated with Jousset's Serum J. Longchamps—p. 2081
- *Flocculation Test Performed with Antigen, for Diagnosis of Syphilis A. Michailoff—p. 2084
- Vichy Water in Therapy of Acute Scarlatinal Nephritis A. Stroc E. Cocias and I. Schwartz—p. 2086

Flocculation Test with Antigen for Diagnosis of Syphilis—Michailoff used white mastic and an antigen similar to that of Bordet-Ruefens with the incorporation of brain of a guinea-pig. His antigen is prepared in the following manner. One hundred Gm of heart of calf, well cleaned and chopped is fixed in 125 cc of a 95 per cent solution of alcohol for from twelve to fourteen hours. After filtration the alcohol is replaced by 200 cc of pure acetone. To this mixture, 2 Gm of small cut pieces of the brain of a guinea-pig is added. This is kept for six hours at ordinary room temperature, and the acetone removed by filtration is replaced. Four hours later another filtration is done, the acetone is left to evaporate at the temperature of the laboratory and the filtrate is weighed. To each gram of tissue, 2 cc of a 95 per cent solution of alcohol is added and the extraction is continued for ten days. After filtration, an amber-yellow liquid, the antigen, is obtained which can be preserved for years. The alcoholic solution of mastic is prepared by dissolving 1 Gm of mastic in 10 cc of absolute alcohol. This is filtrated after twenty-four hours. Of this solution, 1 cc is added to 10 cc of antigen. Usually, the antigen is diluted 1:20 with 85 per cent solution of sodium chloride of which dilution 0.25 cc is employed for the reaction. The author's flocculation test requires two test tubes and if the complement and the antigen are well titrated and the serum inactivated the test is performed in fifteen minutes. The first test tube contains 0.25 cc of antigen, 0.1 cc of inactivated serum, 2 units of complement and the necessary amount of physiologic solution of sodium chloride to bring up the volume

of mixture to 0.75 cc. In the second or control tube are placed the same ingredients with the exception of antigen. These two test tubes are gently shaken for four minutes while the formation of air bubbles is avoided. Shaking the tubes less or more time will produce a false positive reaction or an incomplete fixation of complement. By leaving the tubes at rest for twenty-four hours, gross flocculation is shown in positive serums. Hemolysis is obtained more rapidly than in the Bordet-Wassermann test and the results are more distinct and more visible. The slightly anticomplementophil serums do not impede the reaction. The strongly anticomplementophil serums can be tested by using four or six test tubes with increasing amounts of complement. The author made 2000 tests based on this simple method and compares its results with those obtained by the Bordet-Wassermann reaction and Kahn's test. In comparing the results obtained by his test, the author claims that it did not show a single case of false positive reaction and that it perhaps failed in three cases in which the Kahn test failed also, while the Kahn test showed in eight cases and the Bordet-Wassermann in sixteen cases a false positive reaction. On the other hand, the Kahn test failed in nine cases, was weaker than the author's test in thirty-five and was stronger in twenty-one. The Bordet-Wassermann reaction failed in fifty-seven cases and was weaker in eighty-two when compared with the Kahn and the author's tests. Furthermore, during the author's investigations it appeared clear that his as well as the Kahn test is positive earlier than the Bordet-Wassermann reaction, and that they become negative much later in the cases treated.

Policlinico, Rome

10 1999 2039 (Dec 18) 1933 Practical Section

- Simple Chronic Osteomyelitis of Mandible with Unerrupted Tooth Aggravated by Extraction of Third Upper Molar G. Baggio—p. 1999
- *Flexion Contraction of Elbow as Sign of Meningeal Inflammation R. Almansì—p. 2003
- Leukemic Lymphadenosis Case G. Fabri—p. 2006

Elbow Contraction as Sign of Meningeal Inflammation—Almansì experimented with the following technic on thirty-seven patients suffering from tuberculous, cerebrospinal, epidemic syphilitic and protitic meningitis and meningism. The patient is placed in dorsal decubitus, the arm extended backward and as high as possible. The patient's wrist and elbow are supported by an assistant while the author, standing on the other side, bends the patient's neck forward and a little to the opposite side and fixes the thorax. Afterward the positions are inverted and the other arm is examined. If the result is positive there is a flexion of the forearm corresponding usually in intensity to the other signs of contraction. By analogy to the denomination used by Kernig, the author calls this sign "flexion contraction of the elbow." Patients recovering from cerebrospinal meningitis when subjected to this technic evince a pain localized along the median nerve, evidence of a neuritis which otherwise cannot be revealed. In five cases the reaction was negative whereas in all other cases there was a unilateral or a bilateral positive reaction. Comparison with the Kernig and Brudzinski signs shows that elbow contraction may be missing when the former are present, that it may be present when they are missing, or that both may be found in varying intensity. Comparisons made with Brudzinski's and Northrup's sign on the upper extremities clearly demonstrate a greater incidence of elbow contraction. The author obtained a positive response in infants from 2 to 4 months of age, this is significant in consideration of how little value is attributed to signs of hypertonia in early infancy. In opposition to Kernig's sign, elbow contraction is more frequently present in tuberculous meningitis forms than in epidemic cerebrospinal forms. Elbow contraction is generally missing in paretic extremities, its absence however, does not necessarily imply paresis of the limb. Elbow contraction was found in one case of generalized arteriosclerosis of the small cerebral arteries. Unilateral elbow contraction was encountered in eleven cases. The Kernig and Brudzinski signs are found unilaterally in cases of localized lesions of the brain. The author maintains that flexion contraction does not have a pathogenesis different from that which conditions the Brudzinski and Kernig signs. Brudzinski explains the pathogenesis of his sign by referring it to

hypertonia or the spastic state. The origin of this hypertonia has not yet been determined, although it seems to be radicular. The author maintains that his sign is a uniregional or multi-regional contraction that involves the physiologically predominating muscular groups.

Dia Medico, Buenos Aires

G 409 428 (Dec 11) 1933

*Curable Cutaneous Induration of the New Born Case C P Montagna—p 415
Gastroscopy J Piñero Sorondo—p 418

Curable Cutaneous Induration of the New-Born—Montagna says that curable cutaneous induration of the new-born is a syndrome that generally appears in children who, having been born suffering from blue asphyxia, are submitted to various maneuvers that they may be reanimated. Labor in these cases is difficult and prolonged, and sometimes the application of forceps or the performance of a cesarean section is necessary to end it. The three principal etiologic factors of the condition are the predisposing causes (constitution of the fat, endocrine and humoral disturbances and principally hypercholesterolemia), the obstetric trauma and the drop of temperature of the infant caused by the reanimating maneuvers. The pathogenesis is still unknown. It is believed that there is necrosis of the subcutaneous fat. Prognosis is good. The condition follows a benign evolution to spontaneous recovery. Massages, frictions and unctions should be avoided. The author reports the case of an infant who was observed from 1 to 5 months of age. From the type of the lesions, the etiology (the child had been born in blue asphyxia and had been submitted to reanimating maneuvers) and the evolution of the condition to spontaneous recovery, the author concludes that his case was a typical case of syndrome of curable cutaneous induration.

Chirurg, Berlin

5 929 982 (Dec 15) 1933

*Results After Cholecystostomy H Dieterich—p 929
Splitting of Bone As Method of Treatment of Localized Osteitis Fibrosa E Hertel—p 932
Treatment of Intoxication Due to Roentgen Therapy H Gissel—p 936
Problem of Intestinal Stricture K. Platschik—p 938
Reflex Anuria R Stöhr—p 943
Primary Sarcoma of Stomach W Schultz—p 947

Results After Cholecystostomy—Dieterich reviews 384 clinical cases of cholecystostomy performed from 1900 to 1931 at the surgical clinic of the University of Giessen. In typical cholecystostomy, the gallbladder was exposed, opened at the neck, cleansed, drained and packed. Atypical cholecystostomy was chiefly used in pericholecystic abscesses. Cholecystostomy was the operation of choice in 128 cases of cholelithiasis and acute cholecystitis, in 115 cases of acute and chronic empyema of the gallbladder and in 29 cases of pericholecystic abscess. The atrophied gallbladder constituted the indication for operation thirty times, catarrhal cholecystitis twenty five times, carcinoma of the gallbladder twenty-two times, and dropsy eighteen times. Of the 384 patients 33 died immediately after the operation, 5 shortly after owing to cholecystitis with stones, 8 owing to carcinoma and 4 owing to pancreatic necrosis. In forty-five other cases the primary disease was responsible for death rather than the cholecystostomy. Few complications worthy of note were observed after operation. In only 8 of the 384 cases did the fistula fail to close spontaneously, necessitating secondary cholecystectomy. Consequently, this slight incidence cannot be regarded as a contraindication for cholecystostomy. In 334 cholecystostomies there were 45 postoperative recurrences of which 35 necessitated cholecystectomy, 8 cholecystectomy together with choledochotomy and 1 choledochotomy. Thus the gallbladder rather than the common bile duct was the seat of the disease. Only two cases out of thirty-one showed any recurrence of gallstones, in general, stones seldom recur after cholecystostomy. When the bladder was being drained of stones in atypical cholecystostomy, some were left behind because of complications preventing their recognition. The author concludes that cholecystostomy shows satisfactory results in carefully selected cases. This operation is

justified when cholecystectomy, which is always more desirable, offers technical difficulties or when the general condition of the patient necessitates rapid termination of the operation. In the latter event, empyema of the gallbladder with and without complications in advanced age would be the main indication. With its inherent defects, cholecystostomy will always be only a makeshift, which should not, however, be completely rejected.

Dermatologische Wochenschrift, Leipzig

97 1779 1806 (Dec 23) 1933

*Clinical Aspects and Pathologic Histology of Endocrine Glands in Scleroderma J Follmann and B Ballo—p 1779
Quantitative Turbidity Reaction as Indicator of Value of Therapy of Syphilis C Stern—p 1788
*Liver Therapy of Psoriasis T Gruneberg—p 1793

Scleroderma—Follmann and Ballo give detailed clinical histories of two patients with scleroderma and review 200 cases from the literature. This review shows that scleroderma may develop in patients of every age. The aspects of the disease vary so greatly that a uniform etiology is hardly possible, but it is worthy of note that in 32 per cent of the cases the anamnesis reveals vasolability of the extremities, acro-asphyxia and cold as promoting factors (Raynaud's syndrome). Exposure to cold is often a causal factor of scleroderma, but the influence of heat also may be a cause, although it is extremely rare. Injuries of the thighs, multiple fractures, and traumas of the jaws likewise have been followed by scleroderma. In some instances the scleroderma seems to follow the course of the nerves. Functional changes in the sympathetic nervous system and consequent functional disturbances in the endocrine system have often been considered pathogenic factors. But the observations are not uniform, for hyperfunction as well as hypofunction of the thyroid, hypofunction of the hypophysis, suprarenals and ovaries and pluri-glandular insufficiencies have been observed. Moreover, cases in which endocrine disorders are absent are just as frequent as those in which they are present. The studies on the nervous system give no definite information, for the sympathetic as well as the parasympathetic may show an increased irritability. A review of the therapeutic aspects reveals improvement after various treatments, but most frequently after organotherapy, particularly with thyroid extract. Another factor that makes the estimation of scleroderma difficult is that it passes through several stages. On the basis of a consideration of the entire course of the disorder, the authors conclude that the disorder begins always as a disturbance of the skin, independent of a disease of the internal organs, although a predisposition may exist. The loss of the elasticity of the connective tissue and of its adaptability to the functional requirements explains impairment of the circulation not only as the result of the lack of elasticity of the skin but also because of pressure. The organism makes efforts to compensate for this but since impairment of the circulation also affects the vasomotor nerves, it becomes understandable why in the first stages of the disorder the sympathetic nervous system is in a state of hypersensitivity. A little later, when the nervous system is no longer able to control the function of the skin, the organism must exert the endocrine system because it dominates the sympathetic. On this basis it must be assumed that during these beginning stages the nervous and endocrine systems still may exert an influence on the process, but after that an improvement can hardly be expected. In resorting to endocrine therapy the local measures should not be neglected, and eventually parenteral protein therapy may be tried.

Liver Therapy of Psoriasis—Reports about favorable effects of liver therapy in psoriasis induced Gruneberg to try this treatment. Injections of liver extract were given every second day, and the patients took liver by mouth in the form either of fresh liver or of liver extract. In psoriatic patients, liver therapy decreases the tendency to relapse, but it also influences the existing cutaneous manifestations. It seems that the therapeutic effect is better if the patient is exposed to the influence of light, but the exposure should not be too severe. In order to compensate for the deficiency of sunlight in the big city, particularly during the winter months, the patients were given quartz lamp irradiations, but the doses were smaller than is usually the case so as to avoid irritation. In spite of the fact that the liver therapy occasionally produces surpris-

ingly good results, the author admits that aside from a reduction in the tendency to relapse, it accomplishes, on the whole, no more than the customary treatments, for liver therapy may fail as well as the other treatments, and as a rule it does not make the application of ointments unnecessary. The mechanism of liver action, which may involve several components, is not yet clear, but it is possible that an increase in the sulphur or glutathione content of the skin is an essential factor.

Deutsche medizinische Wochenschrift, Leipzig

59 1883 1914 (Dec 22) 1933

- Functional Behavior of Eye in Age and Death W Wegner—p 1883
 *Postoperative Incisional Hernias H Florcken and E Kobel—p 1886
 Improvement of Metranioikter Kubig—p 1888
 Rigidity of Cervix Following Operation for Fibromyoma Indication for Cesarean Section M Matys—p 1890
 Demonstration of Spirochaeta Pallida in Neurosyphilis P Syring—p 1891
 Treatment of Leukorrhea W Bentlin—p 1892
 Vomiting of Pregnancy and Its Treatment E Schwab—p 1897

Postoperative Incisional Hernias—Florcken and Kobel report observations in 158 cases of incisional hernias, of which 96 could be reexamined. They show that, although the diagnosis is comparatively simple, erroneous diagnoses do occur. The presence in the scar of hard, pressure sensitive areas or of protrusions, caused by paralysis of portions of the abdominal muscles following cutting of motor nerves, may cause such mistaken diagnoses. The authors discuss the incidence of incisional hernias and state that in many of the cases observed by them drainage and packing had been necessary, while in others peritonitis or suppurations had existed. In only four cases was it certain that the operative wound had healed by first intention. Most incisional hernias develop during the first year after the operation. The authors consider operative repair indicated (1) in all small incisional hernias, because without operative intervention they have a tendency to become larger and the operation is usually quite simple, and (2) in the larger hernias that are accompanied by symptoms of incarceration and digestive and other disturbances. Operative treatment is contraindicated in unusually large hernias, in which closure of the defect is not likely. If the patient is obese, a reducing treatment may be instituted, for after that the repair of the hernia frequently becomes possible. Operative treatment is also inadvisable in patients with circulatory, respiratory or renal disturbances. In doubtful cases an electrocardiogram should be taken. Diabetes is a contraindication only when it is severe. Since complete relaxation of the abdominal walls is an essential requirement for the operative repair of incisional hernias, the authors consider spinal the most desirable form of anesthesia. They recommend as the best treatment the opening and removal of the hernial sac and the repair of the different layers of the abdominal walls. In suitable cases, free transplantation of the fascia may be resorted to, but the use of foreign bodies, such as silver wire netting, should be dispensed with as much as possible, because they readily lead to suppurations or the formation of fistulas. Later examinations on ninety-six patients revealed that fourteen had had a relapse. In nine of these the operation had caused an exacerbation, but the other five declared that they were free from difficulties and satisfied with the results of the treatment.

Deutsche Zeitschrift für Chirurgie, Berlin

242 176 (Nov 23) 1933

- *Cerebral Compression in Blunt Injuries of Head B Karitzky—p 1
 Prevention of Malarial Infection in Transfusion of Blood V Ackermann and A Filatov—p 27
 Symptomatology of Recent and Habitual Adduction Supination Distortion of Foot E Delne—p 40
 *Occurrence of Tetanus After Timely Administration of Tetanus Antitoxin H Hanke—p 62

Cerebral Compression in Blunt Injuries of Head—According to Karitzky, compression of the brain in injuries of the head may be due to (1) a depressed fracture, (2) intracranial bleeding and (3) edema of the brain. A depressed fracture always produces a local pressure on the brain tissue and must therefore be treated by lifting the fragment. In the case of bleeding the local signs of compression are soon superseded by the signs of general compression of the brain. Every head injury should be examined roentgenologically to avoid

diagnostic errors. The subjective symptoms and clinical signs in concussion of the brain depend on the swelling of the brain resulting from trauma to the tissue of the brain. The author views the increase of pressure within the spinal canal as a functional compensatory phenomenon and does not favor interfering with it. Increase in the intracranial pressure is followed by increase in the intraspinal pressure. The latter has a tendency to lift the medulla from the bony base of the skull. The compression of the brain tissue against the unyielding dome of the skull is at first compensated by flattening out of the convolutions, later by diminution in the amount of the cerebrospinal fluid. For this reason spinal puncture is contraindicated in recent injuries to the brain. It is reserved for the treatment of late results of concussion in which there is no tendency to progression of the lesions. Subdural hemorrhage is treated by trephining and removal of the hematoma. The author's attitude toward the treatment of edema of the brain is conservative. He is not impressed with the results of osmotherapy as advocated by Weed and McKibben. Dehydration following the intravenous injection of hypertonic solution was demonstrated to be of short duration in experiments on animals, its effect not lasting over one hour. This is in part due to the fact that, after a certain amount of shrinkage of the brain volume through loss of water takes place, the sodium and chlorine ions of the hypertonic solution now lodged in the brain cells produce in their turn reabsorption of lost fluid. The treatment of prolapsed tissue of the brain is limited to prevention of further damage to it. With the disappearance of the general edema, the prolapse becomes automatically reduced.

Tetanus After Administration of Tetanus Antitoxin—Hanke reports two cases in which, in spite of proper treatment of the traumatic lesion and timely administration of a proper dose of tetanus antitoxin, tetanus developed in one patient on the eighth and in the other on the ninth day. The tetanus was severe and terminated fatally. Attention is called to Mosbacher's collected statistics in which 2,032 cases were reported in which tetanus developed in spite of the prophylactic injection of antitoxin. In only 745 of this number was the injection given during the first twelve hours. The mortality in the latter group was 209, or 28 per cent. The explanation is furnished by the observation of Delne and of F. Hamburger that the antitoxin content of the blood is suddenly diminished on the seventh or eighth day after its administration. If the wound is not healed by that time, reactivation of the infection may take place in the absence of sufficient antitoxin content in the blood to protect the organism. The author therefore recommends the second administration of a prophylactic dose of antitoxin on the sixth or seventh day. This is particularly indicated in cases in which the wound has failed to heal, as well as in cases in which bacteria persist in the depth of the wound. Compound, badly soiled fractures and wounds with deep pockets are particularly dangerous. The possibility of anaphylactic reaction must be kept in mind and met by proper measures, such as a change of serum, the use of a highly potent serum with small albumin content, and desensitizing methods.

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- Investigations on Utilization of Hardened Whale Fat with Low Melting Point in Human Intestine K Hansen, H T Offerdahl and B Eriksen—p 1305
 *New Contributions to Pathologic Anatomy of Traumatic Hemorrhages of Brain and Medicolegal Significance O Berner—p 1318
 Development of Diphtheria Epidemic Epidemiologic Study of Efficacy of Prophylaxis Against Diphtheria S Oftedal—p 1337
 Remarks on Atmospheric Pathogenesis A Magelssen—p 1351

Pathology of Traumatic Hemorrhages of Brain—Berner's forty-two cases of traumatic hemorrhages of the brain since 1930 consist of twenty-five with macroscopic hemorrhages in the fourth ventricle, four with hemorrhages in the central ganglions or immediate vicinity, nine with microscopic hemorrhages in the fourth ventricle and four without certain hemorrhages in the fourth ventricle (possibly because the direct cause of death was not the trauma of the head). He asserts that the place of predilection for traumatic hemorrhages at the base of the fourth ventricle is in front of the acoustic striae.

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DEVELOPMENT OF KNOWLEDGE CONCERNING RÔLE OF SYPHILIS IN CARDIOVASCULAR DISEASE

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At the meeting of the American Medical Association last year the Frank Billings Lecture was devoted to a review of the important part played by the great physician whose name the lectureship bears in the astonishing progress made by medical education in this country during the past thirty years. The distinguished speaker, Dr Thayer, closed his remarks with the following prayer: "May he who has played so large a part in this progress long be spared to guide us with his wise counsel." This fervent wish, which surely must have been shared by everyone in the large audience, might well have been directed also to the lecturer himself.

It is sad indeed to realize that within a few months of the time these words were spoken both Frank Billings and William Sydney Thayer had ended their earthly careers.

In mourning the almost simultaneous loss of two such leaders one can be grateful for the knowledge that the inspiration derived from each will not soon be lost. The imprint of their personalities has been too deep to be easily effaced.

The importance of syphilis as an etiologic factor in cardiovascular disease does not at the present time, need to be labored. The disease is recognized universally, I think as being second in importance only to rheumatic fever and to senile degenerative changes in the arteries. Yet the general recognition of its importance is recent as compared with that of the other two factors mentioned. While the close relation of rheumatic fever to diseases of the heart was widely understood almost a century ago, the causal relationship between syphilis and disease of the aorta was still in dispute at the beginning of the present century.

Without attempting to decide whether or not syphilis was introduced into Europe from America at the time of the voyages of Columbus, the knowledge of that disease may be said to have begun with the devastating epidemic of syphilis which swept over Europe in the closing years of the fifteenth and the early years of the sixteenth century. This knowledge at first, as may be supposed, was chiefly confined to the external manifestations of the early stages of the disease, and even these were for many years hopelessly confused with those of other venereal and genito-urinary conditions. It is not surprising that the effects of syphilis on the

circulatory system, which for the most part become manifest years after the active and visible symptoms of the disease have subsided, should long have failed of recognition at a period when medicine as a whole was in so primitive a state.

As the disease came gradually to have more definite outlines, and especially as anatomic studies became more frequent, the association of a history, or of the external signs, of syphilis with aortic aneurysm began to be noticed.

Vesalius (1514-1564), who first called attention to aortic aneurysm, made no mention of its association with syphilis, but in the writings of two of his famous contemporaries, Pare and Fernel, are intimations that this association had been recognized. There was, however, in the minds of these, as well as of later, writers doubt as to whether syphilis itself or the accompanying mercurial cachexia was the actual cause of the trouble.

Osler,¹ in his Schorstein lecture, "Syphilis and Aneurysm," quoted the following lively passage from the English edition (1634) of Pare's works:

The aneurismaes which happen in the internall parts are incurable. Such as frequently happen to those who have often had the unction and sweat for the cure of the French disease, because the blood being so attenuated and heated therewith that it cannot be contained in the receptacles of the Artery, it distends it to that largeness as to hold a man's fist. Which I have observed in the dead body of a certain Taylor, who by an Aneurysma of the Arterious veine suddenly whilst hee was playing at Tennis fell downe dead, the vessell being broken his body being opened I found a great quantity of blood powred forth into the capacity of the chest, but the body of the Artery was dilated to that largeness I formerly mentioned, and the inner Coate thereof was bony. For which cause within a while after I shewed it to the great admiration of the beholders in the Physitions Schole whilst I publiquely dissected a body there, the whilst he lived said he felt a beating and a great heate over all his body by the force of the pulsation of all the Arteries, by occasion whereof he often swoounded.

It was, however, Lancisi² (1654-1720) who half a century later, by his anatomic studies, first supplied a more substantial foundation for the theory of this causal relationship. So strongly was he convinced of this association that in his posthumous work he discussed at length the subject of "aneurysma gallicum," or aneurysm due to the French disease (the common name for syphilis), and ventured to give the signs and symptoms by which it may be recognized.

Elsewhere, in his study of the causes of sudden death, he wrote:³

And indeed I cannot here conceal the fact, ascertained from frequent experience, that aneurysms destroy unexpectedly those patients particularly who lead a less continent and temperate

¹ Osler Brit M J 2 1509 1909

² Lancisi De motu cordis et aneurysmatibus, Rome J M Salvioni 1728

³ Lancisi in Long Selected Readings in Pathology from Hippocrates to Virchow Springfield Ill Charles C Thomas publisher 1929 p 96

The Frank Billings Lecture read before the Section on Practice of Medicine at the Eighty-Fourth Annual Session of the American Medical Association Milwaukee June 14 1933

life Those indeed who live sparingly, with sobriety and contentment, are apt to be taken off with another type of disease, a slow and insidious dropsy, with lasting agony

The next important contributions to the subject of syphilis of the circulatory organs were those of Morgagni⁴ (1682-1771) These contributions were surprisingly numerous and striking

In his dissections of syphilitic bodies this author noted lesions in the heart, the pericardium, the aorta and other arteries In the case of a woman of 22 years who had shown grave symptoms of constitutional syphilis and of heart disease, autopsy showed extensive ulceration of the posterior surface of both ventricles In another case, that of a syphilitic man of 59 years who had died suddenly after a period of cerebral symptoms, the examination revealed rupture of a thoracic aneurysm as well as extensive disease of the arteries of the brain In the summary of this report Morgagni stated distinctly that the changes in the cerebral arteries and those in the aorta evidently had a common cause

As a result of Morgagni's important revelations concerning the effects of late syphilis on the heart and arteries, one might have anticipated thereafter a steady, progressive unfolding of knowledge concerning cardiovascular syphilis But there followed a long, sterile period during which even the evidence accumulated by Lancisi and Morgagni seemed to be entirely forgotten Proksch,⁵ in his "Geschichte der venerischen Krankheiten," sought the explanation for this strange phenomenon and placed the responsibility for it squarely on the head of John Hunter, the English surgeon, then at the zenith of his influence It was, he said, the few casual words uttered by Hunter that caused the subject of visceral syphilis to disappear almost completely from the textbooks on venereal diseases for more than half a century

Hunter stated⁶

We have not seen the brain affected, the heart, stomach liver, kidneys, nor other viscera, although such cases are described in authors

Elsewhere he wrote

The skin, throat and nose are more readily affected by the lues venerea than the bones and periosteum, which, on the other hand, suffer sooner than many other parts, particularly the vital parts, which perhaps are not at all susceptible of the disease

It was the weight of Hunter's great authority throughout the medical world that caused this error to have such direful consequences Proksch,⁵ who recognized the integrity and sincerity of Hunter, was disposed to lay much of the blame on his contemporaries and successors for their servile acceptance of these dicta "Blind trust in authority, indolence, ignorance of the literature and history submerged for a long time almost all real research and knowledge of the periods before Hunter"

It seems to be quite true that, from the middle of the second half of the eighteenth century to the beginning of the second half of the nineteenth, not only was little of importance added to the knowledge of the ravages of syphilis in the vascular system, but the

important contributions of Lancisi and Morgagni were allowed to pass into oblivion

It was during the early part of this period that Joseph Hodgson⁷ gave his classic description of "praeternatural dilatation" of the arch of the aorta (apart from aneurysm), in which he cited two typical examples with involvement of the sinuses of Valsalva and the aortic cusps and stated further that "aneurysm frequently exists at the same time" He credited Scarpa with having recognized this same condition of dilatation of the ascending aorta and with having found it frequently in association with aneurysm Hodgson wrote "The condition of the ascending aorta appears to be generally induced by a previous disease in the coats of the vessel, in consequence of which it loses its elasticity and does not again regain its natural dimensions after the blood has passed through it" But he failed to realize that the "previous disease" was syphilis, as did also apparently Scarpa,⁸ in spite of the fact that elsewhere he remarked "Syphilitic patients are very liable to steatomatous and ulcerative disease of the coats of the aorta"

So the matter rested at the end of the first half of the nineteenth century The hints of Pire and Ferri⁹ and the convincing anatomic demonstrations of Lancisi and Morgagni had disappeared from the writings on venereal diseases and had been forgotten Aneurysm was still common, but speculation as to its cause was concerned chiefly with a consideration of the importance of physical strain, either alone or in conjunction with the arterial changes common to later life Those who were tempted to accept the latter as a satisfactory explanation were constantly embarrassed by having it pointed out to them that the usual age for the appearance of aneurysm was a full score of years earlier than that for arteriosclerosis

The medical officers of the British army were much concerned over the high incidence of deaths from thoracic aneurysm among the soldiers and were seeking means to prevent them The reports of the army medical department for the decade beginning with 1860 contain a surprising number of studies and case reports of this condition In the report for 1862, Assistant Surgeon Lewes⁹ recorded a case from the army in India with the unequivocal title "Case of Aneurysm of the Thoracic Aorta Resulting from Secondary Syphilis" Osler, in his Schorstem lecture, in referring to the work of the medical officers of the British army said

Professor Aiken in the third edition of his textbook (1866) states that in 26 syphilitic soldiers who died during four years, 17 presented changes in the aorta, "cicatricial-like loss of substance of the inner coats, small local dilatations of the arteries, and in several cases aneurysmal expansions, one as large as an orange, which proved fatal"

The medical report for 1868 contains an interesting paper by Inspector General Lawson,¹⁰ dealing with the frequency of aneurysm among the British soldiers and its apparent increase Lawson disagreed with Rokitsky's view that aneurysm is due to atheroma and cited cases to show that aneurysm may be present in aortas which are free from atheromatous change He

4 Morgagni cited by Proksch Die Geschichte der venerischen Krankheiten Bonn P Hanstein, 1900 vol 2 p 459

5 Proksch Die Geschichte der venerischen Krankheiten Bonn, P Hanstein 1900 vol 2 p 531

6 Hunter A Treatise on the Venereal Disease ed 2 London G Nicoll 1788 p 305

7 Hodgson A Treatise on the Diseases of Arteries and Veins Containing the Pathology and Treatment of Aneurysms and Wounded Arteries, London T Underwood 1815 p 45

8 Scarpa quoted by Allbutt T C Diseases of the Arteries Including Angina Pectoris New York The Macmillan Company 1915 vol 2 p 168

9 Lewes Army M Dept Rep London 1862 vol 4 p 512

10 Lawson Army M Dept Rep London 1868 vol 10 p 267

expressed the belief that aneurysm often results from an acute ("phlegmonous") process in the wall, but he apparently did not suspect syphilis even though some of the patients cited were known to have had the disease.

The state of mind of the medical profession at this time toward the general subject of visceral syphilis is indicated by the opening paragraph of Wilks'¹¹ important contribution to that subject, which appeared in 1863.

The syphilitic affections of the internal organs of the body constitute a subject which is comparatively novel, and one, therefore, which is still open to further investigation. Although it is but a few years since specimens illustrating it were received with more than incredulity by the profession, yet so strong has been the evidence in favour of modern observations that few pathologists now retain any doubt about their general truth. Scepticism, however, does still largely prevail.

Wilks then described instances of syphilitic disease of the liver, spleen, larynx, trachea, lungs and other organs, referred to an aneurysm of the abdominal aorta found in a young syphilitic woman and described the case of a syphilitic woman of 38 years who died with severe cerebral symptoms and in whom necropsy showed softening in the right corpus striatum and thalamus.

The blood vessels of the brain were remarkably diseased, not by the usual atheromatous or earthy patches, involving a large portion or entire circumference of the artery, but by the deposition of numerous hard round grains, which had been formed in their coats and projected like so many tubercles both within and without the vessel.

Steenberg,¹² in a Danish monograph in 1860, had shown the causal relationship between syphilitic diseases of the brain and changes in the cerebral arteries, but Wilks seems to have been the first to distinguish clearly between the lesion of arteriosclerosis and that of syphilitic disease of these vessels. This distinction was confirmed by Lancereaux,¹³ in 1866 and by Allbutt,¹⁴ in 1869, and the whole subject of syphilitic disease of the cerebral arteries was put on a firm foundation by the important monograph of Heubner,¹⁵ in 1874.

To return to the subject of aortic disease and aneurysm, which was giving the surgeons of the British army so much concern, in 1873, in a Strasbourg dissertation, Helmstedt¹⁶ gave what was undoubtedly the first accurate description of the aortic lesion associated with aneurysm and pointed out the features distinguishing it from the lesion of arteriosclerosis. He failed, however, to recognize its relationship to syphilis.

Uncertainty regarding the essential etiologic factors still ruled when on Nov. 23, 1875, Francis H. Welch,¹⁷ assistant professor of pathology in the Army Medical School at Netley, England, presented before the Royal Medical and Chirurgical Society of London his paper, entitled "On Aortic Aneurysm in the Army and the Conditions Associated with It"—a paper which Osler,¹ writing in 1909, declared "remains the most important communication upon the subject in English." Welch's paper was based on a study of the aorta in thirty-four

cases of aneurysm from the pathologic records of the Royal Victoria Hospital at Netley, England.

The more one studies this modest contribution of Welch the more one is convinced that it contains almost all the essential facts relating to the etiology and pathology of syphilitic aortitis and aneurysm as they are known today. He found a characteristic lesion of the wall of the aorta, associated in most instances (66 per cent) with syphilis but in a few instances with rheumatic fever or chronic alcoholism, which preceded and was the cause of the aneurysmal dilatation and which consisted of "a diseased condition of the contiguous layers of the internal and middle coats of the vessel—a tissue growth terminating in degeneration—which by impairing the elasticity and contractility of the walls, allows of their expansion and dilatation under the tension of normal blood pressure, or this abnormally increased by any cause."

He noted that the process began at the root of the aorta and proceeded distally and that the sinuses of Valsalva were usually involved, as were also frequently the aortic cusps. The process, he declared, might retrogress without serious damage to the system at large, but if extensive or severe was followed by one of three fatal complications—aneurysm, damage to the aortic valve or hypertrophy and dilatation of the heart. Almost the only thing lacking in his description is mention of the proneness of the aortic lesion to encroach on the mouths of the coronary arteries.

In particular, he emphasized the distinction between this process and the usual form of atheroma which sometimes accompanies it and which, he maintained, never produces aneurysm and at the age of aneurysm is innocuous.

The description of the gross appearances of the early lesion in the aorta is graphic and accurate. In his histologic description he failed to emphasize the destruction of the elastic tissue in the media, which is so characteristic a feature, but he repeatedly referred to the loss of elasticity caused by the changes in the middle coat. With respect to prophylaxis, Welch concluded that since syphilis is the chief cause of the disease, effective measures for the prevention of aneurysm must deal with the suppression of syphilis.

The importance of Welch's contribution was entirely overlooked. The opinions expressed were vigorously opposed by his nonmilitary English colleagues and were completely ignored in other countries. The facts concerning syphilitic aortitis were years afterward to be rediscovered and newly presented by German pathologists before Welch received his meed of credit. Osler,¹ in 1909, quoted from a letter just received from Colonel Welch referring to the reception given to his paper.

The only individual who gave me the slightest support in 1876 was Sir James Paget, and since then one or two others have written giving their experience, but for long after, as could be seen in the narration of annual cases in the professional journals, there was a dead set against my deductions.

Almost immediately after the appearance of Welch's paper there were published two reports by Heiberg¹⁸ describing the characteristic aortic changes, including those of the media, ascribing them to syphilis and distinguishing them sharply from those of atherosclerosis. Heiberg's contribution also was destined to remain long unnoticed.

The beginning of the final struggle for the recognition of the specific nature of syphilitic aortitis dates

11 Wilks *Guv's Hosp Rep* 9 1 1863

12 Steenberg reviewed in *Jahrb u d Fortschr d ges Med* 4 328 1861

13 Lancereaux *Traite historique et pratique de la syphilis* Paris 1866 p 825

14 Allbutt *St Georges Hosp Rep* 4 45 1869

15 Heubner *Die leuti che Erkrankung der Hirnarterien nebst allogen Erörterungen zur normalen und pathologischen Histologie der Arterien sowie zur Hämocirculation* Leipzig F C W Vogel 1874

16 Helmstedt *Die mode de formation des aneurysmes spontanés* Leipzig Dietrich 1873

17 Welch *Med Chir Tr* London 59 59 1876

18 Heiberg *Norsk mag f laegevidensk* 6 55 1876

from the appearance, in 1885, of the thesis of Dohle¹⁹ who reported from the pathologic institute of Heller in Kiel a carefully studied case of aortic disease in a man of 25 years who showed many evidences of severe late syphilis. He emphasized the changes in the media, ascribed to these the peculiar appearance of the aorta and noted the slight involvement of the intima in contrast to that seen in the usual type of arteriosclerosis.

Before any further reports appeared from Heller's laboratory, Malmsten²⁰ published an important monograph showing statistically the great frequency of syphilis in aortic aneurysm and giving an accurate description, with illustrations, of the gross appearances of the aorta, together with microscopic changes which he described as a "sclerogummatous" process. Although his microscopic description was incorrect in certain details, Malmsten's contribution was important and deserved much greater recognition than was accorded it in Germany when the battle had been won and the identity of syphilitic aortitis had been established.

Dohle's first report was followed, during the decade beginning with 1890, by a series of careful studies by various workers in Heller's laboratory, including a second paper by Dohle,²¹ in which most of the details of the microscopic picture of syphilitic aortitis were fully described. Nevertheless, these views continued to meet with opposition from most of the representative German pathologists. How strong this opposition was was made clear at the meeting, in 1899, of the Deutsche pathologische Gesellschaft,²² at which Heller defended the views of the Kiel school as to the specific nature of the aortic lesion associated with aneurysm (syphilitic mesaortitis) and emphasized the features distinguishing it from atherosclerosis. Heller's views were supported by Straub,²³ who in a paper giving the results of post-mortem examination in a large number of cases of dementia paralytica reported that the lesions described by Dohle and Heller were found in the aorta in 82 per cent of the entire group of patients and in 92 per cent of the men. The prolonged discussion which followed these presentations shows that the majority of those taking part were still unwilling to accept the view that the specific character of syphilitic aortitis had been established. It was not until the meeting of the same society in 1903, at which the subject was again considered, that the correctness of the claims of the Kiel pathologists was generally admitted and the "Dohle-Heller" type of aortitis given full recognition. In the vast amount of study which since that time has been devoted to the histologic features of syphilitic aortitis, increasing emphasis has been laid on the early obliterative changes in the vasa vasorum of the adventitia as the important factor in producing the destructive lesions in the media. For this reason Scott and Saphir²⁴ expressed the belief that the name "mesaortitis syphilitica" is somewhat misleading and that the term "aortitis syphilitica" is to be preferred. Reuter,²⁵ in 1906, was the first to report the finding of spirochetes in the aortic lesion, and this discovery was promptly confirmed by Schmorl²⁶ and later by Wright and Richardson,²⁶ who recovered the organisms in five cases of aortitis. Nevertheless, later experience has shown

that such positive findings are extremely rare. According to Herxheimer,²⁷ in 1931, only about fourteen trustworthy instances of such positive findings in syphilitic aortitis are recorded.

If further confirmation was needed, it was furnished by the results of the Wassermann test, first reported in 1908, by Frankel and Much,²⁸ who demonstrated a positive reaction in nineteen of twenty-three cases in which typical mesaortitis was found at autopsy. The association of aortic insufficiency with tabes dorsalis had been noted by Berger and Rosenbach,²⁹ in 1879, and that of aortic aneurysm with dementia paralytica by Bordes-Pages,³⁰ in 1887, but without any clear understanding as to what these associations signified. In 1901, Babinski³¹ emphasized the frequency with which the early signs of tabes (changes in the pupils and deep reflexes) were found in connection with aortic aneurysm—a combination of symptoms to which Vaquez later gave the name of the "Babinski syndrome."

Before leaving the subject of aortitis, attention should be called to the important contribution made by Curschmann,³² in 1893, to the clinical diagnosis of that disease in his paper, entitled "Sclerosis of the Thoracic Aorta." It is evident that most, if not all, of his cases were instances of syphilitic aortitis, although he did not recognize them as such. In his discussion of the symptoms he referred to sudden attacks of angina pectoris even when there was no evidence of involvement of the heart, and among the physical signs he laid emphasis on the supracardiac dulness, the prominent pulsation in the jugular notch, the frequent occurrence of pulsus differens and, especially, the peculiar accentuation and ringing quality of the aortic second sound. He was much impressed with the diagnostic importance of the change in the second sound and stated that it is probably due to the stretching of the aortic cusps from the dilatation of the root of the aorta. This, so far as I am aware, is the first notice of the peculiar change in the aortic second sound which has since been so closely identified with the diagnosis of syphilitic aortitis. Allbutt,³³ in discussing this sound, implies that it was first noted by Potain, who gave it the name "bruit de tabourka" (tabourka being the name of an Arab drum) but according to Vaquez³⁴ that term was applied by Potain to a peculiar change observed in the heart sound either the first or the second, in acute endocarditis.

Concerning syphilitic disease of the heart itself, the ancient writers had little to say that will bear scrutiny. The first well established case was that reported by Ricord³⁵ in 1845, in which there were found a gummatous mass in the heart wall and some thickening of the endocardium. Virchow,³⁶ in 1858, in reporting a similar case pointed out that in the heart, as in the testicles and the liver, late syphilis showed itself either as a gummatous process or as a diffuse fibrous inflammatory change—a classification which with little modification has lasted to the present day.

With respect to the frequency of syphilitic heart disease (apart from changes resulting from aortitis) there has always been a difference of opinion between

19 Dohle. Ein Fall von eigentümlicher Aortenerkrankung bei einem Syphilitischen. Inaug. Dissert. Kiel 1885.

20 Malmsten. Studien over Aorta Aneurysmens Etiologi. Stockholm 1888.

21 Dohle. Deutsches Arch f klin Med 55 190 1895.

22 (a) Heller. Verhandl d deutsch path Gesellsch 2 346 1899.

(b) Straub. Verhandl d deutsch path Gesellsch 2 351 1899.

23 Scott and Saphir. Tr. A. M. Physicians 42 36 1927.

24 Reuter. Munchen med Wchnschr 53 778 1906.

25 Schmorl. Munchen med Wchnschr 54 188 1907.

26 Wright and Richardson. Boston M & S J 160 539 1909.

27 Herxheimer. In Jadassohn. Josef. Handbuch der Haut und Geschlechtskrankheiten. Berlin 1931, vol 16, pt 2, p 1.

28 Frankel and Much. Munchen med Wchnschr 55 2479 1908.

29 Berger and Rosenbach. Berl. Klin Wchnschr 16 402 1879.

30 Bordes-Pages. De l'artrite chronique et en particulier de l'aortite dans la paralysie generale. These de Paris no 237 1887.

31 Babinski. Bull et mem Soc med d hop de Paris 18 1121 1901.

32 Curschmann. Arb a d med klin zu Leipzig 1893 p 248.

33 Allbutt. T. C. Diseases of the Arteries. Including Angina Pectoris. New York. The Macmillan Company 1915, vol 2, p 200.

34 Vaquez. Diseases of the Heart. Philadelphia W. B. Saunders Company 1924, p 248.

35 Ricord. Gaz d hop 18 402 1845.

36 Virchow. Virchows Arch f path Anat 15 217 1858.

the pathologists and the clinicians Whereas the latter have been inclined to look on cardiac syphilis as a not uncommon condition, the former, with few exceptions have insisted on the comparative rarity of instances of disease which post mortem can be identified positively as syphilitic This discrepancy is doubtless to be explained, in part at least, by the great difficulty in establishing proof of syphilis when the lesion found consists only of fibroid change or scars, for it seems to be the almost universal opinion among pathologists that such lesions, when syphilitic, usually present no histologic features by which they can be distinguished from fibrotic and cicatricial changes due to other causes, and that the demonstration of spirochetes in such tissues is rarely possible

In contrast to this position are the well known views of Warthin,³⁷ who was convinced that the essential lesion of late syphilis is not the gumma, which is relatively rare, but "an irritative or inflammatory process, usually mild in degree, characterized by lymphocytic and plasma-cell infiltrations in the stroma, particularly about the blood vessels and lymphatics, slight tissue proliferations, eventually fibrosis and atrophy or degeneration of the parenchyma" These microscopic changes he believed to be specific and diagnostic, and frequently in the neighborhood of such small lesions he was able to demonstrate the presence of spirochetes Using these criteria, Warthin insisted that myocardial lesions in late syphilis are extremely common and that even when no myocardial changes are visible to the naked eye the microscope may reveal "the most extensive lesions"

Fifteen years have passed since the publication of these statements by Warthin and yet, so far as I am aware, they have thus far received no confirmation or acceptance by pathologists either in this country or abroad The whole subject has been thoroughly discussed by Clawson and Bell,³⁸ by Herxheimer,³⁷ and within the last year also by Saphir,³⁹ who in a histologic study of the hearts of 130 patients with syphilitic aortitis with aortic insufficiency could find no instance of myocardial change which could be interpreted as that of syphilitic myocarditis Neither was he able, by the use of the Warthin-Starzy method, to find spirochetes in any of the cases, although the method revealed artefacts that resembled spirochetes

One can conclude only that if the lesions of late acquired syphilis are common in the myocardium they exist in forms which render them indistinguishable from those due to other and more probable causes

A question of almost equal importance to the clinician is that relating to the frequency with which the coronary arteries are the seat of syphilitic changes As to the almost constant encroachment on the *mouths* of the coronaries found in well developed cases of aortitis there can be no doubt,⁴⁰ but the question of the occurrence of syphilitic changes in the arteries themselves is one concerning which there is again wide discrepancy between the findings of the pathologists and the popular belief among internists It has long been a cherished conviction of the latter that signs of coronary disease in persons in early middle life should always arouse strong suspicion that the coronary lesion is syphilitic The importance of syphilis in coronary disease has

been emphasized especially by the French writers, some of whom have gone so far as to regard syphilitic disease as the commonest cause of myocardial infarcts (Letulle)⁴¹ Yet pathologic evidence to support the view that specific syphilitic changes are common in the course of the coronary vessels seems to be scanty (Herxheimer,³⁷ Turnbull,⁴² Martland,⁴³ Saphir³⁹) The assumption that manifestations of coronary disease are necessarily due to syphilitic changes in the arteries because they appear in persons known to be, or suspected of being, syphilitic is obviously unjustified in view of the accumulated mass of evidence indicating the frequency with which atherosclerotic changes in those vessels are found in persons in the fourth and fifth decades of life

From the evidence at hand it seems safe to say that syphilis is rarely a cause of coronary disease except as it involves the proximal portion of those vessels as a part of the process of aortitis Moritz⁴⁴ recently showed that the encroachment on the lumens of the coronary arteries in the course of syphilitic aortitis is due not solely to the aortic lesion but frequently to associated endarteritis which is limited to the first 10 or 12 mm of the vessel

Syphilitic disease of the pericardium and endocardium was frequently referred to by the older writers, but most of the reported instances have not withstood critical investigation If one excludes the frequent cases in which involvement of the aortic cusps is the direct extension of a syphilitic process in the aorta and the rare instances of disease of the pulmonary valve as a part of a similar process in the pulmonary artery, only a few well authenticated examples of syphilitic valvular disease remain Staemmler⁴⁵ recorded an instance of involvement of the anterior cusp of the mitral valve by extension of the syphilitic process from the aortic valve in a case of aortitis A few other instances are on record of mitral disease due to extension from a syphilitic lesion in the myocardium, but Herxheimer³⁷ was emphatic in his assertion that anatomically proved instances of primary syphilitic changes in the mitral or tricuspid valves are unknown

The subject of mitral stenosis should not be left without reference to a report of Amblard,⁴⁶ who, after observation of 165 cases of mitral stenosis among French soldiers during the World War, reached the conclusion that most of these cases were the result of congenital syphilis The paper is convincing neither as to the diagnosis of mitral stenosis nor as to the evidence of syphilis

Syphilitic changes in the pericardium have been recorded occasionally from the time of Morgagni In almost every well authenticated case the process has been due to extension of the lesion either from the myocardium or from the aorta In a few instances the process was gummatous, more frequently it consisted of fibrous adhesions and thickenings chiefly about the base of the heart and the great vessels, rarely it was so extensive as to cause concretion pericardii

With respect to the involvement of the heart in the early stage of syphilis there are clinical observations going back to the time of Fournier,⁴⁷ in 1873, who noted various disturbances of cardiac function but

³⁷ Warthin *Am J Syph* 2 425 1918

³⁸ Clawson B. J. and Bell E. T. *The Heart in Syphilitic Aortitis* Arch Path 1 922 (Dec) 1927

³⁹ Saphir *Syphilitic Myocarditis* Arch Path 13 266 (Feb) 436 (March) 1932

⁴⁰ The first mention that I can find of involvement of the coronary ostia in syphilitic aortitis is that of Jakob (*Aortitis Syphilitica* Inaug Dissert Erlangen A Volrath 1891)

⁴¹ Letulle *Bull Soc anat de Paris* 85 56 1910

⁴² Turnbull *Quart J Med* 8 201 1915

⁴³ Martland *Am Heart J* 6 1 1930

⁴⁴ Moritz, A. R. *Syphilitic Coronary Arteritis* Arch Path 11 44 (Jan) 1931

⁴⁵ Staemmler *Centralbl f allg Path u path Anat* 48 177 1930

⁴⁶ Amblard *Bull et mem Soc med d hop de Paris* 45 753 1921

⁴⁷ Fournier *Leçons sur la syphilis étudiée plus particulièrement chez la femme* Paris A Delahaye 1873 p 800

ascribed them to nervous influences rather than to anatomic changes. With the growth of experimental evidence as to the very early invasion of the lymph and blood streams by the exciting organisms, it has become increasingly evident that reactive changes in the viscera begin early, and that in the case of the heart symptoms of such early reactive changes may appear. As confirmation by autopsy has rarely been possible in such cases, the interpretation of the various minor subjective symptoms and physical signs has depended on the clinical judgment and discrimination of the individual observer, and as might be expected under such circumstances, the conclusions of different writers have varied greatly. Grassmann,⁴⁸ for example, found evidences of what he regarded as involvement of the heart in more than two thirds of the 288 cases studied.

In the reports of L. Braun,⁴⁹ Amelung and Sternberg,⁵⁰ Brooks,⁵¹ Howard,⁵² Lukomski,⁵³ and others the incidence of cardiac symptoms in the early stage varied between 8 and 33 per cent. On the other hand, in a very careful and complete study of the heart in fifty cases of early syphilis Turner and White⁵⁴ could find no definite clinical evidence of disease of the heart or aorta in any case.

There is, however, anatomic evidence to prove that occasionally the type of lesion characteristic of the late stage of syphilis (e. g., aortitis and aneurysm) may occur very early—even within a few months of the date of the infection. Brooks⁵¹ cited two such cases, and records of similar instances are found scattered through the literature. Schlesinger⁵⁵ stated that during the World War and the "hunger years" it was not uncommon to find within a few months after infection vascular and nervous manifestations that ordinarily were to be seen only many years later as phenomena of the late stage of syphilis.

Involvement of the pulmonary artery in late syphilis has long been recognized as an occasional but rare phenomenon. If Pare's statement, already quoted, is to be credited, to him belongs the distinction of having first described such a case.

The rarity of fully established instances of the disease may be seen from the careful study of Karsner⁵⁷ which has just appeared. He included among the proved cases nine in which there was either simple formation of gummas or gummatous arteritis and eleven, including his own, in which the process was of the productive-cicatrical type commonly found in the aorta. These twenty cases of syphilitic disease constitute only a small fraction, of course, of the number of cases reported as such in the literature. Six of the twenty cases were associated with saccular aneurysm, and permanent dilatation of some degree was found in all the remaining cases. In about one half of the cases there was concomitant syphilitic aortitis, but the evidence is not conclusive that in such cases the lesion in one vessel is due to extension from the other. Recently Laubry and Thomas⁵⁸ (and others) have

attempted to develop the clinical picture of syphilis of the pulmonary artery and have expressed the belief that in a certain number of such cases a clinical diagnosis is possible.

Syphilis of the pulmonary artery cannot be discussed without reference to its relationship to the syndrome known as Ayerza's disease. At the present time this relationship is most uncertain, and there is increasing evidence to show that sclerosis of the smaller branches of the pulmonary artery which seems to be the essential lesion underlying the clinical picture of Ayerza's disease, may be due to various causes other than syphilis. Cheney's⁵⁹ suggestion, therefore, that the term "Ayerza's disease" be restricted to those cases in which the syndrome is due to syphilitic changes in the pulmonary artery seems hardly logical.

In considering the incidence of syphilitic disease in the arteries other than the aorta, a distinction must be made between the lesions involving the orifices of the vessels given off from the aorta as a part of the disease process in the aorta and lesions occurring in the course of the arteries and independent of the aortic process. Changes of the former type have long been known to be common. Snow,⁶⁰ of Albany, N. Y., in 1880, made one of the early reports under the title, "Syphilitic Degeneration of the Arteries as a Cause of Aneurysm", one of his two cases of aneurysm showed also occlusion of the left subclavian artery. Straub,⁶¹ in 1899, in recording his large series of autopsies on patients with dementia paralytica emphasized especially the tendency in aortitis to encroachment on the mouths of the large arteries given off from the arch as well as on those of the coronary arteries. Turnbull⁶² in 175 autopsies in cases of syphilitic aortitis found the orifice of the innominate artery involved 23 times and that of the left subclavian artery, 10 times. Toppich⁶³ spoke of the frequent narrowing of the orifices of the intercostal arteries and of the possible clinical significance of this. Information concerning the incidence of syphilitic disease in the course of the arteries has been much less certain. The pathologists generally have thought that such syphilitic changes were uncommon, although the comparative frequency of aneurysm in the larger arteries would seem to speak to the contrary. Warthin⁶⁴ found simple atherosclerosis much commoner in syphilitic patients than in nonsyphilitic patients of corresponding age and regarded the condition as related to syphilis, although probably not a result of the direct action of the spirochetes. The latest study of this subject is that of Saphir,⁶⁵ who took sections of most of the larger arteries in fifty cases which at autopsy presented syphilitic lesions in the aorta. Among these fifty cases characteristic syphilitic changes were found in the innominate artery in thirty-three, in the carotid artery in twenty-nine, in the superior mesenteric artery in ten and in the femoral artery in seven. Changes were found in the subclavian artery in fifteen of twenty-nine cases.

In the medium-sized and smaller arteries of the extremities characteristic syphilitic changes, with marked proliferative changes in the intima and a tendency to thrombosis, have been found occasionally, but in this instance as in so many others there is a difference of opinion between the pathologists and the clinicians as to the frequency of the changes. Some of

48 Grassmann *Deutsches Arch f klin Med* 68 455 1900 69
58 and 264 1901
49 Braun *Wien med Wchnschr* 77 83 122 and 150 1927
50 Amelung and Sternberg *Deutsches Arch f klin Med* 145 34 1924
51 Brooks *Am J Syph* 5 217 1921
52 Howard *Am J M Sc* 167 266 1924
53 Lukomski *Ztschr f klin Med* 109 725 1929
54 Turner & B. and White P. D. *The Heart and the Aorta in Early Syphilis Clinical Observations Arch Int Med* 39 1 (Jan) 1927
55 Brooks *Am J M Sc* 146 513 1913
56 Schlesinger in *Jadassohn Handbuch der Haut und Geschlechtskrankheiten* Berlin Julius Springer 1931 vol 16 pt 2 p 272
57 Karsner H. T. *Productive Cicatricial Syphilitic Disease of the Pulmonary Artery Arch Int Med* 51 367 (March) 1933
58 Laubry and Thomas *Bull et mem Soc méd d hop de Paris* 51 9 1927

59 Cheney *Am J M Sc* 174 34 1927
60 Snow *M Rec* 18 229 1880
61 Toppich *Berl klin Wchnschr* 57 440 1920
62 Warthin *New York M J* 115 69 1922
63 Saphir *Am J Path* 5 397 1929

the cases of syphilitic disease of the smaller arteries of the legs have clinically borne a close resemblance to thrombo-angitis obliterans, but Buerger,⁶⁴ along with most other writers, was convinced that syphilis plays no part in the etiology of that disease.

Syphilis of the arteries of the brain remains the commonest and the best studied example of the syphilitic process in the medium-sized and small arteries. In spite of the fact that it was the first form of syphilitic vascular disease to receive general recognition, thanks to the monograph of Heubner, it was nevertheless many years later before pathologists were in agreement as to certain fundamental facts concerning it. The question as to whether the change actually began as a proliferative process in the intima, as Heubner believed, or whether the proliferation of the cells of the intima was secondary to an inflammatory process in and about the vasa vasorum of the adventitia, as was maintained by von Baumgarten and many others, was long in being settled. The final judgment seems to have been in favor of the essential unity of all syphilitic disease in the arteries as a process which proceeds from without inward through the primary involvement of the nutritive vessels of the adventitia.

Knowledge concerning the manifestations of syphilis in the veins was for a long time limited to occasional clinical reports of instances of phlebitis of one of the superficial vessels which occurred in patients with other evidences of syphilis or which in patients suspected of having syphilis responded promptly to antisyphilitic treatment.

Credit for the first trustworthy record of this kind is given to a British army surgeon, Girdwood,⁶⁵ who reported three cases. In 1898, Proksch⁶⁶ was able to assemble 107 instances of syphilis of the larger veins, some of them of doubtful validity. Much the most important contribution to the subject, however, was made by E. Hoffmann,⁶⁷ in 1905.

The forms of syphilis of the veins of chief interest to the clinician are those which belong to the secondary stage of the disease and which occasionally are seen even before the appearance of the cutaneous eruptions. They involve almost exclusively the subcutaneous or cutaneous veins. Hoffmann distinguished three types, diffuse (*strangiforme*) phlebitis, nodular periphlebitis (nodose syphilid) and erythema nodosum syphiliticum. Subsequent studies have confirmed the careful work of Hoffmann and have made it clear that these syphilitic involvements of the veins of the secondary period have considerable clinical importance.

The venous lesions of late syphilis appear to be much less common and are certainly much less characteristic. The deep veins of the trunk are the ones usually affected, and the lesion apparently may either be primary endophlebitis or consist of periphlebitic gummatous inflammation which is often an extension from neighboring syphilitic disease. The interesting and rare obliterating endophlebitis of the hepatic veins seems to be in most instances at least, a syphilitic process and the same is true of certain of the cases of primary sclerosis of the portal vein.

What has been said thus far has referred entirely to the changes wrought in the cardiovascular system by the acquired form of syphilis. There is time now for only a word concerning the knowledge of the effects of

congenital syphilis on the circulatory system. In general, it may be said that that knowledge is in some respects on a firmer basis in the case of congenital syphilis than in the case of the acquired form. Proof of the specific nature of the changes has been easier to obtain because of the relative frequency with which the spirochetes have been found and because of the rarity at that time of life of lesions due to other causes which might be confused with those due to syphilis.

The circulatory lesions produced by acquired syphilis for the most part have their counterparts in those which are found in congenital syphilis. Myocardial changes are infrequent and consist usually of a diffuse or a circumscribed form of myocarditis. Actual gummas are rare. The commonest lesion is aortitis, which corresponds in all essentials to the early stage of the acquired type and can be recognized often in syphilitic infants who are stillborn or who die soon after birth. In the late congenital form of the disease the clinical picture of aortitis, of aortic aneurysm and of aortic insufficiency, though rarely seen, resembles closely that of acquired syphilis. Among the medium-sized and smaller arteries, those of the brain have been most often found involved, and instances of such involvement are recorded even in very young children.

Knowledge that the vessels of the umbilical cord may be the seat of syphilitic disease dates from 1870 (Oedmannsson⁶⁸), and this subject since then has been given much study. To the close relationship between the umbilical vein and the liver is ascribed the great frequency of involvement of the liver in congenital syphilis, and the same explanation is offered for the rare instances of syphilitic peripylephlebitis found among syphilitic children. The relation of obliterating endophlebitis of the hepatic veins to congenital syphilis has been emphasized in a recent study by Beitzke.⁶⁹ Types of phlebitis corresponding to those seen in the secondary stage of acquired syphilis have not been recorded in connection with the congenital form.

This attempt to review briefly the steps by which has grown the present knowledge of the relation of syphilis to disease of the cardiovascular system has resulted in a mere sketch of some of the more conspicuous landmarks along the way. Many important facts and many important names have not been mentioned. What has been said, however, must have made clear the devastating effects of this wholly preventable infection on the vital organs of circulation. It would be easy, if time permitted, to muster statistics showing the distressing prevalence of cardiovascular syphilis and the size of the problem in preventive medicine that it presents. But statistics are not necessary. All physicians know that syphilis heads one of the three great etiologic groups of cardiovascular disease. They know that it accounts for from one sixth to one fourth of the deaths from such diseases among adults. And, finally, they know that at the present time the syphilitic group is the only one of the three great classes for which preventive measures are known and are available. Are they making the most of this knowledge? Are they really doing everything that is reasonably possible to prevent syphilis itself or to prevent these grave consequences of syphilis?

The responsibilities are so great and the consequences of success or failure in such efforts are so momentous that these questions must be asked—and answered.

⁶⁴ Buerger. The Circulatory Disturbances of the Extremities. Philadelphia W. B. Saunders Company, 1924, p. 277.

⁶⁵ Girdwood. Lancet 1: 619, 1860.

⁶⁶ Proksch. Ueber Venen Syphilis. Bonn. P. Hanstein, 1898.

⁶⁷ Hoffmann. Arch. f. Dermat. u. Syph. 73: 39 and 245, 1905.

⁶⁸ Oedmannsson cited by Eitelbaur in Jadassohn J. Handbuch der Haut und Geschlecht Krankheiten. Berlin, Julius Springer, 1931, vol. 16, pt. 2, p. 262.

⁶⁹ Beitzke. Beitr. z. path. Anat. u. z. allg. Path. 84: 2, 1930.

SOME DISORDERS OF THE ESOPHAGUS

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The discovery of new clinical syndromes reveals a curious feature of the physician's psychology. As soon as his attention is drawn to the existence of such a syndrome he finds cases with increasing frequency and wonders how such an obvious condition could have escaped his observation in the past. Thus duodenal ulcer was, with few exceptions, never recognized before 1908, when Moynihan at last succeeded in convincing physicians that it was a very common disorder with characteristic symptoms, which Abercrombie had described to an unlistening profession eighty years before. The history of coronary thrombosis is a more recent illustration of the same phenomenon.

I propose to discuss here four esophageal syndromes all of which are still insufficiently recognized, and three of which were quite unknown to me at the time of my last visit to America in 1919. Every physician will I feel sure, recognize them with increasing frequency during the next few years and will wonder what can have happened to the cases which came under his care and which he failed to recognize in the past.

THE DYSPHAGIA OF ANEMIC WOMEN

CASE 1—A woman, aged 41, consulted me in 1926 on account of difficulty in swallowing. Roentgen studies and esophagoscopy did not reveal any organic obstruction, and watching her during a meal showed that the dysphagia was the result of incoordination of the muscles involved in the initiation of the act of deglutition. Her tongue was sore and showed well marked glossitis, the surface being red, smooth and glossy, owing to complete atrophy of the papillae. She was anemic with 3,540,000 red corpuscles per cubic millimeter and 48 per cent hemoglobin, and her spleen was enlarged. Her condition improved greatly as a result of treatment of the glossitis continued with the administration of large doses of iron and ammonium citrate.

I doubt whether I should have paid much attention to this remarkable symptom complex had I not just read a paper by Vinson¹ in which he described a number of similar cases observed by Plummer and himself, though curiously enough he did not refer to the glossitis. I² described the case in a short paper under the rather unfortunate name of the "Plummer-Vinson Syndrome"—unfortunate because I subsequently discovered that excellent accounts of the condition, though without any details as to the type of anemia present, had been published in 1919 by Brown Kelly³ and by Paterson⁴. These papers had appeared in the *Journal of Laryngology* and had thus escaped the attention of internists—one disadvantage of specialization in medical literature.

I have now seen a considerable number of cases, and the condition has gradually become well recognized in England, where papers on the subject have been written by Ryle,⁵ Jones and Owen,⁶ Cameron,⁷ and Witts⁸.

The anemia is almost always of the hypochromic microcytic type, exceptionally it is Addisonian. It is generally associated with achlorhydria or hypochlorhydria, and as the condition apparently occurs only in middle-aged women, the whole syndrome may, as Witts has suggested, be regarded as a complication of simple achlorhydric anemia. In severe cases the anemia is associated with splenomegaly, as Plummer and Vinson first pointed out, but in mild cases this is generally absent.

Atrophic glossitis is constantly present. It differs in no respect from that described in 1900 by William Hunter as characteristic of Addison's (pernicious) anemia. The tongue feels sore in the acute phases, but atrophy of the filiform papillae may occur without any subjective symptoms. The tongue finally becomes smooth and glossy. This condition of the mucous membrane extends to the pharynx and entrance into the esophagus.

The dysphagia is a result of disturbance in the neuromuscular mechanism which causes the relaxation of the normally closed pharyngo-esophageal sphincter formed by the cricopharyngeus muscle directly after the food has been propelled into the pharynx by the tongue. Absence of this relaxation or "achalasia," the significance of which will be discussed presently, is sufficient to cause dysphagia, though in some cases spasm may replace the normal relaxation. The atrophic inflammation of the mucous membrane in the neighborhood must be the cause of this neuromuscular disorder. Either the nerve endings are atrophied and fail to convey the afferent impulses, which result in the reflex relaxation of the sphincter, or the ganglion cells of Auerbach's plexus are involved and fail to convey the efferent impulse to the sphincter. Suzman⁹ was unable to find any abnormalities in the plexus in a patient who had died from mediastinitis and empyema following the passage of an esophagoscope as, however, the part in which such changes would be most likely to be present was disorganized as a result of acute inflammation following the perforation this can not be regarded as conclusive evidence against the view that organic disease of the nervous tissue at the pharyngo-esophageal junction is the cause of the dysphagia. In the earlier stages the neuromuscular tissues may be in a condition of abnormal irritability so that spasm instead of achalasia results.

Plummer and Vinson regarded the dysphagia as hysterical and the anemia and splenomegaly the result of secondary malnutrition, though dysphagia due to other causes does not lead to splenomegaly and only rarely to anemia. They had failed to observe the constant association of the dysphagia and anemia with glossitis, which is a common accompaniment of simple achlorhydric anemia in the absence of dysphagia, the latter condition, when it is present, must be caused by spread of the inflammation to the pharyngo-esophageal junction.

There is no doubt that many of the patients are of a nervous temperament and that the condition may be exaggerated by autosuggestion. But this is also true for other conditions, which I shall presently describe as causes of dysphagia, although they are quite certainly organic in origin.

Read before the New York Academy of Medicine May 17 1933

1 Vinson P P Minnesota Med 5 107 (Feb) 1922

2 Hurst A F Guy's Hosp Rep 76 426 (Oct) 1926

3 Kelly A B J Laryng Rhin & Otol 34 285 (Aug) 1919

4 Paterson D R J Laryng Rhin & Otol 34 289 (Aug) 1919

5 Ryle J A Guy's Hosp Rep 77 33 (Jan) 1927

6 Jones A M and Owen R D Brit M J 1 256 (Feb 18)

1928

7 Cameron J A M Quart J Med 22 43 (Oct) 1928

8 Witts L J Guy's Hosp Rep 81 193 (April) 1931

9 Suzman M M Syndrome of Anemia Glossitis and Dysphagia Arch Int Med 51 1 (Jan) 1931

The anemia is rapidly cured by the same treatment as that required for uncomplicated cases of simple achlorhydric anemia—the administration of 30 grains (2 Gm) of iron and ammonium citrate three times a day after meals—and the condition of the tongue improves with liver extract. The dysphagia can be cured by the passage of mercury bougies of increasing diameter, occasionally a single treatment is sufficient, though in cases in which spasm and not achalasia is present considerable difficulty may be experienced in passing the instrument.

ACHALASIA OF THE CARDIAC SPHINCTER (SO CALLED CARDIOSPASM)

A condition in which enormous dilatation and hypertrophy of the esophagus occurs without organic obstruction has long been recognized by morbid anatomists, and for many years the theory first suggested by Mikulicz in 1888 that the condition was due to spasm of the cardiac sphincter was widely accepted. The investigation of a case in 1913 led me, however, to reject this theory. I found that a rubber tube, filled with mercury dropped into the stomach without meeting any appreciable resistance in its passage though the cardia, could be withdrawn with equal ease, in striking contrast with the firm resistance offered to the examining finger by a spasmodically contracted anal sphincter in cases of anal ulcer and with the grip exerted on the finger when it has once entered the rectum. Moreover, the cardiac sphincter has never been found to be hypertrophied after death, and in operations in intractable cases the part of the sphincter within the abdomen is of normal thickness or even rather atrophied, although spasm lasting continuously for many years would certainly lead to hypertrophy. It seemed

tion opens the passage and removes the obstruction previously present. Although the cardiac sphincter is not described in the majority of textbooks on anatomy, there is no doubt from anatomic and radiologic studies that one exists. It is normally about an inch in length, its upper end being generally on a level with the hiatus oesophageus, but it is occasionally lower than this and in rare cases the whole of the sphincter is thoracic, with the cardiac orifice of the stomach in contact with

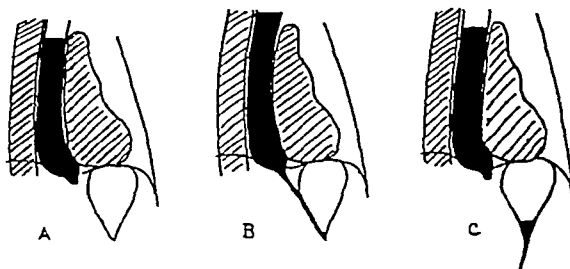


Fig 2—Esophagus in achalasia of cardia. A column of barium containing food 8 inches high above closed cardia. B after additional quantity of food has been swallowed so that the taller column being heavier opens cardia and allows surplus to enter stomach. C return to condition of A after surplus of food over the 8 inch column has entered stomach.

the diaphragm. So long as no short synonym of “absence of relaxation of the cardiac sphincter” was available, it was clear that the old name of cardiospasm would hold the field, in spite of the fact that there was no evidence that spasm was ever present in uncomplicated cases. I therefore asked Sir Cooper Perry to invent a name, he suggested the excellent word achalasia, derived from *a*, absence of, and *χάλασις*, relaxation.

In 1913, after I had demonstrated a case of achalasia of the cardia at the Royal Society of Medicine, Sir Humphry Rolleston told me that he had suggested a similar explanation when showing a postmortem specimen to the Pathological Society in 1896. I subsequently discovered that Dr Max Einhorn¹⁰ had anticipated Sir Humphry by eight years. Now Dr Ralph Major of the University of Kansas has drawn my attention to the following remarkable account of achalasia of the cardia by Thomas Willis in his *Pharmaceutice rationalis*, which was published in 1672, and in which both the idea of achalasia and the modern treatment are foreshadowed.

No less will a very rare case of a certain man of Oxford show, an almost perpetual vomiting to be stirred up by the shutting up of the left orifice. A strong man, and otherwise healthful enough, labouring for a long time with often vomiting, he was wont very often, though not always, presently to cast up whatsoever he had eaten. At length the disease having overcome all remedies, he was brought into that condition, that growing hungry he would eat until the oesophagus was filled up to the throat, in the meantime nothing sliding down into the ventricle; he cast up raw (or crude) whatsoever he had taken in when that no medicines could help and he languished away for hunger, and every day was in danger of death, I prepared an instrument for him like a rod, of a whale bone, with a little round button of sponge fixed to the top of it, the sick man having taken down meat and drink into his throat presently putting this down in the oesophagus, he did thrust down into the ventricle, its orifice being opened, the food which otherwise would have come back again, and by this means he hath daily taken his substance for fifteen years and doth yet use the same machine, and is yet alive and well.

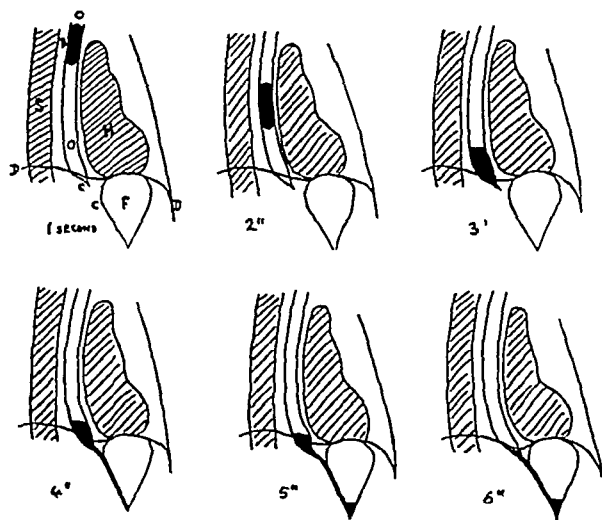


Fig 1—Passage of a bolus of barium-containing food (B) through the esophagus (O) as seen with roentgen rays in successive seconds after swallowing. S spine H heart D D diaphragm C C cardiac sphincter F fundus of stomach.

to me much more probable that the obstruction was caused by absence of the relaxation of the sphincter, which normally occurs when, in the act of swallowing, a peristaltic wave reaches it (figs 1 and 2). A sphincter muscle differs from other muscles in having relaxation as its normal activity, at rest its postural tone is such that it completely obliterates the lumen of the passage which it surrounds and in activity its relaxa-

who would otherwise perish for want of food. Without doubt in this case the mouth of the stomach being always closed either by a tumour or pulse nothing could be admitted into the ventricle unless it were violently opened.

It seemed to me likely that the achalasia was not a purely functional condition but would prove to be the result of some organic change involving the neuromuscular control of the sphincter. In 1925 Dr Geoffrey Rake,¹¹ at that time a medical student at Guy's Hospital, proved that this was the case. At a post-mortem on a man who died from pneumonia without having suffered from dysphagia the esophagus was found to be hypertrophied but not dilated, he thought that this might represent the earliest stage of the condition, in which the hypertrophied esophagus was still able to overcome the resistance offered by the sphincter, so that no dilatation had yet occurred. With the help of the late Prof. Adrian Stokes he demonstrated a round-cell infiltration of Auerbach's plexus at the lower end of the esophagus (fig 3). During the next few years he had the opportunity of examining Auerbach's plexus in ten specimens obtained from various sources and without exception degenerative changes resulting in more or less complete disappearance of the ganglion cells were found (fig 5). Rake's results have since been confirmed by Cameron¹² in eight cases and by Mosher and McGregor¹³ and by Beattie¹⁴ in one each. It is clear, therefore, that this apparently functional condition is really the result of organic disease of Auerbach's plexus, achalasia of the cardia is in fact the only well established example of a localized disease of the autonomic nervous system.

The closed cardiac sphincter can support an 8-inch column of water. Consequently in achalasia the dilated esophagus is constantly filled with a mixture of food and saliva 8 inches high. When more food is taken the cardia opens and allows some of the esophageal contents to enter the stomach but it closes again directly the column falls to the 8 inch mark (fig 2B). Owing to the fact that the pharyngo-esophageal sphincter is normally closed, nothing escapes from the dilated esophagus when the patient lies down.

TREATMENT

Achalasia of the cardia can be cured in a large majority of cases by the use of a wide tube containing mercury.¹⁵ This treatment is quite devoid of danger in contrast with the Russell-Plummer dilator which has led to a number of deaths from mediastinitis and peritonitis. In the very rare cases in which the dilatation is so extreme and has led to such an increase in the length as well as in the diameter of the esophagus that a part of it reaches below the entrance into the cardiac sphincter, it may prove impossible for the mercury bougie to find its way into the stomach, and it consequently coils up within the esophagus. In such cases the sphincter should be stretched from below by fingers introduced through the stomach as first practiced by Mikulicz in 1882, this operation gives much better results than longitudinal incision of the sphincter.

11 Rake G W Guy's Hosp Rep 76 145 (April) 1926 77 141 (April) 1927

12 Cameron J A M Oesophagectasia in a Child Arch Dis Childhood 2 358 (Dec) 1927

13 Mosher H P and McGregor G W Ann Otol Rhin & Laryng 37 12 (March) 1928

14 Beattie W J H M Achalasia of the Cardia St Bartholomew's Hosp Rep 64 39 1931

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(Heller) or esophagogastrostomy (Eckner), both of which I have known to fail completely.

CHRONIC PEPTIC ULCER OF THE ESOPHAGUS

CASE 2—A woman, aged 35, consulted me in May 1932 on account of a burning pain below the xiphisternum which occurred while eating. It had been present with intervals of complete freedom for six years but had become more constant during the last twelve months. The food felt as if it stuck at the cardia before passing into the stomach, and this sometimes led to effortless vomiting. The pain, which sometimes passed through to the back, was relieved by alkalis and could be completely prevented by taking only fluid food. Roentgen studies had been made in 1927 and again in 1931, but nothing abnormal was found. A diagnosis of gallstones was made on the latter occasion but at operation the gallbladder and other abdominal organs appeared to be healthy and the appendix was removed. When I saw her she was much emaciated and the hemoglobin percentage was only 64. The possibility of achalasia of the cardia was considered, but a roentgen examination with the usual opaque fluid showed no delay in the passage into the stomach and the esophagus appeared to be normal. On reconsideration the presence of pain, which is rare in achalasia, its radiation to the back, and its disappearance with fluid food made a diagnosis of achalasia improbable. As pain was present only with solid food a solid meal mixed with barium was given. Pain was produced and a remarkable picture was obtained: the cardiac sphincter, recognized by the presence of two longitudinal folds, was seen to be widely open, and immediately above it was a round shadow, which could be nothing else but the crater of a large ulcer at the extreme lower end of the esophagus just proximal to the sphincter, above the ulcer the lumen was narrowed as a result of a constant spasm, which led to a moderate degree of stasis in the esophagus but was insufficient to cause any secondary dilatation. The diagnosis was confirmed by esophagoscopy and by the presence of occult blood in the stools.

Failure to recognize the true nature of the condition may have a deplorable effect on the patient's nervous system.

CASE 3—A man aged 78 had suffered from "gas pains" since 1926. In 1929 and again in December 1931 he had a small hematemesis on both occasions roentgen studies were made but nothing beyond an excess of gas in the stomach was discovered. Early in 1932 he began to suffer from dysphagia with excessive salivation, he experienced difficulty in initiating the act of swallowing but he recognized that there was an obstruction at the entrance into the stomach, as the passage seemed to 'shut up' in a painful spasm whenever food reached it this being followed by regurgitation of the food with an excess of mucus. A roentgen examination again showed no abnormality except an enormous gas bubble in the stomach which caused the left half of the diaphragm to be elevated above the right, corresponding with the fact that he complained of very painful flatulence with complete inability to belch and so to obtain relief. His condition was regarded as hysterical and he was treated by various forms of psychotherapy on the continent, in America and in England, but without success. Indeed his condition became progressively worse, and when I first saw him in January 1933 he was in a deplorable state of nervousness and was terrified at the mere idea of eating. When a meal was brought into his room, his face became anxious and his hands shook. Several minutes elapsed before he could persuade himself to lift the fork in his trembling hand to his lips, he masticated much longer than was necessary in order to put off the moment of swallowing as long as possible, at the same time shaking his head. He had lost much weight and strength and was extremely depressed.

As it seemed impossible that such severe dysphagia could be purely nervous in origin, especially in view of the history of the hematemesis, a further roentgenologic examination was made and Dr P J Briggs succeeded in demonstrating the presence of a deep chronic ulcer in the extreme lower end of

the esophagus (fig 6) Endoscopic examination showed the presence of well marked esophagitis, but a persistent spasm near the lower end of the esophagus prevented the ulcer itself from being seen A large quantity of occult blood was constantly present in the stools The enormous gas bubble in the stomach was clearly due to the esophageal spasm caused by the ulcer interfering with the escape of swallowed air upward, just as it interfered with the passage of food downward

Both patients were treated with a milk diet, alkalis and atropine and rapidly lost the pain and dysphagia The old man soon became comparatively happy, but the physical signs of fear, which occurred when food was brought into his room, persisted in a lesser degree after the disappearance of the associated emotion, presumably as a result of a conditioned reflex The ulcers became much smaller in both cases, but after many weeks they had not healed, apparently owing to the associated spasm in the woman and owing to the development of cicatricial narrowing in the man, and eventually gastrostomy was performed This resulted in complete healing with disappearance of the occult blood The woman's stomach was allowed to close and she was able to swallow well chewed food without difficulty, in spite of the development of a slight stricture at the site of the ulcer Complete obstruction developed in the man, but this would probably have been overcome by gradual dilation had not a rapidly fatal attack of acute mania developed

From my experience of these two cases and one other case I shall in future advise a temporary gastrostomy directly after the diagnosis has been made, unless the patient is seen within a year of the development of symptoms, when a fluid diet with alkalis and atropine is likely to lead to a cure, as shown by the experience of Friedenwald and his colleagues¹⁶ If cicatricial stenosis should occur, this can be treated by gradual dilation before the stoma is allowed to close

Peptic ulcer of the esophagus is generally regarded as a very rare condition Stewart observed a single case in 10,000 consecutive postmortems, and Tileston was able to collect only eight cases from the literature in 1909 Twenty years later, Stewart and I¹⁷ collected eleven more, excluding a remarkable series observed by Chevalier Jackson,¹⁸ who had seen twenty-one active ulcers and scars of sixty-seven healed ulcers in 4,000 endoscopic examinations on patients with esophageal disease Jackson believed that the condition would be found to be not uncommon if more carefully looked for, and Friedenwald, Feldman and Zinn came to the same conclusion, as they were able in 1929 to publish records of no less than thirteen cases from their own practice in which a diagnosis had been made with roentgenography and esophagoscopy They are the only authors who have hitherto succeeded in visualizing the crater of an esophageal ulcer with the x-rays, though spasm was observed in several of Jackson's cases Their description of the symptoms agrees closely with those given by Jackson and the earlier reporters of single cases, and also with the cases here reported Discomfort or pain occurs under the lower extremity of the sternum while solid food is being eaten and less frequently half an hour or more after meals It often radiates to the back At first it lasts for only a few minutes and is relieved by alkalis, but later it is prolonged and followed by regurgitation, so that the patient often becomes afraid to eat Hematemesis,

which may be severe and fatal, is a common complication, but perforation into the mediastinum, pericardium or peritoneum is the usual cause of death A fibrous stricture may develop and lead to more or less complete obstruction

An esophageal ulcer has all the anatomic characteristics of a chronic ulcer of the stomach or duodenum In 1899 Fraenkel¹⁹ noticed the presence of heterotopic mucous membrane in the esophagus of a patient dying from an esophageal ulcer, and the same observation was made by Tileston²⁰ in 1906 and by Stewart and Hartfall²¹ in 1929 The heterotopic mucous membrane probably secretes acid gastric juice, which collects in the lower extremity of the esophagus immediately above the closed sphincter, and in the course of time an erosion and finally a chronic ulcer develops This would explain why the ulcer is always situated just above the sphincter The condition is analogous with the peptic ulcers occasionally found in Meckel's diverticula, which

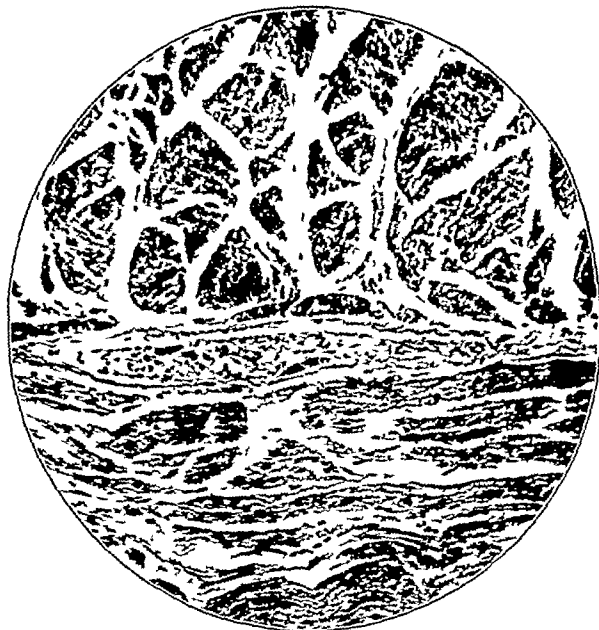


Fig 3—Section of a normal ganglion of Auerbach's plexus in the lower end of the esophagus $\times 50$

are also always associated with the presence of ectopic gastric mucous membrane

THE RECURRENT HIATUS HERNIA SYNDROME OF VON BERGMANN

In May 1931 I visited Prof Gustav von Bergmann's clinic at the Charite in Berlin I found that he was much interested in a particular variety of diaphragmatic hernia,²² a small and generally intermittent form, which he regarded as of great frequency and as responsible for the production of a variety of symptoms Although Friedenwald and Feldman²³ of Baltimore described many of the clinical features of this condition and the special radiologic technic required for its demonstration in 1925, it has remained to a great extent unrecognized, and it has not been clearly separated

¹⁶ Friedenwald Julius, Feldman Maurice and Zinn W F Tr Am Ca tro-Enterol **31** 9, 1929

¹⁷ Hurst A F and Stewart M J Gastric and Duodenal Ulcer London Oxford University Press 1929 p 498

¹⁸ Jackson Chevalier Peptic Ulcer of the Esophagus J A M A **92** 369 (Feb 2) 1929

¹⁹ Fraenkel A Wien klin Wchnschr **12** 1039 1899

²⁰ Tileston Wilder Am J M Sc **132** 240 1906

²¹ Stewart M J and Hartfall S J J Path & Bact **32** 9 (Jan) 1929

²² von Bergmann Gustav and Goldner Martin Funktionelle Pathologie Berlin Julius Springer 1932 p 68

²³ Friedenwald Julius and Feldman Maurice Am J M Sc **170** 263 (Aug) 1925

from other forms of hernia through the esophageal hiatus in the recent radiologic literature on diaphragmatic hernia

In contrast with the familiar type of nontraumatic diaphragmatic hernia, which results from congenital shortness of the esophagus and of which I have seen thirteen cases in the last ten years, the esophagus in this variety of hernia is of normal length. The tissues that surround it as it passes through the hiatus oesophageus must be abnormally lax. This may sometimes perhaps be congenital, but the greatly increased frequency in elderly persons suggests that it is due mainly to senile changes in the tissues. Under these conditions a slight increase of intra-abdominal pressure is sufficient to push a small segment of the stomach in the immediate neighborhood of the cardia through the hiatus into the thorax. It is generally accompanied by the lower extremity of the esophagus, but occasionally the latter still passes into the abdomen behind, in front of or at either side of the hernia.

The hernia is generally intermittent, but it may become fixed and permanent. Intermittent herniation is produced when the intra-abdominal pressure is increased when the patient bends forward or is in the prone position, in which case the pressure immediately below the hiatus is at its highest.

A hiatus hernia should always be considered as a possible diagnosis when upper abdominal symptoms of doubtful origin occur chiefly or only at night or are associated with slight dysphagia or anginoid symptoms. They generally occur in attacks with periods of complete freedom. Pain or a feeling of pressure may be

sodium bicarbonate or an aerated drink generally gives relief. The attacks are in most cases mainly or exclusively nocturnal and disappear when the patient sits up, severe pain in the night may simulate gallstone symptoms. Intermittent dysphagia may occur. The attacks occasionally follow an emotional upset. The symptoms may be so slight that they are discovered



Fig 5—Section through the cardiac end of the esophagus of a patient with achylasia showing R round cell infiltration and F fibrosis of Auerbach's plexus with complete disappearance of ganglion cells none being seen in any of 250 serial sections. $\times 50$



Fig 4—Section of a normal ganglion of Auerbach's plexus in the lower end of the esophagus showing cell infiltration and degeneration of ganglion cells in achalasia of the cardia with muscular hypertrophy but no dilatation of the esophagus. $\times 50$

felt immediately after swallowing under the xiphisternum or a little to the left and occasionally in the back, it may radiate to the heart and to the left shoulder and arm and may closely simulate angina. Acid regurgitation is common, vomiting is sometimes the only symptom. The rapid distention of the stomach which follows aerophagy and the drinking of solution of

only on cross-questioning, and occasionally there are no symptoms at all, the condition being an accidental discovery.

The hernial sac may become inflamed or ulcerated, with the production of hematemesis or occult blood in the stools, and inflammation or ulceration may also occur in the esophagus, which may become slightly dilated above the hernia.

Moore and Kirklin²⁴ of the Mayo Clinic stated in 1930 that "a clinical diagnosis or even surmise of diaphragmatic hernia is scarcely to be expected." It is, however, only by a knowledge of the clinical history of the type of case in which such a hernia is likely to be present that a correct diagnosis can be attained. Intermittent hiatus hernias are never recognized in ordinary routine radiologic examinations, as they are not present when an opaque meal is taken in the erect position. Friedenwald and Feldman showed that they can be most successfully demonstrated when the patient drinks the barium suspension while lying flat on his back, this is also the technic employed by Berg.²⁵ The hernia, which is never larger than a walnut, at once disappears when the patient stands. Knothe²⁶ increases the intra-abdominal pressure by heavy compression and Schatzki²⁷ distends the colon with air, but both maneuvers are likely to produce hernias, which would never develop under natural conditions. The irregular, comparatively thick folds of the fundus mucous membrane can be recognized in the hernia, these are quite distinct from the two or three thin, fine, parallel longitudinal folds in the cardiac sphincter.

²⁴ Moore A. B. and Kirklin B. R. Progress in the Roentgenologic Diagnosis of Diaphragmatic Hernia. J. A. M. A. 95: 1966 (Dec. 2), 1930.

²⁵ Berg H. H. Verhandl. d. Gesellsch. f. Verdauungs- u. Stoffwechselkr. 10: 67, 1930.

²⁶ Knothe W. Deutsche med. Wchnschr. 58: 609 (April 15), 1932.

²⁷ Schatzki R. Deutsches Arch. f. klin. Med. 173: 85, 1932.

TYPICAL CASE OF RECURRENT HIATUS HERNIA

CASE 4—M, a man, aged 65, admitted to New Lodge Clinic in January 1933, complained of attacks of severe abdominal pain, which he has had since 1890. At first there were often intervals of a year or more between attacks, but recently they have become increasingly frequent. The attacks recur daily for periods, which at first rarely lasted for more than a fortnight, but on the present occasion there has been no interval of freedom for several months. Day attacks are brought on by stooping, especially about two hours after a meal. The patient, who has a great deal of writing to do in the course of his profession, has had a very low seat made, so that he is compelled to sit upright at his writing table, and he also frequently writes standing very erect at a high desk. Formerly he found it difficult to carry on with his work, owing to the frequent occurrence of attacks when he leaned over a table to write. He has also found that the attacks, which he formerly had after breakfast, can be prevented by raising his feet to the level of his seat when he puts on his boots.

The nocturnal attacks wake him up regularly about two hours after lying down. They are less likely to occur if he has a pillow under his back than if he lies flat. He can get no relief until he sits up and takes some sodium bicarbonate, as soon as he belches the carbon dioxide set free, he is completely relieved and at once lies down and falls asleep again. Alkalis that do not produce gas and food give no relief.

The attacks are more frequent and more severe when the patient is fatigued or worried.

The pain, which is of a dull boring character and rapidly increases in intensity, is situated high in the center of the epigastrium. It never radiates to the back, upward or downward, or to either side.

Roentgen studies had been made a year before the patient came to the clinic, but nothing abnormal was found. Various diagnoses had been made, but no relief had followed any treatment except that already described, which he had discovered for himself.

Dr T W Turner recognized the history as typical of recurrent hiatus hernia, as described by von Bergmann. A roentgen examination



Fig 6—Crater of large esophageal ulcer

examination carried out in the ordinary way revealed nothing abnormal, but when the patient was examined lying down after swallowing some opaque food without rising, a small hernia was revealed (fig 7). No pressure was applied to the abdomen. It was no longer visible when the erect position was assumed, all the barium having then passed into the part of the stomach below the diaphragm.

CASE 5—A man, aged 68, obtained relief from the frequent nocturnal attacks that he had had for many years by getting up stretching himself and pressing the sides of his thorax till he could bring up wind when the symptoms disappeared and he would quickly fall asleep again. In some of his attacks he felt a suffocating sensation as if his heart was pushed out of place.

PROPHYLAXIS AND TREATMENT

Diurnal attacks can be prevented by avoidance of anything that is likely to increase the intra-abdominal

pressure. The patient should avoid bending and should wear nothing that constricts the abdomen. The presence of carbohydrate intestinal dyspepsia with the resulting intestinal flatulence calls for restriction of potatoes, root vegetables and rice and the administration of diastatic ferment and charcoal. Postprandial attacks of the pain can be prevented by drinking effervescent beverages with the meals.

Nocturnal attacks of the pain can be prevented by reducing the increase in the posterior sub-diaphragmatic pressure by raising the head of the patient's bed as far as possible.

The attacks themselves can generally be stopped by increasing the intra-gastric pressure or by drinking soda water or a solution of sodium bicarbonate. If the patient is lying down, he should sit up. If there is reason to believe that the hernial sac is inflamed, the patient should be given an ulcer diet and should avoid lying flat.

New Lodge Clinic



Fig 7—Hiatus hernia after patient has taken opaque meal while lying down

SEMEN APPRAISAL

A DIFFERENTIAL STAIN THAT ADVANCES THE STUDY OF CELL MORPHOLOGY

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This paper is presented in an effort to simplify and clarify the essential features of semen examination with special regard to defective spermatogenesis in otherwise healthy men. A new method of fixing and staining a microscopic specimen is detailed, which differentiates component parts of the cell without distorting the protoplasm and enables any physician familiar with the use of the oil immersion lens to recognize and classify abnormal sperm cells, and, in specimens of doubtful character, to count the percentage of these cells as an added index of deficiency or improvement.

Such a contribution seems indicated, for, while the profession and also the public now recognize the potential responsibility assumed by the husband in an involuntarily childless marriage, there is convincing evidence that the more thorough study necessary for properly appraising male reproductive vigor is still unappreciated or not believed and thus incorrect diagnoses are very frequent and much useless gynecologic surgery continues. Not only are urologic and endocrinologic reviews relative to male fertility commonly neglected

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but the examination of the semen, the chief clinical evidence of fecundity, receives but the most elemental consideration. Since 1916, when the senior author first called attention to the importance of lesser semen defects, other investigators have emphasized this factor and presented improved indexes of evaluation, but many practitioners and microscopists in well equipped laboratories continue content with the simple demonstration of viable sperm cells—often a useless if not a misleading gesture. Some well qualified urologists lack the time or the inclination to interest themselves in this special field. Because of certain social and personal aspects of this problem there is danger that progress in knowledge of this subject and application in general practice may be retarded by a cynical reaction to overemphasis of technical details, many of which still belong to the realm of experimental medicine.

Before proceeding, let us emphasize that we are not aiming to define an illusory point at which a mile

efficient evaluation, this subject deserves careful consideration. With due regard for the attitude of the patient, we choose one of the following methods with preference in the order named:

(a) A self-produced specimen at the office of the examiner. If accuracy is stressed and a quiet, suitable room is provided, many men are not averse to this method and the physician is in constant control of the ejaculate.

(b) Collection outside the office by external emission. For this purpose we lend the patient a glass graduate and a small (1 ounce) wide-mouthed bottle. After collection in the former the specimen is allowed to liquefy so that it will not adhere to the glass surface and is then transferred to the bottle. This is corked, placed under the clothing about the torso, and brought to the office.

(c) Condom technique. Patients are advised to prepare the condom in advance by washing the preservative powder from the surface that is to receive the specimen after which it is carefully dried. This precaution is taken because not only do foreign bodies hinder the microscopic examination but there is a chance of harm to the specimen by the various ingredients in these powders. After coitus the condom is tied, gently wrapped in a handkerchief (not clinging absorbent cotton) and is then concealed under the garment next to the skin and thus delivered.

Patients are warned not to attempt artificial warming of the specimen, but on general principles we urge gentleness in handling and the maintenance, as far as possible, of even body temperature. The collection should be made when the husband is in usual good health and at a time of sexual rest in accord with his ordinary habits. Examination of the specimen should be made by appointment preferably not later than an hour after production. The office should be ready for prompt examination when the patient arrives and notation made as to the time of emission, any loss in collection, or deviation from previous instructions. The necessary implements cleansed in plain hot water and thoroughly dried, should be kept ready for the examination. At the appointed hour we plan to have all apparatus, including the microscope, in a heating box not above hot summer temperature, to avoid thermal shock to the semen and the annoyance of misty lenses. Office-procured specimens are put aside in this box for a half hour to allow the temporary thickening of the semen to liquefy. Otherwise a mucoid substance which suspends activity dominates the microscopic field. Condom specimens should be immediately drained in a small glass graduate by an incision in the most dependent part of the sack.

GROSS EXAMINATION

The gross examination includes a notation of the amount, which, when complete, and from men under forty years of age, should exceed 3.5 cm. Lesser amounts should arouse suspicion of deficiency and premature weakening by vaginal acidity, otherwise negligible. Extended periods of sexual abstinence may impart a slightly yellow tinge to the normal grayish opaqueness. Normal specimens commonly show a slight degree of viscosity, which is easily demonstrated by slowly expelling a drop of semen from a pipet. Absence of viscosity with a lessening of opaqueness points to reduced cell content, although the reverse deduction does not hold.

An alkalinity giving a p_H of 8.1 to 8.4 has been so constant in our experience that it seems an unnecessary refinement except in research study and we do not yet know the significance of wider variations in reaction.



Fig. 1—Normal spermatozoa $\times 1,600$. The darker area at the cephalic base takes the blue nuclear stain, the cytoplasm red.

specimen may be said to be fertilizing or nonfertilizing, but we are striving to give the practical evidence by which semen deficiency may be estimated, errors in diagnosis reduced, and the necessity for improving the husband¹ as an important factor in the treatment of involuntary sterility recognized. The importance of semen subnormality as an element in the sterile union may not be determined by this evidence alone but by the facts elicited in a complementary study of all factors affecting fertility in the husband and wife.

The examination of the semen is best described in three steps: (1) collection of the specimen, (2) the gross or macroscopic investigation, (3) the microscopic study.

COLLECTING THE SPECIMEN

Because inquiry is so often made as to the best manner of obtaining the specimen and because its proper collection and delivery are the very foundation of

¹ Ma on L. W. Sterility with Reference to the Spermatozoa. Am. J. Obst. & Gynec. 17: 376 (March) 1929.

It has been pointed out to us also that the loss of carbon dioxide alters the body chemistry of the specimen

MICROSCOPIC EXAMINATION

Two specimens, one thick and one thin, are promptly prepared for microscopic examination. This is done by gently protecting a full drop and a fractional drop with cover glasses, the former permitting a gross impression of the density and motility of the cellular content, the latter allowing a preliminary study of individual cell morphology. In the thicker preparation, semen of relatively high fertility presents a field teeming with spermatozoa, many of which are rapidly propelled by fast-whipping tails. While universal cell activity would constitute the ideal, one usually notes in comparatively vigorous specimens that these fast travelers are colliding with a certain number of inactive (average 25 per cent) and a variable number of sluggish and impotent cells, which gradually sink toward the lower strata of the field. Familiarity with this picture under standard, dry, high-power magnification constitutes the measure by which motility is judged. It is a practical observation that a motile field though definitely subnormal is apt to convey a favorable impression on the inexperienced or occasional examiner, but reverse errors in interpretation are rarely made. In our experience the practical aspects of

Richness of cellular content, in terms of millions per cubic centimeter,² has been given emphasis by Macomber,³ Meeker and other workers as a further index of appraisal. While significant degrees of oligospermia are usually apparent to the experienced examiner on microscopic examination there is no verbal picture that will adequately provide such an index. It may

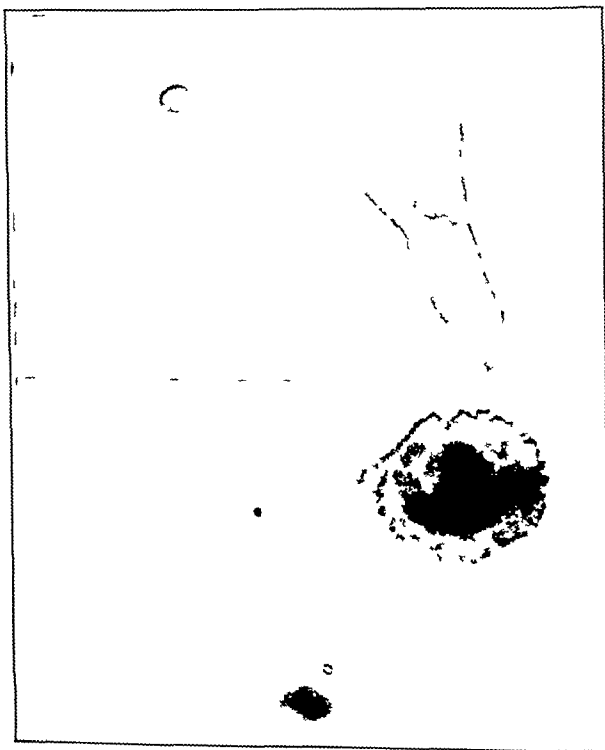


Fig 2—Spermatozoa with multiple nuclei and with caudal extremities in process of development. These cells each of which should produce four spermatozoa were liberated before division. Slightly reduced from a photomicrograph with a magnification of 1,200 diameters.

motility are that a large number of highly motile cells are essential to fertility, and when a specimen of normal quantity and rich cellular content shows 25 per cent or more of these dynamic cells a rating of relative fertility must be assumed unless strongly disproved by other indexes to be described. Such specimens usually meet other major requirements of fecundity.

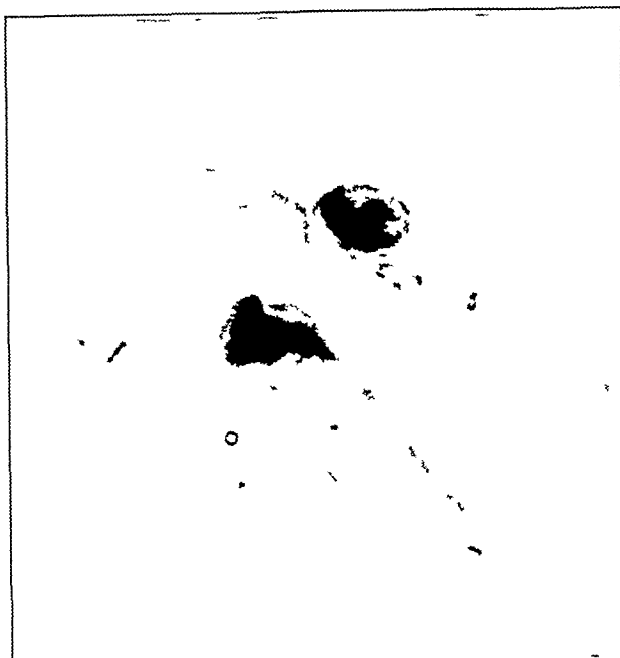


Fig 3—Transitional cells divided but without complete evolution of component parts. Increased numbers of immature cells from the spermatocyte to the spermatozoon with protoplasmic deformity characterize one type of defective semen.

be said, however, that such specimens usually present other evidences of subnormality, such as lowered motility, increased number of abnormal cells, early crystal formation, and sometimes considerable indescribable debris. Such specimens may contain several round granular cells in each field. These may be leukocytes or cells from the seminiferous tubules. The larger granular cells are spermatocytes, there are usually four nuclei, which may be demonstrated by the staining process later described. Cell counts are probably modified by the amount of the seminal fluid and, while we agree with other observers that counts above 70,000,000 per cubic centimeter are found in fertile specimens, our experience would make us hesitate in setting a medium arbitrary count below which fertility is impossible. On the other hand, we have encountered a count as high as 112,000,000 in a highly defective specimen which was twice of less than 20 minims total quantity. This specimen promptly improved after treatment, and pregnancy followed.

Duration of motility is one essential to fecundation that can be easily determined. For this purpose the edge of the cover glass on the thicker smear should be protected by a layer of petrolatum or new smears made from hour to hour from the total specimen. A

² Thoroughly stirred semen diluted 1:20 with a solution of 4 parts of sodium bicarbonate and 1 part of phenol in distilled water. (Nose S. N. Critical Examination of the Semen in Relation to Sterility. Urol. & Cutan. Rev. 34:826 [Dec.] 1930.) In a white cell pipet should normally show from 14 to 25 spermatozoa to one great square that is sixteen small squares of the counting chamber.
³ Macomber, Donald and Saunders, M. B. The Spermatozoon Count Its Value, Diagnosis, Prognosis and Treatment of Sterility. New England J. Med. 200:981 (May 9) 1929.

normal specimen exhibits little cessation at the third hour after emission, and considerable cellular activity should be found at the fifth or sixth hour. Complete or considerable subsidence of motility within this limitation should be regarded as a further index of deficiency, but it should be noted that the few motile cells that were originally active in a highly defective specimen occasionally survive for many hours. Reciprocal studies⁴ between the direct male specimen and its behavior in the female secretions tend to indicate that duration is practically synonymous with early vigor of motility, but there may be exceptions to this rule.

ABNORMAL MORPHOLOGY

Defective semen may be caused by abnormalities in the seminal tract through which or in which the spermatozoa are conducted or retained, or by disturbance of the spermatogenic function. The former condition, due to chronic infection, sex exhaustion, or congestion with possible blockade, is characterized by reduction of sperm cell vitality or by lessening of the cellular or fluid constituents of the semen. These cases, we believe, constitute the group that respond to prostatic massage, heat and rest.

The latter condition, defective spermatogenesis, frequently occurs in men who give no evidence of local pathologic changes and who are classed as passable subjects by unbiased endocrinologic and medical consultants. The semen is occasionally characterized by complete lack of sperm cell production, but more frequently we encounter lesser degrees of sperm reduction with high percentages of abnormal cells (from 30 to 70 per cent), the product of incomplete evolution (fig 2). We believe that these cases, for which further remedies are so sorely needed, frequently arise from deficient gonad activation similar to that encountered in otherwise healthy women. The latter group of cases has been made the subject of special study by the junior author assisted by the hematology laboratories of the medical department of the New York Hospital. All maldevelopments of the spermatozoa with special regard to immaturity (figs 2-4) have been the chief topic of



Fig 4—Comma cell, distorted nucleus and deficient cytoplasm. Numerous in some highly defective semens. Less easily recognized in the wet specimen than the commoner known abnormalities.

this study rather than variation in the length of the sperm head, an index described by Moench⁵ which we have found difficult to adapt clinically to the human product.

In the course of our examination of seminal specimens, it was felt that there was an urgent need for

an improved staining process to define more clearly the exact morphology of the spermatozoon. Heretofore it was directed that the specimen was to be smeared on a slide and treated with heat, air or alcohol for fixation. The delicate cells were consequently distorted by dehydration and their contour materially falsified by shrinkage. Likewise the extracellular debris, purported to be partly removed by a chlorazene wash, still remained in sufficient quantity to obscure further the character of the spermatozoa.

After many trials with various agents it was found that Schaudinn's solution was ideal for the fixation process, for it not only preserved the normal morphology of the cells but also removed the objectionable debris. The next problem was to devise a balanced stain that would demonstrate all portions of the spermatozoon yet spare the chromophilic substance from over stain.

The following technic permits illustration of the head, midsection and tail of the sperm (fig 1)

A. Prepare thin cover slip smears as used in the preparation of blood for staining.

B. Fixation in Schaudinn's solution. 1. Immerse for one minute in 7 per cent solution of corrosive mercuric chloride, 2 parts, and absolute alcohol, 1 part.

2. Immerse for half a minute in 50 per cent alcohol.

3. Immerse for half a minute in distilled water, 3 ounce and tincture of iodine, 2 drops.

4. Wash in tap water.

C. Staining process. 1. Immerse for half a minute in aqueous solution of eosin 5 per cent.

2. Immerse for one minute in 50 per cent alcohol, 3 ounce and concentrated hydrochloric acid, 2 drops.

3. Wash in distilled water.

4. Immerse for two and one-half minutes in hematoxylin.

5. Immerse for one minute in distilled water, 3 ounces and glacial acetic acid 2 drops.

6. Wash in distilled water.

Dry and mount.

The importance of the stained specimens may be realized by the accompanying photomicrographs, taken with the aid of an oil immersion objective. The striking contrasts in size, shape and nuclear arrangement may be especially appreciated by the fact that all exposures are taken at the same magnification (1,600 diameters). The nuclei stain blue and the cytoplasm red, a feature unfortunately lost by black and white photography. These abnormal forms may possess motile facilities when they are observed in the wet specimen. On postcoital examination, however, they are rarely if ever found in the upper levels of cervical mucus and we consider them ineffectual for fertilization.

In appraising seminal specimens, we deduct the percentage of abnormal forms found from the total cell count. The resultant figure, when correlated with other data, is of great importance in the more accurate evaluation of the semen. For instance 40 per cent of inactive cells with 25 per cent abnormal forms would indicate more serious impairment and need for greater improvement in a specimen with a count of 60,000,000 or less than would obtain with a cell count of 100,000,000.

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⁴ Cary W. H. Sterility Diagnosis. The Study of Sperm Cell Migration in the Female Secretions and Interpretation of Findings. New York State J. Med. 30: 131 (Feb. 1) 1930.

⁵ Moench G. L. Biometrical Studies of Head Lengths of Human Spermatozoa. J. Lab. & Clin. Med. 17: 297 (Jan.) 1932.

THE ROENTGEN DEMONSTRATION OF CALCIFIED CORONARY ARTERIES IN LIVING SUBJECTS

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living subject For this reason we are presenting three cases in which calcified coronary arteries have been shown during life One of these cases came to autopsy and the pathologic examination confirmed the interpretations applied to these shadows seen roentgenoscopically and roentgenographically

CASE 1—E L a housewife, aged 67 entered the Peter Bent Brigham Hospital, Dec 2, 1933, complaining of precordial pain



Fig 2 (case 1)—Roentgenographic appearance of the heart after autopsy showing amount and distribution of calcification in the coronary arteries with arrows pointing to the same shadows shown in figure 1 The wire ring is around the aortic valve in which there is a single nodule of calcification

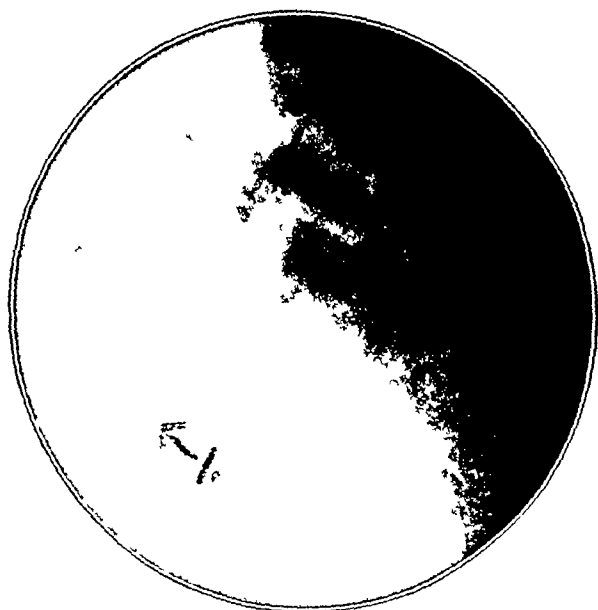


Fig 1 (case 1)—A fast film (exposure one-thirtieth second) showing 1 descending branch of right coronary artery 3 left coronary artery with typical parallel and segmental shadows

calcifications that have been shown roentgenographically, there is no record to our knowledge of calcified coronary arteries having been demonstrated in the

of about twelve years' duration The pain had become so severe that very slight exertion would precipitate an attack The distress was described as a sensation of "the chest being drawn together," and the pain radiated into the left side of the neck and down the left arm It was always relieved by glyceryl trinitrate The important physical changes were limited to the heart, which was slightly enlarged and over which an aortic systolic murmur could be heard On one occasion an aortic systolic thrill was palpable A diagnosis of angina pectoris and aortic stenosis was made by her physician, Dr S A Levine, and because of the incapacitating nature of her illness she was referred into the hospital for the relief of these symptoms by total thyroidectomy³

At fluoroscopy, December 5, the heart was noted to have a rapid, regular beat of fair amplitude There were visible small areas of calcification in the region of the coronary sulcus thought to be in the coronary arteries The slight cardiac enlargement was verified by a seven foot heart film There was no abnormality in the contour of the heart except for a tortuous aorta Speed films (fig 1) taken accurately through the area of calcification confirmed the fluoroscopic observation

Following thyroidectomy a typical attack of acute coronary thrombosis developed and the patient died At autopsy the mediastinal tissues together with the heart and lungs were removed in order to preserve, as far as possible, the ante-mortem relationships Stereoscopic films of the preparation showed marked calcification in the coronary arteries (fig 2) The left coronary artery had three main branches, all of which showed calcification extending almost to the apex of the heart The right coronary artery had a single branch, which was calcified The maximum calcification was at the point where the left coronary artery divided into the interventricular and left marginal branches There was also marked calcification

³ Total thyroidectomy was performed in cases 1 and 3 by Dr E C Cutler

Read before the New England Roentgen Ray Society Dec. 15 1933 From the Medical Clinic and the Department of Roentgenology of the Peter Bent Brigham Hospital

¹ Sosman M C and Wosika P H Calcification in Aortic and Mitral Valves with a Report of Twenty Three Cases Am J Roentgenol 30 328 1933

² Roesler H Roentgen Ray Interpretation of Cardiovascular Disease part III Modern Concepts of Cardiovascular Disease vol II November 1933

in the wall of the aorta, and a few irregular calcified nodules were present in the aortic valve. The latter was so slight that it was impossible to see radiographically despite the fact that its presence was suspected clinically.

The pathologic examination confirmed the fluoroscopic impression and roentgenograms.

CASE 2—P. B., a chauffeur, aged 67, entered the hospital, Jan. 30, 1933, complaining of jaundice of one week's duration. He had been well most of his life until eight years before admission, when he first noted substernal pain. The pain was gripping in character, was moderately severe, and radiated into the left shoulder and down the left arm. The number of attacks increased in severity through the succeeding years but these were always controlled by rest or glyceryl trinitrate. Physical examination showed that the area of cardiac dullness was increased, but nothing else abnormal was noted except moderate peripheral arteriosclerosis.

A gastro-intestinal series, February 3, was negative but during the fluoroscopic examination a linear area of calcification was discovered within the heart shadow. The calcified area was semilunar in shape, with the convexity directed upward, and was from 6 to 7 cm. in length. This shadow was in the region of the left coronary sulcus quite close to the heart surface. There was only slight movement of this shadow toward the apex with systole, in contradistinction to the dancing movement previously described for the shadows cast by calcified valves. The shadow was diagnosed as a calcified coronary artery because of its position in the coronary sulcus near the heart surface, its linear convex shape and its limited motion during systole. It was further demonstrated on speed films (fig. 3).

The jaundice cleared and the patient was discharged, February 16. He continues in his limited activities and controls the angina pectoris with glyceryl trinitrate.

CASE 3—A. P., a truck driver, aged 60, who reentered the hospital, Nov. 7, 1933, had been a patient in several departments

was examined roentgenographically, Feb. 17, 1931, Sept. 10, 1931, and Sept. 19, 1933. On each of these occasions the heart was found to be well within normal limits and normal in contour. Fluoroscopic examinations were reported to give negative results. The heart was seen to beat regularly and with good amplitude. Although there was a large functional element in the patient's condition, the incapacitating angina pectoris continued and on Sept. 21, 1933, a total thyroidectomy was performed successfully, completely relieving the substernal pain.

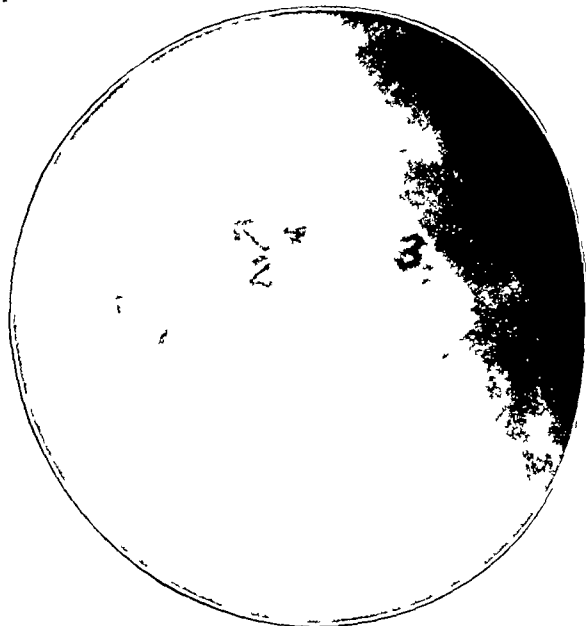


Fig. 4 (case 3)—A fast film (exposure one twentieth second) showing calcified right coronary artery at 1, costal cartilages at 2 and left coronary artery at 3.

Two months after thyroidectomy the roentgenoscopic appearance changed. November 16 the heart was found to be enlarged. The total width was 2 cm. greater than on previous examinations. Fluoroscopy showed a regular beat of fair amplitude. There was a linear segmental shadow apparently cast by calcium deposited just under the pericardium on the left border. This was seen best in the right anterior oblique position. Another shadow with the same linear segmental appearance was seen to curve downward and to the right. These shadows in all probability represented calcified right and left coronary arteries and were clearly shown on films taken through those areas (fig. 4).

COMMENT

It should be remembered that not every small fleck of calcium in the coronary arteries can be visualized roentgenographically. A fairly large amount of calcium is required to interrupt enough rays to cast a shadow that can be recognized. Judging, however, from the numerous instances of massive calcification of the coronary arteries noted at the autopsy table, the roentgen diagnosis during life should be a common one.

It is well to emphasize again that these small calcifications in the heart shadow are seen only when they are searched for. The observer, when his eyes are properly accommodated, should look through the cardiac shadow on fluoroscopic examination rather than simply at the movements of the heart borders. The patient should be rotated in all directions. Closing one's eyes for a few moments often rests them and brings out the dark shadows more clearly. That this intracardiac calcification is seen only when looked for is well exemplified by case 3. This patient had been examined fluoroscopically on three occasions and only two months had elapsed between the discovery of the calcified vessels and the

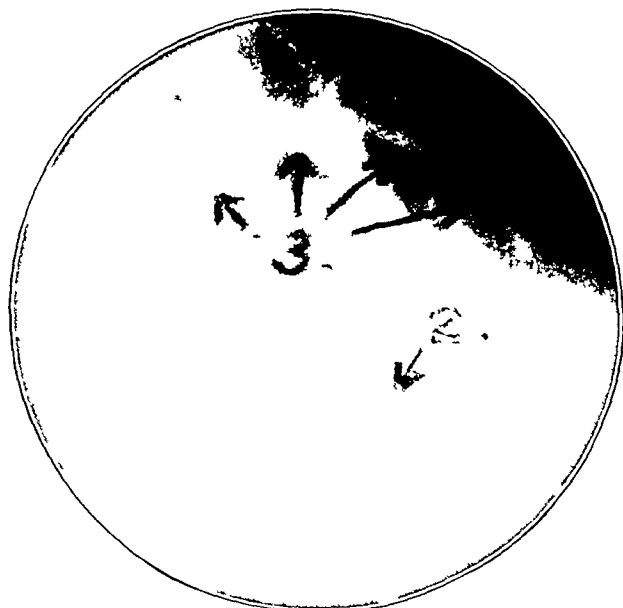


Fig. 3 (case 2)—A fast film (exposure one twentieth second) showing the arched semilunar shadow of the calcified left coronary artery at 3 and a calcified costal cartilage at 2.

for more than two years, during which time his major complaint had been substernal pain. The pain occurred in attacks as a result of mild exercise and radiated into the left shoulder and left arm. It was usually relieved by glyceryl trinitrate but on several occasions it was persistent and occlusion of the coronary artery was suspected. This diagnosis could not be substantiated. Physical examination of the heart was negative. There were no thrills, murmurs or irregularities of rhythm. There was moderate peripheral arteriosclerosis. The patient

previous examination. The amount of calcium present could not possibly have developed in those two months, regardless of the increased heart size.

Fluoroscopically, as one would expect, the calcium deposit is seen in the coronary sulcus. This is high on the left border of the heart and is seen best in the right anterior oblique position. The shadow cast is quite close to the heart border, apparently just under the pericardium. There is a slight movement during systole which is similar to that of the heart edge directly over the deposit. The shadows are to be differentiated from calcification in the valves by their location. Valvular calcifications are usually found by locating the auriculo-ventricular groove on the left border and searching through the heart shadow downward, inward and medially at an angle of 45 degrees. The movement of the valvular calcifications is also characteristic in that they move toward the apex with systole and occasionally intrinsic movements of the valves may be seen as well. This imparts the dancing motion that has been described previously.⁴

The appearance of the calcified arteries on films also is characteristic. The shadows appear linear and segmental and are curved corresponding to the course of the artery. The linear shadows also appear double on the speed films and parallel in places as if one were seeing the walls of the artery. In our three cases the arrangement of calcium in no way resembles the structureless mass of calcium seen in the valves.

Other areas to be differentiated from the calcified coronary arteries are (1) pericardial calcification, (2) calcified costal cartilages, (3) bronchi behind the heart and (4) calcified lymph nodes or nodules.

1. Calcified areas in the pericardium are parallel to the heart surface in at least one view. They move with the heart surface but slightly, as a rule, as visible pulsations are considerably diminished by the thickened and adherent pericardium. They are most commonly found where the heart is in contact with the diaphragm, more on the right side, but may frequently be found in the coronary sulcus. Here the fast films are of value, as this calcification is more solid, often branching and sometimes intercommunicating, forming a network. One does not see the interrupted segments parallel to each other so characteristic of the calcified arteries.

2. The calcified costal cartilages run in an entirely different direction from the calcified arteries and are usually smoother, sharper and denser. They are not confusing at fluoroscopy but may be so on the films. The typical appearance of such a calcified cartilage is shown at 2 in figure 3 and 2 in figure 4.

3. The bronchi behind the heart are not as dense or as opaque as the calcified arteries and they, too, run in a different direction. They may, however, parallel the descending branch of the right coronary artery but they are easily recognizable and should not cause much, if any, confusion. They do not complicate the fluoroscopic picture.

4. Calcified glands and nodules in the lungs or mediastinum are readily differentiated both fluoroscopically and radiographically by their more dense solid and rounded appearance and should not cause any difficulty in interpretation.

It is interesting that the three patients suffered from angina pectoris. We feel that the severe grade of coronary sclerosis demonstrated is of interest in relation

to this condition, and it is possible that the demonstration of such calcification may be of aid in the determination of the etiology of angina pectoris in certain cases.

721 Huntington Avenue

FAMILIAL NEUROTROPHIC OSSEOUS ATROPHY

A FAMILIAL NEUROTROPHIC CONDITION OF THE FEET WITH ANESTHESIA AND LOSS OF BONE

E. MAURICE SMITH, M.D.
MOUNT VERNON, ILL.

An unusual clinical condition, which has not permitted definite classification, has been observed in two generations of a family, and there is definite history of



Fig 1—Lesions in case 1

the same disease in an earlier generation, making three generations in which the condition has appeared.

FAMILY HISTORY

The father (first generation) of the three men (second generation) who now have the condition described died many years ago but is said by the sons to have had ulceration of the feet with anesthesia and with loss of bone similar to that which afflicts the three sons. This man is reported to have had a brother who was afflicted in the same manner. None of the five daughters of the man first mentioned gave a history of a similar condition. The father was married twice. One of the patients in the series to be described in the second generation was born of the first union, and two of the second union. Otherwise the family history is not important save that all members of the family group considered have been born and raised in southern Illinois and have always lived there or elsewhere in the northern part of the United States. The condition to be described is essentially an ulceration of the soles of the feet associated with anesthesia and destruction of bone. It is familiar in occurrence and so far as can be ascertained appears to have been confined to males.

⁴ The technique and the literature on this subject may be found in the previous report.

CASES IN SECOND GENERATION

CASE 1—C F, Sr, aged 53, a farmer, worked at times in industrial establishments. There is at present a crater shaped ulcer about 3 by 5 cm in diameter on the under surface of the left foot just behind the first and second toes. To the right and left and slightly behind this large ulcer are two much smaller ulcers, as will be noted in figure 1. The ulcers are

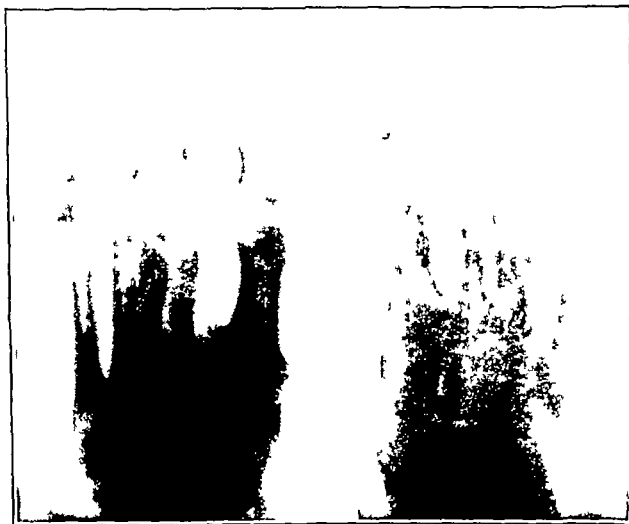


Fig 2—Anterior posterior view of right and left feet in case 1 showing a loss of several phalanges, marked hypertrophic changes, spur absorption of small toes of both feet fusion of metatarsals of the left foot, no calcification and apparently no osteoporosis

red, granulating, and surrounded by a heavy callus. There is a profuse discharge with a slight odor. The patient states that the large ulcer developed after a burn of the sole, which occurred ten or twelve years ago while he was working in a foundry. He states that pieces of bone are discharged from this ulcerating area. For the past twenty years, at intervals,

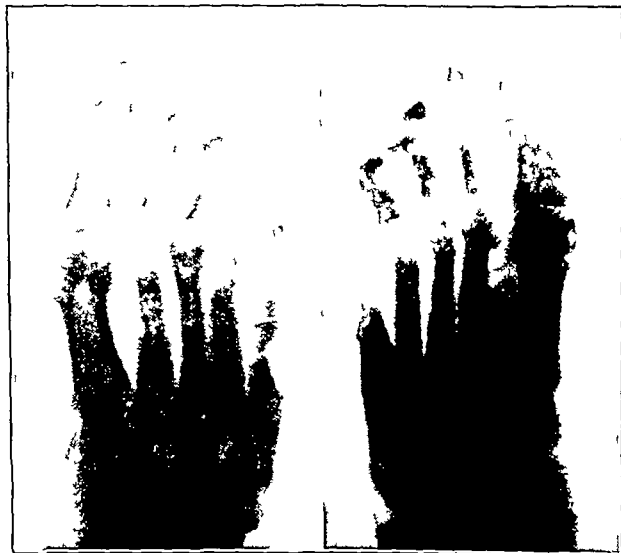


Fig 3—Anterior posterior view of feet in case 4 revealing a loss of the phalanges and a part of the metatarsal of the left foot neurotrophic destruction of the joint of the left fifth toe entire loss of the fifth toe and a part of the metatarsal with apparently no atrophy, decalcification or osteoporosis

there has been ulceration of the toes of both feet with destruction of bone, which can be observed in roentgenograms. Complete healing of the toes occurs after ulceration, but anesthesia remains. The ulceration on the plantar surface of the foot never has completely healed. There is an absence of the sense of touch and pain throughout the sole and the inner aspect of

the dorsum of the left foot. There is a similar area of loss of sensation on the right foot. These ulcers are indurated, and destruction of tissue is much greater than appears on the surface. The ulcers are quite painless, the patient walking about without discomfort. Recently the patient, while working in the timber, cut through the left shoe, inflicting a wound on the foot, but was unaware of having injured the foot until he returned home, removed his shoe and found it filled with blood. At intervals of about three months the patient has a high fever which lasts from twenty-four to forty-eight hours, with mild delirium, swelling of the feet, and glandular enlargements.

CASE 2—A F, aged 32, a half brother of patient 1, is reported to have had the condition since the age of 19 years, at which time blisters developed on the toes and soles of both feet. These blisters healed after discharge of bone, excepting an ulcer on one foot. There was at the time of ulceration pronounced loss of sensation on the dorsum of the right foot and slight loss of sensation on the left foot.

CASE 3—E F, aged 34, a brother of patient 2 and a half brother of patient 1, had blisters on the toes of both feet at approximately the age of 14, with discharge of pus and pieces of bone. At one time he had a positive Wassermann reaction and was placed on antisyphilitic treatment, without material change in his condition. At present there is ulceration and anesthesia of both feet.



Fig 4—Posterior anterior view of feet in case 5 showing neurotrophic destruction of the tarsometatarsal joint of the left great toe complete absorption of the terminal and middle phalanges of the fourth toe loss of terminal phalanges of the fifth toe with apparently no rarification or atrophy of bone

The data on cases 2 and 3 were furnished me by a professional colleague who has seen these cases recently in another state and who kindly furnished the information.

CASES IN THE THIRD GENERATION

These patients are sons of patient 1. There are two sons and three daughters in this generation who are free from the disease.

CASE 4—H F, aged 23, presented a history covering a period of five or six years. An ulcer developed after a tack had been accidentally run into the foot without causing pain. This small wound developed into an ulcer, which never has completely healed. There is at present an ulcer, perhaps 1 cm. in diameter, on the inner aspect of the sole of the right foot just behind the great toe. There are anesthesia and analgesia over an area about 30 mm in diameter around a similar ulcer on the left foot, and an area of loss of sensation on the dorsal aspect of the fourth toe of the left foot. There is some loss of sensation noted on the dorsal aspect of all toes of the right foot. There has been an amputation of the fifth toe, this amputation having been performed without an anesthetic.

There has been also an amputation of the fourth toe of the left foot (a small amount of anesthetic was used for this amputation) The patient sheds his toenails every two or three months There is also ulceration of the toes at intervals

CASE 5—C F, Jr, aged 18, shows destruction of the bone at the tarsometatarsal joint of the left great toe, and an absence

surface Shivers of bone have been discharged from the ulcer on the foot and from several of the toes, always painlessly The only area of anesthesia is one extending about 4 cm around and bordering the ulcer on the left foot The boy is an all-round athlete, playing basketball and football on the high school team without discomfort

COMMENT

Microscopic examination of nasal smears and biopsy material from the lesions on the feet has been negative for acid-fast bacilli The Wassermann reaction is negative in all cases excepting case 3, as noted Many diagnoses have been suggested and considered, none of which seem satisfactory Syphilis, tuberculosis and syringomyelia are readily eliminated on clinical grounds Leprosy has been given serious consideration but is to be excluded on account of the absence of manifestations elsewhere than on the feet and the uniformity of the type of manifestations in all members of the group The patients were seen by a consultant with a large experience in leprosy, who ruled out that condition However, he stated that any one of the cases considered alone would justify a strong suspicion of leprosy

1001½ Broadway



Fig 5—Lesions in case 6

of the distal phalanx of the third toe and the second and third phalanges of the fifth toe There is also a large ulcer on the dorsal side of the second toe, with destruction of the first phalangeal joint of the third toe The condition is of eighteen months standing



Fig 6—Anterior posterior view in case 6 revealing a neurotrophic destruction of the first joint of the left foot loss of the distal and middle phalanges of the fourth toe and no marked atrophy or decalcification

CASE 6—S T, aged 16 years has had the condition for about three years The ulcer covers an area of 5 by 2 cm on the plantar surface of the left great toe extending downward to the first phalanx of the great toe. On the right foot the first and second toes show superficial ulcers on the plantar

SARCOMA OF CHEEK FOLLOWING TRICHO X-RAY TREATMENT FOR HAIR ON FACE

REPORT OF CASE

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The early enthusiasm that attended the discovery of the x-rays gave rise to their employment by methods that bore no regard to inherent physical and biologic factors associated with this form of energy This disregard of these biologic factors led to many unfortunate reactions and sequelae both on the person of the x-ray operator himself and on the patient Marcuse in 1896, according to Ewing,¹ made the first formal report of this condition, and Kienbock, cited by Ewing, in 1900 described in detail this x-ray dermatitis

Among the biologic reactions early recognized was that the x-rays caused epilation It was found that this agent, when properly employed and applied only within certain fixed limits established by physical and biologic measurements, produced this epilatory result without destructive effect on the tissues to which x-rays are administered

The early advocates of x-rays suggested their use as a panacea for many skin conditions, including hirsuties facialis The obvious simplicity with which epilation was effected by the application of x-rays quickly gave them a place in the armamentarium of the dermatologist MacKee,² however, warned against the careless use of x-rays for this purpose, because careful observers have learned that overexposure or oft repeated exposure of the skin to x-rays produced a thickening of the skin, with telangiectasis, keratosis and at times definite ulceration necrosis According to Matas³ these untoward sequelae may appear many

1 Ewing James Neoplastic Diseases Philadelphia W B Saunders Company 1922

2 MacKee G M X Rays and Radium in the Treatment of the Skin Philadelphia Lea & Febiger 1927

3 Matas Rudolph Am J Roentgenol 13 37 (Jan) 1925

months and even years after the first application of x-rays has been given

That malignant changes in the skin and adjacent tissues have followed excessive applications to portions of the body has been definitely demonstrated. Porter⁴ in 1909 reported forty-seven cases of skin injury due

degenerative changes in cases coming under these observations. Pfahler,⁷ reporting on the occurrence of keratotic and malignant changes in irradiated skin, believes that most such malignant changes are of the epitheliomatous type, which is in accordance with the observations of other workers in this field. Sarcomas following x-ray injury of the skin are rare.

Stout states that sarcoma followed intensive roentgen therapy of lupus and other skin lesions and according to Harbitz quoted by Stout the x-rays are a definite etiologic factor in the formation of some sarcoma. Two cases of sarcoma of the skin after roentgen irradiation are reported by Bohmer.⁸ I have seen many cases of x-ray burn and malignancy of the carcinomatous type at the New York City Cancer Hospital but the case reported here is the first one of sarcoma seen.



Fig 1—Telangiectasia and scarring of left cheek eight and one half years following Tricho x-ray treatment for hair on face.



Fig 2—Fibrosarcoma on right cheek of the patient

to x-rays, forty-one of which proved to be malignant. Wolbach⁵ states that malignant changes in the skin following irradiation is not a sudden occurrence but is gradually acquired over a period of years. He describes in detail the histologic changes taking place in such lesions. MacKee, Stout⁶ and others report such



Fig 3—Telangiectasia of patient's face

Until recently, the absence of any governmental restrictions relating to who should be permitted to use x-ray apparatus suggested to many lay persons, with little or no knowledge of the physical and biologic factors of x-rays, the employment of this modality in the treatment of various superficial conditions and these beauty specialists adopted this method for treating hirsuties facialis.

One such notorious group was the Tricho Company, which advertised hair removal by x-rays at moderate fees. Its methods were exposed in THE JOURNAL,⁹ and the serious results of such treatment began to be reported in the literature by Lane¹⁰ and others.

7 Pfahler G E. Am J Roentgenol 13 41 (Jan) 1925

8 Bohmer L. Year Book of Radiology 1933 p 784

9 The Tricho System J A M A 92 252 (Jan 19) 1929 reprint prepared and issued by the Bureau of Investigation of the American Medical Association October 1930

10 Lane C G. Some More Tricho Cases J A M A 95 286 (July 26) 1930

4 Porter C A. Am J Roentgenol 13 31 (Jan) 1925

5 Wolbach S B. Am J Roentgenol 13 139 (Feb) 1925

6 Stout A P. Human Cancer Philadelphia Lea & Febiger 1932

The case here described is one of definite malignant degeneration of the skin and subjacent tissues eight and one-half years after roentgen treatment for hair removal by the Tricho method

REPORT OF CASE

J N, a woman, aged 28, single a milliner, was admitted to the New York City Cancer Institute Aug 3, 1933, because of a growth on the right cheek. In 1926, having an excessive quantity of black hair on her face, she sought treatment at the Tricho Institute. There she received two roentgen treatments a week until a total of twenty treatments had been given to each side of the face. Epilation was effected at the end of the treatments. Later she noticed some gradual changes in the skin, such as reddening and whitening but thought nothing of it. About two years before admission, however, she perceived what she termed a growth developing on the right cheek. In the spring of 1933 she noted, after exposing her face to the sun, that there was a steady increase in the size of the tumor mass and came to the Cancer Institute on the advice of a physician.

Examination on admittance showed marked telangiectasis and scarring of both sides of the face, the upper lip and the chin. On the right cheek there was an irregular granular, strawberry red tumor mass measuring 1 by 2 inches (2.5 by 5 cm) and three eighths inches (1 cm) high, covered by an apparently infected dirty scab. The mass was firmly adherent to the underlying structures of the cheek.

A diagnosis of epithelioma on the basis of an x-ray burn was made, and because of the infection present the patient was advised to apply wet dressings to the cheek, following which radium therapy was to be employed to control the malignancy.

The patient left the clinic and did not return until one month later, when the lesion appeared to have increased in

Examination of the tumor mass by Dr Sala, the pathologist of the institute, proved it to be spindle cell sarcoma.

At the present time the lesion is not completely healed.

CONCLUSIONS

Repeated roentgen treatments may cause destructive lesions of the skin. Because of its potential danger,



Fig 5—Section of spindle cell sarcoma under high power



Fig 4—Section of spindle cell sarcoma under low power

irradiation should be employed only by those properly qualified by special training and experience.

These destructive changes may occur many months or even years after treatment.

Malignant changes may occur following necrosis in an overirradiated skin area.

Removal of hair by x-rays is fraught with danger.

In the case reported sarcomatous degeneration followed repeated treatments with x-rays for hair on the face, applied by Tricho, a commercial beauty parlor

55 East Eighth-Sixth Street

Borborygmi—There are borborygmi which matter and borborygmi which do not. The commonest are the almost musical borborygmi of the nervous maid waiting at table. There is another curious type of rhythmical bubbling in the stomach, synchronous with the respirations, which occurs in nervous enteroptotic women who have acquired a faulty habit of abdominal breathing. These are gastric in origin. But there are also intestinal borborygmi of grave import in chronic obstruction, which synchronize with peristaltic movements subterranean in quality and recurring at more or less regular intervals. Without putting the ear to the abdominal wall, they may be readily located in the bowel. Finally, there are sounds which I would characterize as "hollow tinklings," which may be heard in cases of paralytic distention of the gut, or again in chronic intestinal obstruction. The sense of hearing, like the sense of sight, can only be trained and put to better use by paying attention and by deeming nothing so trivial as to be allowed to escape your notice.—Ryle J A. The Training and Use of the Senses in Clinical Work, *Guy's Hosp Gaz* 47:421 (Oct 28) 1933.

size. She was admitted to the hospital and a biopsy of the tumor mass was taken and a radium pack applied. A dose of 1000 millicurie hours was given over a period of several days, and the patient discharged from the hospital.

The report of the biopsy was "fibroblastic granulation tissue."

The lesion failed to heal and one month after the radium treatment October 16 the patient was readmitted to the hospital and the whole lesion removed by operation.

DELAYED APPEARANCE OF DEFORMITY IN VERTEBRAL BODY FRACTURES

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ST. PETERSBURG, FLA.

Low back pain constitutes a rather important condition in medical practice, and it is one for which the physician has often been able to do very little. Frequently this is because a compression fracture of a vertebral body has been undiagnosed. There may never have been a roentgen study of the case to account for nonrecognition, or roentgenograms may have been made properly and promptly after the injury but no abnormality was discovered.

It is my purpose in this communication to call attention to a class of spinal injuries—compression fractures of the vertebral bodies—which show no evidence of fracture deformity when roentgenograms are made immediately after the injury but on subsequent study ten days or more later do show a recognizable deformity in the lateral silhouette.

Having observed this sequence in three cases, I have made it a routine procedure in reporting a normal spine, following trauma, however slight, to request the referring physician to return the patient in from ten days to three weeks for a recheck should discomfort or disability continue, for there are instances in which compression fractures of the vertebral bodies show after an interval that are not demonstrable immediately after the injury.

The reason which seems logical in explanation of this observation is that the vertebral body is cancellous bone with the rather poorly constituted blood supply common

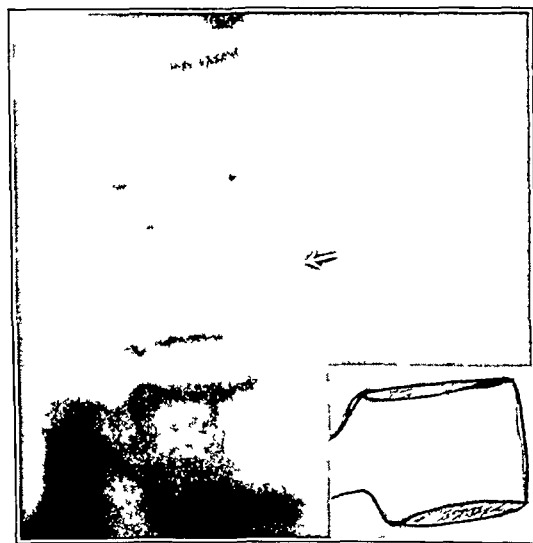


Fig. 1—Appearance twenty four hours after injury, no evidence of fracture.

to that type of structure. The trauma, although disturbing bone homogeneity, with resultant nutritional interference, is not sufficient to distort body outline. Subsequent pressure on this disturbed body by weight bearing, as in walking, or by muscular pull or flexing of the spine if recumbent, serves to deform the silhouette.

From St. Anthony's Hospital

The accompanying illustrations show examples of this type of case. Figure 1 is from a film made twenty-four hours after a slight fall by a woman, aged 80. The first lumbar vertebra shows no disturbance. The discomfort, which was chiefly pelvic, continued, and after undue delay the patient was returned for the film from which figure 2 was made. This shows a



Fig. 2—Appearance twenty four days later, definite compression fracture of the first lumbar vertebra.

definite wedging and a break in the continuity of the more compact bone of the anterior margin of the silhouette.

It is probable that many, if not all, of the cases of so-called Kummell's disease belong to this class of injury, that is, compression fractures not recognized at the time of injury and probably not studied again until the diagnosis of Kummell's disease is made. It is seriously doubted that Kummell's disease should be considered a disease entity.

A most striking thing in the study of a number of reports of vertebral body compression fractures is the surprisingly slight degree of trauma that may be responsible. A degree of wedging that is seldom seen occurred in a heavy woman, aged 60, as the result of a five or six inch drop when an earthenware chamber on which she was sitting split. Another with marked deformity resulted from the impact caused by an automobile, on the rear seat of which the patient sat, crossing a "dip" in the street. Several have been from missteps of from eight inches to three feet.

One should always bear in mind that the injury is frequently at a much higher level than the pain. Two patients have been seen, each with both the eleventh dorsal and the first lumbar vertebral bodies fractured, of whom the surgeon requested a study of the sacroiliac region, and quite naturally, for there was no discomfort elsewhere.

It is, of course, superfluous to mention that no roentgen examination of the spine is complete that does not include a lateral view, in fact, this is usually the only film of definite value.

CONCLUSIONS

1. There are compression fractures of the vertebral bodies which are not apparent immediately after injury but which may be demonstrated some days later.

- 2 Reexamination, after an interval of from ten days to three weeks, should be made in all cases in which discomfort persists
- 3 This type of case probably constitutes the so-called Kummell's disease. It is doubtful whether Kummell's disease is an entity
- 4 Seemingly very slight direct and indirect violence may be responsible for major compression fractures of vertebrae
- 5 The lesion may exist from five to seven vertebrae above the site of pain
- 6 A lateral view of the bodies is absolutely essential

ROUTINE USE OF NEOSKIODAN IN SUSPECTED INJURIES TO THE GENITO-URINARY TRACT

CHARLES MORGAN McKENNA, M.D.

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My purpose in this paper is to point out what a valuable asset excretory urography is in making an early diagnosis in patients suffering with trauma of the genito-urinary tract. It is valuable not only in a positive way but in a negative way as well. Every surgeon recognizes the importance of early diagnosis of trauma, or what is commonly known as internal injuries. Many patients have been lost because of watchful waiting, and many patients have been operated on who could have made a recovery without surgical intervention. This is true not only of trauma but of other pathologic conditions as well. One usually assumes that a person who has been injured was normal until the time of the injury. I have found many times in my observations that a number of these patients had a pathologic entity before the trauma took place. This pathologic condition, observed at the time of the injury, makes the picture more difficult. The problem at this time is to determine whether the pathologic condition existed before the trauma or whether the trauma was the cause of the condition. In passing I cannot help but point out and emphasize the value of excretory urography in patients who have not been injured. It is particularly valuable in tumors, stones, anomalies, tuberculosis and other advanced infections of the kidney. I hope to be able to show the value of excretory urography in tumors of the kidney. In some of those cases a negative result is obtained on the affected side, which when interpreted, means the pathologic side. This is true also in far advanced infections of the kidney and many times it points the way for further investigation in renal tuberculosis.

This paper would not be complete without mentioning the extreme value of excretory urography and the indication for its use in children. This is true not only in trauma but also in many suspected pathologic conditions of the genito-urinary tract. The ease with which it is administered should be emphasized. Of course the size of the dose in children is always much less than that in adults.

We have found both in Cook County Hospital and in the Research Hospital many cases diagnosed that would otherwise have been discharged from the hos-

pital without our even knowing that the patient had any pathologic condition of the genito-urinary tract.

The subject of trauma should be a chapter in itself. In industrial surgery it is very important to know whether the patient is suffering with an injury to the genito-urinary tract or whether that tract can be ruled out, so it is easy enough to see what an important part excretory urography would play in that type of case. For instance, a patient has received an injury and it is difficult to tell whether the injury involves the genito-urinary tract or the organs of the peritoneal cavity. The administration of skiodan will rule the genito-urinary tract either negative or positive and will help the surgeon that much in making an immediate diagnosis. After all, that is the entire point of this paper—immediate diagnosis.

In the past, one had to depend entirely on the history of the injury plus the physical examination. In many instances external trauma is not present. Blood in the urine is the most common observation. Shock may or may not be present.

I believe that the value of excretion urography is an adjunct in completing the diagnosis. I am of the opinion, however, that this procedure, when indicated, taking into consideration shock, gives valuable information as to the immediate procedure in management.

In this paper I shall consider the genito-urinary tract in the following order: trauma of the kidney, ureter, bladder and urethra. Conservatism should be the password in relation to trauma of the kidney. Three of the most important factors should be taken into consideration: first, the general condition of the patient, second, the extent of the injury, and, third, the element of time.

The question of shock, which is a most important one, will be managed in the same way as it would be in any patient suffering from a similar condition. At this point I would like to emphasize that the use of intravenous urography is left to the discretion of the surgeon in charge of the injured patient.

The next question of importance is to find out the extent of the injury to the kidney. Is the rupture within the kidney itself, has it extended through the true capsule or has it invaded the peritoneal cavity? In other words, it is imperative to know whether one is dealing with an extracapsular condition or an intraperitoneal tear.

The foregoing statements are of the utmost importance, since the management depends so much on the interpretation of this condition. I believe that excretion urography at this point is of the greatest advantage. If the rent is extraperitoneal and the amount of extravasation is small, I advise watchful waiting and, again, repetition of the first operation, viz., the making of a pyelogram to find out whether or not the extravasation has increased in size. This is most important because so much depends on whether or not the hemorrhage is entirely within the kidney and is draining into the bladder. In other words, the question of decision plays an important role in all cases of traumatic kidney.

Other factors must not be forgotten, such as blood pressure, blood counts and hemoglobin, all of which add to the information desired in this class of case. So again I want to emphasize the question of time.

First as stated before, conservatism should not be forgotten. If the rent is intraperitoneal, immediate surgery is indicated provided the general condition permits. In many of these cases the kidney may be

detached from its pedicle and rest in the peritoneal cavity or in the perinephric space without any apparent injury to the patient externally

CASE 1—A boy, aged 13 years, entered the hospital, Jan. 1, 1930, with a severe pain in the right side of the back. He had sustained an injury while sliding down a hill on a low sled, which was diverted and ran into a tree. He was picked up



Fig. 1—Ruptured kidney and partially ruptured ureter shown by excretory urography

unconscious and taken home and remained in shock for an hour. There were no marks or abrasions on the skin nor any symptoms of external injury. On first urination macroscopic blood was seen in the urine. He was treated by a local physician for about a day and a half. The urine contained much blood at times and at other times appeared clear. On entrance to the hospital he had the appearance of being very sick, very anemic, with the conjunctiva perfectly white, the finger nails on pressure showed no change, hemoglobin was 50 per cent. Slodian was given. He was given a blood transfusion and taken

to the operation room, where the injured kidney was removed. On opening the perinephric space I was confronted with a large hematoma. After the hematoma was removed the kidney proper was examined which showed the kidney to be ruptured and appeared to be broken in a transverse position. When the forceps was put on a clot was disturbed and I encountered a hemorrhage momentarily. This was controlled by the application of the hand to the renal artery, and I might add that a hemorrhage from the renal artery can best be controlled by engaging the vessel between the thumb and the index finger. This was held until forceps engaged the vessel and a ligature was applied. The operation was completed in the routine way. The patient made an uneventful recovery.

The second case was similar to the one just reported other than that the patient was a girl.

CASE 2—A girl, aged about 14 years, sustained an injury while running and was pushed into a projection of timber on the playground. She likewise was treated two or three days before being sent to the hospital. She had about the same pathologic condition as patient 1. A diagnosis was made by using excretory urography, which immediately told that there was a ruptured kidney. This patient, like patient 1, had no external marks of trauma, and was sent to the general surgical section because of the pain in the abdomen. She had all the appearance of a patient suffering with a disturbance in the peritoneal cavity and had been under observation before she was sent to the department of genito-urinary surgery. Diagnosis was quickly made and surgical intervention employed at once. She also had a rupture of the upper portion of the ureter.

I mention these cases as examples of the value of excretory urography in trauma of the genito-urinary tract. It so happened that in both cases the pathologic changes of the kidney were so great that removal of the organ was necessary. I have seen a number of cases in which the kidney was sutured after the removal

of clots and the patient made an uneventful recovery. A close examination of the kidney is therefore important regardless of how much blood or how many blood clots are in the perinephric space before it is determined whether nephrectomy is indicated.

I believe that in all cases of intraperitoneal tear the kidney should be immediately removed, whether or not it is partially detached. Of course, it should always be removed when it is totally detached.¹

The big problem is in the class of cases in which the hemorrhage continues for some days. When the injury is confined to the kidney, the problem is to decide whether surgical intervention is the best procedure or whether the patient should be allowed to bleed with the hope that a hematoma will form which will prevent further hemorrhage. I might add that in many cases while the hemorrhage ceases and the urine becomes clear, considerable pathologic change will develop. In three cases at Cook County Hospital in later years a complete atrophy of the kidney was observed. In one case a giant hydronephrosis appeared.

When hemorrhage is extracapsular, I advise the removal of all clots of blood and a careful examination of the kidney. By so doing one is able many times to save the kidney, which is the second consideration in the management of all these cases. I do not believe that in every case in which there is a rupture of the kidney and in which a large hematoma is present a nephrectomy is indicated. I believe that the kidney can undergo a great deal of insult and yet, when properly managed will recover. So as stated, if the clots and the hematoma are removed the bleeding points are



Fig. 2—Ruptured bladder revealed by injecting a contrast fluid into the bladder

sutured and a drain is introduced in the prekidney space, the patient will make a good recovery, and a good functioning kidney will be the happy result. However, there is one point that I should like to make, i. e., the introduction of paraffin catheters for the class of case

¹ In a case in which one kidney was found in the peritoneal cavity the patient died following operation. In another case due to a bullet wound in which the kidney was entirely detached the patient made an uneventful recovery.

in which the injury is within the kidney and no hematoma appears. By so doing pathologic changes of the kidney due to pressure necrosis may be entirely avoided.

In all cases of trauma of the kidney a flat roentgenogram should be made to determine the condition of the kidney on the opposite side. In all kidney surgery this should be done.

Rupture of the ureter may be divided into two general headings. Is it a complete or an incomplete tear of the ureter? The management in this group will be the introduction of a ureteral catheter at the time of injury in order that a continuity of the ureter may be present, which is easily done with a catheter in situ. One or two sutures may be employed. In many cases the catheter itself will suffice. By so doing a drainage has been established and the regeneration of the ureter will follow. In trauma of the urinary bladder the only question to decide is whether the tear is intraperitoneal or extraperitoneal. This, too, is well described with the use of excretion urography. I believe that all the other methods heretofore employed, such as the Vaughan-Rudnick test, the use of injection of fluid, which I heartily oppose, and the use of skiodan will tell exactly where the rent is and the extent of the extravasation.

In all cases of intraperitoneal tear, an abdominal incision is done as a routine, and repair of the tear in the bladder is drained to the peritoneal cavity, and the introduction of a retention catheter is the method advised. If I am dealing with an extraperitoneal condition I repair the bladder, institute drainage in the prevesical space and use a retention catheter.

There is a considerable amount of difference of opinion as to this procedure. The industrial surgeon usually advises the use of a retention catheter and takes a chance as to the recovery. This, of course, depends altogether on the condition of the urine whether one is dealing with an infected or an uninfected urine. Slough may take place with a superficial urinary extravasation.

The question of the urethral rupture is one that has caused an endless chain of argument. I believe that the most important factor is to establish immediate drainage through the urethra and, when possible, to do a suprapubic cystotomy and a retrograde sound using the Davis method of two sounds, one through the meatus and the other through the bladder, thereby introducing a retention catheter.

The hemorrhage in the perineum due to trauma will usually take care of itself after the introduction of a large catheter but if a hematoma should appear it is quite simple to open it and drain it. However, when the severed ends of the urethra are not intact it is easier to approximate the two ends if a urethral catheter has been introduced by the method previously mentioned. In other words the urethra now contains a splint by virtue of the catheter being in place. This simplifies the method of doing an end-to-end anastomosis of the urethra. It is not necessary to make this anastomosis watertight. I have modified the Davis sounds so that they are a little more adaptable to the case (fig. 2).

Much credit should be given to George C. Davis (Chicago) for devising this method of using two sounds in managing a ruptured urethra.

CONCLUSIONS

1. Excretory urography is of value in early diagnosis of trauma of the urogenital tract.

2. It is also of value in early surgical intervention when indicated.

3. The question of shock and time is an important factor.

4. A ruptured kidney is not always an indication for nephrectomy. In many cases the clots may be removed and the kidney sutured with good results.

5. The management of a ureteral tear is accomplished by doing a retrograde catheterization and screwing this catheter into one introduced from below.

6. Excretory urography in rupture of the bladder will show whether one is dealing with an intraperitoneal or an extraperitoneal tear.

7. In rupture of the urethra it is important to use two interlocking sounds, one introduced from the bladder through a suprapubic cystotomy and the other through the meatus, thus establishing coaptation of the severed ends of the urethra and drainage.

8. There is no place in surgery in which judgment and common sense is such an asset as it is in traumatic surgery.

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ABSTRACT OF DISCUSSION

DR. G. H. EWELL, Madison, Wis.: I am in accord with Dr. McKenna's views regarding the value of intravenous urography in traumatic injury to the urinary tract. What effect will the associated shock and the actual trauma to the kidney itself have on its function and its ability to excrete the dye? Dr. McKenna mentioned this point but did not say how soon after injury the cases in his series were studied. Dr. Zwick has shown that temporary inhibition of kidney function relative to its power to excrete the dye does occur. In the two cases that I saw, six hours had elapsed before intravenous urography was done. In both cases there was apparently no disturbance in the power to excrete the dye. In cases of traumatic injury of the kidney there is always an associated paralytic ileus and therefore considerable obscuring of the x-ray films by gas. I therefore find it necessary to make many exposures in order to get a composite picture of the urinary tract. Serial pyelograms, as suggested by Dr. Moore, would probably be a much more satisfactory procedure. I am sorry to disagree with Dr. Wesson concerning the value of intravenous urography in these cases as I am of the opinion that it represents one of its most valuable uses so far as diagnosis is concerned. However, the surgical management of such cases must depend on the clinical observations.

DR. MOSES SWICK, New York: I think it necessary to emphasize that all accident wards in hospitals should make it a rule to call in a urologist in a consulting capacity. The importance of proper diagnosis is based on various aspects. One, the trauma to the kidney is capable of producing functional damage and permanent damage as a result of extravasation. Furthermore, urography can be used to assist in the study of the secretions of the various portions and to show what processes are taking place in the kidney as to whether there is return of function or not. Similarly with injuries to the ureter and bladder these may also react on the kidney and produce functional inhibition.

DR. A. I. FOLSON, Dallas, Texas: The technic that Dr. McKenna showed is very important in handling ruptured traumatized or severed ureters. I feel that sutures should not be taken in them. It is sufficient to splint the ureter with a catheter and it is surprising what it will do. Dr. McKenna's method of invaginating these ureters and making it a closed operation is an excellent procedure.

DR. CHARLES M. McKENNA, Chicago: Dr. Folson's remarks concerning sutures is correct. It is seldom that I introduce a suture in the closing of a ureter. I believe it is indicated when one is repairing the ureter after a rupture or injury. This is done after a catheter is introduced. If one

suture is introduced after the distal and proximal ends are brought together, the ureter will heal. The second point concerns the ruptured urethra. I have done away with the open operation in this type of injury. At least I have done most of the operations by doing a suprapubic cystotomy and introducing one sound into the posterior urethra through the bladder, while the other sound is passed through the meatus down through the urethra until the two sounds click. The sound that I speak of is a modification of the George Davis sound. I have modified it so that the beak is longer, in order to make it easier to pass back into the bladder. After the sounds click, they are pushed back into the bladder through the meatus. The distal end of the mushroom catheter is threaded onto the sound already in the bladder, and the sound is withdrawn through the urethra which pulls the distal end of the catheter through the meatus. The indwelling catheter then forms a splint for the urethra. This technic does away with an external urethrotomy. If one feels that the broken ends of the urethra are not in contact, it is simple enough to cut and introduce a suture.

CLINICAL SIGNIFICANCE OF ROENTGENOMETRY IN OBSTETRICS

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Nearly 400 years has elapsed since Arantius¹ (1572) pointed out the importance of the configuration of the bony pelvis in its relation to the successful outcome of labor. At first glance, therefore, it seems surprising that only within our own time has accurate knowledge become available regarding the shape and size of the bony pelvis in the living subject. It is a fact, however, that until the advent of roentgen methods of pelvimetry such information was lacking. Furthermore, the most significant pelvimetric maneuver up to this time was that first described by Smellie² and later by Baudeloque³ for determining the diameter of the diagonal conjugate.

That roentgen pelvimetry has not been more generally employed is probably due to a number of factors, namely,

1 The majority of women will be delivered spontaneously whether or not pelvic measurements of any sort are made.

2 The medical profession does not readily adopt suggested changes in an established routine method of handling obstetric cases.

3 The adoption of new diagnostic methods often increases the patient's expense.

4 The present methods of estimating the degree of disproportion, such as palpation of the fetal head and the test of labor, although entirely speculative, are apparently satisfactory in many cases.

5 In the majority of instances, roentgen pelvimetry cannot be performed by the obstetrician himself but requires the assistance of a roentgenologist.

6 The great value of roentgenometric diagnosis is generally unappreciated.

Of course other factors may be involved, but it is certain that none of those just named present a sound argument against the use of roentgenometry in obstetrics. The value of this procedure rests on the following thesis.

If knowledge of the shape and size of the bony pelvis is indispensable to the practice of scientific obstetrics, roentgen pelvimetry is a sound procedure and its routine use particularly in primiparous patient, is also indispensable.

With respect to external pelvimetry as applied to the pelvic brim I can only repeat what I have recently pointed out in a comparative study of pelvises, that measurements so obtained are significant only as guideposts and, in certain instances may even be misleading.

In this paper I shall indicate what my own experience with roentgen pelvimetry has taught me. I shall not discuss technical procedures beyond stating that the method which has been developed in this clinic is an unusually desirable one in that it is accurate, simple and inexpensive. Moreover, in the great majority of cases a satisfactory roentgenogram can be obtained by the use of sensitized paper, a type of film that we have recently adopted. Paper film has a great advantage over the celluloid film, since the paper record can be incorporated in the history and filed with other pertinent data.

Early in our work we learned that external pelvimetry fails to give uniformly accurate information as to the shape and size of the superior strait. This is especially true in certain thin, undersized individuals. In many patients of this type, although the external pelvic measurements suggest a generalized pelvic contraction, the roentgenograms disclosed a relatively capacious pelvis and spontaneous birth of the normal size infant was the rule. On the other hand we noted that in many thick boned, short, squatty individuals with similar external measurements the roentgenograms revealed the presence of contracted pelvises, and these patients of course presented during labor the problems usually associated with that entity.

In certain of our cases we found a moderate pelvic contraction, which was limited almost wholly to the transverse diameter of the superior strait. This phenomenon interested us greatly, particularly because we came on an increasing number of pelvises that presented this anomaly. In a relatively large group the length of the transverse diameter was so shortened as to equal that of the anteroposterior diameter. In some instances the transverse diameter was actually less than the anteroposterior diameter, a characteristic of a true dolichopellic or "anthropoid" pelvis.

Because of the apparent relationship between a shortening of the transverse diameter and a primary or transient and a secondary or persistent, occipitoposterior presentation, accurate information regarding the length of this diameter is of clinical importance. My first communication,⁴ in 1930, emphasized this point with respect to generally contracted and simple flat pelvises. In another communication,⁵ in 1932, I reviewed my observations on sixteen consecutive patients in whom the fetus presented either in an occipitoposterior or high transverse position. In every pelvis of this group there was a relative or real shortening of the transverse diameter of the superior strait. In May 1932 I⁶ presented to the American Gynecological Society my observations on twenty consecutive patients whose pelvises showed a relative or real shortening of

¹ From the Department of Obstetrics and Gynecology Yale University School of Medicine.

² Arantius quoted by Williams J. H. *Obstetrics* ed 5 New York D. Appleton & Co. 1923.

³ Smellie William *Theory and Practice of Midwifery* ed 8 London 1774.

⁴ Baudeloque J. L. *A System of Midwifery* translated by John Heath London 1790.

⁴ Thoms Herbert *Fallacy of External Pelvimetry* Am J Obst & Gynec to be published.

⁵ Thoms Herbert *Radiology* 21: 125 (Aug.) 1933.

⁶ Thoms Herbert *Am J Obst & Gynec* 19: 539 (April) 1930.

⁷ Thoms Herbert *Am J Obst & Gynec* 24: 50 (July) 1932.

⁸ Thoms Herbert *Surg Gynec & Obst* 56: 97 (Jan.) 1933.

the transverse diameter of the superior strait In every instance a primary or secondary occipitoposterior position was found when the patient fell into labor In this paper I stated that the extraordinary incidence of primary and secondary occipitoposterior presentations noted indicate that this type of pelvis is a most potent factor in the production of this position In a previous paper I have suggested the reason for this mechanism and have pointed out that an actual or relative shortening of the transverse diameter of the superior strait results in a limitation of space that is greater in the anterior than in the posterior half of the superior strait Under these circumstances it appears that when the head descends at the beginning of labor the occiput is forced to rotate posteriorly This point of view is substantiated by the recent work of Caldwell and Moloy,⁹ who state that "in the anthropoid type of pelvis engagement is possible only in the anteroposterior diameter, as compensation exists in the posterior pelvis, the anterior part of the inlet being narrow" These authors are to be congratulated for their excellent work on the classification of pelves If the reader will acquaint himself with the terms "gynecoid," "android" and "anthropoid" as used by them he will recognize two facts first, the importance of such a working classification as suggested by Caldwell and Moloy, and, second, the importance of the clinical application of roentgen pelvimetry It has become a dictum in our clinic that, when an "anthropoid" type of pelvis is diagnosed antepartum, a primary and possibly a secondary occipitoposterior presentation may be expected during labor It will be readily appreciated that, when the occiput is directed obliquely posteriorly in an anthropoid pelvis, a modification of the usual method of delivery by forceps may facilitate the mechanism of descent through the pelvic canal A similar modification of method may be applicable in the extraction of the aftercoming head in breech deliveries In both these conditions the aim is to enable the fetal head to pass through the canal to the best mechanical advantage

As our studies in roentgen pelvimetry progressed, we felt the additional need of a method of determining the size of the fetal head in utero In developing this method we noted the frequency with which the unengaged fetal head lay with the occipitofrontal diameter parallel to the transverse diameter of the superior strait, with the occiput directed either to the right or to the left Under these circumstances if the patient is placed in a supine position a roentgenogram of the fetal head in utero will cast a shadow which is really an enlarged profile of the fetal head By adapting this method of roentgen pelvimetry, measurement of the occipitofrontal diameter of the head in utero becomes a simple matter¹⁰ On many occasions we have checked the method of cephalometry by determining the diameter of the unmolded head before and after cesarean section and have found that the procedure yields accurate results Information regarding the length of the occipitofrontal diameter has given us a useful means of computing the biparietal diameter and here again our figures have checked with a surprising accuracy

As these studies progressed it occurred to us that information regarding the length of the occipitofrontal diameter might be helpful as a means of determining the maturity of the fetus in utero¹¹ The analysis of a

large number of fetal weights and measurements, which included the diameters of the head and the body length, showed that the relation of the length of the occipitofrontal diameter to these measurements was quite constant This was especially true with respect to the crown heel measurement We have successfully made use of this information in determining the maturity of the fetus in utero, the importance of which is obvious when the induction of labor is considered in patients suffering from a toxemia, cardiac complications or pulmonary tuberculosis

As experience in interpreting the results of roentgenometric pelvimetry increases, the so-called test of labor should be less employed In making this statement I do not underestimate the importance of the force of the uterine contractions or the ability of the fetal head to mold These also are important factors of the problems associated with disproportion On the other hand, it should be realized that the greater the exact knowledge of all the factors concerned in the problem of disproportion, the less reliance will be placed on the rule of thumb methods now in use

I have a firm conviction that roentgen pelvimetry has a distinct place in the examination of every primiparous woman Many times I have examined patients whose external measurements were within the limits of normal but whose pelves were in reality contracted On the other hand, certain patients whose external measurements have been so shortened as to suggest the advisability of delivery by cesarean section have been shown by roentgenometry to have adequate pelves and have been delivered spontaneously

CONCLUSION

In concluding this short review of my present attitude toward roentgen methods as applied to clinical obstetrics I should perhaps mention their importance in the diagnosis of fetal position, the presence of fetal abnormalities, the presence of multiple pregnancy and perhaps more especially in the diagnosis of a rachitic deformity of the sacrum¹² Certainly, as was pointed out in the first part of this paper, recent knowledge of the wide incidence of the android and the anthropoid type of pelvis in otherwise "normal" individuals makes a knowledge of these conditions imperative for the practice of scientific obstetrics Finally, I would recall our recent adoption of a technic in which sensitized paper is being used instead of a celluloid film This technic, together with the ability of making pelvigrams of several patients at one appointment, has reduced the cost of the procedure to a real working basis for ward patients

12 Thoms Herbert *Am J Obst & Gynec* 14 45 (July) 1927

Pneumothorax Treatment for Bronchiectasis—I feel pretty certain that if bronchiectasis were always diagnosed early—as it indeed should be nowadays since the use of iodized oil has proved an infallible method of demonstrating the presence of dilated bronchi—and if the pneumothorax treatment were always initiated as soon as the diagnosis had been established the proportion of recoveries would increase very substantially Many years were lost before the necessity of early pneumothorax treatment in ulcerative tuberculosis of the lung was universally admitted But since it has been admitted, the proportion of successes has become considerably greater than it was in the days when pneumothorax was regarded as an exceptional measure and, so to say, as a last resource I venture to predict that the pneumothorax treatment of bronchiectasis will be a repetition of the same story—Rist E Collapse Therapy of Bronchiectasis, *Ann Int Med* 7 417 (Oct) 1933

⁹ Caldwell W E and Moloy H C *Am J Obst & Gynec* 26 479 (Oct.) 1933

¹⁰ Thoms Herbert *Fetal Cephalometry in Utero J A M A* 9 21 (July 5) 1930

¹¹ Thoms Herbert *Am J Obst & Gynec* 20 807 (Dec) 1930

Clinical Notes, Suggestions and New Instruments

CORTIN IN THE TREATMENT OF PROGRESSIVE MUSCULAR DYSTROPHY

RALPH W. MENDELSON, M.D., ALBUQUERQUE, N. M.

In reporting this case I am not unmindful of the fact that conclusions may not be drawn from a single observation, yet results were so prompt and even spectacular that I am prompted to call attention to the treatment used in order that others working in a larger field may try it out and, if found successful, render at least symptomatic relief to a class of patients at present more or less incapacitated.



After twenty injections of cortin patient able to rise from floor without assistance

A man aged 30, a Mexican, first noticed some weakness in his left arm and hand about July, 1930. At that time his weight was 131 pounds (59.4 Kg.) and he was working as a stock clerk in a general store. This weakness and loss of power gradually increased with no periods of intermission up to the time he applied for treatment, July 6, 1933. On that date he tried to shift a keg of nails and found to his surprise that he was unable to do it.

The family history was negative, there were no other cases and there was no history of tuberculosis, cancer, or nervous or mental diseases. The patient's past history was irrelevant, he had had mumps, measles and typhoid. There had been no surgical operations and his habits were normal. He stated that he had had no venereal diseases. The patient complained of loss in weight, transient pains in the affected muscle groups, extreme weakness, inability to walk, insomnia and loss of sexual power.

The patient was emaciated, weighing 103 pounds (46.7 Kg.). He had some difficulty in swallowing, a slight disturbance in his speech and marked atrophy in the following muscles: the pectorals, latissimus, serratus magnus, rhomboids, trapezius, biceps, brachials, supinator longus and triceps, erector spinae, the glutei and the thigh muscles. There were no fibrillary contractions, the reflexes were practically normal and sensation was unimpaired. The sphincters were not affected.

The Wassermann reaction was negative, the red blood cell count was 5,500,000 and hemoglobin 90 per cent on the Dare scale. The urine and stool examinations were negative. The white count was normal and the blood pressure was 90 systolic, 70 diastolic.

The treatment suggested itself in view of the fact that, although the patient suffered from a distinct disease entity he presented himself as having "progressive asthenia," and although I entertained no hope for a cure I felt that if cortin relieved his symptoms to a degree it would be worth while.

I started treatment, July 30, using 1 cc of cortin subcutaneously every day for ten days. There was no particular change

at the end of that time. In view of the cost of the cortin I was forced to limit the injections to once every three days. At the end of the second ten injections the patient stated that his cramplike pains had left, he was able to sleep and his appetite had materially increased. His sexual power was returning and he could walk without assistance. At the present time, Oct. 25, 1933, his weight is 108½ pounds (49.2 Kg.). The blood pressure is 110 systolic, 80 diastolic, he can ride a bicycle several blocks and a few days ago went dove hunting, walking a distance of about 5 miles and carrying a shotgun. His speech difficulty and swallowing have returned to normal. He is an entirely different man and his outlook on life that of a normal human being.

If cortin should act only 50 per cent as well in this type of disability as insulin does in diabetes it would be well worth while. It is hoped that others will try it out and report on a series of cases.

608 First National Bank Building

FOREIGN BODIES IN STOMACH

E. RAYMOND HILDRETH, M.D., BAY SHORE, N. Y., AND
ROBERT B. CASEY, M.D., CENTRAL ISLIP, N. Y.

This case is reported because of its general interest and to add it to the literature on the curiosities of medicine.

M. H. L., a woman, aged 46, married, was admitted to the State Hospital at Central Islip, Feb. 10, 1932. The diagnosis was involution melancholia with suicidal tendencies.

Sept. 6, 1933, she vomited and complained of constipation. A large hard mass was palpable in the upper left quadrant of the abdomen. Liquid petrolatum and enemata were administered daily, with little appreciable effect on the mass. September 11, a roentgenogram showed a mass of what appeared to be metallic spoons in the stomach. September 12, a laparotomy was performed. An incision was made in the upper anterior surface of the stomach and the following objects were removed: forty-eight teaspoons, one tea spoon handle, three bolts, one nut, one prune pit, one button,

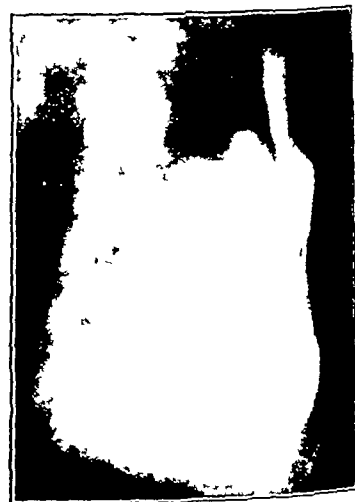


Fig. 1—Appearance of stomach September 11 suggesting metallic mass.

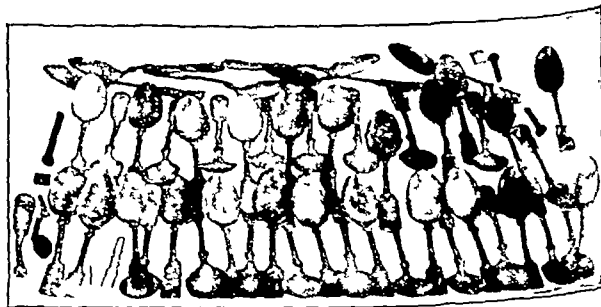


Fig. 2—Articles removed from stomach, September 12

one small piece of glass, two pieces of spring wire, one needle, one piece of cinder, one hair pin and one lead pencil.

Recovery from the operation was uneventful except for slight infection of subcutaneous tissue. The mental condition continued disturbed, requiring restraint.

26 Ocean Avenue

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH Secretary

DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED)—Diphtheria Toxoid (Havens)—The work of Havens and others has shown that diphtheria toxin modified by the method of Ramon may be precipitated by the addition of potassium aluminum sulphate. The resultant water insoluble precipitate, which contains the antigenic properties, is purified by washing. More than 50 per cent of the proteins contained in the original crude toxoid are removed during the process of purification.

Actions, Uses and Dosage—Refined diphtheria toxoid, alum precipitated, is used for active immunization against diphtheria. It is administered subcutaneously, preferably at the insertion of the deltoid muscle, in one dose. Owing to the presence of potassium aluminum sulphate in the product, absorption is delayed. A nodule persists at the site of inoculation for several days.

The National Drug Co., Philadelphia

Refined Diphtheria Toxoid (Alum Precipitated)—Prepared from a seven day culture of the diphtheria bacillus which yields toxin having an L₁ dose of not more than 0.2 cc. The toxin is treated with formaldehyde until its toxicity is so reduced that five human doses will cause no local or general symptoms of diphtheria poisoning when injected subcutaneously, into guinea pigs. The toxoid is precipitated with a solution of alum washed and then suspended in physiologic solution of sodium chloride to which merthiolate has been added. The product is tested for antigenic potency according to the method prescribed by the National Institute of Health guinea pigs weighing 500 Gm. given one human dose must produce at the end of six weeks at least two units of diphtheria antitoxin in each cubic centimeter of blood.

Marketed in packages of one 0.5 cc vial, one 5 cc vial and ten 0.5 cc vials representing respectively one, ten and ten immunizing doses.

E. R. Squibb & Sons, New York

Refined Diphtheria Toxoid Alum Precipitated Squibb—Prepared by treating diphtheria toxin with a solution of alum until complete precipitation is produced. The precipitate is washed with and suspended in physiologic solution of sodium chloride. The product is tested for antigenic activity according to the method prescribed by the National Institute of Health guinea pigs weighing 500 Gm. given one human dose must produce at the end of six weeks at least two units of diphtheria antitoxin in each cubic centimeter of blood.

Marketed in packages of one 0.5 cc vial and in packages of one 5 cc vial representing one and ten immunizing doses respectively.

PARKE-DAVIS HALIVER OIL, PLAIN (See THE JOURNAL Nov 18 1933, p 1634)

The following dosage form has been accepted:

Soluble Gelatine Capsules Parke Davis Haliver Oil Plain 3 minims
Each capsule contains Parke-Davis haliver oil plain 3 minims with sufficient cod liver oil to fill the capsule.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
PAUL NICHOLAS LEECH Secretary

OCTOZONE NOT ACCEPTABLE FOR N N R

The Octozone Corporation of America presented for the consideration of the Council a labile gaseous preparation called Octozone and the apparatus ('Electroniseur') for preparing this gas from oxygen by the action of an electrical discharge. The product is proposed for the treatment of a large variety of diseases in particular various forms of arthritis by local application by baths in closed bags by subcutaneous or intramuscular injection, by rectal administration or by mouth dissolved in water.

In the letters from the firm and in the submitted literature it is admitted that Octozone is a misnomer for the polymer of oxygen known by this name that the evidence indicates that the gas is not O₃ as suggested by the inventor of the apparatus Eugene Rover of Lyons France. The French War Office is stated to be of the opinion that the gas may better be design-

nated as O₄. The evidence submitted by the firm to show that the gas is not ozone was based on effects that appear to differ from those of the usually available concentrations of ozone only quantitatively, the latter gas in sufficient concentration will cause both marked and rapid deterioration of rubber and 'solidification' of mercury, these phenomena were claimed by the firm to be characteristic of "Octozone" and not of ozone. As to relative effects on subcutaneous injection of ozone and "Octozone," the Council's referee has no data other than the statement of the firm that "oxygen (O₂) or ozone (O₃) injected subcutaneously or intramuscularly in the human, or experimentally in the animal, leaves a bleb or swelling lasting for a considerable time. OCTOZONE injected subcutaneously or intramuscularly even in large quantities (250 or 300 cc) develops a very transitory swelling which rapidly disappears, in contrast to the above, giving but momentary sense of burning."

On request from the secretary that more adequate data be furnished with regard to composition of the gas, the firm enlisted the assistance of Prof. Arthur W. Ewell of the Worcester Polytechnic Institute, a recognized authority on ozone. Professor Ewell, as a result of his study, concluded that the higher form of oxygen produced by the "Electroniseur" is ozone. Professor Ewell's conclusion "is in agreement with all published experimental evidence, since this gives no evidence of the presence of anything but ozone at concentrations comparable with those given by this apparatus."

As the evidence seems to be fairly conclusive that "Octozone" is a mixture of O₂ and O₃, the Council decided that no proprietary name for the gas could be recognized, since ozone is not a new discovery, either from a chemical or from a therapeutic standpoint.

The Council found the evidence of therapeutic usefulness submitted by the firm unconvincing. It appears that, under the impression that the gas was a new preparation, investigators have used it on patients without preliminary work on animals. At least such work was not reported in the available data. However, the firm stated "We have carefully followed the experiences of those who are using the apparatus here, and also have instituted a series of bacteriological and animal experiments to confirm the observations of investigators in England and France." The results of the latter investigations have not been submitted to the Council.

The case reports, all of which are from France and England, are without exception uncontrolled and the information provided is far from complete. In some of the reports the alleged results defy credibility, for instance, 20 cc Octozone injected deep into forearm muscles is claimed to have resulted in recovery without recurrence in an old case of malignant tertian malaria. Or, again, two 400 cc injections of Octozone by rectum are said to have cleared up symptoms of internal hemorrhoids.

In the treatment of arthritis the patients are usually enclosed in gas tight bags tightly fitted about the neck which are then filled with Octozone for variable periods, according to the reports. The "baths" are repeated at intervals. In the treatment of cutaneous ulcers, the gas is sprayed directly on the lesions. It is also suggested that colds may be aborted by intranasal application. Among the various conditions treated with Octozone are furunculosis, varicose ulcer, fibrositis, ulcerative colitis, sciatica, 'rheumatism,' subphrenic abscess, osteomyelitis, cystitis, hemorrhoids and Oxyuris vermicularis infestation.

It is difficult to understand how ozone (which in concentrations of 5 to 10 parts per million cannot be inhaled without severe irritative effects leading even to fatal pulmonary edema) can be injected into the colon or under the skin in much higher concentration without dangerous effects. About fifteen years ago investigations made for the Council in testing ozone devices proposed for purifying the air showed that germicidal concentrations were very highly irritant to the respiratory passages. The use of ozone in the treatment of wounds, for instance is not new and according to G. Stoker, who employed it fairly extensively before and during the war, it has a field of therapeutic usefulness although this is very limited. This is upheld also by Solis-Cohen and Githens (Pharmacotherapeutics, New York 1928 D. Appleton & Co. p. 495) who report similar

results It appears, then, that the intelligent employment of ozone may yet find for it a therapeutic niche But such use as it has so far received under the name "Octozone," judging from the available data, cannot but further discredit the employment of this oxidizing agent in the treatment of disease No controlled experiments made with oxygen or air alone were reported, apparently no effort was made to determine whether or not the marked perspiration incident on the 'baths' may have been a factor in the reported improvement of some of the cases little or no objective data indicating recovery is furnished the gas apparently has been administered by every imaginable route, with seemingly reckless abandon

A statement of the Council's consideration of Octozone was sent to the manufacturer with the usual request that the firm consider means of making the product acceptable No reply having been received from the firm after the lapse of three months, another letter was sent by registered mail The firm again failed to reply The Council declared Octozone unacceptable for New and Nonofficial Remedies because, according to the available evidence, it is the well known ozone marketed under a proprietary name with extravagant, unwarranted and even dangerous therapeutic claims

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION



RAYMOND HERTWIG Secretary

HERSHEY'S MILK CHOCOLATE

HERSHEY'S MILK CHOCOLATE (5 cents)

HERSHEY'S MILK CHOCOLATE PENNY BAR

HERSHEY'S MILK CHOCOLATE KISSES

Distributor—Chocolate Sales Corporation, Hershey, Pa

Manufacturer—Hershey Chocolate Corporation, Hershey, Pa
Description—Milk chocolate, containing cane sugar, milk, cacao butter and chocolate

Manufacture—Milk produced under company inspection and regulation, conforming to standards of New York and Pennsylvania, is pumped to holding tanks, where a definite quantity of sucrose is added The sugar-milk solution is condensed under "vacuum" to a viscous mass, machine mixed with the formula proportions of "chocolate liquor," dried to a coarse powder, thoroughly ground with a specified quantity of cacao butter is standardized to a proper viscosity with more cacao butter if necessary, molded into desired shapes, and automatically wrapped in aluminum foil

Analysis (submitted by manufacturer) —

	per cent	moisture and fat free basis per cent
Moisture	0.6	
Ash	1.7	6.2
Ash insoluble in water	1.3	
Ash insoluble in acid	0.01	0.2
Fat	33.6	
Cacao fat	27.3	
Milk fat	6.3	
Total nitrogen	1.3	
Protein (noncaffeine and nontheobromine N × 6.25)	8.4	
Casein	4.7	
Sucrose	44.4	
Lactose	8.3	
Whole milk solids (estimated)	21.5	
Crude fiber	0.4	6.0
Carbohydrates other than crude fiber (by difference)	55.1	
*Theobromine	0.16	
*Caffeine	0.01	

* By Prochnow's modification of the Beckurts Fromme method Arch d Pharmaz 247 698 1910

Calories—5.6 per gram 159 per ounce

Claims of Manufacturer—Complies with the United States Department of Agriculture definition and standard

VAN CAMP'S PURLED PRUNES

Manufacturer—Van Camp's, Inc., Indianapolis

Description—Sieved prunes largely retaining the vitamins and all the mineral content of the prunes used

Manufacture—High grade medium sized prunes are carefully inspected to eliminate any unsuitable material, are washed in a cylinder equipped with high pressure cold water sprays and are covered with a minimum amount of water, and the temperature is slowly raised to simmering and held there till the prunes are swelled and softened The prunes and juice are drawn off and passed through a pulping machine to remove the pits the mass is sieved through a screen with openings of a size to produce the desired fineness and texture, is adjusted with hot water to the desired consistency, and is heated and filled into caramel lined cans, which are sealed and processed

Analysis (submitted by manufacturer) —

	per cent
Moisture	65.4
Total solids	34.3
Ash	0.9
Fat (ether extract)	0.04
Protein (N × 6.25)	1.2
Reducing sugars (as dextrose)	20.6
Sucrose	1.0
Crude fiber	0.8
Total acidity (as malic)	0.8
Pectin	2.1
Pentosans	1.1
Carbohydrates other than crude fiber (by difference)	31.4
Pin	5.1

Calories—1.3 per gram 37 per ounce

Vitamins—The method of preparation efficiently protects the natural vitamins

Claims of Manufacturer—For supplementing the infant diet has a smooth consistency, and supplies bulk without roughness

BEWLEY'S BEST EXTRA HIGH FLOUR (BLEACHED)

Manufacturer—Bewley Mills, Fort Worth, Texas

Description—Red winter wheat short patent flour, bleached.

Manufacture—Selected red winter wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL June 18, 1932 page 2210 Chosen flour streams are blended and bleached with nitrogen trichloride (3 Gm per barrel) and with benzoyl peroxide mixed with calcium phosphate (½ ounce per barrel)

LACTONUT A NESTLÉ PRODUCT

Manufacturer—Nestlé's Milk Products, Inc., New York

Description—A spread containing a ground mixture of spray dried cow's milk with added milk fat and milk sugar, peanuts and iron citrate (U S P)

Manufacture—Selected peanuts are shelled, roasted, blanched, sorted, and blended in definite proportion with spray dried cow's milk, with added milk fat and milk sugar, and iron citrate (U S P) The mixture is ground to a paste and sealed in tins in an atmosphere of nitrogen

Analysis (submitted by manufacturer) —

	per cent
Moisture	1.9
Ash	2.9
Fat (ether extract)	37.2
Protein (N × 6.25)	23.9
Crude fiber	1.0
Carbohydrates other than crude fiber (by difference)	33.1
Iron (Fe)	0.004

Calories—5.6 per gram 159 per ounce

Claims of Manufacturer—Recommended for children Four rounded tablespoons (4 ounces) provide a pint of modified (3 per cent fat) cow's milk

DAVIDSON'S SPUN BREAD SLICED (WHITE)

Manufacturer—Davidson Baking Company, Portland, Ore.

Description—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p 817), prepared from patent flour, water, powdered skim milk, sucrose shortening salt, yeast, a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, malt syrup, and a yeast food containing buttermilk, calcium phosphate and ammonium tartrate The dough is twisted, which accounts for the name "Spun"

RADIOLOGIC SERVICE IN THE UNITED STATES

REPORT BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The fourth publication of the Council's list of physicians specializing in radiology contains the names of 1,250 physicians. These have been found to comply with the "Essentials" that were formulated by radiologists and ratified by the House of Delegates of the American Medical Association.

The Council's first survey covered mainly those radiologists who were conducting laboratories of their own and included those that were connected with hospitals but did not include others, such as those who teach and supervise radiologic work in medical schools and those working in research institutions and government departments. More recently, the work has been extended to all of these fields. To assist the Council in preparing this first survey, the officials of the two leading radiologic societies cooperated with the Council's special committee by appointing qualified radiologists in all parts of the country to act as advisers. These advisers examined the credentials of applicants from their respective localities, made inspections, and advised which candidates could qualify, according to the "Essentials." This original list contained the names of 930 physicians.

From the beginning of this work the Council has emphasized the fact that the practice of radiology is the practice of medicine. The field of radiology had attracted ambitious persons of a mechanical turn of mind for the reason that the work employs mechanical devices and it appears to the uninformed public that little training or special knowledge is necessary. A large number of lay persons trained as technicians had

established radiologic laboratories. In many instances, physicians themselves patronized these laboratories and thus fostered them. Often lay controlled and operated laboratories hire physicians to sign their reports and otherwise "use" their names. The designation by the Council of those qualified in radiology has been far reaching in its effects. The principles of medical ethics have been effectively stressed. Without doubt, numerous practicing physicians have been weaned away from supporting lay specialists in this field. The opposition to lay practitioners entering x-ray work independently has been efficacious. Improperly qualified physicians are being dissuaded from holding themselves out as radiologists. Instances are not lacking in which certain practicing radiologists have been induced to improve their business methods and in some instances to withdraw the use of their names from lay "picture factories." By the regular publication of lists of accredited radiologists, physicians generally are encouraged to refer their work to qualified medical graduates.

The excellent cooperation given the Council by the national radiologic societies and the advisers in the various sections who are themselves prominent radiologists, has made possible the development of the Council's present list. The maximum value and the continued wholesome effects of this published list are in direct proportion to the cooperation extended by the physicians in the specialty.

Doubtless there are radiologists who have not made application for the Council's listing and whose names have not been included for that reason.

ESSENTIALS FOR ADMISSION TO LIST OF PHYSICIANS SPECIALIZING IN RADIOLOGY

Prepared by the Council on Medical Education and Hospitals

PHYSICIANS ELIGIBLE

Consideration for admission to the list is open to all regular licensed physicians engaged in radiologic work in accordance with the essentials whether connected with a hospital or conducting an independent laboratory.

1. QUALIFICATIONS

(a) The candidate shall be a graduate of a medical school that is approved by the Council on Medical Education and Hospitals and shall be licensed to practice medicine in the state in which his department is located. He shall also have had special training, such as is approved by the Council in radiology, roentgenology or radium therapy at an acceptable school—preceptorship hospital or clinic, department of radiology, roentgenology or radium therapy—for a period of at least three years. He must be a man of good standing in the medical profession and particularly among those specializing in radiology. He shall either be on a full time basis or have definite hours of attendance at the department, such hours to be ample to insure the element of medical consultation in every examination or treatment.

(b) The department shall be under the direction of a physician radiologist, roentgenologist or radium therapist as the circumstances may require. The director shall be responsible for all examinations and treatments. He shall be responsible

for all professional assistants and for the efficient maintenance of the department.

Physicians employed by laboratories which are under lay control and direction will not be eligible for consideration for this listing.

(c) *Assistants*—The director may have a corps of qualified medical and technical assistants responsible to him and for whom he is responsible, to carry out accurately the various functions of the department.

2. DEFINITIONS

Radiology—The branch of medicine which deals with the diagnostic and therapeutic application of radiant energy, including roentgen rays, radium, ultraviolet rays and other spectral radiation.

Department of Radiology—A private laboratory or department of a hospital, clinic or other institution organized and equipped for the diagnostic and therapeutic application of radiant energy, in the form of roentgen rays and radium. Ultraviolet and other spectral radiation may also be included.

Radiologist—A qualified physician who also has obtained adequate training and experience in general radiology. Physical therapy is not obligatory under this classification.

Roentgenology—The phase of radiology which deals with the diagnostic and therapeutic application of roentgen rays only.

Department of Roentgenology—A private laboratory or department of a hospital, clinic or other institution organized and equipped for the diagnostic and therapeutic application of roentgen rays only. A department organized and equipped solely for the diagnostic or therapeutic application of roentgen rays shall be known as a department of diagnostic or therapeutic roentgenology, respectively.

Roentgenologist—A qualified physician who has had adequate training and experience in the diagnostic and therapeutic application of roentgen rays.

Diagnostic Roentgenologist—A roentgenologist who limits his practice to the diagnostic phase of roentgenology.

Therapeutic Roentgenologist—A roentgenologist who limits his practice to the therapeutic phase of roentgenology.

Radium Specialist—A physician who has had adequate training and experience in the therapeutic use of radium and who specializes in this work.

3 SCORE

A department of radiology should be able to render all of the following services:

(a) Roentgenography, simple or stereoscopic of any part of the body, with medical interpretation of the roentgenographic observations, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

(b) Roentgenoscopy of any part of the body in any position, with or without opaque mediums, with medical interpretation of the roentgenoscopic observations and under satisfactory conditions for the protection of the patient and the professional and technical personnel.

(c) Roentgenotherapy of all benign and malignant diseases amenable to such treatment with roentgen rays generated at low, moderate or high voltage (long, medium or short wavelength), as the conditions may require, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

(d) Radium therapy of all benign and malignant diseases amenable to such treatment with an adequate quantity of radium element or emanation and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

Ultraviolet therapy, general or local, with satisfactory air-cooled and water-cooled quartz mercury lamps or carbon arc lamps, with suitable quartz and other applicators for irradiation of cavities, sinuses or the superficial lesions under pressure, and under satisfactory conditions for the protection of the patient and of the professional or technical personnel. The Council recommends that, wherever ultraviolet treatments are given, they should be under the control and supervision of a physician who has specialized in this form of radiant energy.

A department of roentgenology should be able to render the services specified under *a*, *b* and *c*.

A department of diagnostic roentgenology should be able to render the services specified under *a* and *b*.

A department of therapeutic roentgenology should be able to render the services specified under *c*.

A department of radium therapy should be able to render the services specified in *d*.

4 HOUSING

The housing should be adequate for the proper functioning of the department of radiology or roentgenology. Damp or ill ventilated quarters are unsuitable for such work.

5 EQUIPMENT

The equipment should be sufficient to carry out properly the technical procedures and activities of the department of radiology, roentgenology or radium therapy.

6 PROTECTION

The arrangement of working rooms and conditions, and the construction of all apparatus shall be such as to provide adequate protection, both from electrical shock and from avoidable exposure to roentgen rays or radium to patients, attendants and other persons in or near the department. The requirements in this respect are based on the recommendations adopted

by the International Congress of Radiology, held at Stockholm, Sweden in July 1928 and approved by the American Roentgen Ray Society and the Radiological Society of North America.

7 RECORDS

Full records of all examinations and treatments made by the department, suitably indexed, are essential. Roentgenograms made in the department should have inerasable identification marks which will preclude error as to patients concerned. Roentgenograms may be lent to referring physicians but should be returned to the laboratory for filing and future reference. Suitable storage facilities should be provided where roentgenograms and other records will be both safe and readily available for reference. They shall be kept as long as there is the possibility of their being needed for the benefit of the patient or their physicians.

As roentgenography constitutes only a kind of medical examination on which the roentgenologist's opinion of the patient's condition is partly or wholly based, and as the opinion of the specialist is the essential factor, the Council holds that the introduction of roentgenograms as evidence in medicolegal cases should be discouraged as immaterial and as tending to adulterate the process of justice. There is no more reason for the introduction of roentgenograms than for requiring a pathologist to bring to court his microscope and his sections of tissues.

8 REPORTS

The reports of a department of radiology, roentgenology or radium therapy shall be made through the director on stationery or blanks having the name of the director printed thereon. Under no circumstances shall roentgenologic diagnoses, interpretations, opinions, statements of prognosis or therapeutic suggestions be offered by the nonmedical personnel.

9 LIBRARY

The department of radiology, roentgenology or radium therapy should be provided with or have convenient access to a library including current scientific books and journals on all the various subjects required in its work.

10 ETHICS, FEES AND PUBLICITY

Radiology is a special type of medical practice and the physician practicing radiology is subject to the same rules of special training and conduct that govern his fellow specialists in the practice of medicine and surgery. The Principles of Medical Ethics of the American Medical Association shall apply in all cases. The fees charged for radiologic services shall be under the control of the director of the department. All systems of rebates, discounts, special group rates, etc., shall be considered unethical except that where the patient's economic status is the determining factor, the radiologist, like his fellow physician in medicine or surgery, may waive part or all of the fee.

The publicity of a department of radiology, roentgenology or radium therapy should be in professional good taste and limited to statements of fact as to name, address and telephone number, names and titles of the director and other active responsible personnel, field of work covered, office hours, directions for referring patients, and so forth. It should not contain misleading statements or claims of unusual superiority. It should not advocate medical fads nor lay undue stress on the importance of roentgenologic observations. On the letter heads or any other form of publicity only the names of those rendering regular services to the department should appear as being connected with the department. Advertising matter should be directed only to physicians, either through bulletins or through recognized technical journals, and never to the nonprofessional public, as, for example, by announcements in popular journals and periodicals, circulars, pamphlets or telephone lists.

11 ADMISSION TO THE APPROVED LIST

Only when the physician is the director or is affiliated with a department of radiology, roentgenology or radium therapy in which the personnel, space, equipment, management, finances and records are such as will insure honest, efficient and accurate work may he expect to be listed. Physicians desiring to be considered for the approved list should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago.

PHYSICIANS SPECIALIZING IN RADIOLOGY—1,250

The list contains the names of only those who have applied for recognition and who have been found to comply with the "Essentials." The advisers for their respective states have passed favorably upon them. Those who are still under consideration, and others who may apply, will when accepted, be added in subsequent issues of THE JOURNAL.

The type of service rendered is given opposite the name "Radiology," under "Type of Service" always includes short wave therapy, also known as "deep therapy." The asterisk (*) on "roentgenology" indicates that short wave therapy is included.

For list of physicians specializing in radiology in government service, see page 618

ALABAMA

NAME	ADDRESS	TYPE OF SERVICE	NAME	ADDRESS	TYPE OF SERVICE
Anniston			Stafford Owen R	520 W 7th St	Roentgenology
Leri Irwin P	931 Noble St	Roentgenology	Taylor Raymond G	1212 Shatto St	Radiology
Birmingham			Witter Calvin B	511 S Bonnie Brne St	Poentgenology *
Barfield Carter M	2031 1st Ave N	Roentgenology	Oakland		
Kesmodel Karl F	1023 S 20th St	Radiology	Bowen Carl B	1624 Franklin St	Roentgenology
Meadows James A	1027 S 20th St	Radiology	Iette S A	230 Grand Ave	Radiology
Sorrell Lewis F	201 16th St	Roentgenology *	Manderille Frederic B	431 30th St	Roentgenology *
Dothan			Petch Philip H	426 17th St	Roentgenology
Ellis John T	200 E Main St	Roentgenology	Peters Chas F	400 20th St	Roentgenology *
Fairfield			Sargent Wm H	1624 Franklin St	Roentgenology *
Troje Oscar P	Tenn Coal Iron & R R	Radiology	Siefert Alfred C	411 30th St	Radiology
Mobile			Palo Alto		
Cravies I M	1202 Springhill Ave	Radiology	Powers Robert A	261 Hamilton Ave	Roentgenology
Montgomery			Pasadena		
Boswell F P	201 Montgomery St	Radiology	Chapman John Frve	67 N Madison Ave	Roentgenology *
			Parler Carl H	65 N Madison Ave	Roentgenology *

ARIZONA

NAME	ADDRESS	TYPE OF SERVICE	NAME	ADDRESS	TYPE OF SERVICE
Phoenix			Pomona		
Coss H L	127 W Monroe St	Roentgenology	Swearingen F C	586 N Main St	Radiology
Watkins W Warner	107 W Monroe St	Radiology	Redlands		
Tucson			Folkins F H	47 F Vine St	Roentgenology
Hyden Edward M	Desert Sanatorium and Institute of Research	Diagnostic roent	Riverside		
			Thurston Paul F	3770 12th St	Diagnostic roent

ARKANSAS

NAME	ADDRESS	TYPE OF SERVICE	NAME	ADDRESS	TYPE OF SERVICE
Fort Smith			Sacramento		
Brooksher W P	602 Carrison Ave	Radiology	Briggs Rowland S	1014 8th St	Radiology
Hot Springs			Cook Orrin S	1127 11th St	Roentgenology
Nims Chas H	206 Central Ave	Radiology	Graham Ralph S	2330 L St	Roentgenology *
Little Rock			Lawson John D	928 Jay St	Radiology
Rhinehart Barton A	701 Main St	Roentgenology	Zimmerman Harold	1027 10th St	Radiology
Rhinehart D A	701 Main St	Roentgenology	San Bernardino		
Zell A M	2000 Main St	Radiology	Owen C C	398 6th St	Roentgenology *
Monticello			San Diego		
Wilson J S		Radiology	Elliott A F	1831 4th St	Radiology
			Kinner I C	1831 4th St	Radiology

CALIFORNIA

NAME	ADDRESS	TYPE OF SERVICE	NAME	ADDRESS	TYPE OF SERVICE
Alameda			San Francisco		
Ium Wm T	1761 Parl St	Roentgenology *	Bryan Lloyd	450 Sutter St	Roentgenology *
Bakersfield			Crow Lloyd B	1400 Fell St	Roentgenology *
Fox L H	2025 18th St	Poentgenology	Donovan Monica	450 Sutter St	Roentgenology *
Berkeley			Fulmer Chas C	27th and Valencia Sts	Radium therapy
Blissell Frank S	1081 Solano Ave	Roentgenology	Carland L Henry	450 Sutter St	Roentgenology *
Head E Schulze	3080 Regent St	Roentgenology	Hunsberger H S	450 Sutter St	Diagnostic roent
Van Nuys R G	2490 Channing Way	Radiology	Ingber I S	490 Post St	Radiology
Eureka			Leef Edward	2361 Clay St	Radiology
Woolford Joseph S	30 E St	Roentgenology	Jerlin Joseph	516 Sutter St	Radiology
Fresno			Newell Robert P	2361 Clay St	Radiology
Miltholland W C	1017 Fulton St	Roentgenology	O'Neill John R	2200 Hayes St	Roentgenology
Ruff Frank R	1234 S St	Radiology	Reidisch John M	450 Sutter St	Roentgenology *
Glendale			Rice Frank M	2000 Van Ness Ave	Roentgenology *
Christ David M	147 N Brand St	Radiology	Rodenbaugh T H	490 Post St	Radiology
Jones L L	229 N Central Ave	Roentgenology *	Ruggles Howard E	384 Post St	Roentgenology
Hollywood			Starks Dorothy J	2361 Clay St	Radiology
Sherman Benj H	6777 Hollywood Blvd	Roentgenology	Stone Robert S	Parnassus and 3d Ave	Roentgenology *
Stewart Chas W	1680 N Vine St	Roentgenology	Williams Francis	870 Marlet St	Radiology
Warren J W	1322 N Vermont Ave	Radiology	San Jose		
Long Beach			Broemser Milton A	311 S 1st St	Radiology
Heylman H H	115 Pine Ave	Diagnostic roent	Bullitt James B	241 E Santa Clara St	Radiology
Mayfield Claude	115 Pine Ave	Diagnostic roent	Richards Charles M	241 E Santa Clara St	Radiology
Los Angeles			San Pedro		
Abowitz Jacob	4833 Fountain Ave	Roentgenology	Allen Albert	410 W 6th St	Diagnostic roent
Balloy Cornelius O	727 W 7th St	Radiology	Santa Barbara		
Blaine Edward S	727 W 7th St	Roentgenology	Clark Daniel M	1520 Chapala St	Diagnostic roent
Bonoff Karl M	1930 Wilshire Blvd	Roentgenology	Geyman M J	1320 Chapala St	Radiology
Carter Ray A	1109 Mission Rd	Roentgenology	Lilmann H J	1520 Chapala St	Radiology
Costolow Wm L	1407 S Hope St	Roentgenology	Ware James G	1513 State St	Roentgenology *
Davis Kenneth S	2131 W 3d St	Radium therapy	Santa Monica		
John Lowell S	1930 Wilshire Blvd	Roentgenology *	Hopkirk C C	710 Wilshire Blvd	Diagnostic roent
Johnson Clayton R	1100 Mission Rd	Roentgenology	Stockton		
Karsner Rolla C	510 S Lucas Ave	Diagnostic roent	McCurk Raymond T	242 N Sutter St	Roentgenology *
Kibby Sydney V	417 S Hill St	Roentgenology	Sheldon F B	242 N Sutter St	Radiology
Liljedahl Elmer V	1241 Shatto St	Roentgenology *	Colorado Springs		
MacColl Douglass R	523 W 6th St	Roentgenology *	Brown L Cordon	707 N Cascade Ave	Radiology
Pindell Merl Lee	678 S Ferris Ave.	Diagnostic roent	Denver		
Saure Henry	1414 S Hope St	Radiology	Allen K D A	227 16th St	Roentgenology *
Solland Albert	1407 S Hope St	Radium therapy	Bouslog John S	227 16th St	Radiology
			Brandenburg H I	227 16th St	Radiology
			Childs S B	227 16th St	Radiology
			Crosby L C	227 16th St	Radiology
			Diemer Frederick E	1616 Tremont Pl	Radiology
			Newcomer Elizabeth	1616 Tremont Pl	Diagnostic roent
			Newcomer N B	1616 Tremont Pl	Roentgenology *
			Schmidt Ernst A	4200 E 9th Ave	Radiology

NAME	ADDRESS	TYPE OF SERVICE	NAME	ADDRESS	TYPE OF SERVICE
Evanston Conley Bernard M Perry Gentz	355 Ridge Ave 636 Church St	Röntgenology Radiology	Belle Plaine Newland Don H		Diagnostic roent
Galesburg Gunning R E Lee	64 S Prairie St	Radiology	Boone Whittaker B T	703 8th St	Radiology
Highland Park Jacks R R	2 N Sheridan Rd	Diagnostic roent	Cedar Rapids Erskine Arthur W Gillies Carl L	120 3d Ave SE 120 3d Ave SE	Radiology Radiology
Jacksonville Brouse Ivan E	316 W State St	Röntgenology *	Clinton Knaudsen Hubert K	419 S 2d St	Röntgenology *
Joliet Houston Alfred M	201 N Chicago St	Röntgenology	Council Bluffs Hawkins Emmet L	420 W Washington Ave	Radiology
Lincoln Hagans Frank M	400 Broadway	Radium therapy	Des Moines Burcham Thos A	410 6th Ave	Radiology
Mattoon Morgan Chas L	213 S 17th St	Röntgenology	Eagle Grove Christensen John R		Röntgenology
Mount Carmel Elkins Harold A		Röntgenology	Iowa City Gibbon W H Kerr H Dabney Rypins Edwin J	University Hospital University Hospital University Hospital	Radiology Radiology Radiology
Mount Vernon Smith Elmer M	1001½ Broadway	Röntgenology	Le Mars Larsen W W		Röntgenology *
Oak Park Bonayne Frank J Walt Harold Nathan	519 N Austin Blvd 1209 N Linden Ave	Radiology Röntgenology	Marshalltown Talley Louis F	Main St and 3d Ave	Röntgenology
Olney Weber James A		Diagnostic roent Radium therapy	Ottumwa Spilman H A Webb Harold H	103 S Market St 119 E Main St	Diagnostic roent Röntgenology *
Ottawa Pettilt Roswell T	728 Columbus St	Radiology	Waterloo Britt Otis W	525 Sycamore St	Radiology
Peoria Goodwin P B Magee H B	530 N Glen Oak Ave 408 Main St	Radiology Radiology		KANSAS	
Quincy Belrne H P	648 Hampshire St	Röntgenology Radium therapy	Beloit Vallette H B		Diagnostic roent
Rockford Ackemann H W	321 W State St	Radiology	Eldorado Dismore W S	324 W Central Ave	Diagnostic roent
Springfield Hilt Lawrence M O'Hara F S	105 S 5th St 403 E Capitol Ave	Röntgenology * Radiology	Fort Scott Fritchard J R	209 S Main St	Radiology
	INDIANA		Kansas City Allen Lewis C Tice Galen M	601 Minnesota Ave 4158 Eaton St	Radiology Radiology
Evansville Cleveland W R Meyer Keith T	22 N W 4th St 600 Mary St	Radiology Diagnostic roent	Lawrence Jones H T	107 E 8th St	Diagnostic roent
Fort Wayne Rodriguez Juan Truelove A O Van Buskirk E M	2902 Fairfield Ave 123 E Wallace St 347 W Berry St	Radiology Radiology Radiology	Salina Brittain O R	105 S 7th St	Röntgenology
Frankfort Chittick A G	206 E Walnut St	Röntgenology	Topeka Finney Guy A Floersch M A Owen Arthur K	901 Kansas Ave 700 Kansas Ave 901 Kansas Ave	Röntgenology Röntgenology Röntgenology
Gary Dietrich Paul H	2006 W 4th Pl	Röntgenology	Wichita Frost E J Swope Ople W Webb J A H	227 E Douglas Ave 105 N Main St 106 N Main St	Radiology Radiology Radiology
Hammond Rauschenbach C W	5245 Holman Ave	Röntgenology	Ashland Cooper John Ralph	1540 Winchester Ave	Röntgenology *
Indianapolis Becker Raymond C Collins James V Lochry R L	23 F Ohio St 23 E Ohio St Fall Creek Blvd and Hill nola St	Radiology Radiology Röntgenology	Lexington Harding Donnan B Lewis John C Thompson J Campbell	190 N Upper St 159 W Main St 207 N Upper St	Radiology Röntgenology Röntgenology
Smith Lester A Stayton Chester A Wright Cecil S	23 E Ohio St 23 E Ohio St 1076 W Michigan St	Radiology Röntgenology * Radiology	Louisville Bell J C Enfield Chas D Fugate I T Herrmann Henry C Johnson Sydney E Keith D Y Keith J F Martin William C	332 W Broadway 332 W Broadway 608 S 4th St 608 S 4th St 401 W Chestnut St 412 W Chestnut St 412 W Chestnut St 321 W Broadway	Radiology Radiology Radiology Radiology Röntgenology Radiology Radiology Röntgenology
Hokomo Ferry Paul W	224 N Main St	Diagnostic roent	Owensboro Gillum P D	415 St Ann St	Röntgenology
LaFayette McClelland D C Siebler Harper G	709 N 8th St 2400 South St	Röntgenology * Röntgenology	Shelbyville Bayless B W		Röntgenology
Michigan City Martin F V	301 Pine St	Radiology	Winchester Brown I H	R D 5	Diagnostic roent
Muncie Moore P D	Jackson and High Sts	Radiology		LOUISIANA	
New Castle Herman Geo E	1319 Church St	Röntgenology	Alexandria Barker H O	327 3d St	Röntgenology
Plymouth Knott Harry		Röntgenology	Baton Rouge Williams Lester J	221 3d St	Radiology
Shelbyville Inlow Herbert H	18 W Washington St	Diagnostic roent	Houma St Martin T I		Röntgenology
South Bend Fisher Lawrence L	105 E Jefferson Blvd	Röntgenology *	Mansfield Curtis H P D		Röntgenology
Terre Haute Hierce H J	627 Cherry St	Radiology	Monroe Moore Daniel M	128 De Siard St	Röntgenology
Union City Reid Robert W		Röntgenology	New Orleans Ané J Norrell	921 Canal St	Röntgenology Radium therapy
Valparaiso DeWitt C B		Diagnostic roent	Bowle E R Forster L A Gately T T Granger Amédée Menville L J Redick John C Samuel E C	3503 Prytanla St 2000 Tulane Ave 2000 Tulane Ave 210 Baronne St 921 Canal St 3500 Prylanla St 3503 Prylanla St	Radiology Radiology Radiology Röntgenology Radiology Röntgenology * Radiology
Vincennes Moore Robert G	21 N 3d St	Röntgenology		IOWA	
Anamosa Rawson E G		Diagnostic roent.			
Atlantic Greenleaf W S		Röntgenology			

NAME	ADDRESS	TYPE OF SERVICE	NAME	ADDRESS	TYPE OF SERVICE
Shreveport			New Bedford		
Anderson Johnson R	1130 Louisiana Ave	Roentgenology *	Boniar James W	90 Hillman St	Poentgenology
Barrow S C	624 Travis St	Radiology	North Adams		
Edwards H G F	624 Travis St	Radiology	Bunce James W	85 Main St	Roentgenology
Harwell W R	624 Travis St	Radiology	Crawford J W	191 F Main St	Radiology
Rutledge C P	1030 Highland Ave	Radiology	Northampton		
Thomas A Jerome	624 Travis St	Roentgenology	Jones Benjamin F	211 Elm St	Roentgenology
MAINE			Pittsfield		
Auburn			Cox Michael J	74 North St	Poentgenology *
Cunningham C H	66 Goff St	Diagnostic roent	Quincy		
Bangor			Altman Wm S	26 Adams St	Radiology
Ames Forrest B	439 State St	Roentgenology	Somerville		
Hunt Barbara	224 State St	Radiology	Blale Allen H	81 College Ave W Som	Roentgenology
Portland			Springfield		
Cummings Ldson S	12 Pine St	Diagnostic roent	Davis Ernest J	20 Maple St	Poentgenology
Lamb Frank W	131 State St	Diagnostic roent	Horgan A J	20 Maple St	Roentgenology
Thaxter Langdon F	22 Arsenal St	Roentgenology	Jackson Howard J	116 Chestnut St	Poentgenology
Waterville			Lowers Richard T	27 Maple St	Radiology
Goodrich John P	214 Main St	Diagnostic roent	Van Allen Harvey W	19 Maple St	Radiology
MARYLAND			Webster		
Baltimore			Bragg Leslie R	260 Main St	Diagnostic roent
Ashbury Howard E	101 Read St	Roentgenology *	Worcester		
Burnam Curtis F	1418 Eutaw Pl	Radiology	Cool Philip H	27 Elm St	Poentgenology
Lewis John	101 Read St	Poentgenology	Langhill Morton H		
Feldman Maurice	2425 Eutaw Pl	Diagnostic roent	MICHIGAN		
Hill Eben C	Johns Hopkins Med Sch	Roentgenology	Adrian		
Kalin Max	2 W Read St	Roentgenology *	Chase A W	130 Toledo St	Diagnostic roent
Ostro Marcus	1810 Eutaw Pl	Roentgenology *	Ann Arbor		
Peterson J W	1107 St Paul St	Roentgenology *	Donaldson Samuel W	226 N Ingalls St	Poentgenology
Sax Benjamin J	2237 Eutaw Pl	Diagnostic roent	Hodges Fred J	University of Michigan	Poentgenology
Walton, Henry J	104 W Madison St	Roentgenology	Jacob Harold W	1116 Lincoln Ave	Radiology
Waters Charles A	1100 N Charles St	Roentgenology	Leice Carleton B	1313 E Ann St	Radiology
Wright Harold I	101 Read St	Diagnostic roent	Battle Creek		
Griffith			Corline C S	29 W Michigan Ave	Roentgenology
Collins C E		Roentgenology	Kooyord Theodore	27 W Michigan Ave	Roentgenology
Cumberland			Upson W O	North Ave and Emmett St	Roentgenology
Cowherd F G	122 S Centre St	Roentgenology	Detroit		
Easton			Berris J M	10 Peterboro St	Diagnostic roent
Hammond William T		Roentgenology	Birkelo Carl C	24 W Adams Ave	Roentgenology
Salisbury			Bloom Arthur R	707 Woodward Ave	Roentgenology
Kapo Peter J	Locust and S Division Sts	Radiology	Chene George C	151 Woodward Ave	Roentgenology
Frederick			Dempster Jas H	761 Stanton Ave	Diagnostic roent
Derr John S	35 E Church St	Roentgenology *	Dickson B R	37 W Grand Blvd	Roentgenology
Hagerstown			Doub Howard P	2709 W Grand Blvd	Radium Therapy
Hoffmeier T A	King and Antietam Sts	Roentgenology	Hakins F J	1551 Woodward Ave	Radiology
MASSACHUSETTS			Lisen Paul	218 S Algonquin St	Roentgenology
Boston			Jones Wm A	10 Peterboro St	Radium therapy
Blackett Chas W	35 Bay State Rd	Roentgenology	Crack Joseph M	11729 St Marys St	Radiology
Butler P F	37 Bay State Rd	Radiology	Hall F Walter	10 Peterboro St	Radiology
Coffin W K	438 Marlboro St	Roentgenology	Hasley Clyde A	1551 Woodward Ave	Radiology
Ellsworth S W	20 Beacon St	Roentgenology	Jarre Hans A	151 Woodward Ave	Radiology
Friedman Harry F	270 Commonwealth Ave	Radiology	Keenling J C	1571 Woodward Ave	Roentgenology
George Ariel W	43 Bay State Rd	Roentgenology	Leucutha Tralan	10 Peterboro St	Radiology
Hampton A O	Massachusetts General Hosp	Radiology	Minor Edward C	3001 W Grand Blvd	Roentgenology
Healy Thomas R	370 Marlboro St	Roentgenology *	Reynolds Lawrence	10 Peterboro St	Radiology
Holmes Geo W	265 Charles St	Radiology	Sanderson S E	707 Woodward Ave	Radiology
Leonard Ralph D	43 Bay State Rd	Roentgenology	Shore O J	7001 W Grand Blvd	Roentgenology
Liebman Charles	311 Commonwealth Ave	Roentgenology	Stevens Rollin H	1571 Woodward Ave	Radiology
MacMillan A S	483 Beacon St	Roentgenology	Ulrich Henry J	1123 F Grand Blvd	Roentgenology *
McCarthy H L	479 Beacon St	Roentgenology	Weaver Clarence E	113 Martin Pl	Roentgenology
McFee William D	41 Bay State Rd	Roentgenology	Wilcox Leslie F	10 Peterboro St	Radiology
Meachen John W	475 Commonwealth Ave	Roentgenology *	Witwer F R	3839 Brush St	Radiology
Moloney Albert M	47 Bay State Rd	Radiology	Flint		
O'Brien Fred W	465 Beacon St	Radiology	Gift Myron W	901 Begole St	Radiology *
Osgood Herman A	144 Commonwealth Ave	Roentgenology *	Macduff R Bruce	112 W Kearsley St	Roentgenology *
Ott George J	344 Commonwealth Ave	Roentgenology	Grand Rapids		
Perlus Roy S	520 Commonwealth Ave	Roentgenology	Menecs Thomas O	Wealthy St and Plymouth Rd	Radiology
Ritvo Max	485 Commonwealth Ave	Radiology	Moore Vernon M	110 F Fulton St	Radiology
Robins Samuel A	636 Beacon St	Roentgenology	Muller John H	26 Sheldon Ave	Radiology
Sosman M C	721 Huntington Ave	Roentgenology *	Williams Alden H	26 Sheldon Ave	Radiology
Vance R G	264 Beacon St	Roentgenology	Jackson		
Watt E C	900 Longwood Ave	Roentgenology	Cooley R M	524 Lansing Ave	Roentgenology
Watts Henry T R	6 Monadnock St Dor	Diagnostic roent	Kugler J C	1905 Crovedale Ave	Roentgenology
Wheatley Frank E	520 Beacon St	Roentgenology	Porter H W	1020 L Michigan Ave	Radiology
Whelan Charles	395 Commonwealth Ave	Radiology	Kalamazoo		
Brockton			Crane A W	420 S Rose St	Roentgenology *
Packard Loring B	305 Prospect St	Roentgenology	Jackson John B	420 S Rose St	Roentgenology *
Brookline			Lansing		
Bogin Isabel K	193 Aspinwall Ave	Roentgenology	Davenport Carroll S	1210 W Saginaw St	Roentgenology *
Dalton			Huntley Fred M	908 N Capitol Ave	Roentgenology
Sullivan P J		Roentgenology	Monroe		
Fall River			Moll T M	120 Maple Blvd	Diagnostic roent
Tenulis M N	538 Prospect St	Radiology	Muskegon		
Fitchburg			Holly Leland E	876 N 2d St	Radiology
Jennings Curtis H	82 Mechanic St	Roentgenology	Pontiac		
Haverhill			Church J E	35 W Huron St	Roentgenology
Popoff Constantine	26 Summer St	Roentgenology *	Pool H H	35 W Huron St	Roentgenology
Sproull John	50 Merrimack St	Radiology	Saginaw		
Holyoke			Anderson Wm K	316 S Porter St	Diagnostic roent
Harrington Elmer J	199 Chestnut St	Roentgenology *	St Johns		
Lawrence			Ho T Y		Diagnostic roent
Burgess Charles J	37 Whitman St	Radiology	Traverse City		
Levy Alfred J	477 Essex St	Roentgenology	Minor E B	208 1/2 E Front St	Diagnostic roent
Lowell			Ypsilanti		
Stewart Ralph C	226 Central St	Roentgenology	Pillsbury Chas R	23B N Washington St	Diagnostic roent
Malden					
Warren Alva H	82 Beltran St	Roentgenology			

MINNESOTA			NAME	ADDRESS	TYPE OF SERVICE
Duluth	901 E 1st St 324 W Superior St	Radiology Roentgenology	Clement Gage		
			McNutt John R		
Mankato	Main and Broad Sts	Radiology	Wentworth A J		
Minneapolis	74 S 9th St	Roentgenology *	Allison R G		
	900 Nicollet Ave	Radium therapy	Fleming A S		
	412 Delaware St	Radiology	Hansen Cyrus Owen	SE	
	76 S 9th St	Radiology	Harrington Chas D		
	74 S 9th St	Roentgenology *	Nordin G T		
	412 Delaware St	Diagnostic roent	Rigler Leo G	SE	
	412 Delaware St	Radiology	Sagel Jacob	SE	
	87 S 7th St	Roentgenology	Sundt Mathias		
	74 S 9th St	Roentgenology *	Ude Walter H		
Rochester	102 2d Ave SW	Roentgenology Radium therapy Diagnostic roent	Bowling Harry H		
Camp John D	Mayo Clinic	Roentgen therapy	Camp John D		
	Mayo Clinic	Radium therapy	Desjardins A U		
Frickle Robert E	Mayo Clinic	Radium therapy	Frickle Robert E		
	Mayo Clinic	Diagnostic roent	Kirklin B R		
	Mayo Clinic	Radium therapy	Luddy Eugene T		
	Mayo Clinic	Diagnostic roent	Sutherland Charles G		
	Mayo Clinic	Diagnostic roent	Weber Harry M		
St Cloud	St Cloud Clinic Bldg	Roentgenology *	Kern M J		
St Paul	300 St Peter St	Roentgenology *	Aurelius J R		
	25 W 4th St	Radiology	Schons Edward		
MISSISSIPPI					
Greenville	301 Washington St	Diagnostic roent	Beals John A		
Gulfport	100 1/2 32d Ave	Roentgenology	Van Ness Edwin B		
Houston		Roentgenology *	Williams J Rice		
Jackson	739 N State St	Radiology	Henderson W F		
Laurel	531 7th St	Roentgenology	McCormick H G		
McComb	Maryland and 4th Sts	Diagnostic roent	Ratcliff Marion D		
Natchez	307 Franklin St	Diagnostic roent	Beckman Marcus		
MISSOURI					
Columbia	22 N 8th St	Radiology	Smith Wm I		
Holden		Radiology	Thompson Wm C		
Joplin	607 Main St	Radiology	McGaughey H D		
Kansas City	306 E 12th St	Roentgenology	Dann David S		
	904 Grand Ave	Roentgenology	Deweese E R		
	1103 Grand Ave	Radiology	Donaldson Clyde O		
	304 E 12th St	Radiology	Lockwood Ira H		
	308 E 12th St	Roentgenology	McCandless O H		
	1103 Grand Ave	Radiology	McDermott J L		
	1103 Grand Ave	Radiology	Skinner Edward H		
	1103 Grand Ave	Radiology	Virden C E		
St Joseph	824 Edmond St	Roentgenology *	McGlothlin A B		
	401 N 6th St	Radiology	Rivold Henry J		
St Louis	3720 Washington Ave	Radiology	Ernst Edwin C		
	3320 N Kingshighway	Roentgenology *	McCutchen L G		
	600 S Kingshighway	Radiology	Moore Sherwood		
	607 N Grand Blvd	Roentgenology	Mueller Wilbur K		
	634 N Grand Blvd	Roentgenology *	Leden Joseph C		
	634 N Grand Blvd	Radiology	Saute L R		
	508 N Grand Blvd	Roentgenology	Spitzig Edgar W		
	508 N Grand Blvd	Roentgenology	Thirrington P F		
	5535 Delmar Blvd	Roentgenology	Zink Oscar C		
Springfield	200 Pershing Ave	Radiology	Cole Paul F		
MONTANA					
Billings	208 N Broadway	Radiology	Bridenbaugh J H		
	115 N 28th St	Radiology	Watkins C F		
Great Falls	503 1st Ave N	Roentgenology	Walker Dora		
NEBRASKA					
Beatrice	113 S 5th St	Roentgenology *	Tanner H G		
	607 W Court St	Radiology	Rush Weaver A		
Grand Island	306 1/2 N Locust St	Roentgenology	Woodruff R C		
Hastings	131 N Hastings Ave	Roentgenology *	Ross Lee W		
Lincoln	1307 N St	Roentgenology *	Kell Carl		
	125 N 17th St	Radiology	Rowe Edward W		
	1307 N St	Radiology	Smith Roscoe L		
OMAHA					
Fouts Roy W	107 S 17th St	Radiology	Fouts Roy W		
	101 S 17th St	Roentgenology	Hardy Clyde C		
	407 S 16th St	Roentgenology	Harris T T		
	38th and Cumling Sts	Radiology	Hunt Howard B		
	107 S 17th St	Radiology	Kelly J F		
	42d and Dewey Ave	Radiology	McAvlin James S		
	107 S 17th St	Roentgenology *	Overgaard A P		
	407 S 16th St	Roentgenology	Ross W L		
	103 S 17th St	Radiology	Tyler Albert F		
Scottsbluff	1818 Broadway	Roentgenology	Plehn Frank W		
NEVADA					
Reno	120 N Virginia St	Radiology	Piersall C E		
NEW HAMPSHIRE					
Concord	12 Court St	Roentgenology	Evelth Fred S		
Dover	307 Central Ave	Roentgenology	Chesley Harry O		
Hanover	2 Maynard St	Radiology	Sycamore Leslie A		
Manchester	814 Elm St	Roentgenology	Merrill A S		
Nashua	168 Main St	Roentgenology	Davis S C		
	77 Main St	Diagnostic roent	Rock T F		
NEW JERSEY					
Asbury Park	501 Grand Ave	Radiology	Herrman William G		
Atlantic City	1616 Pacific Ave	Radiology	Bradley Robert A		
	905 Pacific Ave	Roentgenology	Kaighn Charles B		
Bayonne	700 Avenue C	Diagnostic roent	Larkey C J		
Beachwood		Roentgenology *	Swan Guy Howard		
Camden	403 Cooper St	Roentgenology	Roberts Joseph F		
East Orange	S Munn and Central Aves	Roentgenology	Marquis W James		
	144 Harrison St	Radiology	Reitter George S		
Elizabeth	1060 E Jersey St	Diagnostic roent	Vogel Herbert A		
	137 W Jersey St	Radiology	Ward Leo J		
Englewood	350 Engle St	Roentgenology *	Fdwads J Bennett		
Flemington		Diagnostic roent	Tomplins G B		
Hoboken	105 Newark St	Roentgenology	Broeser Henry V		
Jersey City	532 Bergen Ave	Roentgenology *	Mayer William W		
	921 Bergen Ave	Roentgenology	Periberg Harry J		
Montclair	56 Church St	Roentgenology	Schimmelpfennig R D		
	55 Park St	Radium therapy Roentgen therapy	Stevens J Thompson		
Newark	198 Clinton Ave	Roentgenology *	Baker Charles F		
	617 Broadway	Radiology	Derlin Frank		
	190 Johnson Ave	Roentgenology *	Eurat Nathan James		
	41 Lincoln Ave	Roentgenology	Gelber Louis J		
	19 Lincoln Park	Diagnostic roent	Hood Philip G		
	960 Broad St	Radiology	May Ernst A		
	31 Lincoln Park	Roentgenology *	Pomeranz Raphael		
	31 Lincoln Park	Radiology	Reissman Erwin		
New Brunswick	133 Clinton Ave	Radiology	Wyatt Joseph H		
Passaic	Albany and Somerset Sts	Radiology	Avery Phillip S		
	8 Bayard St	Radiology	Klein Wm		
Paterson	171 Paulison Ave	Diagnostic roent	Terhune Percy H		
Perth Amboy	180 Carroll St	Roentgenology	Colding Harry N		
	213 Broadway	Radiology	Roemer Jacob		
Rochelle Park	136 Marlet St	Radiology	Klein Edward F		
Skillman		Radium therapy	Pallen C de S		
Succasunna	New Jersey State Village for Epileptics	Diagnostic roent	Pigott Albert W		
Summit		Diagnostic roent	Plume C A		
Tidaback John D	126 Mountain Ave	Roentgenology	Di brow G Ward		
	38 Springfield Ave	Roentgenology	Tidaback John D		
Trenton	205 W State St	Radiology	Davidson R Winthrop		
Union City	90 Fallside Ave	Radiology	Gold tone Karl H		

NAME	NEW MEXICO ADDRESS	TYPE OF SERVICE	NAME	ADDRESS	TYPE OF SERVICE
Albuquerque			Mount Kisco		
Johns E W	221 W Central Ave	Röntgenology	Vaughan F E		Diagnostic roent
Van Atta J R	221 W Central Ave	Radiology	Newburgh		
Warden M R	St Joseph Hospital	Diagnostic roent	Miller Raymond A	212 Grand St	Diagnostic roent
			Reed Charles B	205 Liberty St	Röntgenology
			New Rochelle		
Albany			Chilko Alexander J	41 Halcyon Terrace	Röntgenology
Cross Warren G	New Scotland Ave	Röntgenology	Duel worth Willard D	121 Huxenot St	Röntgenology
Howard W P	46 Willett St	Röntgenology	New York City		
Murnane I J	New Scotland Ave	Radiology	Abbott Rodson A	622 W 109th St	Röntgenology
Prentice D D	287 State St	Radiology	Aron's Isidore	137 F 58th St	Röntgenology
Amsterdam			Baum S M	136 F 64th St	Röntgenology
Wilson David	156 Guy Park Ave	Röntgenology	Bendel Arthur J	100 F 91th St	Röntgenology
Auburn			Bernstein J H	849 Park Ave	Röntgenology
Austin Sedgwick F	54 F Genesee St	Diagnostic roent	Besser Herman	114 F 54th St	Röntgenology
Bull Harry S	11 Williams St	Röntgenology	Boone Wm H	230 Riverside Dr	Röntgenology
Bay Shore			Bower Jacob	173 F 9th St	Röntgenology
Coburn Carl Wm	72a S Clinton Ave	Röntgenology	Burby Archibald H	173 F 71st St	Diagnostic roent
Binghamton			Camaron William H	511 Fifth Ave	Radium therapy
Kann Ulysses S	69 Walnut St	Radiology	Carty John J	725 F 69th St	Röntgenology
Shaw Perry H	93 Main St	Diagnostic roent	Cole Lewis Gregory	31 J 1st St	Röntgenology
Brooklyn			Dattenbach W H	10 Central Islip West	Radiology
Bayles William H	1901 Bedford Ave	Diagnostic roent	Dixon Geo S	218 2d Ave	Diagnostic roent
Bell A L Loomis	340 Henry St	Radiology	Duffy James J	2 W 106th St	Röntgen therapy
Blaser Homer S	437 Irving Ave	Diagnostic roent	Farrell David Ernest	27 W 86th St	Radiology
Cramp George W	506 6th St	Diagnostic roent	Fairchild C W	11 F 48th St	Diagnostic roent
Currin Francis W	1176 Dean St	Radiology	Ferguson A B	100 F 59th St	Röntgenology
Dannenberg Max	1464 Eastern Parkway	Röntgenology	Harstein Jacob	1018 F 11th St	Röntgenology
Eastmond Charles	483 Washington Ave	Röntgenology	Herman Solomon	173 F 8th St	Diagnostic roent
Ehrenpreis B	576 Eastern Parkway	Röntgenology	Francis William J	11 Madison Ave	Röntgenology
Elliott F E	122 76th St	Radiology	Fried Jacob R	1019 Park Ave	Radiology
Friedman Asa B	41 Eastern Parkway	Radiology	Fried Herman	320 W 47th St	Röntgenology
Gold Louis	835 W 109th St	Diagnostic roent	Friedland Henry	2021 Grand Concourse	Diagnostic roent
Goldfarb Louis	608 Ocean Ave	Diagnostic roent	Friedman Lewis J	315 F 18th St	Röntgenology
Goodman Moses	2100 66th St	Radiology	Friedman Max	1910 Grand Concourse	Diagnostic roent
Held Louis Arthur	275 Eastern Parkway	Röntgenology	Friedman Milton	109 W 103d St	Radium therapy
Howes William I	152 Clinton St	Röntgenology	Friedman Joseph	73 W 73d St	Radiology
Ingraham Ruth	121 Dekalb Ave	Diagnostic roent	Friedrich Eugene	4 W 74th St	Röntgenology
Kaufman Julius	201 Eastern Parkway	Röntgenology	Friedman I	15 F 37th St	Diagnostic roent
Krupp D Dudley	178 Pennsylvania Ave	Röntgenology	Golden Ross	12 W 118th St	Röntgenology
Levine Isaac	121 49th St	Diagnostic roent	Gottlieb Charles	10 W 79th St	Röntgenology
Liberson F	11 Eastern Parkway	Diagnostic roent	Grosschel J B	40 W 72d St	Radiology
Masterson John J	401 76th St	Röntgenology	Harris Wm	70 F 77th St	Röntgen therapy
Mendelson Emanuel	122 Parkside Ave	Röntgenology	Hauser Harry	2 W 106th St	Röntgenology
Nathanson Louis	700 Ocean Ave	Radiology	Harnden Ralph F	10 F 40th St	Röntgenology
Rendich Richard A	116 Remsen St	Röntgenology	Hirsch Henry	2148 Grand Concourse	Radiology
Schenel Samuel C	117 Eastern Parkway	Röntgenology	Hirsch I Seth	11 F 61th St	Radiology
Schiff Charles H	1000 Park Pl	Diagnostic roent	Hornath Rudolph J	1047 Park Ave	Diagnostic roent
Segall L Martin	4701 15th Ave	Röntgenology	Howard J Campbell	40 E 61st St	Röntgenology
Silverstein I S	315 New York Ave	Röntgenology	Huber Frank	0 F 40th St	Röntgenology
Strahl Milton I	245 New York Ave	Diagnostic roent	Iller H Earl	111 F 76th St	Röntgenology
Taormina Louis J	1093 Cates Ave	Röntgenology	Imboden Harry M	100 W 59th St	Röntgenology
Teperson H I	744 Eastern Parkway	Radiology	Jacobs Leopold	100 E 94th St	Röntgenology
Wasch Milton C	871 Park Pl	Radiology	Jacobs Alexander W	40 W 72d St	Röntgen therapy
Weinstein Samuel	1178 Eastern Plwy	Röntgenology	Johnson Redford K	70 F 40th St	Röntgen therapy
Westing Siegfried W	180 Lenox Rd	Diagnostic roent	Kaplan Ira I	53 L 8th St	Röntgen therapy
Buffalo			Kaplan Morris	130 Henry St	Diagnostic roent
Barnes John M	875 Lafayette Ave	Röntgenology	Kasabach Halc H	622 W 168th St	Röntgenology
Bayliss J W	472 Delaware Ave	Röntgenology	Kassow Israel G	240 Grand Concourse	Röntgenology
Cotter Stephen V	1447 Abbott Rd	Röntgenology	Kean Albert	100 F 94th St	Röntgenology
DeGraft Ralph M	131 Linwood Ave	Diagnostic roent	Klein Isadore	100 Central Park South	Röntgenology
Glan Franceschi J S	610 Niagara St	Diagnostic roent	Kraft Ernest	100 F 70th St	Röntgenology
Helminak M J	920 Fillmore Ave	Diagnostic roent	Kurz Bernard	1235 Grand Concourse	Diagnostic roent
Koenig Edward C	100 High St	Röntgenology	Landsman I J	391 F 149th St	Diagnostic roent
Lape C Pearley	183 Oxford Ave	Diagnostic roent	Lapman Charles	74 Grand Concourse	Diagnostic roent
Levy Sidney H	33 Allen St	Röntgenology	Law Frederick M	140 E 54th St	Diagnostic roent
Levy Lester	40 North St	Röntgenology	Lehr Louis	21 F Broadway	Röntgen therapy
Mattick Walter L	113 High St	Radiology	Lenz Maurice	180 Ft Washington Ave	Röntgen therapy
Moses Chester D	333 Linwood Ave	Diagnostic roent	Levin Isaac	57 W 57th St	Röntgenology
Orr Clifford R	1093 Elliott St	Röntgenology	Leviald L T	140 E 54th St	Diagnostic roent
Schreiner B J	113 High St	Radiology	Lewis Raymond W	115 F 61st St	Diagnostic roent
Smith B B	333 Linwood Ave	Röntgenology	Massaro Alfonso F	477 W 163d St	Röntgenology
Thompson A W	133 Linwood Ave	Diagnostic roent	Merrill F Forrest	30 W 79th St	Röntgenology
Cooperstown			Meyer William Henry	703 E 20th St	Röntgenology
Crutenden Harry L		Radiology	Ossip Abraham	152 Henry St	Röntgenology
McCoy Charles C		Röntgenology	Ortman Adom K	175 Lexington Ave	Röntgenology
Cortland			Phillips Herman B	9 W 64th St	Röntgenology
Sornberger Frank F	16 Church St	Röntgenology	Pomeranz Maurice M	911 Park Ave	Röntgenology
Elmhurst			Posner Herman Paul	467 E 139th St	Diagnostic roent
Startz Irving S	40 16 Gleane St	Röntgenology	Powell C B	2368 7th Ave	Röntgenology
Elmira			Quinby A Judson	5 E 57th St	Röntgenology
Bennett John A	222 W Church St	Röntgenology	Radding Moses B	245 W 101st St	Röntgenology
Far Rockaway			Remer John	200 W 59th St	Röntgenology
Lesoff Morris J	856 Central Ave	Röntgenology	Robinson C Allen	2 E 77th St	Radium therapy
Rickin Hyman	918 Cornaga Ave	Röntgenology	Robinson William T	322 W 72d St	Röntgenology
Glens Falls			Ryan F J	421 W 113th St	Röntgenology
Birdsall Edgar	140 Glen St	Röntgenology	Schechter Samuel	315 W 86th St	Diagnostic roent
Gloversville			Scholz Thomas	38 E 84th St	Diagnostic roent
Denham H C	12 Prospect Ave	Röntgenology	Schroeder Max J	319 E 6th St	Diagnostic roent
Hempstead			Schwartz C W	33 E 68th St	Röntgenology
Robin Nathaniel H	131 Fulton Ave	Röntgenology	Schwartz Irving	1150 5th Ave	Diagnostic roent
Williams P A	131 Fulton Ave	Röntgenology	Sinberg Samuel E	114 F 54th St	Röntgen therapy
Hudson			Sittenfeld M J	29 W 74th St	Radium therapy
Harris Rosslyn P	427 Warren St	Diagnostic roent	Snow Wm	941 Park Ave	Röntgenology
Ithaca			Spillman Ramsay	115 E 61st St	Diagnostic roent
Larkin Leo P	114 N Tloga St	Radiology	Stelner Joseph M	170 East End Ave	Röntgenology
Mechanicsville			Stewart Wm H	107 E 76th St	Röntgenology
Green Geo A		Diagnostic roent	Swenson Paul C	622 W 168th St	Diagnostic roent
Middletown			Taylor Henry K	343 West End Ave	Röntgenology
Schmitz Walter A	18 Highland Ave	Röntgenology	Unger Arthur S	135 E 74th St	Röntgenology
			Weinberg Tobias B	310 E 15th St	Röntgenology

NAME	ADDRESS	TYPE OF SERVICE	NAME	ADDRESS	TYPE OF SERVICE
Wells Leopold D	36 W 59th St	Röntgenology	Ashtabula		
Weltzner Imre	1013 Lexington Ave	Radiology	Collander P J	217 Park Pl	Röntgenology
Weltzner Samuel F	1882 Grand Concourse	Radiology	Canton		
White Stephen	57 W 57th St	Röntgenology	Hendrickson Anna R	115 Dewalt Ave N W	Röntgenology *
Wood Francis C	421 W 113th St	Röntgen therapy	Peters Chester M	300 McKinley Ave N W	Radiology
Niagara Falls			Shorb John E	411 3d St N W	Röntgenology *
Scott Walter Roger	598 Pine Ave	Radiology	Chillicothe		
Ossining			Holmes Ralph W	57 W Main St	Röntgenology
Wyser Doreen D	210 Spring St	Röntgenology	Cincinnati		
Oswego			Bader E R	628 Elm St	Radiology
Lavine Reuben	2 W Onelda St	Röntgenology	Brodberger Wm L	Madison Rd and East Hill Ave	Röntgenology
Wallace H M	140 W 5th St	Röntgenology	Brown Samuel	707 Race St	Röntgenology *
Peekskill			Doughty Wm M	628 Elm St	Radiology
Snowden Fred A	108 Depew St	Röntgenology	Goosmann Charles	22 W 7th St	Radiology
Port Chester			Lange Sidney	19 Garfield Place	Röntgenology
West Theodore	324 Westchester Ave	Radiology	McCarthy Justin E	707 Race St	Röntgenology
Poughkeepsie			Reinke Harold G	Burnet Ave and Goodman St	Röntgenology *
Darison Chester O	Lincoln Ave and Reade Pl	Radiology	Warne B M	19 Garfield Place	Röntgenology
Richmond Hill			Cleveland		
Voltz Albert L	11520 Myrtle Ave	Radiology	Bettelhelm Frederick	1020 Huron Rd	Radiology
Rochester			Farmer H I	10515 Carnegie Ave	Radiology
Almy Max A	16 N Goodman St	Röntgenology	Freedman Edward F	25 Prospect Ave N W	Röntgenology
Davidson Sol C	277 Alexander St	Radiology	Freedman Eugene	1395 Scranton Rd	Röntgenology *
Flynn James M	277 Alexander St	Radiology	Hill Walter C	10515 Carnegie Ave	Radiology
Fray Walter W	74 Marlborough Rd	Röntgenology *	LeFevre Walter I	9400 Euclid Ave	Röntgenology
Green Joseph H	277 Alexander St	Röntgenology	Mahrer H A	10515 Carnegie Ave	Röntgenology *
Sanders I J	277 Alexander St	Röntgenology	May Raymond V	1201 Woodside Dr	Radiology
Thomas Camp C	476 Lake Ave	Röntgenology	May Robert J	10515 Carnegie Ave	Radiology
Warren Stafford L	250 Crittenden Blvd	Radiology	McNamee Edgar P	1422 Euclid Ave	Diagnostic roent
Saratoga Springs			Nichols B H	2020 E 93d St	Radiology
King Earl H	75 Caroline St	Röntgenology	Osmond John D	10515 Carnegie Ave	Radiology
Schenectady			Portmann U V	2045 E 90th St	Röntgen therapy
Crouch A N	1103 Glenwood Blvd	Diagnostic roent	Steel David	2065 Adelbert Rd	Röntgenology
Syracuse			Thomas M A	10515 Carnegie Ave	Radiology
Calliva Salvatore	510 Prospect Ave	Diagnostic roent	West James H	10515 Carnegie Ave	Radiology
Childs Donald S	713 E Genesee St	Röntgenology *	Yoelson I E	2064 E 9th St	Röntgenology
Hadley Lee A	713 E Genesee St	Röntgenology	Columbus		
Henry Lucas S	116 E Cattle St	Röntgenology	Bowen Chas F	332 E State St	Radiology
Potter Carlton T	920 S Crouse Ave	Röntgenology	Fulton Huston F	327 E State St	Röntgenology *
Rullison Foster C	713 E Genesee St	Röntgenology	Kirkendall Ben R	137 E State St	Röntgen therapy
Utica			Means Hugh J	693 E Broad St	Radiology
Hall Robert C	258 Genesee St	Röntgenology	Miller W H	328 E State St	Radiology
Powers M T	250 Genesee St	Röntgenology	Reinert Edward	247 E State St	Radiology
Valhalla			Riebel Frank A	15 W Goodale St	Röntgenology
Morris William E	Crislands Hospital	Röntgenology *	Sims Geo P	W State St and Davis Ave	Diagnostic roent
Watertown			Weintraub H V	9 Buttes Ave	Röntgenology
Pawling Jesse R	100 Stone St	Röntgenology	Dayton		
White Plains			Burnett Harry W	201 S Main St	Radiology
Duckworth R D	170 Maple Ave	Röntgenology	Delscamp W H	201 S Main St	Röntgenology
Sherman Herbert	99 Church St	Röntgenology	Jones Lynn M	117 S Main St	Röntgenology *
Woodhaven			Price Rudolph J	201 S Main St	Radiology
Knapp John C	825 86th St	Radiology	Fremont		
Asheville			Philo D W	200 W State St	Röntgenology
Murphy G W	20 Battery Park Ave	Röntgenology *	Gallipolis		
Charlotte			Wilson Milo		Radiology
Lafferty Robert H	127 W 7th St	Radiology	Hamilton		
Phillips Clyde C	127 W 7th St	Radiology	Benzling George Jr	R D 3	Radiology
Durham			Lakewood		
Reeves R J	Duke Hospital	Radiology	McDowell John R	15701 Detroit Ave	Röntgenology
Goldsboro			Shetter North W	14500 Detroit Ave	Röntgenology
Irey H B	139 W Walnut St	Röntgenology	Lima		
Greensboro			Thomas Herbert A	131 N Elizabeth St	Radiology
Rhudy Booler E	101 W Elm St	Röntgenology	Massillon		
Shohan Joseph	122 S Green St	Röntgenology *	Holston J D	876 Amherst Rd N E	Diagnostic roent.
Raleigh			Piqua		
Noble Robert P	131 W Hargett St	Röntgenology *	Spencer Robert D	400 N Main St	Röntgenology
Rocky Mount			Salem		
Fleming Major I	104 S Franklin St	Röntgenology	Hecl Stanton	1160 E State St	Röntgenology
Spencer			Sandusky		
Sigman F G	600 4th St	Röntgenology *	Hill Lyle S	526 Columbus Ave	Röntgenology
Statesville			Springfield		
McFlwee R S	Stearns Bldg	Röntgenology	Brubaker E R	8 W Main St	Radiology
Winston Salem			Ultes Will	E High St and Burnett Pd	Röntgenology *
Rousseru J F	310 W 4th St	Radiology	Steubenville		
Bismarck			Miller J E	401 Market St	R

RADIOLOGIC SERVICE

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NAME	ADDRESS	TYPE OF SERVICE	NAME	ADDRESS	TYPE OF SERVICE
Williamsport			El Paso		
Wurster L E	416 Pine St	Röntgenology	Cathcart J W	114 Mills St	Radiology
York			Mason C H	114 Mills St	Radiology
Bennett John H	1233 W Mariet St	Radiology	York M N	303 Texas St	Röntgenology
Landes L S	434 W Mariet St	Diagnostic roent	Fort Worth		
Lutz J Fletcher	141 E Market St	Röntgenology	Bond Tom B	600 W 10th St	Radiology
			Hyde N R	600 W 10th St	Radiology
			Jagoda S	1212 W Lancaster St	Radiology
			O Bannon R P	1029 5th Ave	Radiology
RHODE ISLAND			Galveston		
Newport			Johnson Jesse B	2201 Avenue D	Radiology
Wheatland Marcus F	84 John St	Diagnostic roent	Houston		
Pawtucket			Durrance Fred Y	1215 Walker Ave	Röntgenology
Linger Oscar M	109 Broadway	Diagnostic roent	Harris C P	1625 Main St	Röntgenology *
Providence			McDeed W G	1215 Walker Ave	Röntgenology *
Albert Simon	108 Waterman St	Röntgenology *	McHenry R K	1215 Walker Ave	Röntgenology
Batchelder Philip	188 Waterman St	Röntgenology	Lubbock		
Benjamin Emanuel W	485 Broadway	Radiology	Smith Jerore H	1301 Broadway	Röntgenology
Boyd James F	105 Waterman St	Radiology			Radium therapy
Farrell John T	385 Westminster St	Diagnostic roent	Mineral Wells		
Cerber Isaac	201 Waterman St	Radiology	Yeager Robt L		Röntgenology
Kelley Jacob S	153 Smith St	Diagnostic roent	San Antonio		
McNally D Raymond	563 Hope St	Röntgenology	Barron Wm Marshall	705 E Houston St	Röntgenology *
Woonsocket			Hamilton W S	705 E Houston St	Diagnostic roent
Garrison Norman S	38 Hamlet Ave	Radiology	Ostendorf W A	507½ E Houston St	Röntgenology
			Sherman		
SOUTH CAROLINA			Henschen G E	500 N Highland Ave	Röntgenology *
Anderson			Tempe		
Wrenn Frank	620 N Fant St	Radiology	Ciles Roy G	Scott and White Clinic	Röntgenology *
Charleston			Powell Eugene V	304 S 22d St	Radiology
Rudisill Hillyer Jr	Lucas and Calhoun Sts	Radiology	Wilson R T	Scott and White Clinic	Röntgenology *
Taft Robert B	10a Rutledge Ave	Radiology	Waco		
Columbia			Jenkins I Warner	425 Austin Ave	Radiology
Pitts Thomas A	1515 Marlon St	Radiology	Wichita Falls		
Rodgers Floyd D	1417 Hampton St	Radiology	Wilcox Clark A	1300 8th St	Röntgenology *
Florence					
Hay Percy D Jr	111 W Cheres St	Radiology	UTAH		
Greenville			Ogden		
Judy W S	107 E North St	Radiology	Weels Paul R	2440 Harrison St	Röntgenology
Spartanburg			Salt Lake City		
Sheridan William M	116 W Main St	Radiology	Coray Q B	56 E South Temple St	Röntgenology
			Kerby James P	9 Exchange Pl	Röntgenology *
SOUTH DAKOTA					
Aberdeen			VERMONT		
McCarthy Paul V		Röntgenology	Burlington		
Pierre			Caldwell Nathan R	266 Main St	Röntgenology *
McLaurin A A		Röntgenology *	Robinson Carl T	266 Main St	Röntgenology
Sioux Falls			Wilson S A	150 Bank St	Röntgenology *
Nessa Nellus J	301 S Minnesota Ave	Röntgenology	Rutland		
Watertown			Cook Benjamin F	46 Nichols St	Diagnostic roent
Koren F	Broadway and Kemp Ave	Röntgenology *			
TENNESSEE			VIRGINIA		
Chattanooga			Lynchburg		
Bogart F B	544 McCallie Ave	Röntgenology	Spencer Hunter B	Allied Arts Bldg	Radiology
Freere John Marsh	707 Walnut St	Röntgenology *	Newport News		
Marchbanks S S	546 McCallie Ave	Radiology	Davis R A	2901 West Ave	Röntgenology
Johnson City			Norfolk		
Hankins John L	920 W Maple St	Röntgenology	Eley Clayton W	Wood and Church Sts	Röntgenology *
Knoxville			Petersburg		
Abercromble Eugene	603 W Main Ave	Röntgenology	Clarkson Wright	30 Franklin St	Radiology
McC Campbell H H	614 Walnut St	Radiology	Richmond		
Memphis			Flanagan E Latane	116 E Franklin St	Röntgenology
Bethea W R	899 Madison Ave	Röntgenology *	Hodges Fred M	1000 W Franklin St	Radiology
Coley Steve W	1265 Union Ave	Röntgenology *	Snead Lawrence O	1000 W Franklin St	Radiology
Heacock Charles H	20 S Dunlap St	Radiology	Tabb J Lloyd	118 E Franklin St	Röntgenology *
Herring J H	915 Madison Ave	Röntgenology	Talley Daniel D Jr	501 L Franklin St	Röntgenology *
Kling J Cash	915 Madison Ave	Röntgenology	Whitehead L J	501 E Franklin St	Röntgenology *
Lawrence W S	248 Madison Ave	Radiology	Roanoke		
Palne Robert	248 Madison Ave	Radiology	Armentrout John T	30¼ Franklin Rd	Radiology
Robinson W W	1291 Union Ave	Röntgenology	McKinney Joseph T	30¼ Franklin Rd	Röntgenology *
Murfreesboro			Peterson C H	30¼ Franklin Rd	Röntgenology *
Overall J Clyde		Röntgenology	University		
Nashville			Archer Vincent W		Röntgenology *
Dillard Charles E	1005 18th Ave	Röntgenology			
McClure C G	706 Church St	Radiology	WASHINGTON		
Shoulders H S	706 Church St	Röntgenology	Bellingham		
TEXAS			Exner Frederick B	1210 Jersey St	Radiology
Amarillo			Hagilam		
Van Sweringen Walter	301 Poll St	Röntgenology	McCarty E D		Röntgenology
Vaughan John H	724 Poll St	Radiology	Longview		
Beaumont			Hayes Richard	Columbia Clinic	Röntgenology
Barr Richard E	388 Pearl St	Radiology	Seattle		
Iedbetter L H	388 Pearl St	Radiology	Bouras Frank S	509 Olive St	Radiology
White C M	95 Orleans St	Röntgenology	Dwyer Maurice F	1115 Terry Ave	Radiology
Corsicana			Garhart Manch A	1305 4th Ave	Radiology
Curtis Richard C	101 N Beaton St	Röntgenology	Holtz Kenneth J	920 2d Ave	Röntgenology
Dallas			Koenig Carl E	509 Olive St	Röntgenology
Bevver N B	1710 Pacific Ave	Radiology	Nichols H E	1215 4th Ave	Röntgenology
Martin Charles I	3300 Junius St	Radiology	Snirely J Howard	509 Olive St	Röntgenology *
Martin J M	3301 Junius St	Radiology	Stephens Lorenzo L	1215 4th Ave	Röntgenology *
Spangler Davis	4105 Live Oak St	Radiology	Thompson H B	1305 4th Ave	Radiology
Eastland			Thomson Curtis H	1305 4th Ave	Röntgenology *
Caton J H		Röntgenology	Ward Chas B	803 Summit Ave	Radiology

NAME	ADDRESS	TYPE OF SERVICE	NAME	ADDRESS	TYPE OF SERVICE
Spokane			Green Bay		
Aspray Jos	407 Riverside Ave	Radiology	Olmsted Austin O	205 F Walnut St	Radiology
Betts Arthur	407 Riverside Ave	Radiology	Shewalter G M	705 F Walnut St	Roentgenology
Tacoma			Troup R J	706 Cherry St	Roentgenology
Fishel C R	740 St Helens Ave	Roentgenology	Jamesville		
Walla Walla			Kuegel F H	19 S Main St	Roentgenology
Johannesson C J	1 W Main St	Roentgenology *	Kenosha		
Yakima			Bowling Irwin J	625 55th St	Roentgenology
Cornett Geo W	321 E Yalima Ave	Roentgenology *	Solow Theodore	723 58th St	Radiology
WEST VIRGINIA					
Charleston			LaCrosse		
Lambert A C	210 Capitol St	Roentgenology	McLoone J J	319 Main St	Roentgenology
Lanman Everett L	Brooks St and Elmwood Ave	Roentgenology	Madison		
Fairmont			Ellis Ivan G	720 S Brooks St	Roentgenology
Francis Charles T	200 Gaston Ave	Roentgenology	Hittig Lawrence V	925 Mound St	Roentgenology
Holidays Cove			Pohle F A	1700 University Ave	Radiology
Davis Geo H		Diagnostic roent	Sink J Newton	16 S Henry St	Roentgenology
Huntington			Marshfield		
Mackenzie A R	955 4th Ave	Roentgenology *	Lotter R P		Roentgenology
Vinson L I	317 9th St	Roentgenology	Milwaukee		
Parkersburg			Altenhofen A R	172 W Wisconsin Ave	Roentgenology
Bolce Ralph Homer	717 Ann St	Roentgenology	Epperson Paul S	724 E Wisconsin Ave	Roentgenology
Rose Lonzo O	510 1/2 Mariet St	Radiology	Habbe John Edwin	271 W Wisconsin Ave	Roentgenology
Wheeling			Mackoy J W	Sacred Heart Sanitarium	Diagnostic roent
Blippus E S	77 16th St	Roentgenology	Morton S A	7721 N Maryland Ave	Roentgenology
Clovis C H	2000 10th St	Radiology	Podlasky Harry B	42 E Wisconsin Ave	Roentgenology
Halslip Norvell I	2000 10th St	Radiology	Zmyslony W I	931 W Mitchell St	Diagnostic roent
Kalbfleisch W K	78 16th St	Roentgenology	Neenah		
Quimby Will A	1401 Mariet St	Radiology	Greenwood S D		Radiology
WISCONSIN					
Appleton			Salem		
McGrath E F	114 W College Ave	Radiology	Fletcher Wm		Roentgenology
Beloit			Superior		
Wilson Russell F	431 Olympian Blvd	Radiology	Saunders Geo	1507 Tower Ave	Roentgenology
Eau Claire			Waukesha		
Baird J C	401 S Barstow St	Roentgenology	Ieterson Geo F	831 N Grand Ave	Roentgenology
WYOMING					
			Cheyenne		
			Conyers Chester A	1720 Carey Ave	Radiology

PHYSICIANS SPECIALIZING IN RADIOLOGY IN GOVERNMENT SERVICE

UNITED STATES ARMY			NAME	ADDRESS	TYPE OF SERVICE
NAME	ADDRESS	TYPE OF SERVICE			
Bowen Albert Maj	Tripler Gen Hosp Honolulu T H	Roentgenology	Noble Harry J Lt Comdr	U S Naval Hospital Chelsea Mass	Roentgenology *
Carroll Wm J Maj	c/o Surgeon General USA Washington D C	Roentgenology *	Owen John I Lt Comdr	U S Naval Medical Supply Depot Brooklyn N Y	Roentgenology
Favour R Jr Maj	Army and Navy Gen Hosp Hot Springs Ark	Roentgenology	Jerry Wendell H Lt Comdr	U S Naval Hospital Marine Island Calif	Roentgenology
Grady Henry W Maj	Fitzsimons Gen Hosp Denver Colo	Roentgenology *	Pinner Wm F Lt	U S Naval Hospital Bremerton Wash	Roentgenology
Kellogg D S Capt	Walter Reed Gen Hosp Washington D C	Roentgenology *	Ralston T W Capt	Staff Hdqts 9th Naval Dist Great Lakes Ill	Radiology
Lowry R H Jr Maj	Station Hosp Fort Sam Houston Tex	Roentgenology	Spalding Otis B Lt Comdr	U S Naval Hospital San Diego Calif	Roentgenology *
McCaw Wm W Maj	Fitzsimons Gen Hosp Denver Colo	Roentgenology *	Stowe Irving E Lt Comdr	U S Naval Hospital Philadelphia Pa	Roentgenology *
Moore H C Maj	Univ of Ore Med School Portland Ore	Roentgenology	Whitehead Ely L Lt Comdr	U S Naval Hospital Canacao P I	Roentgenology *
Moore John J	Army Medical School Washington D C	Roentgenology *	Whitmore Wm H Lt Comdr	Norfolk Naval Hospital Portsmouth Va	Roentgenology
UNITED STATES NAVY			UNITED STATES PUBLIC HEALTH SERVICE		
Farrior John B Lt Comdr	USS Ramapo San Diego Calif	Roentgenology	Booth J H	U S Marine Hospital Baltimore Md	Roentgenology *
Fort Walter A Lt Comdr	U S Naval Hospital Vare Island Calif	Roentgenology *	Mayoral Antonio	U S Marine Hospital New Orleans La	Roentgenology
Hayworth R W Lt Comdr	U S Naval Hospital Washington D C	Roentgenology *	VETERANS ADMINISTRATION		
Hutchinson R W Lt Comdr	U S Naval Disp Coco Solo Canal Zone	Roentgenology	Beaudet E A	Livermore Calif	Diagnostic roent
Jacobs Irving W Lt Comdr	U S Naval Hospital Brooklyn N Y	Roentgenology *	Frank C Harold	Milwaukee Wis	Diagnostic roent
Keener Harry A Lt	U S Naval Hospital Vare Island Calif	Diagnostic roent	Glickman L Crant	Milwaukee Wis	Roentgenology *
Larson Gilbert H Lt Comdr	U S Naval Hospital Brooklyn N Y	Roentgenology *	Hynes Wm P	Lake City Fla	Diagnostic roent
Maher Paul P Lt Comdr	U S Naval Hospital Philadelphia Pa	Roentgenology *	McClanahan C W	West Los Angeles Calif	Radiology
Muller F W Lt Comdr	Bureau of Medicine and Surgery U S Navy Washington D C	Roentgenology *	Minehart V L	130 W Kingsbridge Rd New York City	Radiology
			Moxness R A	Hines Ill	Roentgenology
			Murray R S E	Lyons N J	Roentgenology *
			Nather Frederick B	Fort Harrison Mont	Diagnostic roent
			Shawhan Rezin C	Oteen N C	Diagnostic roent

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SATURDAY, FEBRUARY 24, 1934

RADIOSENSITIVITY OF TUMORS

The relative differences of tumors in sensitivity to roentgen and radium rays are worthy of special study by the clinician, pathologist and radiotherapist. Much information has already been accumulated concerning the reaction of various cells and tissues to radiation. Embryonal tumors, as well as tumors composed of rapidly growing cells, are sensitive to radiotherapy. Lymphoid cells are particularly susceptible to radiation. On the contrary, neurosarcoma, glioma and melanoma are radioresistant.

Stewart¹ defines radiosensitivity as that combination of circumstances resident in the tumor or the host which permits marked or total local tumor regression under doses of radiation sufficiently small to preserve the integrity of the tissues of the host. Degrees of radiosensitivity are recognized. Ewing² classified tumors in decreasing order of radiosensitivity as follows: (1) lymphoma, (2) embryonal tumors, (3) cellular anaplastic tumors, (4) basal cell carcinoma, (5) adenoma and adenocarcinoma, (6) desmoplastic tumors, such as squamous carcinoma and fibrocarcinoma, and (7) fibroblastic sarcoma, osteosarcoma and neurosarcoma. Local conditions that may influence the response to radiation are the histologic type, vascularity, fibrosis, amount of fat tissue, presence of infection, metastases, and previous operations.

The histogenic study of a tumor affords an important criterion by which to judge radiosensitivity. As Borak³ indicates, the radiosensitivity of a tumor is no accidental attribute but rather the expression of cell structures as well as the biologic qualities of the parent tissue. There are other factors that complicate the problem. The location of a tumor in bone or fat tissue renders it radioresistant. Active infection interferes with successful irradiation. Highly vascular tumors vanish rapidly under irradiation, as a result of necrosis of the capillary endothelium. An important fact

emphasized by Ewing is the increased resistance to radiation acquired by a tumor after successive treatments with inadequate dosage. Likewise tumors may become radium fast after a series of treatments with high dosage. Paradoxical differences are observed in tumors when the degree of malignancy is compared with their radiosensitivity. The estimation of these differences is an urgent and difficult task for the pathologist and the radiotherapist. Thus, Ewing presents a list of comparative reactions in epidermoid carcinoma: 1. Squamous cell carcinoma of various grades of malignancy is radiosensitive. 2. Transitional cell carcinoma is highly malignant and radiosensitive. 3. Schneiderian carcinoma is highly malignant and radiosensitive. 4. Basal cell carcinoma is of comparatively low malignancy and radiosensitive. 5. Lympho-epithelioma is highly malignant and very radiosensitive. Markedly anaplastic tissues show increased malignancy and radiosensitivity. Many of these differences in response to radiation become clearer if it is remembered that radium rays arouse similar variations in the reaction of normal cells. Vascular endothelium, lymphatic tissues, leukocytes and ovarian follicles are rapidly destroyed, whereas nervous, fibrous and cartilaginous cells are much more resistant.

The clinical irradiation of tumors is based on this selective action of the rays. Desjardins⁴ asserts that the specific sensitiveness of each kind of cell is the dominant single fact of radiology and deserves to be recognized as a law. This sensitiveness seems to be related to the natural life cycle. The lymphocytes, whose metabolic life cycle is shortest, are the most sensitive, while the nerve cells, whose life cycle is longest, are also the most resistant to radiation. Desjardins states that the susceptibility of tumors to irradiation agrees closely with the radiosensitiveness of normal cells of the same kind from which the tumors are derived. However, morphology is not completely adequate for the estimation of radiosensitivity. The general condition of the patient and his constitution also modify the effects of radiation. Anemic cachectic individuals respond poorly to radiotherapy. There are probably hereditary, constitutional and nutritional influences that alter the response to irradiation in different patients afflicted with the same morphologic type of tumor. For example, the red-blond type of person who forms inadequate pigment against sunlight also reacts poorly to radiotherapy.

Another important factor in determining and recording radiosensitivity of tumors is the question of dosage. With improvements in apparatus and technic there are discrepancies and differences in the reporting of dosage. The recent establishment of an international unit of quantity, the international r unit, should create more uniformity in this complicated field and rescue it from the state of "haphazard empiricism" so justly depre-

¹ Stewart F W. Radio sensitivity of Tumors. Arch Surg 27 99 (Dec) 1933.

² Ewing James. Radiosensitivity. Radiology 13 313 (Oct) 1929.

³ Borak Y. Die Beziehungen zwischen der Strahlenempfindlichkeit maligner Tumoren und ihrer Muttergewebe. Strahlentherapie 44 601 (Aug) 1932.

⁴ Desjardins A U. Radiosensitiveness of Cells and Tissues and Some Medical Implications. Arch Surg 25 926 (Nov) 1932.

cated by Ewing Roentgen dosage, according to Reinhard,⁵ should be definitely prescribed and reported in terms of wavelength, quantity in roentgens, time, target-skin distance and field size. For each type of tumor there is an optimal radiation dosage. Many discrepancies in the reports seem to be due to uncertainties and differences in radiation dosage.

The artificial increase of radiosensitivity in tumors is a promising field of investigation. Voltz reports on the introduction of metal salts (cerium-iodine) into tumors and the benefits resulting from secondary rays given off by these chemicals after irradiation. Various substances have been used for this purpose by numerous investigators, but the work is still in the experimental stage. Biologic sensibilization is also practiced; pituitary gland irradiation exerts a beneficial effect in malignant conditions of the female genital tract. The radiosensitivity of tumors is a complex problem demanding the cooperation of workers in various fields. As more facts are accumulated, knowledge in this field will become more quantitative and precise. The solution of the problems of radiosensitivity will increase the effectiveness of radiotherapy and extend its rational indications in the treatment of tumors.

ACID-BASE BALANCE AND CARBOHYDRATE TOLERANCE

One of the lessons that physiology and clinical medicine have learned from the development of modern biochemical research involves the continual striving of the living organism to attain certain states of equilibrium. Cannon of Harvard has referred to this as the principle of homeostasis. Metabolism involves an interplay of unlike reactions that tends, in health, to maintain a steady state conducive to the welfare of the body; in disease there may be disruption of this chemical scheme with consequent detriment to well being. As McLester¹ has expressed the situation, for the maintenance of life and the proper performance of function the cells must be surrounded by a medium that at all times maintains an unchanging reaction and fixed molecular concentration. He points out that the mildly alkaline reaction of the blood indicated by the foregoing figure must be maintained at all costs. Yet many products of metabolism are acid in reaction and tend to operate in the opposite direction, while certain abnormal metabolic processes make matters still worse by producing acids in large amounts, such for instance as the formation in diabetes of beta-oxybutyric and other acids. Carbonic acid, and the acids of sulphur and phosphorus which result from protein metabolism, as well as other acids, must be neutralized. This is done chiefly by sodium and potassium and to a less extent by the other basic elements. Ammonia under

certain pathologic conditions is produced in increased amounts and plays a small part in the neutralization of acids, as do also the serum proteins to a slight extent. These last two factors, however, can never bulk large in neutrality regulation, for ammonia is probably toxic and cannot be retained in large amounts, and protein when broken down loses its acid-fixing properties. For purpose of neutralization, the basic elements received from the food are of overwhelming importance.

An apt illustration of what the disturbance of the systemic acid-base balance may involve has been afforded by recent studies of Thompson, Mitchell and Kolb² at Trinity College, Dublin. By administration of liberal quantities of ammonium chloride they succeeded in reducing the alkali reserve of the blood plasma to a level comparable with that found in diabetic coma and to raise the urinary excretion of acid by from 100 to 200 per cent and of ammonia by 30 per cent. The acidosis so produced caused a definite failure in dextrose tolerance shown by hyperglycemia and slow return of the blood sugar to the fasting level following dextrose ingestion, but without any trace of glycosuria.

The association of severe acidosis with diabetes is well known. Joslin³ states that the danger of acidosis varies according to the rapidity of onset, the age of the patient and the condition of the kidneys. It is his impression that fatal coma may result from an acidosis of only moderate degree which has come on suddenly, whereas in another individual the gradual development of an acidosis of equal severity has been borne with comparative ease. The Dublin biochemists regard it as possible that the acidosis of diabetes, which is undoubtedly the severest acidosis encountered in human beings except for some patients moribund from uremia, may have a contributory effect on the changes in carbohydrate metabolism occurring in this disease.

DIGESTIVE LEUKOCYTOSIS

The question as to what variations in the white blood cell count may be regarded as within "normal" or physiologic limitations keeps recurring at frequent intervals. Evidently there is no complete accord as to the answer among students of hematology. The growing evidences have been reviewed in these columns from time to time⁴ in an effort to determine to what extent technical errors, the nature of the diet, mealtime, and muscular or mental activity may induce definite changes. Until these are known it will be difficult if not actually impossible to ascertain what degrees of aberration from the expected leukocyte counts may be ascribed to

⁵ Reinhard M. C. X-Ray Dosage. Bull. Am. Soc. Control Cancer 16:3, 1934.

¹ McLester J. S. Nutrition and Diet in Health and Disease. 2d ed. Philadelphia: W. B. Saunders Company, 1931.

² Thompson G. Mitchell D. M. and Kolb L. C. The Influence of Variations in Systemic Acid-Base Balance upon Carbohydrate Tolerance in Normal Subjects. Biochem. J. 27:1253, 1933.

³ Joslin E. P. The Treatment of Diabetes Mellitus. 4th ed. Philadelphia: Lea & Febiger, 1928.

⁴ An Explanation of Digestive Leukocytosis. Current Comment. J. A. M. A. 72:1004 (April 5) 1919. The White Blood Cell Count. ibid. 101:1240 (Oct. 14) 1933.

pathologic conditions and thus become diagnostic indexes

Garrey and his co-workers at Vanderbilt-University in Nashville have contended that a count above 7,000 per cubic millimeter is evidence of mental or physical unrest and that all "basal counts" lie between the limits of 5,000 and 7,000, whereas investigators at New York University conclude that mild activity has no constant effect on the count, although, as is well known, severe exercise may cause the number of leukocytes to rise to three or four times the normal figure. Garrey and Butler² allege that the low basal leukocyte count of the resting state is unaffected by the intake of large quantities of either protein or carbohydrate. This is one of the last contributions in a sequence of studies that have developed skepticism as to the occurrence of what was formerly designated as "digestive leukocytosis".³

The latest observations on the postprandial distribution of leukocytes as exhibited in white cell counts have been made by Lawrence, Stephens and Jones⁴ at the University of Rochester, N. Y. They studied the effect of ingestion of a large breakfast in normal adult persons. An increase in the total number of white blood cells in the peripheral blood of normal adult subjects has been shown to occur in the majority of instances following the ingestion of food. The increase is not universal in these observations. It is of interest that there is an interval of from one and one-fourth to two and three-fourths hours between the ingestion of food and the initial increase in the total number of leukocytes. This increase is not transient but may be detected up to four hours after the intake of food. The differences between the highest and lowest figures in each of the fifteen individuals for the entire period ranged from 1,600 to 5,750 per cubic millimeter, with an average of 3,249. Corresponding figures for nine basal recumbent subjects were between 1,249 and 3,300. From a clinical point of view, the Rochester investigators conclude, the effect of food on the white blood cell count is not of a great deal of importance, since the increase was not great and in every instance except one the total number of the cells was less than the ordinarily accepted upper limit of 10,000 per cubic millimeter. In round figures, food would never be expected to increase the total count above 2,000 to 3,000 per cubic millimeter. From a purely theoretical point of view, they add, since basal white blood cell counts will show less variation than others, it would seem that these would be most reliable. However, it appears to them that the inconveniences necessitated by the introduction of such procedures in a clinic far outweigh the advantages to be gained.

² Garrey, W. E., and Butler, Virginia. *Am J Physiol* **100** 351 (April) 1932.

³ Reviews of the voluminous literature appear in Sabin, F. R., Cunningham, R. S., Doan, C. A., and Kindwall, J. A. *Bull Johns Hopkins Hosp* **37** 14 (July) 1925 and Shaw, A. F. B. *J Path & Bact* **30** 11 (Jan.) 1927.

⁴ Lawrence, J. S., Stephens, D. J., and Jones, Edgar. Studies in the Normal Human White Blood Cell Picture. II. The Effect of Digestion on the White Blood Cells. *Am J Physiol* **106** 309 (Nov.) 1933.

Current Comment

SELECTIVE REGENERATION AND TISSUE IMMUNITY

The doctrine of "natural variation" in biologic species, with the subsequent "weeding out" of the relatively "unfit," has been a generally accepted law of organic evolution since the middle of the nineteenth century. That similar variations and selectivities are operative with those histologic units which potentially multiply during adult life is suggested by MacNider¹ of the department of pharmacology at the University of North Carolina School of Medicine. His theory of selective histologic evolution, or "regeneration of the fittest," was drawn from studies of kidney repair following experimental toxic nephritis. He found that, after mild toxic injury, renal repair is apparently of the nonselective or nonimmunizing type, the regenerated kidney showing no demonstrable immunity to reintoxication with the same chemical agent. After severer toxic injury, however, renal regeneration is apparently of the evolutionary or selective type, the repaired kidneys having a well marked resistance to such reintoxication. While MacNider makes no assumption that his law of selective regeneration is applicable to the reticulo-endothelial cells, his theory has been received as a valuable working hypothesis in immunology.

SPECIALIZATION IN RADIOLOGY

The rise of roentgenology as a specialty in medicine has been spectacular. The tendency at first to consider it merely a mechanical accessory to diagnosis has been transformed by a realization of the many aspects of its use in the practice of medicine. The literature of the subject is today as advanced and as erudite as that of any other field of medical practice. Nevertheless, the early tendency just mentioned was associated with the commercialization of roentgenology. Indeed, the nature of the work to some extent encouraged such exploitation. One witnesses, for example, the manner in which flat-rate and cut-rate clinics in the field of medical practice, peddling their services by newspaper advertising, offer cheaply the services of a full time roentgenologist as a special bait to the unwary. Among the most important factors in combating this type of effort has been the regular publication by the Council on Medical Education and Hospitals of its standards of competent roentgenologic service and its listing of recognized institutions. Such a list appears in this issue of *THE JOURNAL*, and physicians will do well to familiarize themselves with this phase of the Council's work. There appears also in this issue the announcement of the formation of the new certifying board in roentgenology, organized along the same lines as the boards already established in ophthalmology, otolaryngology, obstetrics and gynecology, and dermatology. These boards are to be conducted by standards for such certification developed by the Council on Medical Education and Hospitals. Moreover, the American Medical

¹ MacNider, W. de B. The Resistance of Regenerated Cells. *Science* (supplement) **78** 6 (Nov. 24) 1933.

Association, through its directory and in other ways, proposes to make available to the medical and general public the names of those who have satisfactorily met the qualifications established in this way. These measures should do much to lift roentgenology out of the welter of low grade and commercial practice into which it seemed inclined to tumble.

Association News

THE CLEVELAND SESSION Cleveland Hotels

The Subcommittee on Hotels of the Local Committee on Arrangements has furnished the list of Cleveland hotels and rates for rooms, which may be found below. On advertising page 38 of this issue of THE JOURNAL may be found this list together with an application form that may be used to secure reservations through the Subcommittee on Hotels. The form that is printed in the advertising pages may be clipped and when properly filled in, should be sent at once to Dr. Hubert C. King, Chairman of the Subcommittee on Hotels of the Local Committee on Arrangements, 1604 Terminal Tower, Cleveland, Ohio.

If those who expect to attend the annual session of the American Medical Association will send in their applications at the earliest possible time there should be no difficulty encountered in securing satisfactory accommodations. Applicants for reservations are especially requested to include a second and a third choice in order that good accommodations may be assured if the desired reservation cannot be had at the hotel of preference.

Hotel Rates in Cleveland

NAME AND ADDRESS	Room—One Person		Room—Two Persons		
	Without Bath	With Bath	With out Bath	Double Bed	Twin Beds
ALLERTON Chester Ave. & E. 13th St.	\$2.00-2.50	\$3.00-3.50	\$3.00-4.00	\$4.00	\$4.50
AUDITORIUM St. Clair Ave. & E. 6th St.		2.00-3.00		3.50-4.50	5.00
CARTER Prospect Ave. & E. 9th St.		2.50-3.00		4.00-6.00	5.50
CLEVELAND Public Square		2.50-6.00		4.00-8.00	5-10
COLONIAL 523 Prospect Avenue	1.50	2.50	2.50	3.00	3.50-4
FERN HALL 3250 Euclid Avenue		1.50-2.50		2.50-3.00	5.50
GILLESY 1811 E. 9th Street	1.50	2.00-2.50	2.50	3.00-3.50	4.00
HOLLANDEN Superior Ave. & E. 6th St.		2.50-6.00		3.50-7.00	5-12
MECCA 1862 E. 9th Street		1.75-2.00		2.50-3.00	4.00
NEW AMSTERDAM Euclid Ave. & E. 22d St.	1.50-2.00	2.50-3.50	2.50-3.00	3.50-4.50	4.50-5
OLMSTED Superior Ave. & E. 9th St.		2.00-3.50		3.50-4.50	5.00
STATLER Euclid Ave. & E. 12th St.		2.50-6.00		4.50-8.00	5-8
STERLING Prospect & E. 30th St.		2.00-3.00		3.00-4.00	3.50-5
RESIDENTIAL HOTELS					
ALCAZAR Surrey & Derbyshire Rds.		3.00		5.00	5.00
BELMONT 3844 Euclid Avenue		2.50		4.00	5.00
BOLTON Carnegie Ave. & E. 89th St.		2.00-3.00		3.00-3.50	
DEVON HALL 1588 Ansel Road	1.25		2.00		
LAKE SHORE 12506 Edgewater Drive		2.00-3.50		3.50-5.50	4.00
PARK LANE Park Lane & E. 105th St.		2.50-3.50			4.00
SOVEREIGN East Blvd. & E. 105th St.		2.00		3.00	5.00
WADE PARK MANOR Park Lane & E. 107th St.		3.00-4.00			5.00
WESTLAKE Blount Road		2.50		4.00	4.50

NOTE—A number of the lower priced single rooms are equipped with double beds. Many of these rooms are available for occupancy by two persons at only \$1 more than the single rate.

MEDICAL BROADCASTS

National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15, Central standard time (5 o'clock, Eastern standard time, 3 o'clock, Mountain standard time, and 2 o'clock, Pacific standard time). The next three broadcasts will be as follows:

February 26 Health Superstitions Morris Fishbein M.D.
March 5 Dangerous Drugs Paul Nicholas Leech Ph.D.
March 12 Consistent Inconsistencies R. G. Ireland M.D.

Columbia Broadcasting System

The Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central standard time. The next three broadcasts will be as follows:

March 1 Frontiers of Medicine Morris Fishbein M.D.
March 8 Keeping Your Health W. W. Bauer M.D.
March 15 The Health of the Schoolchild W. W. Bauer M.D.

Station WBBM

The American Medical Association broadcasts on Tuesday mornings from 8:55 to 9 o'clock, Central standard time, over Station WBBM (770 kilocycles, or 389.4 meters). The subject for Tuesday, February 27, is "Botulism."

Medical News

(PHYSICIANS WILL CONFERR A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Survey of School Children—The state board of health, in conjunction with the Civil Works Administration, will make a survey of all children in the elementary schools to determine the amount of malnutrition present, the prevalence of tuberculosis, and the number of crippled children in the state. In addition information will be gathered to assist in a program to eliminate trichinosis and other diseases endangering the health of children attending the public schools.

ARKANSAS

Society News—The Mississippi County Medical Society was addressed in Bluffville, January 2, by Dr. Nona B. Ellis, Wilson, on "Importance of Urinalysis."—At a meeting of the Conway-Pope-Yell County Medical Society in Dardanelle, January 18, Dr. George R. Siegel, Clarksville, discussed "Endocrine Therapy in the Climacteric."—Dr. Dewell Gann Jr., Little Rock, spoke on "Transillumination of Cancer of the Breast" before the Lonoke County Medical Society in Lonoke, January 10.—At a meeting in El Dorado, January 9, under the auspices of the Union County Medical Society, the Tri County Medical Society was converted into the Fifth Councilor District Medical Society, including Union, Ouachita, Columbia, Calhoun, Lafayette and Dallas. Speakers were Drs. Leonce J. Kosminsky, Texarkana, on "Medical Organization of Today," J. H. Eugene Rosamond, Memphis, "Practical Points in the Diagnosis and Treatment of Infantile Paralysis," and Robert L. Sanders, Memphis, "Surgical Lesions of the Gallbladder."—Speakers before the Southeast Arkansas Medical Society at Lake Village, January 15, were Drs. Alan G. Cazort, Little Rock, and William H. Hamley, Lake Providence, La., on allergic diseases and organization of the district medical society, respectively.

CALIFORNIA

Dr. Elliott Gives Scripps Lectures—Dr. Charles A. Elliott, professor of medicine, Northwestern University School of Medicine, Chicago, delivered the annual Scripps Metabolic Clinic lectures at La Jolla and San Diego, January 11-13. His subjects were "Management of Hepatic Disease," "Management of Edema in General Practice," and "Hyperthyroidism and Psychoneurosis." Dr. Elliott also conducted clinics.

Enforce Law on Wiping Rags—At a meeting, January 2, the California State Department of Health directed that the law which provides for the sterilization of wiping rags be

enforced Shipments of wiping rags from foreign countries must be sterilized immediately on arrival, before sale and distribution. This action was taken in view of the fact that large quantities of soiled rags are received in this country from Oriental ports, chiefly Japan, it was stated.

Society News—Dr Eberle Kost Shelton, Santa Barbara, addressed the Hollywood Academy of Medicine, February 15 on "The Pituitary Growth Hormone."—At a meeting of the Alameda County Medical Association, February 19, speakers were Joe G Sweet, LL D, San Francisco, on "Outlook on Malpractice Litigations," Dr Hubert N Rowell, "Testamentary Capacity," and Earl G Warren, LL D, Ashland, "The Medical Witness."—Dr Nathaniel G Alcock Iowa City, was among the speakers before the Los Angeles Surgical Society, February 9, on "Treatment of Kidney Tumors of Childhood."

COLORADO

Valley Meeting at Pueblo—The annual meeting of the Arkansas Valley Medical Association will be held in Pueblo, March 10. The tentative program includes the following speakers:

Dr George B Eusterman Rochester Minn peptic ulcer
Dr Ray M Balyeat Oklahoma City allergy other than asthma and hay fever
Dr Gerald B Webb Colorado Springs (subject not announced)
Dr Edward B Liddle Colorado Springs treatment of anterior and posterior urethritis and complications
Dr Edgar C Webb Canon City eye examinations of school children
Dr Josephine N Dunlop Pueblo amebic dysentery
Dr Thomas D Cunningham Denver diagnosis of allergic manifestations
Dr George W Bancroft Colorado Springs surgery

All members of the state medical society and the societies of adjoining states are invited.

Three New Societies Organized—Announcement is made of the organization of three new societies in Colorado. At a meeting, January 30, the Washington and Yuma Counties Medical Society was created with Drs Clayton J Bennett, Yuma, president, Marvel L Crawford, Akron, vice president, and Laurence D Buchanan, Wray, secretary. The Clear Creek Valley Medical Society was organized in Golden, February 1, with the following officers: president, Dr Roger G Howlett, Golden, vice president, Dr George P Bailey, and secretary, Dr Orlo R Sunderland, Edgewater. At a meeting in Brighton, February 3, the Adams County Medical Society was founded with Dr John C McCann, Brighton, president, Dr Ralph D Elmore, Eastlake, vice president, and Dr John C Stucki, Brighton, secretary. Temporary charters have been granted to these societies, pending issuance of permanent charters next September at the annual session of the state medical association.

CONNECTICUT

Institute for Midwives—The Connecticut State Health Department conducted its tenth annual institute for the education of midwives in New Britain, Nov 17, 1933. Topics discussed included relation of the health department to midwives, placenta praevia, relation of the physician to the midwife, and the mental attitude of the expectant mother.

Influenza or Food Poisoning?—What was at first thought to be an outbreak of food poisoning in November at the Grace Hospital, New Haven, is believed to have been an outbreak of grip with abdominal symptoms, following investigations by the health board. It was found that 120 people had partaken of a certain meal, November 8, and that the only article of food that had been consumed by them all was freshly cooked steak. About twenty persons of the hospital community became ill between twelve and twenty-four hours after eating this meal, with symptoms of nausea, vomiting and abdominal pain and, in a few cases, mild or moderately severe diarrhea. On the second or third day every one of the patients developed a red and edematous throat, typical of grip. Of fifty patients seen, eight were ill before the meal in question, twenty were ill at about the same time, that is, from one to four days after the meal, and twenty two were ill more than five days after eating the meal. Of the number who were ill, thirteen had not eaten this or any other meal in the hospital. One person who had eaten the meal was found to have been living in another hospital where a number of her associates were ill at the same time with what was diagnosed and treated as abdominal grip. One man who had eaten a meal as a test and who had become ill did not develop any of the respiratory signs or symptoms which the others had. It was concluded that there was not a single fact that could not be adequately explained on the basis of an outbreak of influenza whereas there were many features that could not be explained by a diagnosis of food poisoning.

DISTRICT OF COLUMBIA

Medical Bills in Congress—H R 7210, introduced by Representative Black, New York, and S 2407, introduced by Senator Shipstead, Minnesota, propose to license barbers in the District of Columbia. Section 2 of the bills provides that the practices authorized thereunder "when done for the treatment of physical or mental ailments or disease shall not constitute barbering." Persons licensed to practice medicine and surgery, osteopathy or chiropractic, commissioned medical or surgical officers of the United States Army, Navy or Marine hospital service, and registered nurses are, among others, exempted from the provisions of the bills.

ILLINOIS

Personal—Dr Albert C Baxter, Springfield, was recently presented with a silver beaver, emblem of noteworthy service in scouting, by the Abraham Lincoln Council of the Boy Scouts of America. The silver beaver is the highest award in boy scout work and is granted only by the National Council of Boy Scouts of America. Dr Baxter has been identified with the scout movement since its inception in central Illinois.

Medical Economics—Questionnaires have been issued to physicians in Pulaski, Franklin, Livingston and Winnebago counties by the committee on medical economics of the state medical society in an effort to learn how great a change has occurred in the work done, the income derived between the years 1929 and 1933, and the amount of charity work done. Charity work must consist of work for which no charge is made and must be differentiated from work for which a fee is charged but is uncollectible. These four counties were selected because it was believed they represented, respectively, typical farming in southern Illinois, mining and farming in central Illinois, and industrial development in northern Illinois.

Chicago

Dr Joslin to Address Medical Society—Dr Elliott P Joslin, clinical professor of medicine, Harvard University Medical School, Boston, will address the Chicago Medical Society, February 28, in the Medical and Dental Arts Building "The Diabetic of the Future and His Problems" is the subject of Dr Joslin's lecture. A dinner in his honor will precede the meeting.

Medical Reserve Meeting—Major General Robert U Patterson, surgeon general of the U S Army, Washington, D C, will be the speaker at the annual dinner of the medical chapter, Reserve Officers' Association, at the Army and Navy Club, March 5. Dr Patterson will discuss the "Reserve Officers' Corps of the U S Army." All physicians, especially those who served in the World War, are urged to attend the dinner. Arrangements may be made with Lieut Col Stanley W Clark, dental corps reserve, secretary, or Lieut Col George T Jordan, medical corps reserve, president.

Dental Meetings on Medical Relations—The clinical problems of dentistry and medicine will be treated in sessions on medical relations at the annual midwinter meeting of the Chicago Dental Society in the Stevens Hotel, February 27-March 1. Participating in this phase of the program will be:

Dr Harry A Singer Diseases of the Stomach
Dr Richard H Jaffe Leukemias
Drs Lewis J Pollock and Harry A Paskind Neurology
Dr Hayes E Martin New York Differential Diagnosis of Benign and Malignant Tumors of the Oral Cavity
Dr James Persons Simonds and Carroll W Stuart, DDS Malignant Tumors of the Head and Neck
Drs Harry E Mock Frederick W Merrifield and Edward L Jenkins Traumatic Injuries of the Head and Neck
Drs Francis E Senechal Edward A Oliver and Joseph E Schaefer, Dermatology and Diseases of the Head and Mouth

While these problems will be discussed from the medical aspect, the contingent dental relationship will also be considered.

INDIANA

District Meeting—Dr Ernest M Conrad, Anderson, was elected president of the Eighth District Medical Society, Anderson, December 7 succeeding Dr Henry W Gante, Anderson, who had held the office since 1924. Muncie was chosen as the place for the 1934 session. The Madison County Medical society acted as host for this meeting at which speakers included Drs Byrl R Kirklin and Frank C Mann, both of Rochester, Minn, on "X-Ray Diagnoses of Digestive Disturbances" and "Liver Diseases," respectively.

Personal—Dr Bayard G Keeney, Shelbyville, has been appointed health commissioner of Shelby County.—Dr Noah A Rocky Fort Wayne has been named health officer for Allen County.—Dr Christian A Dresch, Mishawaka, has retired from active practice.—Dr John C Carney has been

appointed health officer of White County, succeeding Dr Arthur B Cray, who held the position ten years—Dr Sayers J Miller, assistant medical adviser at Purdue University, has been named acting director of student health service, succeeding the late Dr Oliver P Terry

IOWA

Memorial to Dr Prentiss—A bronze bust of Dr Henry James Prentiss, late professor and head of the department of anatomy, histology, embryology and neuro anatomy, University of Iowa College of Medicine, Iowa City, was placed in the medical library of the university, Nov 6, 1933, the gift of the Alumni Association of the college of medicine. Three friends of Dr Prentiss, Drs Nathaniel G Alcock, Iowa City, Verne C Hunt and Charles J Rowan, Santa Monica, Calif, presented the pedestal on which it stands. Dr Prentiss was also director of the laboratories of histology and embryology of the college of medicine. He died, May 17, 1931.

Society News—At the annual midwinter meeting of the Upper Des Moines Medical Society in Emmetsburg, January 23, speakers included Drs Fred L Knowles, Fort Dodge, on reduction of fractures of the neck of the femur double pin method, and Joseph B Priestly, Des Moines, surgical management of peptic ulcer—Dr Morris Fishbein, editor of THE JOURNAL, Chicago, will address the Linn County Medical Society, March 8 on "Current Trends in Medical Practice." Dr Walter L Bierring, Des Moines, President-Elect, American Medical Association, will discuss the paper

KANSAS

Personal—Dr Carl M Vernillion, Pratt has been designated health officer of Pratt County, succeeding Dr Marshall F Christmann—Dr William K East has been named health officer of Atchison and Atchison County—Dr Henry S Dreher, Luray, has been named health officer for Russell County.

Society News—Dr William P Callahan, Wichita discussed tumors of the breast before the Ford County Medical Society, Dodge City, January 12—Dr Frank L Rector, Lyndon, Ill, discussed "Present Day Cancer Problems" before the Wyandotte County Medical Society, January 16 and Dr Ralph G Ball, Manhattan, "Diseases of the Suprarenal Gland with Research Studies," February 6.

KENTUCKY

Personal—Dr Leonard A Crosby, Williamsburg, has been named health officer of Todd County, succeeding Dr Thomas J La Motte, who will engage in graduate study at Tulane University of Louisiana School of Medicine, New Orleans—Dr John H Blackburn, Bowling Green, has been appointed a member of the state board of health to succeed Dr Laurence F Minish, Frankfort. Dr E Murphy Howard Jr, Harlan, and Carl Johnson, D O, Louisville, were reappointed to the board.

Bills Introduced—H 533 to liberalize those provisions of the workmen's compensation act requiring an employer to furnish medical, surgical, hospital and nursing service to an injured employee, proposes to increase the limit of an employer's liability to \$100 for hospital treatment and \$150 for medical surgical and nursing treatment. H 434 proposes to authorize the sterilization of inmates of state hospitals for the insane or feeble-minded. S 254 proposes to reorganize the executive branches of the state government. Among other things, it proposes to create a department of health, to exercise all administrative functions of the state in relation to public health, sanitation and the prevention and control of communicable diseases. It proposes, too, to create a division of licensing in the department of health to assume all functions with respect to the examining and licensing of applications for professional licensure, now vested in the state board of health, the board of examiners of nurses, the board of chiropractic examiners, the board of dental examiners, the Kentucky Pharmaceutical Association and the board of pharmacy.

MASSACHUSETTS

Personal—Dr George M Sullivan has resigned as superintendent of the Pondville Hospital, Wrentham after four years' service. Dr George L Parker has been appointed to succeed Dr Sullivan.

Dr Martin Honored—Dr George Forrest Martin, who recently resigned as senior surgeon of the Lowell General Hospital, Lowell, after forty years service, was honored at a dinner by associates, December 7. Dr Chester Stoye Baker was toastmaster. In addition to Dr Martin speakers included

Drs Archibald R Gardner, his successor as senior surgeon, Howard W Jewett, John H Nichols, Tewksbury, and Mr John F Sawyer. Dr Martin will continue as a member of the board of trustees of the hospital and as a consultant.

Medical Pageant—The third annual medical historical pageant, given by the students of Tufts College Medical School and directed by Dr Benjamin Spector, associate professor of anatomy, was presented in conjunction with the reception to the entering class in Boston, Nov 14, 1933. Students participating in these pageants are usually taken from the third and fourth year classes. This year's presentation depicted the following characters:

From Egyptian medicine 4500 1000 B C Imhotep Antep Amenemhat Khuy and Kekanacht
From Greek temple medicine 1200 B C 130 A D Aesculapius Hippocrates Chrysiptus Aretaeos
From Greek philosophical medicine Plato (428 347 B C) Aristotle (384 322 B C)
From Renaissance medicine Roger Bacon (1214 1284)
From Modern Medicine Lavoisier (1743 1794) Pasteur (1794 1826) Jenner (1749 1823) Laennec (1781 1826), Darwin (1809 1882) Virchow (1821 1902) Roentgen (1845 1923)

Appropriate historical remarks were made between the appearances of the characters. There was also an exhibition of classical texts of the characters portrayed in the pageant by Mr James F Ballard, director Boston Medical Library. The presentation of the medical pageant was introduced at Tufts in 1930 by Dr Spector.

MICHIGAN

Society News—Dr George K Fenn, Chicago, discussed clinical and experimental considerations of the coronary circulation before the Calhoun County Medical Society in Battle Creek, January 9—Dr Frederick H Falls, Chicago discussed "Pernicious Vomiting of Pregnancy" at a meeting of the Wayne County Medical Society, Detroit, February 5—At a meeting of the Monroe County Medical Society in Monroe, January 18, Drs Lawrence H Carleton and James Clark Moloney, Detroit spoke on "Relief of Bladder-Neck Obstruction" and "Lumbar Puncture," respectively.

Emergency Hospitalization—Injured persons able and willing to pay for hospital care will be taken to private institutions in the future, in accordance with a recent order of John P Smith, police commissioner of Detroit. Persons becoming ill in public places will be taken to the Receiving Hospital unless they request to be taken to another hospital or to their own homes, provided the distance of the latter is not appreciably greater. On the recommendation of a physician or if it appears necessary to the officer in charge because of the seriousness of the injury or illness, however, the person shall be taken to the nearest hospital. This arrangement is the result of several conferences of the commissioner with representatives of the Wayne County Medical Society and the Detroit Hospital Council. It is believed that the enforcement of the order will save time in emergencies, long hauls and expense to the city, and will give mental and physical satisfaction to injured citizens. In addition the practice of rushing injured persons to a city hospital against their wishes will be abolished.

MISSISSIPPI

Bills Introduced—S 236 proposes to amend the privileged communications statute by providing that it shall not apply in criminal cases in which the mental or physical condition of the patient is material in determining the innocence or guilt of the accused or the extent of his guilt or to any civil case in which the mental or physical condition of the patient is put in issue by the patient or by his personal representative, heirs or distributees. S 248 proposes to extend the period during which an action for malpractice may be brought after the occurrence of the cause of action from one to three years.

MISSOURI

Medicomilitary Symposium—The Kansas City Southwest Clinical Society and the medical department, seventh corps area, U S Army, are cooperating in a spring medicomilitary symposium at Kansas City General Hospital, March 12-17. Sessions will be given over to a consideration of the various aspects of heart disease, tuberculosis, diseases of the digestive system and syphilis. Evening programs will be presented by regular army officers from the seventh corps area, subjects selected for discussion will include the "Army's Job in the CCC Activities," "Mechanization of Modern Armies," "The Medical Regiment," "Modern Conceptions of Dietary Needs," "Aviation in Medicine," and "Smallpox and Vaccination." Three topics will occupy one afternoon session: water, the medical department and joint operations of the army and navy.

in overseas expeditions Tuesday evening, March 13, will be devoted to a joint meeting of the Jackson and Wyandotte County medical societies, and Friday evening to that of the Kansas City Academy of Medicine, when the speaker will be Dr Charles A Doan, Columbus, Ohio, on "Clinical Implications of Experimental Hematology." The Kansas City Dermatological Society will present a symposium on syphilis.

NEW JERSEY

Bill Introduced—S 136, to amend the law providing liens for hospitals treating persons injured through the fault of others, proposes to authorize similar liens for physicians and surgeons.

NEW YORK

Bills Introduced—A 626, to amend the law providing for the exemption of hospital ambulances from registration fees, proposes to limit such exemption to ambulances used exclusively to carry sick or injured persons. A 715, to amend those provisions in the medical practice act relating to osteopathy, proposes (1) to designate osteopaths as osteopathic physicians and (2) to provide that 'a license to practice osteopathy shall not entitle the holder to perform any surgical operation involving incision or the opening of a natural body cavity, for the removal of cancer or other tumor, for the amputation of an extremity or appendage, or for the removal of any gland or organ, or part thereof, of the human body, nor shall such license permit the holder thereof to administer drugs, except narcotics, anesthetics, antiseptics, vaccines and antitoxins.' A 716 proposes to give hospitals treating persons injured through the negligence of others liens on all rights of action, suits, claims, judgments or settlements accruing to the injured person by reason of their injuries. A 728, to amend the workmen's compensation act, proposes, in effect, to make compensable all occupational diseases contracted in any employment covered by the act. A 740 proposes to prohibit hospitals, supported wholly or partly at public expense, from charging any fee for medical dental or pharmaceutical services rendered while operating clinics to which the public is invited. A 744 proposes to establish in each public welfare district a central bureau to which persons desiring medical, surgical or other treatment in clinics are to apply. This bureau, after investigation, is to issue a permit to the applicant entitling him to treatment by a clinic located in the hospital that is nearest the place of his residence.

New York City

Safety Conference—The fifth annual Greater New York Safety Conference will be held at the Hotel Pennsylvania March 6-7. Among speakers will be Dr Hart Ellis Fisher, Chicago, on "The Problem of the Return to Work Employee," Dr William R Redden, New York, "First Aid in Schools," and Philip Drinker, ChE, Boston, "Protection of Workmen Against Dust Inhalation."

Hospital News—The Metropolitan Hospital Alumni Association was recently organized with Drs Samuel Schechter as president and Abraham P Matusow as secretary. A physical therapy department was opened at New York Polyclinic Medical School and Hospital December 11. The department is in the new clinic building of the hospital and is under the direction of Dr Richard Kovacs.

Personal—Dr Samuel J Kopetzky was recently made a Knight of the Legion of Honor by the French government for his collaboration on medical work with French scientists. Dr Charles J Sutro has been awarded the Mr and Mrs Frederick Brown Orthopedic Research Fellowship offered through the Hospital for Joint Diseases. It includes a stipend of \$2400. Dr Sutro has been a member of the hospital staff for two and a half years. Dr Peter F Amoroso has been appointed second deputy commissioner of corrections among other duties he will direct the prison hospitals. Friends of Dr Francis Huber presented to him an illuminated testimonial describing their appreciation of his work as physician and teacher on his eightieth birthday, February 2.

Impostor Convicted—It is reported that Samuel Greenberg, who practiced medicine for more than a year with a forged regent's diploma and county certificate and who used the address of Dr Samuel Greenberg of Brooklyn to obtain a genuine registration certificate, was sentenced December 21 to six months in the workhouse after he pleaded guilty to practicing without a license. Sentence was suspended in consideration of the fact that he made a complete confession at the time of his arrest. It appears that Greenberg worked himself into the good graces of a New York physician and asked to be allowed to have mail delivered at his office. Later he wrote to the state board of medical examiners giving the

real Dr Greenberg's address and requesting that as he was moving from Brooklyn to New York his annual registration certificate be mailed to him at the new address. After this the spurious "Dr" Greenberg disappeared. Investigators of the office of Assistant Attorney General Sol Ullman found him practicing medicine at 1280 Walton Avenue, The Bronx, and arrested him, Oct 18, 1933, on a charge of practicing without a license. Greenberg then implicated a Filipino artist, Julian Noveno, who, he alleged, forged the state and county documents. Noveno was indicted on a charge of forging medical credentials.

OHIO

Centennial Celebration at Ohio State University—The one hundredth anniversary of Ohio State University College of Medicine, Columbus will be celebrated with three days of reunions, clinics, addresses and exhibits, March 1-3. Tracing its history to the Willoughby Medical College established in 1834 at Willoughby, Ohio, the present school of medicine is the result of a series of mergers and consolidations, which have brought together the Willoughby College, Starling Medical College, Columbus Medical College, Ohio Medical University and Starling-Ohio Medical College. The program will open Thursday morning, March 1, with clinics in medicine and surgery at University and St Francis hospitals by Drs Francis Carter Wood, New York, Gatewood, Chicago, and Bernard H Nichols, Cleveland, among others. Laboratory demonstrations, exhibits and reenactments of historical events by students and faculty will be held in the afternoon. A dinner will be given for the faculty and guests in the evening, followed by a meeting in University Chapel. Dr John H J Upham, dean of the School of Medicine, will preside at this session and speakers will be

Dr Francis R Packard, Philadelphia, "Earliest Development of Organized Medical Education in This Country,"
Dr Jonathan Forman, Columbus, "History of the College of Medicine,"
George W Rightmire, LL.D, president, Ohio State University, Columbus, "The Place of Medical Education in the State University."

A special convocation will be held in the morning of March 2, at which Dr Henry S Houghton, Chicago, will speak on "The Challenge of the Future to Medical Education." Following about sixty class reunions at the noon hour, addresses will be presented by Drs Francis Carter Wood, on cancer, and Edward Francis Washington, D C, on tularemia. Various medical fraternities will hold banquets in the evening. The morning of Saturday, March 3, will be devoted to surgical clinics directed by Drs Gatewood, Mont R Reid, Cincinnati, and Roy D McClure, Detroit, and medical clinics by Frank A Hartmann, PhD, Buffalo, and Dr Torald H Sollmann, Cleveland. Dr George T Pack, New York, will also deliver an address on "Irradiation Therapy" during the morning. Following a luncheon at University Hospital for alumni and guests, clinics will be conducted by Drs Robert M Zollinger, Boston, Robert A Moore, Raymond L Pfeiffer and Samuel T Mercer, New York. In the evening an Alpha Omega Alpha initiation and supper will be given, followed by the first annual Alpha Omega Alpha public address, presented by Dr Charles P Emerson, former dean, Indiana University School of Medicine, Indianapolis. In connection with the celebration, an exhibit of medical and dental equipment used in Ohio during the past century has been arranged. Invitations are being issued to alumni of the school and its predecessors, but the profession generally is invited to attend the program of activities, the university announces. Dr Ernest Scott is general chairman of the centennial observance.

PENNSYLVANIA

Society News—Dr Roy Wesley Scott, Cleveland, addressed the Washington County Medical Society, February 9, on "Modern Aspects of Cardiovascular Diseases from the General Practitioner's Standpoint." Dr Bernard H Nichols, Cleveland, addressed the Pittsburgh Urological Association, February 12, on "The Art of Pyelographic Interpretation." Dr Curtis C Mechling addressed the Pittsburgh Pediatric Society, February 16, on "Common Disorders of the Rectum and Anus and Their Management." Speakers before the Pittsburgh Academy of Medicine, February 13, were Drs Frank W Donley, on "Trichinosis," Evan W Meredith, "Pyloric Stenosis," and David Silver, "Physical Diagnosis and Significance of Sounds In and Near Joints." Dr George B Stull, Harrisburg, delivered his address as retiring president of the Dauphin County Medical Society, January 2, on gallbladder disease. Dr Ford A Miller, Philadelphia, addressed the Delaware County Medical Society, Chester, February 8 on "Bleeding in Labor." Dr Jesse O Arnold, Philadelphia, addressed the Medical Society of Franklin County, January 16, on obstetrics.

Philadelphia

University News—Temple University celebrated its fiftieth anniversary during the week of February 11-17. The medical school as its part offered an intensive course of lectures, clinics and demonstrations to evaluate the present status of the medical art and its basic sciences. All regularly qualified physicians in New York, New Jersey, Maryland, Delaware and Pennsylvania were invited. Dr. Lewellys F. Barker, Baltimore, delivered an address on "Medicine in Soviet Russia" before the medical department, February 14. The honorary degree of doctor of science was conferred on Drs. Royal S. Copeland, New York and George E. de Schweinitz, Philadelphia, at the midyear commencement, February 15.

TEXAS

Health at El Paso—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended February 10, indicate that the highest mortality rate (28.2) appeared for El Paso and that the rate for the group of cities as a whole was 12.2. The mortality rate for El Paso for the corresponding week of 1933 was 9.6 and for the group of cities, 11.8. The annual rate for eighty-six cities was 12.5 for the six weeks of 1934, as against a rate of 12.7 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Sam Kaplan Convicted—The Texas State Board of Medical Examiners reports the conviction in the criminal court of Harris County, Nov. 29, 1933, of "Dr. Sam Kaplan who had been practicing medicine in Houston without a license. He was sentenced to pay a fine of \$50 and costs and serve one day in jail, escaping with this light sentence because he promised to discontinue practicing until he obtains a license. Kaplan's record indicates that he was graduated in 1917 from the St. Louis College of Physicians and Surgeons, one of the schools involved in the Missouri diploma mill scandal. He was never licensed to practice, having failed at examinations in Missouri five times in 1921, 1922 and 1923. In 1924 when the Missouri schools were investigated it was shown that Kaplan was associated with Reuben Adcox in those operations (THE JOURNAL, July 5, 1924, p. 46). Other records of the American Medical Association indicate that he was connected with the Connecticut diploma mill scandal and also with the so-called Oriental University of Washington, D. C., another fake school. The Texas board reported that Kaplan applied for admission to its examinations, Nov. 21, 1933, but was rejected because of his inability to prove that he was 'of good moral character' and because of his conviction in a federal court in Washington of conspiracy to use the mails to defraud in connection with the 'Oriental University'."

VIRGINIA

Bills Introduced—A bill introduced in the house of delegates, February 9, by Mr. Stephens, and referred to the committee on finance, proposes to require physicians to obtain annual "revenue licenses" from the state. Physicians licensed for less than five years are to pay \$15 annually, while physicians licensed for more than five years are to pay \$25, but no physician whose gross annual income is less than \$500 is to pay more than \$15. A bill introduced in the house of delegates, by Mr. Coleman, February 8, and referred to the committee on general laws, proposes to create a board of barbering and to regulate the practice of barbering.

WASHINGTON

Personal—Dr. Francis M. Carroll has been appointed health officer of Seattle to succeed Dr. John S. McBride, who died Nov. 15, 1933. Dr. Carroll served a term as health officer about thirty years ago—Dr. Dale O. Nugent was elected mayor of Centralia recently.

Annual Surgical Clinics—The Seattle Surgical Society held its annual clinics, February 16-17, at Harbor View Hospital. At the annual dinner Saturday evening, Prof. Charles E. Martin, Ph.D. of the University of Washington, made an address on "Present Trends in European Politics."

Society News—Dr. Clarence W. Brunkow, Portland, addressed the Yakima County Medical Society, Yakima, December 11, on surgery in children—Drs. Hulett J. Wickoff and Harold E. Nichols, Seattle, addressed the Chelan County Medical Society in December at Wenatchee on injuries to

the back and roentgen diagnosis, respectively—Drs. Charles R. McColl and Glenn M. Steele, Tacoma, addressed the Pierce County Medical Society, Tacoma, December 12, on "Clinical Application of Laboratory Medicine" and "Office Procedure in Gynecology," respectively—Dr. Horace J. Whitacre, Tacoma, among others, addressed the Snohomish County Medical Society, Everett, December 6 on federal unemployment medical relief—Dr. Robert F. E. Ster, Spokane among others addressed the Walla Walla Valley Medical Society, Walla Walla, December 14, on new laboratory technics in relation to diagnosis and treatment of disease.

GENERAL

Mortality Rates for Large Cities in 1933—Eighty-six large cities in the United States which report their mortality rates weekly to the U. S. Department of Commerce had an average death rate of 11 per thousand of population during the calendar year 1933 according to figures in *Public Health Reports*. Washington, D. C., and Memphis, Tenn. had the highest rates (16), New Orleans and Nashville, Tenn., followed with 15.6 and 15.1, respectively. The lowest rate appeared for Detroit (6.9), which was followed by Akron, Ohio and South Bend, Ind., with 7.3 and Milwaukee, 8. The provisional infant mortality for 1933 for the eighty-six cities was 53, the actual number of deaths under 1 year being 29,776. The rate for 1932 was 55. The lowest infant mortality rate appears for Fort Wayne, Ind., with 26, the next in order were Tacoma, Wash. with 28, Long Beach, Calif., and Des Moines, Iowa, each of which had a rate of 30.

Congress Limits Medical Service for CWA Employees—Medical and hospital service and disability and death benefits for employees of the Federal Civil Works Administration have been limited by act of Congress, approved February 15 to cases of injury by accident causing damage or harm to the physical structure of the body. Diseases that naturally result from such injuries entitle injured employees to medical and hospital services and disability and death benefits. Other diseases do not even though they arise out of and in the course of employees' discharge of their duty. The change seems to work no change with respect to medical and hospital services except to limit them to cases of traumatic injury as defined by the act and diseases resulting from such injuries. Employees who suffer from other diseases will have to look for medical and hospital relief to the state or local relief agencies to the Federal Emergency Relief Administration or to the charity of physicians.

Southeastern Surgeons Meet in Nashville—The fifth annual assembly of the Southeastern Surgical Congress will be held in Nashville, Tenn., March 5-7, under the presidency of Dr. Willis C. Campbell, Memphis. Among speakers who will address the sessions are:

- Dr. William Wayne Babcock, Philadelphia: Postoperative Abdominal Complications and Their Management
- Dr. Chevalier Jackson, Philadelphia: Carcinoma and Sarcoma of the Esophagus
- Dr. John F. Erdmann, New York: Tumors of the Breast
- Dr. Joseph F. McCarthy, New York: Developments in Operative and Diagnostic Instrumental Urology
- Dr. George W. Crile, Cleveland: Five Points in Surgery of the Gall bladder and Ducts
- Dr. Paul G. Flotow, Seattle: Vascular Diseases of the Extremities and Their Treatment
- Dr. George H. Semken, New York: Some Experiences in Cancer Surgery
- Dr. Arthur E. Hertzler, Halstead, Kan.: Reaction of Tissues to Injury in Relation to Wound Healing and Drainage
- Dr. John J. Moorhead, New York: Precepts in Traumatic Surgery
- Dr. Melvin S. Henderson, Rochester, Minn.: Derangements of the Knee Joint
- Dr. Fred H. Albee, New York: Bacteriophage in Wound Treatment

The annual banquet will be held at the Andrew Jackson Hotel, Tuesday evening, with Dr. Perry Bromberg, Nashville, as toastmaster and Dr. Stewart R. Roberts, Atlanta, as the speaker.

Society News—At the seventh annual meeting of the Dermatological Conference of the Mississippi Valley in Chicago, January 20, with the Chicago Dermatological Society as host, there were representatives from St. Paul, Minneapolis, Rochester, Ann Arbor, Detroit, St. Louis, Oklahoma City, Pittsburgh, Cincinnati, Houston, Texas, and other cities. Thirty-four patients with uncommon diseases were shown at the clinical demonstration in the afternoon—The sixty-seventh annual meeting of the American Otological Society will be held at the Claridge Hotel, Atlantic City, April 6-7—Dr. Edwin L. Perkins, Sioux Falls, S. D., was elected president of the Sioux Valley Medical Association at its annual meeting in Sioux City recently, succeeding Dr. Sidney A.

Slater, Worthington, Minn. Dr Charles C Telleston, Wynot, Neb., was reelected vice president, and Dr Ludwig L. Sogge, Windom, Minn., named vice president to succeed Dr Perkins. Dr William Roscoe Jepson, Sioux City, was reelected secretary, and Dr Walter R. Brock, Sheldon, Iowa, treasurer.

Medical Grants of National Research Council—The committee on grants-in-aid of the National Research Council announces the following grants in the field of the medical sciences:

Dr Garland Howard Bailey, associate professor of immunology, Johns Hopkins University School of Hygiene and Public Health, Baltimore, on heterophile antigens of bacteria and plant and animal tissues.
Raymond L. Garner, Ph.D., assistant in medicine, Johns Hopkins University School of Medicine, Baltimore, enzymatic liquefaction of clotted human blood.

Dr Ralph W. Gerard, associate professor of physiology, University of Chicago, activity of nerve tissue and the central nervous system.
Dr Balduin Lucke, professor of pathology, University of Pennsylvania School of Medicine, Philadelphia, a neoplastic disease of the common leopard frog, *Rana pipiens*.

Drs John R. Paul, assistant professor of medicine, and James D. Trask, associate professor of pediatrics, Yale University School of Medicine, comparison of different strains of poliomyelitis virus.
Arthur H. Smith, Ph.D., associate professor of physiological chemistry, Yale University School of Medicine, the influence of various inorganic ions upon the body weight and blood changes of experimental animals.

The National Research Council will consider further requests for research assistance later in the spring. Applications, presented on forms which will be furnished by the secretary of the committee on grants-in-aid, must be on file with the committee by March 15. The address of the council is 2101 Constitution Avenue, Washington, D. C.

Physical Therapy Meeting—The midwestern section of the American Congress of Physical Therapy will hold its spring session, March 13, in Indianapolis. The afternoon session will be held at the Indiana University School of Medicine, and the evening meeting at the Athenaeum. The following program has been announced:

Some Problems in Physical Therapy. Dr Albert F. Tyler, Omaha, president of the American Congress of Physical Therapy.

Treatment of Precancerous Lesions of the Face. Dr Disraeli Kobak, assistant clinical professor of physical therapy, Rush Medical College, Chicago.

Experimental and Clinical Observations on the Use of Irradiated Ergosterol. Carlos I. Reed, Ph.D., assistant professor of physiology, University of Illinois College of Medicine.

Cancer of the Hand (demonstration clinic). Dr Edwin N. Kame, associate in medicine, Indiana University School of Medicine, Indianapolis.

Physicochemical Basis of Physical Therapy. Dr Reinhard Beutner, professor of pharmacology, University of Louisville School of Medicine.

A Newer Conception of the Action of Infra-Red Radiation in Upper Respiratory Infections. Dr Abraham R. Hollender, instructor in otorhinolaryngology, University of Illinois College of Medicine.

Physical Energies in the Diagnosis and Treatment of Cancer of the Breast. Dr Argus David Willmoth, Louisville.

An Electrosurgical Method for Obliterating the Gallbladder. Dr Max Thorck, professor of surgery, Cook County Graduate School of Medicine, Chicago.

Physical Therapy in the Rehabilitation of the Disabled. Dr John Stanley Coulter, associate professor of physical therapy, Northwestern University Medical School, Chicago.

Medical Bills in Congress—Changes in Status H. R. 1766 has been reported to the House, without amendment, with a recommendation that it pass (H. Rept. 706). The bill provides medical services after retirement on annuity to former employees of the United States disabled by injuries sustained in the performance of their duties. H. R. 6663, the Independent Offices Appropriation Bill, has been reported to the Senate, with amendments (S. Rept. 294). The proposed amendments to the bill authorizing additional benefits to veterans were rejected by the Senate Committee on Appropriations. In the committee report, however, it is stated: "The statement was made by the chairman of the subcommittee having charge of the bill that he would give notice of a motion to suspend the rules for the purpose of offering certain amendments affecting veterans' benefits and the committee recommends that this motion be agreed to in order that veterans' legislation may be considered as amendments to the bill." H. R. 249 has passed the House, authorizing the House Committee on Labor to study the question of old age pensions and to recommend legislation establishing an old-age contributory pension system under the jurisdiction of the federal government if the committee deems such legislation appropriate. **Bills Introduced** S. 2526 introduced by Senator Long, Louisiana, proposes to pay an annuity to Frances Agramonte the widow of Dr Aristides Agramonte, a member of the Yellow Fever Commission. S. 2727 introduced by Senator Tidings, Maryland, proposes to provide medical services after retirement on annuity to former employees of the United States disabled by injuries sustained in the performance of their duties. S. 2753, introduced by Senator Walsh, Massachusetts, proposes to authorize the

Reconstruction Finance Corporation to make loans to publicly and privately controlled colleges, universities and other institutions of higher learning. H. J. Res. 255, introduced by Representative Wiedeman, Michigan, proposes to create a commission to formulate a permanent national policy with respect to benefits for veterans and dependents of veterans. H. J. Res. 257, introduced by Representative O'Malley, Wisconsin, proposes to authorize the Secretary of the Interior to arrange with the several states for the education, medical attention, relief of distress, and social welfare of the Indians. H. R. 7492, introduced (by request) by Representative O'Connell, Rhode Island, proposes to confer additional benefits on veterans. It proposes to reestablish service connections, presumptive and otherwise that were established prior to March 20, 1933, and that have since been severed. H. R. 7547, introduced by Representative Evans, California, proposes to continue the retirement pay received by emergency officers of the World War at the monthly rate that was being paid prior to March 20, 1933, if the disability for which the officer has been retired resulted from a disease or injury or aggravation of a pre-existing disease or injury incurred in line of duty during such service. H. R. 7552, introduced by Representative Hope, Kansas, proposes to grant pensions and increases of pensions to certain soldiers, sailors and certain nurses of the war with Spain, the Philippine insurrection or the China relief expedition, and their widows and dependents. Pensions for contract nurses are provided for under existing law. No pension is provided under existing law or in the proposed bill for contract surgeons. H. R. 7556, introduced by Representative Hastings, Oklahoma, proposes to protect workers in their old age, by authorizing a federal appropriation to be allotted to the several states to aid them in giving assistance to aged persons. H. R. 7594, introduced by Representative Lewis, Maryland, proposes to provide for publicity of executive and administrative rules, regulations and orders. H. R. 7598, introduced by Representative Lundeen, Minnesota, proposes to provide for the establishment of unemployment and social insurance. It would authorize the Secretary of Labor to establish forms of social insurance for the purpose of paying workers and farmers for loss of wages because of part time work, sickness, accident, old age or maternity. H. R. 7647, introduced by Representative Marland, Oklahoma, proposes to confer additional benefits on veterans. It provides that any World War veteran who is in need of hospitalization or domiciliary care and unable to defray the necessary expenses therefor shall be furnished hospitalization or domiciliary care in any Veterans' Administration facility, irrespective of whether the disability, disease or defect was due to service. A statement by the veteran that he is unable to defray the necessary expenses of hospitalization or domiciliary care must be accepted by the Administrator of Veterans' Affairs as conclusive evidence of that fact. H. R. 7661, introduced by Representative Connolly, Pennsylvania, proposes to permit radium to be accepted in payment of war debts due from Belgium and to authorize the President to provide by rules and regulations for the donation of the radium so received to hospitals, medical clinics and medical research organizations in the United States. H. R. 7830, introduced by Representative Boileau, Wisconsin, proposes to confer additional benefits on veterans. It would, among other things, authorize the Administrator of Veterans' Affairs, so far as he shall find that existing government facilities permit, to furnish hospitalization and necessary traveling expenses incident to hospitalization to veterans, without regard to the nature or origin of their disabilities. H. R. 7854, introduced by Representative Fish, New York, proposes to authorize the Reconstruction Finance Corporation to make loans to religious and educational institutions. H. R. 7964, introduced by Representative Jenckes, Indiana, proposes to prevent the adulteration, misbranding and false advertising of food, drugs and cosmetics.

FOREIGN

Society News—The seventh meeting of the German Society for Circulatory Research will be held in Bad Kissingen, April 16-17. Subjects to be treated are thrombosis and embolism, a theoretical lecture to be given by Prof. Ludwig Aschoff, Freiburg, and clinical lectures by Drs. Paul Morawitz, Leipzig, and Ludwig Nürnberger, Halle.

Centenary of Medical Society—The Norwegian Medical Society, Oslo, observed its one hundredth anniversary, November 5, the *Journal-Lancet* reports. Prof. Peter F. Holst, president of the society, presided and proposed a toast to King Haakon who, in his response, praised the society for its contributions to medical science. Thirty-one young physicians were given prizes ranging from \$500 to \$1,000 each made available annually through a bequest of the late Dr. Malthé.

New Building at London Medical School—King George V and Queen Mary officially opened new buildings for the medical school and pathologic institute at St. Mary's Hospital, London, December 12. The new buildings, which are continuous, are four stories high, with adequate accommodations for lecturers and laboratory work and in addition an underground garage, a swimming pool, a gymnasium and a squash rackets court. Dr. Charles M. Wilson is dean of the medical school, and Sir Almoth E. Wright, director of the pathologic institute. The buildings replaced were opened in 1852.

Personal—Dr. J. Sanchez Covisa, former president of the College of Physicians of Madrid and of the Spanish Society of Dermatology and Syphilology, has been appointed dean of the medical faculty of Madrid to succeed the late Dr. Sebastian Recasens.—Dr. Malcolm H. MacKeith, dean of the medical school of Oxford University, has been appointed dean of the new British Post-Graduate Medical School at Hammersmith. It is hoped that the school will be open to students the latter part of 1934.—Sir Leonard Rogers has retired as medical adviser to the secretary of state for India and president of the India Office Medical Board, having reached the age limit. He has been succeeded by Sir John W. D. Megaw, director general of the Indian Medical Service. Sir Leonard will continue his connection with the British Empire Leprosy Relief Association.—A surgeon, Mr. Godfrey Martin Huggins, has recently been chosen prime minister of Southern Rhodesia, Africa. A native of England, he has been in Rhodesia since 1910. He is consulting surgeon to the Salisbury Hospital.

Government Services

Food and Drug Seizures in January

The Federal Food and Drug Administration reports that seizure proceedings were instituted in January against 144 consignments of food and drugs and that twenty-three criminal prosecutions against offenders were recommended. Notification was received from federal courts of the termination of nineteen criminal prosecutions. Important seizures included candy containing alcohol. The law prohibiting the use of alcohol in candy has been in no way modified by the repeal of the prohibition law, the administration pointed out. Approximately 83,000 pounds of adulterated butter was seized. Among drug seizures of the month were bottles of Sirop d'Amis Gauvin Compound, consigned by J. A. E. Gauvin, Lowell, Mass. This "compound," which was recommended for coughs, colds, bronchitis and other ailments, was found to contain morphine. Among the criminal actions terminated were a fine of \$250 imposed on the Nestor Drug and Chemical Company, Chicago, and Julius Loeser for gross misbranding of a product which was called a cure for various maladies, a fine of \$200 on the Giles Remedy Company and Sanford F. Giles for shipping in interstate commerce an adulterated and misbranded germicide and one of \$200 on the French Sardine Company, Terminal Island, Calif., which had shipped cases of partially decomposed tuna fish.

Statement About Medicinal Whisky

The Federal Food and Drug Administration issued a statement, February 16, calling attention to the requirements of the Food and Drug Act concerning medicinal whisky as differentiated from a product intended exclusively for beverage use. Under the law, drugs listed in the U. S. Pharmacopoeia must conform to the definition in that authority and in the case of whisky the definition is more rigid than that for "straight whisky," recently issued by the Federal Alcohol Control Administration. Pharmacopoeia whisky must be aged at least four years in charred wood containers and its alcoholic content must be not less than 47 per cent and not more than 53 per cent by volume of absolute alcohol. A product varying from these specifications may be sold, if the label carries a statement of the strength, quality and purity but it must be marked "Whisky not U. S. P." Diluted alcohol with or without artificial flavor and color cannot be sold under the name "whisky," no matter how that name may be modified or qualified. Such a compound may be sold as a drug under a name other than whisky, if the name is not false or misleading in any particular. The announcement is not to be construed as modifying or changing the regulations of the Federal Alcohol Control Administration relative to the labeling of distilled spirits but shall be considered as an addition thereto, it was emphasized.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 27, 1934

Complete Medical Socialism

The important fact that what is called national health insurance is so subsidized by the government and the employer that it is largely socialistic is generally overlooked in discussions, as well as the still more important fact that the evils of the system are due to this socialistic element. The principle of health insurance—that those who would be unable to pay the cost of medical attendance in the ordinary manner should provide for it by insurance—is of course sound and beyond criticism. The evils of the socialistic element as disclosed in the working of the system, have frequently been described in these letters. An important question, therefore, for any country in which the introduction of national health insurance is contemplated is "How far will the scheme be socialistic?" Another question is "Supposing it is decided that a moderate subsidy from the state is necessary, as in other countries, what is the danger of the state, under political pressure, being compelled to subsidize more and more and make the scheme more socialistic?" In England, constant demands are being made on the state for more and more, and the expenditure is much greater than was originally proposed. Moreover there is the danger that under political pressure complete socialization of the medical profession may be brought about. Under the socialist government this danger was so great that the British Medical Association brought forward a scheme of almost complete socialization, not because it or the profession wanted it but as a lesser evil than what might have been imposed by the government. With the crushing defeat of that government this scheme has disappeared. But the socialist party remains active and no one would be bold enough to say that it may not be in power some day. What may be expected from it is shown by the report in the *Tan* of an address of Mr. Somerville Hastings, a laryngologist, who is a prominent member of the Socialist Medical Association, to the Lewisham Division of the British Medical Association.

Medical services he said should be free to every one, payment for them being made out of the taxes on a whole time salary basis. Money was always a difficulty with patients, if the physician visits frequently, he is thought to be running up a bill, if he tries to avoid such a charge by staying away, he is reproached with neglect. The taxpayer admitted to a hospital would if able, pay the full cost of maintenance there but the medical charges would be covered by the taxes. Mr. Hastings referred to the services which in recent years have been removed from the province of the general practitioner and provided by the community—preventive medicine, infectious diseases, lunacy treatment of school children, much maternity work, tuberculosis, venereal diseases. Rheumatism, orthopedics and cancer might soon be added. At present the London County Council had no outpatient departments attached to its hospitals, but they were coming. There was too much time wasted by physicians in going round to see patients. Ill health cost the nation about \$1,000,000,000. The preventive medical service cost \$100,000,000 and the treatment services another \$450,000,000. He doubted whether the state was getting value for its expenditure. Under his scheme there would be unit services for 50,000 people and most of the work would be done in a central clinic by a staff of twenty physicians working in conjunction with specialists. Hospitals and convalescent homes would be attached to the clinics. Private practice would still be allowed to physicians who did not come into the service,

but the aim would be to make this so attractive that rich and poor would flock to it

Mr Hastings assumes the continuance of the resources now provided by a society that still retains, in spite of socialistic adulteration, much of the efficiency of individualism. The complete socialization of the medical profession is not likely to be brought about without the complete socialization of everything else. If this ever should be achieved in this highly industrialized country the results, it is said on good authority, would be much more disastrous than have followed the destruction of the capitalist system in the comparatively backward Russia. Mr Hastings might ask himself the question: With what efficiency does the Russian government supply the medical needs of the masses, or the much more important needs of food, clothing and housing? The fatal flaw in all socialistic schemes is that they take no account of the loss of efficiency due to removal of the incentive of individual advantage.

The Removal of Tonsils

Whether the frequent removal of tonsils now practiced as justifiable is much disputed. The Ministry of Health a short time ago issued a report showing that the operation was too frequently performed. The Fellowship of Medicine arranged a debate on the motion "That operations for the removal of tonsils are too often performed without adequate cause." It was proposed by the laryngologist Mr Herbert Tilley, who said that, for many of the subacute and chronic ailments of children up to the age of puberty and even adolescence, no treatment was so quickly restorative to normal and prolonged good health as removal of enlarged and diseased tonsils. But unfortunately this led to the belief that a disproportionate number of such maladies in children and only less frequently in adults, are due to "septic tonsils," which are often removed without adequate examination of patients for other possible causes of their symptoms. It has been shown that the lymphoid nodules of the tonsils provide a constant supply of lymphocytes and phagocytes, which destroy noxious organisms that reach the tonsils through the mouth and nose. Probably in this "warfare" some general immunization is produced. Mr Tilley said that it is not an uncommon experience to find in young patients who a year or so previously had their tonsils and adenoids removed that in the interval large patches of lymphoid tissue had been deposited on the posterior and lateral walls of the pharynx. Or the lower halves of the tonsillar fossae may become occupied by an upward growth of the adjacent lingual tonsils. This suggests an attempt of nature to compensate for the loss of the tonsils. Unfortunately the new deposits often lead to complaints of dryness and soreness of the throat and frequently an irritating cough—symptoms sometimes difficult to cure without cauterization.

Discussing What is a septic tonsil? Mr Tilley said that in children bacterial flora can always be detected in the tonsillar crypts and from normal adults yellowish white plugs of debris can easily be expressed from one or more recesses in the tonsil, and the bacteriologist would report the presence of broken-down epithelial cells, lymphocytes, leukocytes, fibrinous material and probably pathogenic microbes. Such plugs are not an adequate cause for removal of tonsils. The "chronic septic tonsil" which may be a menace to the individual, he held to be one in which the natural protective barriers have broken down and pathogenic microbes, with their toxins have entered the lymphatics of the tonsils and general circulation. The result is various degrees of inflammation of the tonsils with a history of recurrent attacks of acute tonsillitis and symptoms of mild general toxemia often associated with local manifestations, such as myositis, neuritis, arthritis and symptoms suggesting cardiac infection. Clinically the most concise answer to the question is Hajek's dictum: "The most certain proof

of a chronic tonsillitis is always the occurrence of repeated acute attacks." But, if such attacks are few and far between, the tonsils may equally be condemned on the following grounds: 1 The escape of pus from the crypts when pressure is applied to the tonsil. 2 An enlarged tonsillar gland behind the angle of the jaw, varying in size and sometimes tender. The neighboring anterior cervical glands may be in a similar condition. 3 A purplish red tinge limited to the anterior faucial pillar. This generally indicates streptococcal infection of the underlying tonsil and is frequently associated with arthritis. 4 Abnormal preponderance of leukocytes in material from the tonsillar crypts, frequently accompanied by general hyperemia of the pharyngeal and palatal mucosa. The size of the tonsil is no criterion of the degree of sepsis within it. A large tonsil may be far more harmless than another, which is small, retracted and fibrous. Once chronic infection has been established the tonsil should be removed. In cases of chronic neuritis, arthritis, disordered heart action, iritis and rebellious skin diseases, striking successes have been achieved. But unfortunately there are also failures in what appear to be identical conditions, which points to the conclusion that the cause of the symptoms was not discovered.

Mr Tilley drew attention finally to certain local and general factors, which he has found, cause enlargement or inflammation of the tonsils. If such conditions were more freely recognized and treated, many tonsillectomies would be unnecessary. They are as follows: 1 Deficiency diseases, such as rickets are commonly associated with enlarged tonsils. The same holds for deficiency of vitamin A, which frequently occurs in children brought up on excess of carbohydrates. 2 There is no need to remove slightly enlarged tonsils when the symptoms are typical of adenoid obstruction. Removal of the adenoids will frequently be followed by return of the tonsils to normal. 3 Dental sepsis is a frequent source of tonsillar congestion in children and sometimes in adults. 4 Many enlarged tonsils are due to infection of the nasal sinuses, particularly the antrum. This condition is far more common in children than is yet appreciated by laryngologists. It explains the large proportion of cases in which nasal discharge, cough and mild pyrexia continue after removal of tonsils and adenoids. 5 Nasopharyngeal symptoms, which include fulness of the tonsils, frequently accompany the advent of puberty. Removal of such tonsils would be reprehensible.

In seconding the motion, Dr J. Alison Glover, medical officer of the Ministry of Health, gave statistics to show that tonsillectomy is excessively performed. More than half the most carefully nurtured children in this country are now subjected to it whereas forty years ago none of their parents underwent it. While the incidence of tonsillitis is at least as high among the poor as among the rich, the children of the latter are operated on four times as often.

Measurement of Doses of X-Rays and Radium

Advances are being made at the National Physical Laboratory, Teddington, in methods of measuring doses of x-rays and radium. The work is under the charge of Dr G. W. C. Kave, superintendent of the physical department. Discussions between Teddington and the national laboratories of the United States and Germany are expected to lead to an international system of measurement at the congress to be held at Zurich next summer. Already measurement of the roentgen, the new x-ray unit, at the three laboratories, agree to within 0.5 per cent. The method depends on the power of the x-rays to make air a good conductor of electricity. The central part of the beam of x-rays is passed through a lead-screened chamber, and the rate at which electricity "leaks" from one side of the chamber to the other is measured. This method was worked out at Teddington and was used to standardize a less satisfactory

standard—the rate at which yellowish green pastilles are turned brown under the influence of radium. The full exploration of a beam of x-rays or radium will be possible by means of an instrument that need be no larger than a thumbnail but must first be compared with the standard recorder.

PARIS

(From Our Regular Correspondent)

Jan 10, 1934

Revision of the Premedical Course

Considerable stir was caused in the medical press by the recent announcement of the revised program of the premedical course, which must be completed by all candidates for admission to a French *faculté de médecine*. Heretofore these studies have been pursued in the *facultés des sciences* and comprised courses in physics, chemistry and natural history. It has frequently been alleged that these courses present too much theoretical knowledge that the physician has no use for in the practice of his profession. The *facultés des sciences* it is true, gave these courses a character that was not exclusively medical, since they prepared the way for scientific careers other than that of medicine. Complaints of physicians have become increasingly loud in recent years. The physicians finally succeeded in inducing the superior council of public instruction to revise these courses. The new certificate, or diploma, will cover "physical, chemical and biologic sciences." The new courses reduced the time spent on zoology and botany since the elements of these subjects that are useful to medicine are taught in the *facultés de médecine*. But it created general surprise when it was announced that the superior council (the majority of the members of which, by the way, are professors of pure science) had added, to make up for the trimming of the courses in zoology and botany, a complete program of higher mathematics, including trigonometry, logarithms, the calculation of curves, and exponential functions, which are of much less practical value for the mental training of the physician and are of a nature to discourage many prospective candidates. The medical profession has filed vigorous protests with the minister of public instruction and has demanded as preferable a return to the old system in vogue thirty years ago, when this preliminary instruction was given in the *facultés de médecine*.

A New Type of Sanitary Train

The Chemin-de-fer du Nord (Northern Railway Company) has put into service a special sanitary train to be used on its lines to facilitate radiologic examination of those of its agents who are employed in small localities, distant from hospital centers. Mr. Hirschberg has prepared a detailed description of the equipment of this modern train and has transmitted it, with the compliments of the company, to the Academy of Medicine. The train is composed of three special cars, one to serve for consultations and for roentgenologic examinations, a second car for the accommodation of the physician and the corps of assistants, and a third car that serves as a waiting room. This sanitary train, which functions with great success, has as its chief objective the application of prophylactic measures against tuberculosis, but it serves, at the same time as an evacuation center and directs to suitable institutions all patients, tuberculous or otherwise, who seek a consultation. Mr. Calmette, shortly before his death, emphasized the great importance of this ambulant dispensary as an aid in combating tuberculosis. Sanitary trains of this, or similar, type might be used also for the preliminary examination of the wounded in time of war. Soon after this sanitary train was put into service, a train of a similar type but even more luxuriously equipped was constructed by the government-controlled railways. It is designed to travel over all the lines of the govern-

ment railways and to visit more particularly the remote small localities in which medical organization is inadequate, to assist in giving clinical and roentgenologic examinations to the employees of the company.

A New Type of Municipal Hospital

The municipal council of Paris, wishing to take some adequate action in response to the protests launched by the physicians who complain that too many well-to-do patients are admitted to the hospitals of the *Assistance publique*, at reduced rates (although these institutions were established primarily for the indigent), without any additional remuneration of the heads of departments, who receive a fixed annual compensation from the *Assistance publique*, has decided to erect a large municipal hospital in the thirteenth *arrondissement* (ward), which will be in fact, a clinic exploited by the city administration. The patients will occupy separate rooms and will be attended by the physician of their choice, whom they will pay directly for his services, while the city will collect the hospital charges exclusive of medical attendance. There will be no chief physician. All physicians were to be permitted to attend their clients in this institution, but, at the request of a member of the city council it has been decided that only French physicians will be accepted, foreign physicians being excluded. No sooner was this plan announced than the private sanatoriums began to file protests, alleging that they would thus be deprived of the larger portion of their clientele, whereas they are under heavy expense and pay large income taxes, from which the municipal institution would doubtless be exempted. It is true, however, that these sanatoriums have very high tariff schedules, which is the chief reason why even well to do patients, during these times of stress, prefer to seek medical treatment in the hospitals which are delighted to receive them, as their income is augmented by these promptly paying patients.

BERLIN

(From Our Regular Correspondent)

Jan 8, 1934

Interpretation of the Sterilization Law

The law for the prevention of offspring with serious pathologic hereditary tendencies (THE JOURNAL Sept 9, 1933, p. 866) went into effect January 1. The diseases involved are of course precisely enumerated in the law. According to the law sterilization presupposes that the disease has been unequivocally diagnosed by a licensed physician even though, owing to attempts at concealment, it may have become only temporarily apparent. A plea for sterilization shall not be entered if the subject with hereditary taints, by reason of advanced age or otherwise, is incapable of reproduction, or if the health officer having jurisdiction has certified that the intervention would constitute a peril for the life of the person or if, being in need of institutional care, he is retained permanently in an institution. The sterilization shall not be performed before completion of the tenth year of life. Sterilization is effected, without removal of the testes or ovaries, by making the spermatic cords or the fallopian tubes impermeable or severing them. The operation is to be done in federal or communal hospitals or sanatoriums or in other institutions only in case they are willing to accept such patients. An absolute guaranty must be given that the intervention will be performed by a physician who has had surgical training. If a licensed physician through his practice, becomes acquainted with a person who is affected with a hereditary disease or grave alcoholism, he must notify, without delay, the health officer having jurisdiction. The same obligation rests on other persons who are concerned with the examination, therapeutic management or counseling of patients. If the official physician regards sterili-

zation as advisable, he shall endeavor to induce the patient in question, or his legal representative, to file a petition to that effect. If this is not done, he must file a petition himself.

For this purpose a questionnaire has been drawn up that applies particularly to persons with hereditary blood taints. For weakminded persons a questionnaire comprising an intelligence test has been prepared. If the court approves the sterilization, the official physician shall inform in writing the subject to be sterilized and shall demand that he (or she) submit to the intervention within two weeks. The notice should contain the names of the institutions to which application may be made. If the subject to be operated on does not file a petition of his own accord, he should be informed that the intervention will be undertaken against his will. The court shall countermand the order for sterilization if testimony given by the official physician having jurisdiction is to the effect that sterilization would imperil the life of the subject. If the person to be sterilized secures, at his expense, admission to a "closed" institution that will furnish a guaranty that reproduction will not occur, the court will, at his request, order that the intervention be held in abeyance as long as the person remains in the designated institution. This provision, which leaves open a way in which sterilization can be avoided (although at the expense of the subject's personal freedom), creates a distinction between rich and poor, to which the daily press has called attention in the hope that some way may be devised of furnishing the necessary financial aid to persons of limited means. After expiration of the delay set, the intervention shall be carried out with the aid of the police and the application of direct force, if necessary. In the case of juveniles, the intervention may not be carried out with application of direct force before completion of the fourteenth year. Neglect of the duty of notification renders a person subject to punishment.

For the execution of the sterilization law, eugenics courts (and superior courts) have been established throughout the reich. Attention is given first to patients who are already under medical supervision—that is, who are in institutions or who are receiving protracted treatment. It will then be the duty of the specially appointed eugenics boards to ferret out the remaining persons with serious hereditary and transmissible defects. According to estimates, the number of persons with hereditary disorders who are to be sterilized within a short time amounts to about 400,000. The sterilization law lists nine diseases as hereditary, with numbers somewhat as follows: congenital weakmindedness, 200,000; schizophrenia, 80,000; manic-depressive insanity, 20,000; epilepsy, 60,000; chorea minor, 600; hereditary blindness, 4,000; hereditary deafness, 16,000; grave bodily malformation, 20,000; hereditary alcoholism, 10,000; a total of 410,600. This number is composed about equally of men and women. It is evident that not all the persons concerned can be subjected to the sterilizing operation within a few weeks. The plan is to treat the more urgent cases first.

An estimate of the total expense must consider that the comparatively simple operation on a man costs about 20 marks (\$7.60). The total expenditure for the sterilization of 200,000 men would thus amount to about 4,000,000 marks (\$1,520,000). The intervention as applied to women is more complicated, and the charges may be estimated at 50 marks (\$19). The total expense involved in the sterilization of 200,000 women would accordingly range around 10,000,000 marks (\$3,800,000). Over against this expenditure of 14,000,000 marks (\$5,320,000), for the first few years, may be placed the economies effected by the prevention of offspring with serious hereditary taints. According to a recent estimate every patient with a hereditary disorder entails an average annual expense to the commune that provides for his care in an institution of 1,482 marks (\$563). On the basis of a low estimate the communes of the whole reich would expend more than 170,000,000 marks

(\$64,600,000) for the mental patients alone. In addition, a large part of the offspring with hereditary disorders must be educated in special schools, the annual expenditures for which throughout the reich amount to 40,000,000 marks (\$15,200,000). Berlin, for example, pays for the 8,000 pupils in its special schools 2,500,000 marks (\$950,000) more than for the same number of pupils in the *volksschulen*. The direct expenditures for patients with hereditary disorders, as reported by the reich, the lander and the communes, amount to at least the annual sum of 350,000,000 marks (\$133,000,000). Director Burgdorfer, of the federal bureau of statistics, includes in the financial burdens entailed by patients with hereditary disorders also the sums expended by the welfare agencies, the churches and private parties, and this places the annual disbursement that the public has to meet for the support of patients with hereditary disorders, and of asocial and criminal elements, at approximately 1,000,000,000 marks or \$380,000,000.

It is estimated that, after several decades, hundreds of millions of marks will be saved each year as a result of the reduction in the expenditures for patients with hereditary diseases. The funds for the care of such patients are furnished chiefly by the social insurance system, that is, by the *krankenassen*. Uninsured persons are taken care of generally by welfare aid societies. A written report must be made to the health authorities within three days after the intervention.

THE CASTRATION OF CRIMINALS

The law pertaining to the castration of criminals likewise went into effect, January 1. Some of the provisions have a medical interest. As measures of safety and moral regeneration, any of the following decisions may be reached: internment in a sanatorium, a drunk cure institution or an institution for withdrawal treatment, sterilization of dangerous perpetrators of crimes against good morals. Hardened criminals who are hopeless recidivists may be kept in custody for an indefinite period or for the duration of their lives. Dangerous criminals who commit sex crimes can be sterilized after age 21 if they have been previously sentenced for a corresponding crime and a prison sentence of at least six months was imposed. Consideration of all the facts in the case must show that the subject is a dangerous violator of moral laws as pertaining to sex. Evidence of a sentence imposed in a foreign country will be accepted as having the same value as a sentence imposed in Germany.

Any person who, through intoxicants, including narcotics, allows himself to get into such an intoxicated state as to be no longer accountable for his acts, and while in such a condition commits a punishable offense, may be given a prison sentence up to two years. Any person who procures without permission, for an inmate of an institution for withdrawal treatment, alcohol in any form, or other intoxicants, may be given a prison sentence up to three months.

Congress of Internal Medicine

This year's session of the *Deutsche Gesellschaft für Innere Medizin* will be held in Wiesbaden, April 9-12. The main topics on the program are: (1) "The Present-Day Theory of Hereditary Transmission in Its Application to Man," chief speaker, Eugen Fischer, Berlin; (2) "General Pathology of Hereditary Transmission," chief speaker, Freiherr von Verschuer, Berlin; (3) "Special Pathology of Hereditary Transmission of Internal and Nervous Diseases," chief speaker, Otto Naegeli, Zurich; (4) "Significance and Scope of the Localization Principle in the Nervous System," chief speaker, Otfried Foerster, Breslau; (5) "Physiology and Chemistry of the Sex Hormones," chief speaker, Adolf Butenandt, Danzig; (6) "Normal and Pathologic Functioning of the Ovaries," chief speaker, Robert Schroeder, Kiel. The chairman is Schittenhelm of Kiel, who directed also the previous congress, in place of Lichtwitz.

VIENNA

(From Our Regular Correspondent)

Dec 12, 1933

The Tannic Acid Treatment of Burns

Since the tannic acid treatment of burns became known here, a large number of physicians, particularly in the "accident hospitals," have adopted this method. In order to bring the method to the attention of more physicians a number of lectures and demonstrations on the subject were held at a recent session of the Vienna Medical Society. It was stressed that the chief advantage of this method holds not so much for adults as for the burns of children, whose lives are thereby saved for ordinarily the prognosis in the case of children with burns is much more unfavorable than with adults. The new method reduces the pain and dispenses with bandages and the use of the protracted water bath. In combination with blood transfusion and injections of sodium thiosulphate, the results have been excellent. Of all the methods recommended for the use of tannic acid, the following has proved to be the most effective: Moistening or spraying of the burned portions of the body every quarter of an hour, with a 2.5 per cent solution over a period of from twelve to eighteen hours. As soon as the crust has formed, the patient needs little further care. The crude tannic acid is superior to the purified, and the best effects are secured if the solution is applied at a temperature of 30° C (86° F). The stay in the hospital is reduced at least 20 per cent. Scar formation and contractures are much more rare and more pliable than formerly. The sooner the tannic acid is applied, the better the results. The mortality has been reduced from 13.5 per cent to 2.4 per cent whereas with the trinitrophenol therapy formerly employed the mortality ranged from 11 to 40 per cent.

Roentgenologic Treatment of Metastatic Cancer of Lung

Dr. Borak demonstrated before the Gesellschaft der Aerzte several cases of metastatic tumors of the lung which are now regarded as virtually healed. A woman aged 61 who, seven years previously, had a solid cancer of the right mamma had a radical operation, which was followed by irradiation. The operative area is thus far free from recurrences. In 1930, however, a metastasis developed in the region of the left hilus glands, compressed the bronchus and esophagus and pressed on the pneumogastric nerve which condition was associated with upper displacement of the diaphragm and atelectasis of the lung. The symptoms were cough, fever, blood-stained sputum and loss of weight. The patient received in September, October and December 1930 roentgen irradiations equivalent to 2,400 roentgens for each series, distributed over the breast and back. The pressure symptoms disappeared gradually, and today there is visible in the hilus only a strip of shadow at the former site of the tumor. The subjective condition of the patient is excellent, while normal body weight and full working capacity have been restored. This result has persisted for three years. Dr. Borak exhibited roentgenograms of several other cases: one case with a solitary metastasis dating back to the year 1929, and other cases with multiple foci in both lungs going back to 1930. These cases were metastases following cancer of the breast and belonged to the type of a solid cancer. The observations of other roentgenologists go to show that this type in contrast with adenocarcinoma, reacts well to roentgen rays. Much heavier doses must, however, be employed than was formerly the custom and is still the custom, to a certain extent.

Albin Haberdar

Prof. Albin Haberdar, the distinguished medicolegalist, died, recently, after a long illness at the age of 66. Haberdar was a pupil of Eduard Hofmann. While a student he was appointed

an assistant in the institute, an excellent proof of his unusual ability. He was then assigned to the Klinik für Chirurgie and later to the Klinik für Gynäkologie. After the death of Professor Kolisko, who, after Hofmann's demise, had become director of the Institute of Legal Medicine, Haberdar took over, as a young man, this important post, and established a school of legal medicine, which was attended by physicians and jurists from all parts of the world. His originality and wit were proverbial while his knowledge was profound. His classic Textbook of Legal Medicine, which he kept up to date, became a standard work, a mine of information for every person interested in legal medicine. The journal *Beiträge zur gerichtlichen Medizin* was founded and edited by Haberdar, and in it he published many extremely valuable articles from his own pen. Many of Professor Haberdar's pupils are serving today as forensic experts in Austria and in foreign countries. Particularly well known is his critical attitude toward the problem of artificial (criminal) abortion for which he rejected social and eugenic indications. During his last illness of two years' duration his pupil Professor Werkgartner took charge of his work and is likely to be appointed his successor. Haberdar's death is a severe loss for the faculty of the University of Vienna. He was one of the last of the "old guard" which before the war, had made Vienna the Mecca of European students.

JAPAN

(From Our Regular Correspondent)

Dec 30, 1933

The Increase in the Number of Physicians

The total number of physicians in Japan in 1932 amounted to 50,068 according to a report made by the home department, which shows an increase of 1,969 over the number of the previous year. Of these physicians the practitioners number 46,029 or 1,140 more than in 1931, the number in every 10,000 of population is 694. Those who work in cities number 23,736, those in towns 10,204, and those in villages 12,089.

The number of dentists is reported to be 17,164 in 1931 it was 15,988. The number of midwives was 54,655 (in 1931, 52,537). The number of names removed from the medical register for various reasons in 1931 was 1,014. In the last ten years, 968 practitioners each year have been removed from the register. In the present school year from last April to March 1934, the graduates of medical colleges, universities and other schools will amount to 3,115. The rapid increase of the population may more or less justify the increase of physicians, nevertheless this is the age of the flood of doctors. The present system of medical education here is a point of issue on every side, for this system when founded about sixty years ago was based on the German system, and there has been little change. Four years of medical studies are said to be too few for those who want to practice soon after graduation but to lengthen them the preparatory course must be shortened.

Three Professors Dismissed for Selling Degrees

The following disgraceful incident shows how hard it is for practitioners to succeed in these hard times. In this country the title of Doctor of Medicine is almost a prerequisite for a practitioner to have a large practice. This title is given when a thesis for the doctorate is approved by the college or university staff. Three professors of the Nagasaki Medical College which is under government management, were accused by the procurators of the Nagasaki local court of selling through bribery the scholastic degree of doctor of medicine. The eight practitioners who bought the degrees were also accused. This caused a sensation all over the country as the occurrence was the first of its kind in Japanese scholastic circles. All the students of that medical college although forbidden to assemble

in protest against the scandal, managed to voice a united refusal to undergo examination by the present teaching staff. On hearing the indignant demands of the students, the entire teaching staff decided to resign, including the president, sixteen professors and nine assistant professors. The three professors, one of whom is reported to be the most famous gynecologist in this country, were taken in custody, while the others are reported to have nothing to do with the scandal they tendered their resignations. The education office, however, rejected the joint resignation of the president, sixteen professors and nine assistant professors. The accused professors were dismissed from their posts.

The Society of University Professors of Japan expressed deep resentment, as the incident was not in keeping with the dignity of education.

The exposure of the scandal may be attributed to the friction among the professors, who are divided into two cliques, one group being made up of those who graduated from the Kyoto Medical University and the other the Tokyo University group. Cliques in medical schools here have long been the cause of trouble not only in this ancient college but in many other schools of medicine. Even the education office is at a loss to know what to do with this problem and so has left it unsolved.

The Rockefeller Public Health School in Japan

The Rockefeller Foundation in 1930 proposed the donation of a large sum of money to establish an institution to train medical workers and experts. The proposal, however, seemed to be abandoned in 1931 when the foundation announced the discontinuance of new enterprises. But recently it was decided to go ahead, as it was planned at first. In the cabinet council, December 21, the acceptance of the donation was recognized by the government. The new institution is expected to be completed in two years. According to the announcement by the sanitary bureau of the home office, the new institution will train and teach those who want to be public health workers, while medical graduates will be given postgraduate training. As there has not been such an institution in Japan, social medical problems have not been investigated. Those problems, heretofore untouched, will immediately be taken up. Attached to this institution in the local towns and villages will be the "health house," where those who graduate from the central institution will work for a while. The expense of maintenance will be contributed for three years by the foundation, and then the local houses will be put under the management of the local government.

The Practitioners and the Government

What most worries the practitioners in these hard times, says the *Medical Report*, is what will become of them if this condition endures. The government seems obliged to neglect the medical profession when questions of social policy arise. The government tries at every opportunity to require cheaper medical service for the middle and lower classes by encouraging the clinics and by the extension of health insurance. The national plan of health insurance, when completed, will include more than 20,000,000 people in the middle and lower classes. On the other hand, in the schools, tuberculosis prevention work is much discussed, as there are more than 250,000 tuberculous children in the primary schools. Physicians should immediately be attached to every school, the education office declares. The total number of the primary schools amounted to 25,626 in 1932, and if one physician is attached to two schools about 12,000 physicians would do school work exclusively. If the national health insurance succeeds it will come to pass that many will be government physicians and work on a salary. There is also a tendency to increase government work in disease preven-

tion. Almost all physicians will be in the employ of the government, and the character of medical practice, which has been individualistic for centuries, will undergo a change.

Asylums for Opium Addicts

Two large asylums for opium addicts have been built in the capital of Manchukuo, in which republic the number of addicts is estimated roughly at 1,800,000. Dr. Ito, vice president of the new asylum in the capital, says that the government is going to eradicate opium poisoning completely in half a century. The new asylum in Mukden will soon be enlarged to accommodate more than 2,000 cases a month. It will not only aim to cure the cases of poisoning but at the same time to cure addicts of the habit of using opium while kept there, some will be initiated into manual home work and their steady employment is expected to help them to break the habit. This asylum is therefore a hospital, on the one hand, and an employment office, on the other. Much hardship is expected to be encountered, for the habit of using opium in this country has been customary for a long time.

Postpone Adoption of Metric System

The establishment of the metric system as the legal system of weights and measures for Japan will be postponed for five years from next July under a decision of the ministry of commerce and industry. The sole reason for the postponement is that the people in general are not yet well enough acquainted with the system, although it was ten years ago that it was officially stated that the new system would be the legal system for this country. It is said that the new system will cost a great deal in changing the records of land ownership and taxation, and some architects say that without the old system great inconvenience will occur in their work. Japanese physicians have used the metric system for a long time.

BELGIUM

(From Our Regular Correspondent)

Dec 27, 1933

International Association of Preventive Pediatrics

The third conference of the International Association of Preventive Pediatrics, which constitutes a section of the Union internationale de secours aux enfants, was held in Luxemburg. Two topics were discussed at the session, the first being "Prophylaxis in Infantile Paralysis." Drs. Rohmer and Willemijn Cloc considered the factors that may serve as a basis for the establishment of prophylaxis. The nasopharyngeal mucosa and the salivary glands are both a port of entry and a route of elimination for the virus. In all probability, transmission does not occur through human contacts. This assumption is supported by numerous clinical and epidemiologic facts. Transmission by water (the Kling theory) is not impossible. The duration of the incubation appears to range between ten and fourteen days. Contagiousness does not usually exceed three weeks from the onset of the disease. The morbidity is low, as most persons become immunized or have already been immunized during a previous epidemic. Thus, 90 per cent of the urban population and 50 per cent of the rural inhabitants are found to be immunized. Eighty per cent of the cases observed in a region in which the infection is endemic concern children under 6 years of age who have had no opportunity to become immunized.

Dr. Wallgren distinguishes, among the prophylactic measures, those that aim to prevent infection (prophylaxis of exposure) and those designed to prevent persons exposed from coming down with the disease (prophylaxis of predisposition). The prophylaxis of exposure has two chief tasks: (1) to check the dissemination of the infectious agent and (2) to prevent its infec-

tive action on man Point 1 presupposes isolation of patients and neutralization of urine and fecal matter, the avoidance as far as possible of all contacts with strangers, and the closing of schools and playhouses Point 2 presupposes avoidance of contaminated drinking water and food, inspection of all food products, avoidance of contacts with patients, and observance of strict hygiene and scrupulous cleanliness Resistance to the disease depends on (1) certain specific factors of biologic immunity, and (2) certain specific constitutional and physiologic factors

The Brussels Center of Puericulture

The Duchess of Brabant, who was welcomed by Count Carton de Wiart, minister of health and social insurance, opened formally the Pediatric Clinic of the Center of Puericulture Constructed in accordance with modern ideas, the Pediatric Clinic has accommodations for 110 infants The rooms, separated by glass partitions, face a covered terrace and contain about everything that a child needs The basement has a special kitchen, which comprises three rooms In the first room the infants' drinking bottles are washed, whence they pass into the middle room, the kitchen proper, where they are filled and sterilized Thence they are taken to the refrigeration room, whence they are distributed to the various floors

The Center of Puericulture serves as a consultation center on infant care, to hospitalize sick premature and weakly infants, to supply a home for abandoned mothers and infants to train mothers in the care of children, and to create a training school for nurses The institute will be also a diagnostic center for children

Prevention of Specific Acute Disorders of Infants

In his discussion of the second main topic "Prophylaxis of Specific Acute Disorders of Infants," Dr Rott emphasized that prophylactic measures should be based on a clinical and sociological inquiry into conditions favorable to the development of the disease

Dr Frontali said that prophylaxis covers the following points (1) mechanical protection of the child against the source of infection isolation of the healthy child from infected persons, open individual cubicles in hospitals, which are recommended, (2) habituation to climatic conditions, life in the open air (3) a balanced diet, (4) vaccinoprophyllaxis, with which the speaker had secured encouraging results, (5) medicinal prophylaxis (a) general, (b) local nasal instillations of disinfectants

Marriages

WILBORN E UPCHURCH, Atlanta, Ga, to Miss Katherine Crowell Middlebrooks of Haddock, Nov 18, 1933

WILLIAM A RUNKLE, Memphis, Tenn, to Miss Louise Evelyn Duke of Grenada, Miss, January 8

MILNER CROCKER MADDREY, New York, to Miss Sara Jean Willis of Charlotte, N C, January 19

ROY C FRAVEL, Woodstock, Va to Miss Adelaide Rebecca Smith of Clifton Forge, Dec 24, 1933

CHARLES S VENABLE to Mrs Eleanor Herff Johnson, both of San Antonio, Texas, Dec 16, 1933

WILLIAM LLOYD EASTLACK to Miss Muriel E Reynolds both of South Boston, Va, recently

FRANK MERRILL WATTLES to Miss Charlotte Olivia Grimm, both of Palatka, Fla, January 11

EDWIN F CAVE, Boston, to Miss Louise Fessenden of Chestnut Hill, Mass, Dec 9, 1933

SIDNEY TERRELL PARKERSON, Unadilla, Ga, to Miss Mary Raby of Vienna, January 3

JAMES STEWART MILLS to Miss Margaret Gaines Grace, both of Cincinnati, January 6

Deaths

Robert Wilson Shufeldt ♂ Major, U S Army, retired, Washington, D C, Columbian University Medical Department, Washington, 1876, Civil War veteran, appointed assistant surgeon in 1876, retired as a captain for disability in line of duty in 1891, promoted major, retired in 1904, placed on active duty from 1918 to 1919, surgeon with Generals Merritt, Crook and Sheridan in frontier Indian wars 1876-1881, curator of the Army Medical Museum, in 1882, honorary curator at the Smithsonian Institute, under Baird, and in 1895, delegate to the British Association for the Advancement of Science from Royal Australasian Ornithologists Union in Melbourne in 1914, author of numerous articles on the study of ornithology, anthropology and geology, aged 83, died, January 21, of arteriosclerosis

J M Arthur Rousseau, Quebec, Que, Canada, Laval University Faculty of Medicine, Quebec, 1895 dean and professor of clinical medicine at his alma mater, in 1920 president of the Association of French Speaking Physicians of North America, past president of the Canadian Tuberculosis Association officer of the Legion d'honneur on the staff of the Hopital du Saint Sacrement, aged 62, died, January 14, of pneumonia

Oscar Amadeus Hansen ♂ Major, M C, U S Army, Fort Leavenworth, Kan, Bennett College of Eclectic Medicine and Surgery, Chicago 1906, University of Illinois College of Medicine, Chicago, 1907, served during the World War, entered the medical corps of the regular army in 1920 as a captain and in 1929 was made a major, aged 56, died, January 31, of arsenic poisoning

Espy Kerl Schurtz ♂ Waterloo, Ind Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907, served during the World War, aged 54 on the staff of the U S Veterans Hospital Jefferson Barracks, Mo, where he died in January following an operation for strangulated hernia and diabetes mellitus

Zanvill David Klopfer, Chicago Jenner Medical College, Chicago 1908 College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910, formerly coroner's physician on the staff of St Elizabeth's Hospital, aged 62, died, February 3, of cerebral hemorrhage

Henry Everett Monroe ♂ Shelbyville Ill, Medical College of Ohio Cincinnati, 1899, past president of the Shelby County Medical Society served during the World War, aged 58, on the staff of the Shelby County Memorial Hospital, where he died, January 30, of acute dilatation of the heart

George Coke Williams, Anniston, Ala (licensed by Calhoun County board of medical examiners of Alabama in 1881), member of the Medical Association of the State of Alabama, formerly member of the state legislature, aged 82, died, January 25, of hypertrophy of the prostate and uremia

Guy William Rubush, Indianapolis, Indiana University School of Medicine Indianapolis, 1913, member of the Indiana State Medical Association, aged 53, on the staffs of the Methodist Hospital, City Hospital and St Francis Hospital, where he died, January 13, of pneumonia

Abner Ormel Shaw, Portland, Maine, College of Physicians and Surgeons in the City of New York Medical Department of Columbia College, New York, 1863, member of the Maine Medical Association, Civil War veteran, aged 96, died, January 27, of pneumonia

Walter Oling Parrish, Rector Ark, University of Nashville (Tenn) Medical Department, 1898, member of the Arkansas Medical Society past president of the Clay County Medical Society, served during the World War, aged 58, died Dec 30, 1933

Arthur Albert Schmidt ♂ Postville Iowa, Keokuk Medical College, 1893, past president of the Allamakee County Medical Society, health officer of Postville aged 62 medical director of the Postville Hospital where he died, January 22, of septicemia

Frederick Goodman Sanford ♂ Jersey Shore Pa, Western Pennsylvania Medical College Pittsburgh 1901, medical director of a hospital bearing his name, aged 55, died January 28, in the Johns Hopkins Hospital, Baltimore, of amebic dysentery

Herbert P Byers, Melita, Manit, Canada, Manitoba Medical College Winnipeg 1890, for many years health officer of Melita and the municipality of Arthur, coroner and medical

officer to the Canadian Pacific Railway, aged 73, died, Nov 24, 1933

Isaac Charles Munson ♂ Avoca N Y University of Vermont College of Medicine, Burlington, 1897, health officer of the consolidated health district of Avoca Steuben County, aged 58, died, January 4, in the Bath (N Y) Hospital

Joseph Clarence Tappan, Derry, N H, Columbian University Medical Department, Washington, D C, 1899, member of the New Hampshire Medical Society, aged 62, died, Dec 19, 1933, of injuries received in an automobile accident

Grace Greenwood Tinney, Norton, Kan, Woman's Medical College, Kansas City 1902, member of the Kansas Medical Society, on the staff of the Laird Memorial Hospital, aged 55, died, Dec 19, 1933, of cerebral hemorrhage

Joseph Russell Taylor, Harrisburg Pa, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1919, served during the World War, aged 39, died, January 7, of heart disease

Alexander Waters Ransley, Spring Mill, Pa, University of Pennsylvania School of Medicine, Philadelphia, 1875, formerly on the staff of the Philadelphia General Hospital, aged 82, died, January 28, of pneumonia

Ferdinand N Hunt, Fairmont, Minn, Missouri Medical College, St Louis, 1884, an Affiliate Fellow of the American Medical Association, aged 77, died, February 1, of injuries received from a fall on an icy sidewalk

Claude Mattingly ♂ Austin, Texas, University of Texas School of Medicine, Galveston, 1926, served during the World War, aged 38 was found dead, February 1, of narcotic poisoning, presumably self administered

Jefferson D Wilcox, Willacoochee, Ga, Southern Medical College, Atlanta 1882, veteran of the Spanish-American War, formerly member of the state legislature, aged 77, died, Dec 21, 1933, of heart disease

Antoninus S Sorgi, Stamford, Conn, Royal University of Palermo Faculty of Medicine and Surgery, Palermo, Italy, 1892, aged 66, died, January 18, in the Stamford Hospital, of carcinoma of the sigmoid

Olin E Newton, Fayette, Ala, Birmingham Medical College, 1911, member of the Medical Association of the State of Alabama, aged 52, died, Dec 12, 1933, in the Walker County Hospital, Jasper

John Jellison Moffett ♂ Greenville, Ohio University of Colorado School of Medicine, Denver, 1912, on the staff of the Greenville Hospital, aged 47, died, January 17, of a self-inflicted bullet wound

Walter Smith Putnam, Millersburg Ohio Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1887, aged 70, died, January 5, of cerebral hemorrhage

Isaac Kaufman, Chicago, Chicago College of Medicine and Surgery, 1915, aged 51, on the staff of the Woodlawn Hospital, where he died, February 6, following an operation for gallbladder disease

Hiram Burton Duncan, San Francisco, St Louis University School of Medicine 1912, aged 48 died, Dec 19, 1933, of shock and hemorrhage, following fracture of skull from a gunshot wound

Julia Tolman, Arlington, Mass, University of Michigan Medical School Ann Arbor, 1884 member of the Massachusetts Medical Society, aged 80, died, January 1, of cerebral hemorrhage

Thomas Verner O'Brien Wilson, Toronto, Ont, Canada, University of Toronto Faculty of Medicine, 1932, intern, Hospital for Sick Children, aged 26, died, Nov 27, 1933, of pneumonia

Luman Birch Swaggart, Denver, University of Colorado School of Medicine, Denver 1913 member of the Colorado State Medical Society, aged 57, died, January 14, of angina pectoris

George Lafayette Neal, Garden City Kan University of the City of New York Medical Department 1858 Civil War veteran, aged 98, died, January 19, of chronic nephritis and uremia

Charles Edwin Orelup, Lawrence Kan Kentucky School of Medicine Louisville 1892 aged 74 died January 22, at the State Sanatorium, Norton of chronic pulmonary tuberculosis

George Whitefield Meux, Stanton Tenn, Vanderbilt University School of Medicine Nashville, 1906 president of the school board, aged 51 died January 24 of heart disease

Socrates James Paul, Springfield Mass Tufts College Medical School, Boston, 1913 aged 54, died, January 9, in the Health Department Hospital, of pulmonary tuberculosis

Frederic Xenophas Morier, Montreal, Que, Canada, School of Medicine and Surgery of Montreal, 1920, served during the World War, aged 45, died, in October, 1933

Harold Dwyer Tobin, Chateaugay, N Y, Albany (N Y) Medical College, 1913, aged 44, died, Dec 24, 1933, in the Alice Hyde Memorial Hospital, Malone, of pneumonia

Thomas Alsop, Richmond, Va, University of Virginia Department of Medicine, Charlottesville, 1895, aged 61, died, January 15, in Sydney, Australia, of bronchopneumonia

Alfred George Wilding ♂ Malone, N Y, Albany Medical College, 1892, on the staff of the Alice Hyde Memorial Hospital, aged 70 died, January 22, of heart disease

Charles Wakeford, Norris City, Ill, Missouri Medical College, St Louis, 1897, served during the World War, aged 57, died, January 17, of septicemia and erysipelas

Andrew Jackson Gilkinson, Osakis, Minn, University of Minnesota Medical School, Minneapolis, 1893, aged 70, died, Dec 26, 1933, of diabetes mellitus and septicemia

Isaiah S Wesley, Liberty, Ky, University of Louisville School of Medicine, 1889, formerly county health officer, aged 67, died suddenly, February 1, of heart disease

Morgan Morgan, Martinsburg, W Va Bellevue Hospital Medical College, New York, 1879, aged 75, died, January 2, in the City Hospital, of chronic myocarditis

Willard Henry Richardson, Sodus, N Y, Syracuse University College of Medicine, 1896, aged 73, died, Dec 14, 1933, in the Myers Hospital, of embolism

Walter Davis Shurtleff, Plymouth, Mass, Howard University School of Medicine Washington, D C, 1897, aged 58, died, Dec 24, 1933, of heart disease

Russell H Johnson, Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1871, aged 86, died, January 28, of hypostatic pneumonia

Robert A Thornton, Joplin, Mo, Beaumont Hospital Medical College, St Louis, 1893, aged 66, died, Dec 11, 1933, in Colorado Springs, Colo

William Thomas Watson, Lexington, Tenn University of Tennessee Medical Department, Nashville, 1877, aged 81, died, January 20, of pneumonia

Sampson Stratford Sargent, Tampa, Fla, Eclectic Medical Institute, Cincinnati, 1870, aged 85, died, January 8, of cerebral softening and uremia

Elbert Lee Addington, Coeburn, Va, Kentucky University Medical Department, Louisville, 1906, aged 56, died, January 13, of heart disease

William Willshire Sloan, French Lick, Ind, Hospital College of Medicine, Louisville, Ky, 1898, aged 61, died, January 15, of heart disease

Albert H Sears, Anderson Ind, Hahnemann Medical College and Hospital Chicago, 1890, aged 73, died, Dec 16, 1933, of carcinoma of the sigmoid

Wilbur Robinson ♂ Sunman, Ind, Medical College of Ohio, Cincinnati, 1906, aged 57, died, January 5, of chronic nephritis and hypertension

James Bryant Tichenor, Sims Ind, University of Louisville (Ky) School of Medicine, 1893, aged 73, died, Dec 23, 1933, of arteriosclerosis

Frank Almon Russell, Kent, Ohio Cleveland University of Medicine and Surgery, 1896, aged 59, died, Dec 25, 1933, of cerebral hemorrhage

Anatole O Comire, St Francois du Lac, Que, Canada, School of Medicine and Surgery of Montreal, 1880, aged 77, died Oct 26, 1933

William Joseph Bowes, Chicago, University of Colorado School of Medicine, Denver, 1919, aged 40, died, February 1, of diabetes mellitus

Peter R Robinson, Ennis, Texas, Meharry Medical College Nashville, Tenn, 1895, aged 68, died, Dec 28, 1933, of cerebral embolism

Malcolm McInnis Tatum, Mount Olive, N C, Medical College of Virginia, Richmond, 1877, aged 86, died, Dec 8, 1933, of senility

Sumter B Battey, New York University of Georgia Medical Department, Augusta, 1884, aged 72, died, February 2, of heart disease

Correspondence

VITAMIN H

To the Editor—In a previous communication (THE JOURNAL, Nov. 4, 1933, p. 1499), I inadvertently mentioned Kuhn's reference to a "vitamin H" as appearing in the *Berichte der deutschen chemischen Gesellschaft* 66 B, 1933, page 1934, instead of page 317 of the same volume, and erroneously interpreted H as having been considered an antipellagra factor. A more recent review by Gyorgy and associates (*Klin. Wchenschr.* 12:1241, 1933) clarifies somewhat the relation between the skin changes and the factors G and H. The authors do not agree that the early skin manifestations in G-avitaminosis in rats compare throughout with similar symptoms in human pellagra. But Goldberger and others observed in G-deficient animals, though inconstant, other forms of skin changes which resembled pellagra less than a simple seborrheoid-desquamative condition, in striking agreement with the intensive changes produced by the authors in rats by H deprivation, with B₆ available. Reference even to Gyorgy's initial report on H (*Ztschr. f. arztl. Fortbild.* 28:377 [June 15] 1931) reveals no information on the method of its preparation.

W. A. PEABODY, PH.D., Richmond, Va.

ULCERATIVE COLITIS

To the Editor—I am impelled to reply to the communication of Drs. J. A. Bagen and L. A. Bue in THE JOURNAL, January 6, under my article entitled "The Present Status of Idiopathic Ulcerative Colitis, with Especial Reference to Etiology," which appeared in THE JOURNAL, Nov. 25, 1933, page 1687, in order that their communication might not confound some of the issues discussed in my paper.

There is no basis for the inference that the brevity of my references to the material of Drs. Bagen and Bue do not give an accurate impression of what they have stated and done. The impressions and conclusions that I conveyed were my interpretations of the context of their published data. References to the original sources were given so that those interested and capable of critical analysis, particularly of bacteriologic-pathologic literature, might consult them.

The disparity in our views, in consequence of their communication, appears to be more apparent than real, for now they state that they have modified their ideas and recognize "that gaps might exist" in their concepts of the etiology of chronic ulcerative colitis. These observations, coming from the original proponents of a specific etiology on which specific therapy had been based, are to me tantamount to saying that at this time there is no proved specific etiologic factor and consequently there is no specific therapy. This, in its essentials, is confirmatory of my view based on experimental and clinical observations first expressed in 1927, a view discussed in some detail more recently in the paper to which I have referred.

If it is destructive and a disservice to the sick to state, as a result of research and clinical experience that as yet there is no specific etiologic factor and no specific therapy in chronic ulcerative colitis and that in consequence the ultimate response to treatment in many with severe manifestations of this condition is unsatisfactory, how should one characterize the efforts of those who, for years, have emphasized specificity of etiology and of therapy, and who, although no longer stressing a definite causative micro-organism and specific therapy, fail to speak out in their articles as forcefully and as unmistakably of their changed point of view? The fact remains that the sanguine note struck by these writers in the present nonspecific therapy of ulcerative colitis by methods available to every practitioner

unfortunately is not reflected in the literature as the experience of my other large medical center adequately observing, over years, a relatively large number of severe cases of this disorder.

MOSES PAULSON, M.D.,
The Johns Hopkins Hospital,
Baltimore

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted, on request.

SKIN TEST FOR TUBERCULOSIS

To the Editor—Is the tuberculosis skin test positive for persons once tuberculous, who have now recovered? If so what are the benefits to be derived from testing a group of school children? Please omit name.

M. D. Oklahoma

ANSWER—The intradermal tuberculin test (Mantoux) usually remains positive after the disease has been brought well under control. How long the test remains positive can be determined only by periodic tuberculin tests of the same group of individuals over long periods of time. Unfortunately, this has not been done in large numbers, so that figures are not available. The development of the primary focus of tuberculosis usually results in a positive tuberculin reaction. Evidence has accrued to show that some children with a positive reaction later do become negative. In such cases it is assumed that the foci of bacilli have been completely destroyed or so walled off that their products have no means of communication with the body tissues. No one knows just what percentage will bring their primary lesions so completely under control as to attain such a result.

As there is no control over reinfection of a child with tubercle bacilli from exogenous sources, one must always consider the possibility of the allergy indicated by the tuberculin test being kept up through reinfection. If it is granted that the majority of children who develop primary tuberculosis remain positive reactors to the tuberculin test throughout their lifetime, there are nevertheless great benefits to be derived from testing a group of school children. The older literature abounds with statements to the effect that nearly all children of school age have been contaminated with tubercle bacilli and therefore have primary tuberculosis. However, owing to reduced opportunities for infection, large numbers of children today are growing into or have reached adult life without contamination with tubercle bacilli. In fact in many parts of the United States, 70 per cent or more of the young adults have not been contaminated with tubercle bacilli.

The lower the incidence of positive tuberculin reactors in any group of persons including school children, the more valuable the tuberculin test becomes. In many groups of school children tested during the past five years, 10 per cent or less reacted positively to the test. Each child who does react positively has been exposed. This is an important fact, since through examination of his associates one may find the source of exposure in the body of a person having unsuspected tuberculosis. Moreover, each child reacting positively has a focus of tubercle bacilli somewhere in his body. Therefore, further examination is indicated in an attempt to locate the focus and to study its extent. If the focus is not found by the physical or the roentgen examination it is only because these methods are too crude, therefore, such children should be examined periodically, in order to bring to light any focus that later becomes large enough to be detected. One is then in a position to treat these children before their lesions have broken down, markedly reducing the chances of recovery, and before they have disseminated their tubercle bacilli to others.

INJECTIONS INTO HEART FOR RESUSCITATION

To the Editor—I read in THE JOURNAL some time ago that no one would be justified in injecting epinephrine into the heart in case of apparent death. Would you still say that? If you think it might be justified, will you tell me the size needle to use and the point of insertion? It seems to me to be important enough to justify the query.

NATHANIEL F. CREEVER, M.D. Greenfield, N. H.

ANSWER—Intracardial injection therapy for the resuscitation of the stopped heart in cases of apparent death is a simple procedure worthy of trial in many instances of unexpected cardiac collapse. Many substances in addition to epinephrine have been used successfully in restoring cardiac activity,

Hyman has described twelve such drugs (Resuscitation of the Stopped Heart by Intracardiac Therapy, *Arch Int Med* 46:553 [Oct] 1930). In this article it is stated that the preferred needle for intracardiac injection should be at least $4\frac{1}{2}$ inches (11.4 cm) long for use in an adult and $2\frac{3}{4}$ inches (7.3 cm) long for a child. The needle should be constructed of 19 gage unbreakable stainless steel.

The site of insertion has been the subject of considerable investigation by many workers in this field, as the restoration of automatic cardiac activity is said to be due more to the trauma produced by the prick of the needle in the myocardium rather than to the specific pharmacodynamic action of the drug injected, the site of the injection becomes a matter of especial importance. The first contraction of the heart muscle after the injection is always an extrasystole arising from the ectopic focus developed by the action current of injury as the result of the needle prick.

According to Hyman (*THE JOURNAL*, May 20, 1933, p 1628), when the injection is made into the ventricle a series of ventricular extrasystoles may develop, if there has been a prolonged cardiac arrest with a high degree of myocardial anoxemia there may arise a paroxysmal ventricular extrasystolic tachycardia which is quickly converted into ventricular fibrillation and fatal cardiac collapse. If, on the other hand, the injection is made into the right auricular area the same physiologic phenomena may develop with the production of a paroxysmal auricular extrasystolic tachycardia and subsequently auricular fibrillation. The difference here is that, whereas ventricular fibrillation is incompatible with the maintenance of life, auricular fibrillation is a well known and easily handled clinical entity. The site for intracardiac injection, therefore, regardless of the substance used, should be into the right auricle.

It is interesting in this connection to note that the artificial pacemaker developed by Hyman at the Witkin Foundation for the Study and Prevention of Heart Disease, New York, utilizes a small electric current to control the ectopic rhythm in the right auricle instead of permitting the action current of injury to dominate the rhythm of the heart in a hit or miss method. The right auricle of the heart is easily approached by inserting the needle into the third or fourth interspaces about 1 cm to the right of the sternal margin.

DISPAREUNIA IN DOUBLE VAGINA AND UTERUS

To the Editor—I have a patient aged 21 years who recently came to me complaining of painful intercourse. She has been married fourteen months and it was impossible for her to have intercourse for two weeks following her marriage owing to severe pain and tightness of the vaginal canal. Bimanual and speculum examination revealed two separate vaginal canals and two cervixes but I am not able to differentiate whether this condition is a uterus duplex (didelphic) or uterus septus. In either event what is the safest procedure in removing the septum to relieve the painful intercourse and would it be advisable for the woman to become pregnant? If pregnancy occurred in the two horns at the same time would the danger encountered warrant a cesarean section at term or would sterilization at this time be a safer procedure? How frequently does this anomaly occur?

M D Oklahoma

ANSWER—A double vagina does not often cause dyspareunia. In fact, many women who have this anomaly are not aware of it, even after having been married a long time, until a physician tells them about it. Not infrequently even a physician will fail to detect the septum in the vagina and not until dystocia arises in labor will his attention be directed to it. The reason for easily overlooking a double vagina is that in most instances in which this abnormality is present only one vagina is used for coitus. Because of this the other vagina remains small and it may even have a hymen which remains unruptured. In spite of this menstrual blood can and does escape through the smaller vagina but the women who have such anomalies do not know from which vagina the menstrual blood escapes. Hence a double vagina rarely produces disturbances in the sexual life of a woman until labor sets in and even then dystocia is uncommon from this source. It may be possible in the case cited to stretch one vagina forcibly under gas anesthesia and at subsequent visits dilate this vagina with glass dilators. If however the septum appears to be tense it may readily be removed by placing one long clamp on the upper edge and another on the lower edge and removing the septum that lies between the two clamps. The portions that remain in the teeth of the clamps should then be sutured by means of an over and over continuous suture. Frequently there is a free space between the cephalic end of the vaginal septum and the vault of the vagina so that a finger can be inserted from one vagina into the other at this point. In this case no sutures are necessary at the vault of the vagina. If however the septum

is continuous with the dome of the vagina, sutures will also have to be placed here between the two cervixes. A small gauze pack saturated with petrolatum should be placed in the vagina for twenty-four hours to prevent undesirable adhesions. In some instances, removal of a vaginal septum has cured sterility.

A uterus duplex is not a contraindication to pregnancy. In fact, most women with this abnormality are prolific and, while many have disturbed labors, this is not true of the majority of them. Furthermore, even in spite of childbirth, some cases are so entirely devoid of complications that the abnormal condition of the uterus is not recognized.

Abortions are more common in cases of double uterus than in cases of normal uteri. In some series of cases, abortion occurred in more than 25 per cent of the pregnancies. An ovum may develop in one or the other uterus or in the two uteri at the same time. Usually the nonpregnant uterus is pulled back of the pregnant one and it may or may not produce dystocia. Labor is usually prolonged as a result of underdevelopment of the uterine musculature and especially of interference by the nonpregnant uterus. Complications may arise because of abnormalities in presentation, as breech presentations are common in cases of double uterus. However, since labor is terminated spontaneously in most instances of uterus didelphys, such cases should be managed in the same way as other cases. Intervention should be considered only when evidence of trouble arises. In most instances in which complications occur, a cesarean section should be done, but it is not necessary or advisable to sterilize these patients at the time of their first labor.

THIOCYANATE POISONING

To the Editor—Mrs H S aged 65 suffering from chronic incipient pulmonary tuberculosis and hypertension (about 220 systolic) called a physician and he prescribed for her sodium sulphocyanide in crystal form a teaspoonful three times daily in water after meals. She took the first dose in the evening and slept better than usual but says that she felt queer next morning but took the dose. This time she had a feeling that she was going to die and lapsed into unconsciousness and at noon her husband gave her the third dose but she was unaware of taking it. During the afternoon she began to have twitching and at 10 p m had a severe convulsion. Another physician was called and he told her to discontinue the medicine. She was taken to the hospital the next morning in an ambulance in clonic and tonic seizures throwing herself and rolling about. There was complete urinary retention. Catheterization resulted in the withdrawal of 660 cc of urine. Lumbar puncture was done and the fluid found normal to pressure and microscopy. A spinal Wassermann test was negative. Twenty five cubic centimeters of 10 per cent magnesium sulphate was given to control the convulsions. She received codeine 0.0327 Gm at four different intervals during the night. She showed considerable improvement on the third day but still had to be catheterized and was confused mentally. She was rational on the fourth day and voided urine voluntarily. The highest temperature was 100 F on the second hospital day with a pulse rate of 100. The patient left the hospital on the fifth day in a wheel chair but has been unable to use her lower extremities and after six months can walk with assistance. Merck suggests a dose of 0.1 Gm three times a day. Am I right in concluding that this is a case of poisoning by sodium sulphocyanide or sodium thiocyanate?

M D, Washington

ANSWER—The description of the symptoms and signs is entirely compatible with a diagnosis of thiocyanate poisoning. It is not surprising that such poisoning occurred with the huge doses administered, the teaspoonful of crystalline sodium thiocyanate was approximately equivalent to 4 Gm of the salt. The usual therapeutic dose does not exceed 1 Gm daily. Thus, twelve times the usual amount was administered in twenty-four hours. It is, however, surprising that the patient survived, particularly as this drug is but slowly eliminated and cumulative effects are common.

The tolerance to thiocyanate salts is not uniform, in some persons even small amounts are known to have produced serious intoxications. Renal functional impairment appears to delay the excretion of the drug, and cumulation and intoxication are more prone to develop when nephrosclerosis coexists with the hypertensive arterial disease. The more carefully controlled recent studies of thiocyanate therapeutics are almost unanimous in concluding that the drug is distinctly dangerous, the toxic reactions are so severe that the danger from the therapy is greater than the danger from the disease for which it is administered.

The most common manifestations of thiocyanate intoxication are muscle weakness, papular dermatitis, nausea and vomiting, slight (but never marked) fever, disorientation and mental confusion, aphasia, delirium, convulsive seizures, coma and death. These phenomena appear usually in the order given, with increasing severity of the intoxication. In a recent carefully controlled study of thiocyanate therapy in hypertension by Goldring and Chasis (*Arch Int Med* 49:321 [Feb] 1932), thiocyanate was administered to fifty patients, of whom thir-

teen (26 per cent) showed evidence of intoxication and two of the thirteen died. The dosage employed was conservative, less than 1 Gm daily. It was discovered that intoxication occurred in some instances when there was little retention of the drug within the body. Individual susceptibility appears to be a prominent factor in determining the severity and outcome of thiocyanate intoxication. Experimental studies on the toxicology of thiocyanates (Nichols J. B. *Am. J. M. Sc.* 170:735 [Nov.] 1925) revealed brain and spinal cord changes similar to those which occur in severe intoxication in man. Small doses, such as from 0.065 to 0.13 Gm thrice daily, usually fail to cause any appreciable fall in the arterial tension. With doses up to 0.3 Gm thrice daily, satisfactory reduction of the arterial tension is obtained in about half of the patients.

It may be concluded that sodium or potassium thiocyanate (it appears immaterial which salt is employed) is not fully satisfactory for the management of hypertensive disease. In dosage adequate to be effective in reducing the arterial tension for any length of time, the likelihood of dangerous intoxication is considerable. The probable detriment outweighs the probable benefit when one considers the results from a broad and unbiased point of view. Certainly the amounts prescribed by the first physician as cited, are entirely unwarranted. A study of the rate and completeness of the excretion of the salt in this patient would have been interesting and probably instructive. Thiocyanates give a deep red in an acid solution when treated with ferric chloride. This color may be used for quite accurate quantitation colorimetrically when compared with the color developed from a solution of thiocyanate of known strength.

PHYSIOLOGIC EFFECTS OF WINES WITH MEALS AND DIETARY RITUAL

To the Editor—Is there any physiologic reason for serving different wines with each course at a full dinner? In other words does the taking of these wines and digestion improve the appetite or what? The following is an item which I am quoting from the December 1933 *Home and Field* page 171. As a pre-dinner appetizer then instead of a cocktail a very dry sherry or plain vermouth either served with or without bitters. For oysters a dry white wine and with soup if you wish you may serve dry sherry though it should be hardly repeated if it has been used as an appetizer. For the fish a dry white wine either a Burgundy one of the dry Bordeaux such as Graves or a Rhine wine. For the entree a light red wine either Burgundy or claret or even a fine white Burgundy. For steaks or roasts and all game a good heavy Burgundy or claret must be served. For desserts which are not too sweet a Sauterne a demi-sec champagne port a sweet sherry or Madeira. With coffee nuts fruit and cheese port sherry, or Madeira may be served. Please omit name.

M D, New York

ANSWER—The only ingredient in alcoholic beverages that so far has been shown to have action on the digestive processes is the alcohol itself. Alcohol in quantities that do not lead to acute or chronic gastritis acts as a stimulant to the gastric glands and hence increases the output of gastric juice. This is not due to the taste of alcohol or to the local action of alcohol in the stomach, because the same effects are produced by alcohol injected intravenously or administered by rectum.

But it is also established that the flavors in foods and drinks, to a person accustomed to such flavors and finding them enjoyable, can also increase the secretion of gastric juice by a complex reaction in the central nervous system. This has been shown certainly for food flavors and probably also obtains for the flavors of alcoholic beverages, although the latter has not been definitely proved. Repeated sippings of various kinds of alcoholic beverages with the different courses of a meal may thus tend to prolong this appetite gastric juice secretion factor beyond that produced by a single such ingredient, because it is well known that the taste for a substance or the enjoyment of the taste soon fades on repetition. Such continued action of the appetite gastric juice secreting mechanism would be significant only in persons with decreased gastric secretory mechanism, because, normally, more gastric juice is secreted during a meal than is actually needed for gastric digestion.

The alcohol itself in moderate amounts has, of course, another indirect effect on digestive processes, due to a general relaxation of bodily tensions and mental strain, both of which act unfavorably both on gastric secretion and on gastric motility. But the elaborate practices of taking different types of alcoholic beverages alleged to be particularly suited to certain types of foods is largely a built-up dietary ritual similar to the rituals in religion. That is to say persons not accustomed to these habits digest their food well in their absence. But when once established the mental distress and disagreeable feelings due to the absence of such dinner accessories may for a time tend to decrease the gastric juice during the meal until "reeducation" has been established in the individual.

ULTRAVIOLET ERYTHEMA—PRURITUS ANI— ALLERGIC DISORDERS

To the Editor—I am writing to you to get your opinion on some medical matters pertaining to myself. I have an ultraviolet ray burn on my left leg between the ankle and the knee, over the shin or front of the leg. There are several patches or areas raised above the level of the skin about the thickness of a postcard just like scar tissue. That part of the leg was treated with ultraviolet rays for supposed ringworm three or four years ago resulting in this condition. I am annoyed by the intense itching over these areas. I scarcely know what to do for it any more. As I have used everything I can think of and what my colleagues and dermatologists have prescribed for it and nothing so far has stopped it. The remedy that gives me the most relief is 10 per cent phenol (carbolic acid) in petrolatum and that only temporary. Do you know of any cruet or escharotic I could use to destroy the sentient nerves in those areas without producing an ulceration of the parts? Or would you recommend surgery and excise the areas a part at a time and when that heals up excise another and so on until the whole thing is cut out? I also am a victim of pruritus ani. The intense itching is as bad as the leg. What can you suggest for that? The same ointment gives the most relief but doesn't stop it. I also have an enlarged prostate giving considerable trouble. Is there any drug or prostatic extract I can take orally to reduce the size, like thyroid extract for goiter? Or would you advise transurethral resection? I will give you this information, which may help you to give advice. I have been a victim of spasmodic asthma. I have that trouble practically under control. I find I am sensitive to proteins especially wheat protein and sometimes bacterial pus germs and the pneumococcus predominating. These conditions have practically all cleared up by my avoiding the wheat foods in my diet and I have been feeling fairly comfortable all the time for the last two years. Some of the doctors here say I am allergic whatever that is but that doesn't help me any although I have a fairly good opinion of what allergy is. Now a little kindly advice from you may help me in these troubles.

M D, Ohio

ANSWER—While it is risky to attempt diagnosis or therapy by mail it is permissible to give a tentative opinion based on the description. It would be a rare thing for ultraviolet radiation to cause the condition mentioned on the leg. A dermatologist probably can make a diagnosis on inspection or by investigation. He may be able to cure or relieve the condition with x-rays (if they have not already been used) or by topical remedies or both. Especially as the patient is of an allergic type it would be too hazardous for any one to prescribe even local remedies without seeing the condition and noting the effect of remedies prescribed.

As a rule, x-rays judiciously administered by an expert will stop anal itching in about a month and with absolute safety. But before doing this, the possible causes of the condition should be checked—local causes, such as ringworm general causes, such as diabetes intestinal parasites, hemorrhoids, and fistula or fissure, foci of infection or dysfunction of the nervous system. It is possible, but not probable, that the enlarged prostate might have something to do with it.

The treatment for enlarged prostate depends on the cause and the type. Prostatic massage and other physical therapeutic methods may be beneficial for some types, while surgery is necessary for other types. It is advisable to consult a genito-urinary specialist for this condition, because treatment prescribed without an examination might produce harmful results.

We regret our inability to give specific advice. The only possible advice that we can give is necessarily in the nature of general suggestions.

TREATMENT OF NITROGEN GAS POISONING

To the Editor—Kindly inform me as to the present treatment of cases exposed to or overcome by nitrous gases such as nitrogen monoxide nitrogen trioxide and red fuming nitric acid. Is oxygen-carbon dioxide indicated in the more severe cases and are there any contraindications for its use at any time? Is ammonium carbonate or any compound that might liberate alkaline fumes of any value if administered at once? Kindly omit name.

M D Indiana

ANSWER—The treatment called for in conditions resulting from the action of nitrogen gases is far more extensive than that directed solely to edema of the respiratory tract. The following suggestions are made:

1 Although impairment usually is delayed for ten or twelve hours exposure occasionally is immediately followed by failure of various brain centers and prompt prospective death. In these few cases, early administration of artificial respiration and oxygen-carbon dioxide is needed. If the affected individual survives, he may be in need of some or all of the subsequently suggested measures.

2 Promptly after exposure to any of the nitrogen gases and without waiting for any impairment, complete rest should be procured and oxygen should be administered, but not necessarily oxygen-carbon dioxide mixture. The violent respiratory excursions occasioned by carbon dioxide (7 per cent) is undesirable. Oxygen alone is most helpful, and carbon dioxide should be avoided unless necessary to stimulate respiration. The use of

atropine in moderate doses may be advantageous. In about two out of seven cases, tracheotomy may be required.

3 Systemic disease may ensue, resulting from the action of absorbed nitrites. The cardiocirculatory system and the kidneys may be damaged. The administration of 50 per cent dextrose solution is warranted. Very early supportive treatment should be extended to the heart. Measures increasing the viscosity of the blood are not commendable.

4 Pneumonia and other infectious processes of the respiratory tract are frequent. All procedures should contemplate the probability of such events.

The action of nitrogen gases, after entering the respiratory tract, is almost instantaneous. Theoretically, there may be a time when the administration of alkali vapors, fumes or gases is desirable. Practically, this is not the case, as already the local damage to tissues has taken place and neutralization has been provided by the formation of nitrates and nitrites. For this reason the use of ammonium carbonate, ammonia or related substances is not recommended.

Treatment of these conditions is further discussed by Zangger in brochure 69 of the International Labor Office's Encyclopedia of Occupation and Health.

PEMPHIGUS IN MOUTH

To the Editor—Mrs D, a Russian Jewess aged 61, has had recurring bullae on the hard palate for five months. These bullae are flaccid, occur every two or three weeks and rupture very easily in from six to eight hours with a bloody discharge. There is some pain after the rupture but no odor and there results a clean looking ulcer with a definite red border which heals with no scarring. To date these lesions have appeared only on the hard palate. Careful search has revealed no bullae on the skin or in the vagina. A diagnosis of pemphigus was confirmed at a large hospital. Physical and laboratory examinations give essentially negative results except for hypertension varying from 150 to 180 systolic and 95 to 100 diastolic. The patient has no teeth. Roentgen examination shows no retained roots or other pathologic condition of the upper or lower jaws. Examination of the sinuses gives negative results. Treatment at present is a high caloric high vitamin diet, calcium gluconate and viosterol 1 drachm (4 cc) three times a day and injections of sodium cacodylate every other day. So far although the patient's general condition remains good there has been no improvement in the oral condition. Please use initials only. M D Massachusetts.

ANSWER—In a patient of 61, pemphigus beginning in the mouth has anything but a cheerful prognosis. Failure of treatment to control it is the rule. The diet now in use should be continued. Sodium chloride should be excluded, for salt retention is a feature of the disease. One of the substitutes obtainable from the druggist should be used in its place.

The Davis treatment, intramuscular injections of a hemostatic every other day and an intravenous injection of iron cacodylate on the alternate day, has relieved some cases. Alkalinization is highly extolled by some authorities. Arsphenamine, neoarsphenamine or tryparsamide, which have been successful in some cases, can be given only with the greatest caution to a woman of 61 with high blood pressure. Quinine by mouth or intravenously pushed to the physiologic maximum has long been used, with occasional benefit. High colonic flushings given daily for a long period have apparently cured some cases. Spontaneous improvement for a short or longer time occurs in pemphigus, so that the treatment must not be credited until the improvement has lasted for some time, or until a recurrence has again yielded to the same treatment.

SHOE CORRECTION FOR BOWLEGS AND KNOCK KNEE

To the Editor—What shoe corrections are advisable for bowlegs in infants and young children? For knock knee?

BERRYMAN GREEN M D Riverside Calif

ANSWER—The decision must be made according to the situation present in the individual child. If the feet are pronated, regardless of whether bowlegs or knock-knee is present, the tilting of the shoes should be made on the inner border of the heel.

In many cases, modification of the shoes is highly beneficial, in others correction of the deformity is a natural result coincident with treatment and growth. It is natural, when a limb grows in length, that it should grow straighter, unless there are some basic factors that prevent this natural self correction of deformity. It is well known that when nature corrects bowlegs it often overcorrects, producing knock-knee and vice versa.

The correction of bowlegs, which are often accompanied by inverted feet, i. e. moderate pigeon toes, may be accomplished by tilting the outer borders of the heel and soles to decrease the degree of inversion, supination, adduction or varus, i. e., to produce a very moderate degree of flatfoot.

In case of knock-knee, or genu valgum, which is usually accompanied by flatfoot, raising the inner border of the heel and sole is advisable for the first correction, then raising the inner border of the heel for the second correction, and, third, raising the inner border of the heel and outer border of the sole.

It may be difficult to evaluate the benefit derived from these measures, especially during a period of rapid growth.

The most common modification of the shoe is raising the inner border of the heel three sixteenths inch. The next most common is raising the inner border of the heel and inner border of the sole. The third most common is tilting the inner border of the heel and outer border of the sole.

FIBROSIS UTERI

To the Editor—To one, like myself who has spent nearly ten years in as large an institution as the Los Angeles County General Hospital and who has examined on an average of from five to six thousand surgical specimens a year for some years, the problem of the so-called fibrosis uteri is a real one and one that is not easily answered. Many uteri are removed that show comparatively little or no pathologic changes to account for the uterine bleeding said to have been present clinically and still the surgeon often falls back on the diagnosis of fibrosis uteri particularly when the uterus appears to be somewhat enlarged and the myometrium seems to be rather fibrous. Most of those uteri are multiparous and the enlargement is consistent with several pregnancies. Some pathologists have even gone so far as to report normal uterus back to the surgeons much to their chagrin. So now finally are there generally accepted criteria for the gross and microscopic features of fibrosis uteri?

LAWRENCE PARSONS M D, Reno Nev

ANSWER—Attempts to explain uterine bleeding on the basis of fibrosis uteri, arteriosclerosis of the uterine vessels, and kindred lesions, have always been unsatisfactory because the pathologic condition has been such a variable factor and not at all proportionate to the amount or character of the bleeding.

Even though the patient has an enlarged "fibrotic" uterus, the modern conception is that abnormal bleeding in such cases is attributable to disturbed function of the ovaries, the anterior pituitary or even other endocrine glands. The presence of a disproportionate amount of fibrous tissue is believed to be secondary or incidental rather than the primary cause of the abnormal flow.

Diagnosticians may have gone too far in ruling out fibrosis as a cause of hemorrhage, but it is certain that some factor in addition to fibrous changes plays a part in most of these cases.

VINCENT'S INFECTION OF MOUTH

To the Editor—A single man aged 25 in good general condition contracted Vincent's infection of the mouth in 1926. He has been treated on and off by several good dentists without cure. He has a horizontal impacted third molar on the lower right which with a malposed second molar has formed a focus for residual infection. He has had among other treatment local applications of 10 per cent arsphenamine in dextrose by the last dentist who treated him without appreciable improvement. That dentist referred him to me recently for intravenous therapy. I have to date given him three injections at five day intervals of 0.6 Gm of neoarsphenamine and two injections at the same interval of 0.9 Gm of neoarsphenamine. But smears taken at weekly intervals from the gums are still positive. His teeth are in excellent condition. The dentist believes that the impacted wisdom tooth and the second molar have caused an area of infection about those teeth and constitute the obstacle to overcome in effecting a cure. Do you think that it is reasonably safe to extract those teeth in the presence of the Vincent infection? Or what is the proper procedure in this case? Is there any new medicinal treatment? Should intravenous neoarsphenamine be continued and if so how many injections should be considered a good trial of this treatment? I am enclosing a roentgenogram of the impacted molar. Please omit name.

M D, Connecticut

ANSWER—From the report of conditions given, this is probably not a case of Vincent's infection, which is an acute condition with definite and positive clinical symptoms. 1 There is a rapid superficial necrosis. The surface of the tissue is covered with a greenish pasty mass, easily removed, exposing hemorrhagic or bleeding surfaces. It is rapidly progressive. If this were a case of Vincent's infection, the third molar shown in the roentgenogram would be entirely uncovered in a few days. 2 There is always a fetid, foul odor, which can usually be recognized at a considerable distance. 3 There is increased flow of saliva. 4 The temperature ranges from 100 to 101. 5 There is extreme malaise, weakness and depression. 6 There is usually mental depression.

Vincent's infection is an acute condition and there is no such thing as chronic Vincent's infection. This disease was described first by Dr T L Gilmer, who called it acute ulcerative gingivitis. He described in classic fashion its etiology and treatment.

The present case is probably a low grade mixed infection of the pockets surrounding this third molar. Fusiform bacilli and spirochetes can always be found in smears from such areas, but their presence is not diagnostic of Vincent's infection. After a few days' local antiseptic treatment it is probably safe to remove such a tooth, but not more than one such infected tooth should be removed at a time. This should, of course, be done under proper conditions and with proper after-care and supervision.

No new medical treatment for such cases has been recommended recently. Intravenous injection of neoarsphenamine has never been justified in the treatment of Vincent's infection, either theoretically or clinically, and has been generally discarded by the practitioners most experienced in the study and treatment of the infection.

ENDOCRINE ALOPECIA

To the Editor—A woman aged 21, has been shedding her hair for the last eight years. At times the hair will grow in somewhat but it will quickly begin to fall again. This began about the time of her first menstruation. Her scalp is dry and she complains a great deal of itching. There does not seem to be any dandruff. The pubic hair and that in the axilla is also sparse. She has had a good deal of trouble with menstruation which has been scanty about five days in duration and until lately painful. The flow at first is pale but at the end becomes bloody. There are no clots at present. Vaginal examination shows a small antero flexed uterus the ovaries are not palpable. The introitus is rather small even for a virgin. She is quite slender in build 67 inches (170 cm.) in her stocking feet and weighs 118 pounds (53.5 kg.). I have given her amniotin and thyroid internally which has improved the menstruation and lessened the pain and for a while seemed to stimulate somewhat the growth of hair. Lately I have been giving also tablets of the anterior pituitary body but to date have gotten nowhere. Can you make any suggestions as to treatment of this case? Please omit name.

M. D. Ohio

ANSWER—From the fact that this peculiar disturbance of hair growth began at puberty, it seems likely that some endocrine gland dyscrasia is responsible. The relief of the dysmenorrhea by glandular therapy supports this idea. If the alopecia in this case is to be ascribed to a disturbance of one of the endocrine glands, it seems much more like that due to thyroid deficiency than to any pituitary trouble. The basal metabolism should be determined, and if it is low or normal thyroid medication should be continued, frequent clinical examinations being supplemented by an occasional check of the basal metabolism. Local treatment should be kept up, stimulants such as sulphur salicylic acid, resorcinol monoacetate and the various tars being combined in an oily menstruum to counteract the dryness of the scalp. For instance:

	Cm. or Cc.
R. Salicylic acid	1.0
Resorcinol monoacetate	1.5
Precipitated sulphur	1.5
Ointment of rose water	to make 30.0
M. Sig. Rub into the scalp vigorously once a day	

In the description given there is no evidence of pituitary disturbance. If there was such evidence, it would be justifiable to hope for improvement in hair growth along with the beneficial effect on the other manifestations as a result of pituitary medication. In the absence of any sign of pituitary trouble the long drawn out, expensive and troublesome experiment seems hardly justifiable. Any such treatment must be kept up for months before an effect on growth of hair can be seen. The pituitary preparation should be given hypodermically.

SHREDS IN FIRST GLASS OF TWO GLASS TEST

To the Editor—What is the significance of the persistence of shreds in the first glass of the two-glass test six months or one year after the disappearance of all symptoms of (a) gonorrheal urethritis and (b) a non-gonorrheal urethritis in spite of prostatic massages and the passage of urethral sounds? What further treatment is indicated? What treatment in addition to prostatic massage twice a week should be given to a patient whose prostatic smear is loaded with pus cells and staphylococci? The patient is a white man, aged 32 who presents a history of having had two years ago a gonorrheal urethritis all the symptoms of which cleared up in six weeks after 15,000 potassium permanganate irrigation and 5 per cent silver nitrate instillations but which left both glasses of the two-glass test rather cloudy and containing many shreds. Stannoyl methenamine pyridium caprool and prostatic massages have been of no avail in permanently clearing both glasses of the two-glass test. The patient feels fine and has no subjective urinary symptoms. Please omit name.

M. D. Pennsylvania

ANSWER—The persistence of shreds in the first glass of a two-glass test means the presence of localized infection in the anterior urethra probably located in the glands or follicles. These localized infections generally respond to the passage of urethral sounds coupled with massage of the urethra on the sound. In view of the fact that local treatment has failed to

clear up the shreds, the urethra should be examined with the urethroscope and the infected glands and follicles localized. They are best treated with the high frequency spark through the endoscope.

In this particular case, massage of the prostate and heat by rectum are indicated and should be continued until the strip pings are free from pus on microscopic examination.

TREATMENT OF HYPERHIDROSIS

To the Editor—Patients occasionally ask me for an antiperspirant or deodorant and I am usually in the habit of referring them to the advertised preparations. I should like to have a prescription if you care to suggest one for this purpose that may be used in safety. Anything you have to say on this subject would be of interest to me and I have several patients who would also like your sanction or suggestions in this matter. Kindly omit name.

M. D. Massachusetts

ANSWER—The simplest remedies for local hyperhidrosis are lotions such as tannic acid or zinc sulphate in dilute alcohol, from 1 to 7 per cent. Alum may be used in the same way. The skin should be wiped dry and the lotion dabbed on and allowed to dry on. This may be done several times a day if necessary. A dusting powder should follow it. Salicylic acid, from 2 to 4 per cent, and benzoic acid, from 4 to 8 per cent may be used in the dusting powder or in ointment of rose water. A stronger application of more lasting effect is 25 per cent aluminum chloride in water. The part is wiped dry or washed with plain water. After the skin is dry, the lotion is dribbled on and allowed to dry on. The solution is quite acid, therefore no soap must be used before it is applied, nor must the clothing be allowed to be wet with it. It should be used only once in three days until the effect is obtained, then once a week to prevent recurrence.

Local irradiation with x-rays produces the most lasting result. One-fourth erythema dose of unfiltered rays is given once a week until a partial effect is obtained, then the treatment is suspended. Usually considerably more drying will take place within the next two weeks. If not sufficient more can be given but not more than enough to total two full erythema doses. No irritating applications should be used during or immediately after the course of roentgen treatment. If the trouble recurs even years afterward x-rays should not be used again if the full amount has been given during the first course.

FELSOL

To the Editor—I am in receipt of an eight page brochure entitled "Contribution to the Therapy of Bronchial Asthma" by Dr. M. Kaercher in which is extolled the preparation Felsol. I recall a previous statement in THE JOURNAL pointing out that Felsol is apparently secret in composition. I should like to inquire: Who is Dr. M. Kaercher and is he an authority in internal medicine?

M. D.

ANSWER—We have no record in our files concerning an individual named Dr. M. Kaercher either in the files dealing with licensed physicians or in the student file.

According to the brochure the composition of Felsol is now given as: Metozin 0.9 (Phenazone 0.25, Anilipyrine 0.4, Iodopyrin 0.25), Caffeine 0.1, digitalis and strophanthus glucosides 0.0015 and the alkaloid lobelia inflata 0.005 Gm. Tests made some time ago in the A. M. A. Chemical Laboratory indicated that the product contained an acetanilid derivative in addition to other products. It is our understanding that this product distributed by the American Felsol Company of Lorain, Ohio, was seized by the federal Food and Drug Administration, allowed to go by default and destroyed. The substance may be looked on as a shotgun type of mixture promoted in typical 'patent medicine' style.

YELLOWING OF HAIR AFTER PERMANENT WAVE

To the Editor—Several beauty shop operators on being asked about giving a permanent wave to a woman who has gray (almost white) hair say that if she has any acid in her system the hair will discolor. What do they mean by any acid in her system? Is there any basis for this idea?

I. E. Hill, M. D. Hannibal, Mo.

ANSWER—The permanent wave, so called is produced by moistening the hair with a strongly alkaline solution and then applying a considerable degree of heat. It seems to be difficult to avoid excessive heat, which injures the hair. This does not show so clearly in colored hair as in gray or white hair, which is apt to turn yellowish. The statement about "acid in the system" is an attempt to provide an explanation other than the true one in case the hair is yellowed by heat and protect the operator from the blame due her.

SUCTION CELL RETAINER IN TREATMENT OF
HERNIA

To the Editor—A patient with an inguinal hernia asked my opinion of the value of the suction cell retainer for nonsurgical management in place of the usual truss. This appliance is sold by John G. Homan of the New Science Institute of Steubenville, Ohio. I felt that it was of no value but would greatly appreciate any information you have concerning this appliance.

RENO A. AHLIN, M.D., Joliet, Ill.

ANSWER—The suction cell retainer apparently consists of a round pad usually made about the size of the palm of the hand. It is claimed to remain in place by means of the suction mechanism of the pad without the use of a strap. The pad is claimed to be satisfactory for retaining a rupture during regular daily wear. No difference is claimed for different types of rupture. For strenuous exercises, a similar retaining pad with a belt to go round the hips is made. The suction cell pad combined with strengthening exercises to the abdominal muscles is claimed to cure a rupture when cure is possible.

The general tone of the literature and testimonials is such as to lead one to infer much more than it is worth actually to claim on careful reading. This type of advertising has been deprecated by medical men and by most ethical advertisers. Probably no more can be expected of this method than from the use of a well fitting truss, if as much.

TREATMENT OF FIBROID TUMOR

To the Editor—A woman aged 45 married with one child 19 years old had the usual diseases of childhood. She has not been sick since menstruation ceased eighteen months ago except for hot flashes which persisted until this summer. Six months ago she noted a symptomless hypogastric mass. Examination showed it to be a fibroid. It has grown slowly until it is the size of two fists. There has been no bleeding nor any other symptom except for some constipation and a moderate gastric hyperacidity. Would irradiation be desirable in this case or would surgery offer a better result? Please omit name.

M.D., Ohio

ANSWER—Operative removal is the treatment of choice. Irradiation of pedunculated tumors is inadvisable because of the danger of necrosis. Palliation in such cases is inadvisable, the risk is too great.

'LIVER GROWN

To the Editor—In THE JOURNAL Oct. 28, 1933, you answer M.D. Pennsylvania who asks concerning the nature of the condition popularly known as liver grown. In Pennsylvania and in Ohio in the latter of which I had my early knowledge of folklore there was a term the lady gave to a condition that came after such an experience as the Pennsylvania physician mentions. This condition consisted of a soreness and stiffness about the middle of the body where are found the liver, the lower ribs and the diaphragm. This soreness and stiffness lasted for from a few hours to several days. This depended on the amount of violence done and the length of time consumed in the causation. In my locality the term liver grown was applied to this condition generally caused by the following experiences: long periods of crying, sobbing, hysterical giggling or laughing, running at a jog or dog trot for some time, being tossed up in the air and caught by a strenuous father while the child is wildly giggling, long rides on a poor trotting horse and such experiences as quoted in the doctor's question. I believe that the condition is an acute myositis of the diaphragm and the lower intercostals. This condition never comes during the course of some regular exercise or duty. It comes after some unusual occurrence as mentioned. I have never heard that medical advice was seriously sought for relief of the condition. I have searched for the condition in medical literature and have thus far found no answer.

IVAN I. YODER, M.D., Cleveland

TRACHOMA

To the Editor—In Queries and Minor Notes in THE JOURNAL, January 20, is a question from a physician concerning the treatment of trachoma. The question is signed M.D. Nevada. I should think it would be well to follow up your answer with a statement something as follows:

The condition as described by the physician in Nevada wherein 75 per cent of the pupils in the schools of a certain town are described as having trachoma resembles conditions that have been found in the past in other places wherein high percentages of the school children have been described as having trachoma. In such cases I have usually found that the condition that was thought to be trachoma was not trachoma but a benign folliculo- or follicular conjunctivitis. This may be the case in the Nevada town spoken of. I would be inclined to advise the physician to use a much milder course of treatment than chaulmoogra oil, the best being 0.25 per cent zinc sulphate for instillation in the eye, as it obviously would not be well to subject a patient with folliculosis to rather severe treatment. The instillation of zinc sulphate for a period of six or eight weeks would also help the physician to decide whether trachoma or some benign follicular disease of the conjunctiva was prevalent in the school children.

C. E. RICE, M.D., Rolla, Mo.
Surgeon U. S. Public Health ServiceCouncil on Medical Education
and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY, Cleveland, June 12. Sec. Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, *Written (Group B Candidates)*. The examinations will be held in various cities of the United States and Canada, April 7. *Oral* (all candidates), Cleveland, June 12. Sec. Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY, Cleveland, June 11 and Butte, Mont., July 16. Sec. Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY, Cleveland, June 11. Sec. Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

CALIFORNIA, Los Angeles, Feb. 26, March 1. Sec. Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO, Denver, April 3. Sec. Dr. William Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT, *Regular*, Hartford, March 13-14. *Endorsement*, Hartford, March 27. Sec. Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homopathic*, New Haven, March 13. Sec. Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

IDaho, Boise, April 3. Commissioner of Law Enforcement, Hon. Emmett Pfost, 205 State House, Boise.

ILLINOIS, Chicago, April 10-12. Supt. of Regis., Mr. Eugene R. Schwartz, Springfield.

IOWA, Des Moines, Feb. 26-28. Dir. Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MAINE, Portland, March 13-14. Sec. Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS, Boston, March 13-15. Sec. Dr. Stephen Rushmore, 144 State House, Boston.

MINNESOTA, *Basic Science*, Minneapolis, April 3-4. Sec. Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota. *Medical*, Minneapolis, April 17-19. Sec. Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

MONTANA, Helena, April 3. Sec. Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS. The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates, May 7-9 (limited to a few centers), June 25-27 and Sept. 12-14. Ex. Sec. Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW HAMPSHIRE, March 15-16. Sec. Dr. Charles Duncan, State House, Concord.

NEW MEXICO, Santa Fe, April 9-10. Sec. Dr. P. C. Cornish, Jr., 221 W. Central Ave., Albuquerque.

OKLAHOMA, Oklahoma City, March 13-14. Sec. Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

PUERTO RICO, San Juan, March 6. Sec. Dr. O. Costa Mandy, Box 536, San Juan.

RHODE ISLAND, Providence, April 5-6. Dir. Dr. Lester A. Round, 319 State Office Bldg., Providence.

TENNESSEE, Memphis, March 26-27. Sec. Dr. H. W. Qualls, 130 Madison Ave., Memphis.

WEST VIRGINIA, Charleston, March 12. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WISCONSIN, *Basic Science*, Madison, March 24. Sec. Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Reciprocity*, Milwaukee, April 5. Sec. Dr. Robert E. Flynn, 401 Main Street, LaCrosse.

THE AMERICAN BOARD OF RADIOLOGY

New Examining Board for Certification of
Specialists in Radiology

The desirability of instituting a certifying board for radiology was brought to a head at the meetings of the American Medical Association and the American College of Radiology held in New Orleans in 1932. At that time committees were appointed by the College of Radiology and the Section on Radiology of the American Medical Association to investigate the advisability of forming such a board. At the suggestion of the Council on Medical Education and Hospitals, this matter was brought to the attention of the American Roentgen Ray Society, the Radiological Society of North America and the American Radium Society at their annual meetings, and each of these societies likewise appointed a committee to investigate the advisability of forming such a board.

The committees representing these five radiologic organizations met, June 11, 1933, in Milwaukee during the meeting of the American Medical Association, effected a preliminary organization and adopted the following recommendations to be presented to each of the five associations represented:

- 1 That it is the sense of this joint committee that a national examining board for radiologists be formed.
- 2 That it be recommended to each of the five societies here represented that three members be appointed by each of the societies to constitute a national examining board for radiology.
- 3 That the purpose of the board shall be the examination and certification of radiologists.
- 4 That the board thus formed be authorized to effect its own organization, elect officers, adopt rules of procedure and proceed to the examination and certification of candidates.

The foregoing recommendations were approved by each of the societies, namely, the American College of Radiology, the American Roentgen Ray Society, the American Radium Society, the Radiological Society of North America and the Section on Radiology of the American Medical Association. Three members were appointed from each of the societies to form the board.

The organization meeting of the board was held at the Palmer House in Chicago, Sept. 28, 1933, during the first American Congress of Radiology, and H. K. Pancost was elected president of the board and B. R. Kirklin secretary-treasurer. A committee consisting of W. F. Manges, A. C. Christie and John W. Pierson was appointed to draw up by-laws and secure the incorporation of the board.

The board met again in Washington, D. C., January 27 and 28, at which time by-laws and articles of incorporation were adopted. The following permanent officers were elected: H. K. Pancost, president; A. C. Christie, vice president; and B. R. Kirklin, secretary-treasurer.

The purposes of the board according to the by-laws are as follows:

(a) To elevate the standards and advance the cause of radiology by encouraging its study and improving its practice.

(b) To test the qualifications of those who profess to be specialists in radiology by arranging and conducting examinations of voluntary applicants for the certificate of the board and to issue certificates to those found qualified therefor.

(c) To prepare and maintain a registry of holders of the certificate of the board.

(d) To serve the public, physicians, hospitals and medical schools by furnishing lists of those who have received the certificate of the board and thus to assist in protecting the public against irresponsible and unqualified practitioners who profess to be specialists in radiology.

The rules of the board require that applications for certificate be made on a prescribed form to be secured from the secretary.

Each applicant must establish to the satisfaction of the board that he is of high ethical standing, that he is a graduate of a medical school approved by the board, that he is a member of at least one of the societies that appoint members of the board, that he has had satisfactory experience in the practice of radiology, and that he is a physician duly licensed to practice medicine.

The by-laws of the board provide that "each applicant for the certificate of the board shall be examined in such manner and under such rules as the Board may prescribe, due weight being given in each individual case to professional attainments, years of training and practice, teaching and other positions held." It will be understood from this that the board intends to fix the extent and the scope of the examination in each individual case. The successive steps in a complete examination are as follows:

1. Submission to the secretary of the prescribed application form properly filled out.
2. Submission to the secretary of reprints or original thesis.
3. Personal appearance before the board for oral and practical examination.

The candidate will be informed after each successive step what is further required of him.

The experience of the boards already functioning has been highly satisfactory, and it is the general opinion that they have served to improve conditions in each specialty represented. Based on their experience the following advantages may be expected from the functioning of the American Board of Radiology:

1. Certification by the board furnishes a criterion to both lay and professional groups for judging a radiologist's qualifications.
2. Hospitals and other organizations will gradually establish rules limiting service on their staffs to those certified by the board.
3. It will gradually tend to limit specialization to those who are qualified to practice this specialty.
4. National and other special societies will eventually limit their membership to those who hold the board's certificate.
5. The public will gradually become informed of the importance of choosing specialists who are certified by the board.
6. Physicians in choosing consultants and in referring patients will gradually turn to those who are certified and thus help to eliminate those who are not qualified to practice radiology.

The first examination will be held in Cleveland, immediately preceding the annual session of the American Medical Association in June.

All radiologists interested should write to Dr. B. R. Kirklin, secretary, Mayo Clinic, Rochester, Minn.

New Jersey Endorsement Report

Dr. James J. McGuire, secretary, New Jersey State Board of Medical Examiners reports 156 physicians licensed by endorsement during 1933. The following schools were represented:

School	LICENSED BY	ENDORSEMENT	Year of Grad	Endorsement of
University of Arkansas School of Medicine	(1931)		(1931)	Mississippi
University of Colorado School of Medicine	(1926)		(1926)	Colorado
George Washington Univ. School of Medicine (1925)	(1929)		(1929)	New York,
(1930) Maryland				
Georgetown University School of Medicine	(1927)		(1927)	New York,
(1932) N B M Ex New York				
Pennsylvania				
Howard University College of Medicine	(1931)		(1931)	W Virginia
(1932) Georgia				
Kansas Missouri 2				
Emory University School of Medicine	(1918)		(1918)	Georgia
Chicago Medical School	(1928)		(1928)	Illinois
Loyola University School of Medicine	(1930)		(1930)	Illinois
Northwestern University Medical School	(1931)		(1931)	New York
Rush Medical College	(1927)		(1927)	N B M Ex.
(1928) Alabama				
(1932) Michigan				
University of Illinois College of Medicine	(1926)		(1926)	Illinois
(1927) Pennsylvania				
Indiana University School of Medicine	(1920)		(1920)	Indiana
State University of Iowa College of Medicine (1930)	(1932)		(1932)	Iowa
University of Kansas School of Medicine	(1929)		(1929)	Kansas
Tulane University of Louisiana School of Medicine	(1931)		(1931)	N Carolina
Johns Hopkins University School of Medicine	(1920)		(1920)	Virginia
(1929) (1931) Maryland				
University of Maryland School of Medicine and College of Physicians and Surgeons	(1930 2)		(1930 2)	New York,
(1932 2) Maryland				
Boston University School of Medicine	(1932)		(1932)	New York
College of Physicians and Surgeons Boston	(1904)		(1904)	New York
Harvard University Medical School	(1929)		(1930)	N B M Ex
Tufts College Medical School	(1930)		(1930)	Mass
N B M Ex 2, (1931) N B M Ex				
New York				
Univ. of Michigan Med School (1924)	(1930 2)		(1932 2)	Michigan
University of Minnesota Medical School	(1933 2)		(1933 2)	Minnesota
Washington University School of Medicine (1931)	(1932)		(1932)	Missouri
University of Nebraska College of Medicine	(1932)		(1932)	Nebraska
Albany Medical College	(1899)		(1899)	New York
Columbia University College of Physicians and Surgeons	(1917 2) (1923) (1925) (1926)		(1929 2)	New York
(1931 2) (1932) N B M Ex				
Cornell University Medical College (1924)	(1931)		(1932)	N B M Ex.
(1927) (1928) (1929) (1930)				
New York				
Fordham University School of Medicine	(1914)		(1914)	New York
Long Island College Hospital	(1909)		(1929)	New York
(1928) Pennsylvania				
Long Island College of Medicine	(1931 3)		(1932 3)	New York
New York Homeopathic Medical College and Flower Hospital	(1926) (1930) (1931)		(1932 3)	New York
(1932) N B M Ex				
New York University University and Bellevue Hospital Medical College	(1924)		(1924)	Penna
(1924) (1928) (1930, 4) (1931 5)				
(1932) New York, (1930) (1931) N B M Ex				
Syracuse University College of Medicine	(1931 2)		(1931 2)	New York
Hahnemann Medical College and Hospital of Philadelphia	(1932)		(1932)	Maryland
Jefferson Medical College of Philadelphia	(1915)		(1915)	Ohio
(1918) Delaware (1931) New York				
North Carolina				
Temple University School of Medicine (1921)				
(1925 2) (1930) (1931 2) (1932) Pennsylvania			(1932)	New York
University of Pennsylvania School of Medicine	(1922)		(1922)	California
(1922) (1926) Penna (1925) (1930) N B M Ex			(1930)	N Carolina
University of Pittsburgh School of Medicine	(1916)		(1916)	Penna
Meharry Medical College (1931) Maryland,	(1932)		(1932)	Georgia
Meharry Medical Department of Walden University	(1900)		(1900)	Mississippi
University of Tennessee College of Medicine	(1927)		(1927)	New York
(1931) Tennessee				
University of Texas School of Medicine	(1932)		(1932)	Texas
Medical College of Virginia (1929) (1931)	(1932)		(1932)	Virginia
(1931) N Carolina				
Univ. of Virginia Dept. of Medicine (1924)	(1927)		(1931)	Virginia
(1926) (1928) New York				
University of Wisconsin Medical School	(1927)		(1927)	N B M Ex
McGill University Faculty of Medicine	(1925)		(1925)	Ohio
(1926) (1932) New York				
University of Montreal Faculty of Medicine	(1924)		(1924)	Connecticut
Deutsch Universitat Medizinische Fakultät Cze	(1927)		(1927)	Penna
Universidad de Santo Domingo Facultad de Medicina	(1910)		(1910)	Vermont
Christian Albrechts Universitat Medizinische Fakultät Germany	(1921)		(1921)	* New York
Regia Universita di Napoli Facoltà di Medicina e Chirurgia	(1920)		(1927)	Texas
Regia Universita di Palermo Facoltà di Medicina e Chirurgia	(1904)		(1904)	New York
University of Edinburgh Faculty of Medicine	(1931 2)		(1931 2)	New York
Universitat Bern Medizinische Fakultät	(1923)		(1923)	New York

*Verification of graduation in process

New Jersey October Examination

Dr. James J. McGuire, secretary, New Jersey State Board of Medical Examiners reports the written examination held in Trenton, Oct. 17-18, 1933. Forty-two candidates were examined, 37 of whom passed and 5 failed. The following schools were represented:

School	PASSED	Year of Grad	Per Cent
George Washington University School of Medicine	(1932)	(1932)	80.1
Georgetown University School of Medicine	(1931)	(1931)	77.7
(1932) 77.1 81.5 84			
Loyola University School of Medicine	(1933)	(1933)	81.3 88.8
Rush Medical College	(1933)	(1933)	81.1

Louisiana University of Louisiana School of Medicine	(1932)	80 8
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932)	80 7
Harvard University Medical School	(1932)	83
St. Louis University School of Medicine	(1931)	78 8
(1932) 81 5		
Columbia Univ. College of Physicians and Surgeons	(1932)	79 8
82 5 86		
Syracuse University College of Medicine	(1932)	81 6
86 1 88 1		
University of Rochester School of Medicine	(1932)	83 2
Hahnemann Med College and Hospital of Philadelphia	(1932)	82 5
83 2 83 5		
Jefferson Medical College of Philadelphia	(1932)	85 5
University of Pennsylvania School of Medicine	(1932)	84 5
Woman's Medical College of Pennsylvania	(1931)	90 3
University of Virginia Department of Medicine	(1932)	86 8
University of Toronto Faculty of Medicine	(1929)	80 3
(1931) 80 3 (1932) 78 1		
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1929)	81 7
Regia Università di Palermo Facoltà di Medicina e Chirurgia	(1924) 75 1 (1931)	76 3*
Regia Università di Pisa Facoltà di Medicina e Chirurgia	(1930)	75 8
Regia Università di Roma Facoltà di Medicina e Chirurgia	(1932)	83 4*
Univ. of St Andrews Conjoint Med School Scotland	(1932)	82 7
School of Medicine of the Royal Colleges Scotland	(1932)	86 2*
	Year	Per Cent
School	Grad	
Georgetown University School of Medicine	(1932)	70 1
Regia Università di Genova Facoltà di Medicina e Chirurgia	(1924)	56 6*
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1909) 53 7 (1924) 71 6 (1932)	60 7*

* Verification of graduation in process

* Verification of graduation in process

Book Notices

Movies and Conduct By Herbert Blumer Associate Professor of Sociology University of Chicago Cloth Price \$1.00 Pp 257 New York Macmillan Company 1933

Movies Delinquency and Crime By Herbert Blumer Associate Professor of Sociology University of Chicago and Philip M. Hauser Instructor in Sociology University of Chicago Cloth Price \$1.50 Pp 233 New York Macmillan Company 1933

Motion Pictures and the Social Attitudes of Children By Ruth C. Peterson and L. L. Thurstone Professor of Psychology University of Chicago [Combined with] *The Social Conduct and Attitudes of Movie Fans* By Frank K. Shuttleworth and Mark A. May Cloth Price \$1.50 Pp 75 142 with illustrations New York Macmillan Company 1933

These books are part of a series entitled "Motion Pictures and Youth," financed by the Payne fund. They are psychological and sociological studies, carried out by specialists in the fields of psychology and sociological research who, as a rule, have not been known for their interest in moving pictures per se. The first volume, entitled "Movies and Conduct," is a study based on the life histories obtained from university students in various parts of the country, and high school students in Chicago. It was found that the influence of moving pictures is ambivalent as far as modifying states of existence is concerned. In some cases it was found that such traits as beautification, mannerisms and courtship technique were modified by the movies, and fantasies can be definitely linked up with the motion picture experiences of boys and girls. A number of examples are given in which the picture either had no effect or a negative effect in these respects. The question whether emotional excitement, and other influences commonly attributed to moving pictures, do have the effect they are supposed to have has not been solved by this study. The author points out that motion pictures do actually influence human conduct.

The second volume treats of the influence of the movies on crime. The impression has always been that moving pictures are an incentive and inspiration to crime and, by using the same technique as that used in the previous volume the writers were able to show that this impression could not be entirely justified as far as the conscious knowledge of the subjects was concerned. However Blumer and Hauser say that "it seems clear that the motion pictures were a factor of importance in the delinquent or criminal careers of about 10 per cent of the male and 25 per cent of the female offenders." They found too that "on the other hand movies may redirect the behavior of delinquents and criminals along socially acceptable lines and make them hesitant about, and sometimes deter them from, the commission of offenses." Sometimes, however, "they do not have such a desirable effect."

The third volume is a combination of two reports treating of the relationship of the motion pictures and social attitudes. In the first, the case studies were made by the use of the "attitude scale." This is a psychological technique consisting of a list of statements, on a given topic, such as whether war is good or bad, which covers the whole field of possible attitudes toward that topic, from extreme conservatism to extreme radicalism. The subject is then required to check those statements which he believes to be true. These were given to the subject before and after his seeing a moving picture. For example, the attitude scale toward crime and punishment was given before and after a group of college students saw the picture "The Criminal Code," and it was found that there was a change in their attitude toward leniency in the punishment of crime. Studies of attitudes toward war, toward the punishment of criminals, and toward the Negro were thus made. In general, the results showed that a single picture might not have any effect on children but that two or more pictures had a cumulative effect. There was some evidence that the influence of motion pictures on the subject's attitudes persisted for some time after his seeing the picture. The second essay in this volume, dealing with the attitudes of "movie fans," consists of several studies in which various factors, such as reputation with the teacher or classmates, moral judgments, and social attitudes, are investigated by special tests to show the effect of movie going on the possessors of these factors. Data were also secured, by means of tests, determining children's attitudes toward such subjects as people of other lands, crime and criminals. The authors found that "from the data thus far presented it is apparent that the movies are only one of a larger number of factors which determine the attitudes and conduct of school children. That the movies are an influence there is no doubt." They discuss, in a general way, the theories behind the influence of the motion picture. The work has been well conducted according to the techniques used in the field on which they are based. However, the techniques themselves are open to criticism, chief of which is the fact that the autobiography method does not reach the subconscious changes and has no safeguards for the truthfulness of the statements given, and the psychological tests are susceptible to community and other random influences which may swing the results either one way or the other, and which cannot be controlled by statistical means. The fact that these authors are so well known for their technical ability and scientific honesty should weigh against chance error, and this is borne out by the extremely conservative conclusions which they draw. The first two of the monographs are readable, and all three contain much meat for those who are interested in the subject of the influence of the motion pictures, but the results emphasize the need for more research. Physicians, pediatricians and psychiatrists who are often asked their opinion about the influence of the movies, and those who are confronted with this problem, will probably find these books helpful to them in discussing the "movie problem" with anxious mothers.

Manuel de neurologie Tome I L'anatomie du système nerveux Une tentative de grouper en système fonctionnel les voies et les centres de localisation diverse par lesquels les diverses impressions sensorielles peuvent se traduire en réactions réflexes Par le Dr. Cornelis Winkler Part 5 Le corps strié et le diencephale Tome I Opera omnia Paper Price 35 francs parts 1 5 Pp 367 with illustrations Haarlem de Erven F. Bohn \ V 1933

The treatise on the anatomy of the nervous system, which even after the appearance of this fifth part remains incomplete, represents an attempt to group in functional systems the pathways and centers by which various sensory impressions are able to produce reflex reactions. This volume is limited to a consideration of the corpus striatum and the thalamus, hypothalamus and other parts of the diencephalon. The author is emeritus professor of neurology and psychiatry at the University of Utrecht, and because of his long and distinguished career any contribution from his pen is worthy of serious consideration. In the introduction he states that this book gives an account of the central nervous system as he sees it. One is therefore not disappointed in failing to find in it an adequate discussion of recent contributions by others to the field which it covers. Nevertheless, it is unfortunate that in more than 150 pages devoted to the diencephalon there is no mention of

the fundamental contributions by Huber and Crosby and their pupils Gurdjian and Rioch, or of the painstaking researches of Le Gros Clark. There is no bibliography. Some of the author's own observations are likely to meet an unfavorable reception on the part of neurologists. He describes in considerable detail a system of ascending fibers arising in the cervical spinal cord and brain stem and running to end in the putamen and globus pallidus.

Organic and Bio Chemistry. By R. H. A. Plimmer D.Sc. Professor of Chemistry in the University of London at St. Thomas Hospital Medical School. Fifth edition of *Practical Organic and Bio Chemistry*. Cloth. Price \$7.50. Pp. 624 with 70 illustrations. New York & London: Longmans Green & Company, 1933.

In this edition the theoretical considerations of the organic chemistry section have been extended and additions have been made to the section on physiologic chemistry. The book offers a full course on the theoretical and practical phases of the subjects, brought down to date. Many practical, well chosen experiments appear throughout the text. A list of general and special reagents is appended. The simple systematic presentation of the subject matter makes this book an especially helpful general reference work for the student, the teacher and the physician.

Medicolegal

Taxes Clinic Not Exempt from Taxation.—The Lois Grunow Memorial Clinic Inc., of Phoenix, Ariz., sought to restrain the assessment and collection of taxes against its real and personal property. There was a judgment against the clinic in the trial court and an appeal was taken to the Supreme Court of Arizona.

The Arizona statutes exempt from taxation corporations not organized for profit formed for research, investigation and experimentation in scientific subjects. Buildings used for educational purposes and charitable institutions for the relief of the indigent or afflicted are also exempt. Such statutes exempting property from taxation, said the Supreme Court of Arizona, are to be strictly construed. The presumption is against tax exemption. The evidence in this case, continued the court, discloses that while some charitable practice is done individually by the several physicians and surgeons who rent and occupy offices in the clinic building yet each pays rent and conducts his own business for a profit and makes charges for his professional services. The fact that these physicians and surgeons rent space in the clinic building and conduct their private practice therein in no way differentiates them from any other physician or surgeon who does likewise in connection with his practice elsewhere. Nor, continued the court, do the highly commendable charitable acts on the part of the individual physicians and surgeons who occupy offices in the clinic building inure to the clinic in such a way as to constitute it a charitable institution within the purview of the Arizona statutes. It cannot be said that the building and equipment of the clinic are used for charitable purposes, nor can it be said that they are not used for profit. Whether or not profit is in reality derived from the business there conducted is beside the question. The test is whether or not the building and equipment are used in an effort to derive a profit therefrom, if possible. The evidence conclusively shows that the building and equipment of the clinic are being used by those who rent space therein in connection with the practice of their professions for the very obvious purpose of deriving a profit therefrom.

An educational institution, the court said, has been judicially defined as "one which teaches and improves its pupils, a school, seminary, college or educational establishment." The court could find no support for the contention that the property of the clinic was being devoted to educational uses or purposes in such a way or to such an extent as to render it exempt from taxation or that such property was being used for purposes of scientific research. The evidence did disclose that some scientific research had been undertaken by those connected with the clinic, but whatever may have been done in that respect the court said, was merely incidental to the general activities of

the clinic and was not such as to establish it as an institution for scientific research not conducted for profit. The Supreme Court of Arizona concluded, therefore, that the real and personal property owned by the clinic was not exempt from taxation and the judgment of the trial court was affirmed.—*Lois Grunow Memorial Clinic v. Oglesby (Ariz.)*, 22 P. (2d) 1046.

Hospitals, Charitable Liability for Burn with Hot Water Bottle.—A hospital conducted for benevolent and charitable purposes is not liable to a patient for the negligence of its servants and employees unless it is shown that the hospital was guilty of negligence in the employment or retention of the offending employees or servants. A charitable hospital, however, may be liable for the injuries inflicted on an employee arising out of and in the course of his employment with the hospital. In the present case the plaintiff, a patient in the hospital, received a burn on her leg from a hot water bottle placed in the bed, apparently by hospital nurses. She sued the defendant hospital, an institution organized and operated for charitable purposes. The trial court directed a verdict for the hospital. In affirming the judgment based on the directed verdict the court of civil appeals of Texas said that, while the evidence was sufficient to justify submission to the jury of the issue of negligence on the part of the nurse, there was no evidence warranting the conclusion that the hospital failed to prescribe proper rules of government or was negligent in the selection or retention of the offending nurses.—*Steele v. St. Joseph's Hospital (Texas)*, 60 S. W. (2d) 1083.

Privileged Communications Fact of Medical Attendance Not Privileged.—Section 14216, Compiled Laws of Michigan 1929, provides that no licensed physician shall be allowed without his patient's consent to disclose in court any information which he may have acquired in his professional character in attending any patient which information was necessary to enable him as a physician to prescribe for such patient. This statute said the Supreme Court of Michigan, was enacted to prevent the abuse of the confidential relation existing between the physician and his patient and is for the patient's protection. It covers information acquired by observation while the physician is in attendance on his patient, as well as communications made by the patient to him. Consequently, in an action to enforce payment under an insurance policy it was proper for the trial court to refuse to permit physicians who treated the insured to testify with respect to the insured's ailment and to restrict their testimony to the fact merely that they had treated the insured.—*McKinney v. Liberty Life Ins. Co. of Illinois (Mich.)*, 248 N. W. 881.

Society Proceedings

COMING MEETINGS

- Alabama Medical Association of the State of Birmingham April 17-19
Dr. D. L. Cannon 519 Dexter Avenue Montgomery Secretary
- American Association of Anatomists Philadelphia March 29-31
George W. Corner University of Rochester School of Medicine
Rochester N. Y. Secretary
- American Association of Pathologists and Bacteriologists Toronto
Canada March 29-30 Dr. Howard T. Karsner 2065 Adelbert Road
Cleveland Secretary
- American College of Physicians Chicago April 16-20 Mr. E. R. Love
land 133 South 36th Street Philadelphia Executive Secretary
- American Laryngological Rhinological and Otolological Society Charleston
S. C. April 3-5 Dr. Robert L. Loughran Bridgewater Conn.
Secretary
- American Physiological Society New York March 28-31 Dr. Frank C.
Mann Mayo Clinic Rochester Minn. Secretary
- American Society for Experimental Pathology New York March 28-31
Dr. C. Phillip Miller Jr. 950 East 59th Street, Chicago Secretary
- American Society of Biological Chemistry New York March 28-31
Dr. H. A. Matill Chemistry Building State University of Iowa
Iowa City Secretary
- Arkansas Medical Society Little Rock April 16-18 Dr. W. R.
Brooksher 602 Garrison Avenue Fort Smith Secretary
- Federation of American Societies for Experimental Biology New York
March 28-31 Dr. Frank C. Mann Mayo Clinic Rochester Minn.
Secretary
- Louisiana State Medical Society Shreveport April 9-12 Dr. P. T.
Talbot 1430 Tulane Avenue New Orleans Secretary
- Southeastern Surgical Congress Nashville Tenn. March 5-7 Dr. B. T.
Beasley 1019 Doctors Building Atlanta Ga. Secretary

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J Obstetrics and Gynecology, St Louis 26 627 788 (Nov) 1933

- *Granulosa Cell Tumors of the Ovary Margaret Schulze San Francisco —p 627
- Problem of Irregular Menstruation C F Fluhmann San Francisco —p 642
- *Analysis of Five Hundred and Seventy Five Cases of Eclamptic and Preeclamptic Toxemias Treated by Intravenous Injections of Magnesium Sulphate E M Lazard Los Angeles —p 647
- Hemorrhage Following Cesarean Section J M Slemmons Los Angeles —p 656
- Nicotine in Breast Milk W B Thompson Los Angeles —p 662
- *Treatment of Prolapsed Uteri with Especial Reference to the Manchester Operation of Colporrhaphy W F Shaw Manchester, England —p 667
- Prevention of Cancer of Cervix Uteri H S Crossen St Louis —p 686
- Occipitoposterior Position Method of Management with Analysis of Nine Hundred and Seventy Six Cases G C Melhado Montreal —p 696
- End Results in Treatment of Pelvic Infection A H Aldridge New York —p 705
- Breech Deliveries with Reference to X Ray Measurements of Fetus and Maternal Pelvis T R Goethals Boston —p 715
- The Alleviation of Pain in Obstetrics J H Moore Grand Forks N D —p 729
- Granulosa Cell Tumors of the Ovary Report of Two Cases E F Daily Chicago —p 733
- Internal Outlet Pelvimeter S Hanson Stockton Calif —p 736
- Self Retaining Vaginal Speculum G S Beardsley Eugene Ore —p 739

Granulosa Cell Tumors of the Ovary—According to Schulze, granulosa cell tumors of the ovary are frequently mistaken for medullary carcinoma, or for sarcoma or endothelioma. There are three main histologic types, the folliculoid, the cylindromatoid and the sarcomatoid. Frequently, two or all three of these types are found in different areas of the same growth. The clinical diagnosis may be easy before puberty or after the menopause but is difficult during active sexual life. A careful study of the patient from the endocrine standpoint will prove of great aid in the preoperative diagnosis of these cases, as well as in the postoperative prognosis. There is definite evidence that these tumors elaborate the ovarian follicular hormone and possibly, in some cases, the lutein hormone also. It is probable that the follicular hormone tests will become as important for these cases as is the Aschheim-Zondek test for chorionepithelioma. These tumors are usually unilateral and comparatively benign, and simple excision of the tumor is ordinarily curative. Therefore it is most important to make a preoperative or at least an operative diagnosis, as this permits conservative treatment in the case of young women. In women past the menopause, the complete removal of the pelvic organs is preferable if the patient is a good operative risk. In the rare cases in which complete removal of the tumor is not possible, postoperative radiotherapy will probably increase the chances for cure.

Eclampsia Treated by Injections of Magnesium Sulphate—Lazard discusses the intravenous magnesium sulphate treatment of 575 cases of preeclamptic toxemias and eclampsias of which 371 were preeclamptic and 225 convulsive toxemias. He concludes that in view of the varied etiologic factors which may produce the eclamptic syndrome, it is in all probability impossible ever to obtain a specific cure for eclampsia. The objectives of treatment in the preeclamptic state should be (1) to overcome the effects of the toxemia by sedation and elimination, (2) to remove as much work as possible from the embarrassed excretories by proper regulation of the diet with particular reference to balancing the fluid intake

with the output, and (3) to terminate the pregnancy as conservatively as possible, when there is no proper response to treatment, before the onset of convulsions. The chief objective of treatment of the eclamptic patient should be the control of the convulsions and the protection of the patient against accidents during the convulsions and coma, surgical termination of the pregnancy during the eclamptic attack is justified only in patients in labor who present some urgent obstetric indication. The necessary sedation and elimination is best secured by intravenous magnesium sulphate in sufficient dosage, aided by intravenous injections of dextrose. The gross mortality for the author's entire series, preeclamptic and eclamptic patients, was 5.9 per cent. The gross mortality for the active eclamptic patients was 13.33 per cent, and the corrected mortality 9.5 per cent.

Treatment of Prolapse of the Uterus—Shaw states that a combination of anterior and posterior colporrhaphy with amputation of the cervix is the best method of treatment for all cases of prolapse of the uterus. This operation is the best for all patients having this condition, whether young or old, parous or nulliparous. In the author's series of 549 cases, 529 (95.35 per cent) were cured. This operation is not a cause of trouble in subsequent labors. The prolapse may recur after subsequent labors, but in less than 25 per cent of cases. It is necessary to combine an abdominal operation with the colporrhaphy only in those rare cases in which practically no muscular tissue is found in the pelvic floor. The author resorted to this procedure in only two cases.

American Journal of Public Health, New York

23 1115 1222 (Nov) 1933

- America's Contributions and Problems in Public Health J A Ferrell New York —p 1115
- The Work of Walter Reed and His Associates of the Medical Department of the United States Army R U Patterson Washington D C —p 1127
- Story of the Epidemic of Encephalitis in St Louis J F Bredeck St Louis —p 1135
- Epidemiology of Encephalitis with Especial Reference to the 1933 Epidemic J P Leake Washington D C —p 1140
- Types of Epidemic Encephalitis Comparison of the Cases Seen in St Louis in 1933 with Those Seen in New York City Josephine B Neal New York —p 1144
- Production of Antitoxins by Means of Bacteriophage N W Larkum Lansing Mich —p 1155
- The Need of an Index Statisticus A W Hedrich Baltimore —p 1159
- Missed Epidemics of Septic Sore Throat P B Brooks Albany N Y —p 1165
- Preservation of Milk Samples with Brilliant Green for Streptococcus and Abortus Examination C S Bryan East Lansing Mich —p 1182
- Automatic Pipet Washer Ellen Howell and Fannie Mac Frank Montgomery Ala —p 1186

American Review of Tuberculosis, New York

28 537 710 (Nov) 1933

- Bionomics of Families Attending a Tuberculosis Dispensary I General Characteristics with Especial Reference to Housing and Economic Status Persis Putnam —p 537
- Id II Dispensary Attendance and Diagnosis of Family Population Persis Putnam —p 573
- Id III Tuberculosis Morbidity and Mortality Among Italians and Hebrews Persis Putnam —p 591
- Further Studies on Incidence of Tuberculous Infection in Some Rural Communities of the South J D Aronson Philadelphia —p 617
- Incidence of Tuberculosis in Families of Group of Sanatorium Patients Eloise Haywood W H Morris and G C Wilson Wallingford Conn —p 637
- Prognosis of Noncavernous Phthisis with Especial Reference to Size and Quality of Lesions Shown by X Ray Analysis of Three Hundred and Sixty Five Cases H L Barnes Wallum Lake R I —p 660
- Vaccinating Property of Dissociated Heat Killed S Tubercle Bacilli Comparison with That of BCG and Living Human Tubercle Bacilli in the Rabbit W B Soper L K Alpert and M J Adams New Haven Conn —p 667
- *Differential Diagnosis of Intestinal Tuberculosis H Gauss I Singerman and Louisa T Black Denver —p 684
- *Effect of Viosterol (Vitamin D) and Tuberculin on Healing of Tuberculous Lesions in Guinea Pigs E C de Savitsch Virginia E Trevor W C Black and R C Lewis Denver —p 699

Diagnosis of Intestinal Tuberculosis—Gauss and his associates state that there are no pathognomonic signs of intestinal tuberculosis. The high incidence of intestinal tuberculosis reported by pathologists includes a considerable number of terminal lesions and is to be differentiated from clinical tuberculosis which produces morbidity. The diagnosis is suggested by the failure of any patient to make satisfactory progress

when the pulmonary lesion is quiescent or improving. The common symptoms of intestinal tuberculosis are diarrhea, abdominal pain, abdominal tenderness, abdominal rigidity and cramps after eating. The roentgen evidence of intestinal tuberculosis includes the presence of spastic filling defects in the ascending colon, hastened emptying time of the colon, dilatation and segmentation of the small intestine, ileac stasis and/or gastric retention. When a person presents some of the signs and symptoms or roentgen evidence and is known to have pulmonary tuberculosis, a clinical diagnosis of intestinal tuberculosis may be made. However, in adults in the absence of pulmonary tuberculosis, one would hesitate to diagnose intestinal tuberculosis. Since the direct diagnosis is based largely on evidence of hypermotility and ulceration of the intestinal tract, the differential diagnosis must be made from pathologic states that give rise to hypermotility or ulceration of the intestinal tract, which include protozoal infection, bacterial infection of the colon, tumors of the intestine, disorders in the formation, position or configuration of the colon, appendicitis, digestive, nutritional, rectal and endocrine disorders, blood dyscrasias, cardiorenal disease, industrial poisons and surgical complications. The authors report a study of 125 patients in a tuberculosis sanatorium who presented gastro-intestinal problems. These were classified under twenty-seven different clinical entities. The nontuberculous states are far in excess of the tuberculous states, being in the approximate ratio of 5:1. The majority of gastro-intestinal problems encountered among patients in a tuberculosis sanatorium are nontuberculous rather than tuberculous. Postmortem examinations indicate a reasonable agreement between clinical and postmortem diagnoses. Intestinal tuberculosis was found principally in patients living far advanced pulmonary tuberculosis.

Vioosterol and Tuberculin in Healing of Tuberculous Lesions.—De Szytsch and his associates observed that the use of a combination of viosterol and tuberculin in the treatment of moderately advanced tuberculosis in guinea-pigs gives definitely beneficial results, as judged by longevity, the degree of tuberculous involvement and the amount of fibrosis. The optimal effect of the treatment is apparently obtained when the viosterol and tuberculin are given simultaneously rather than when one precedes the other by forty-eight hours. The average life span of animals receiving simultaneous treatment with viosterol and tuberculin is markedly increased as compared with that of the tuberculous controls or of the tuberculous animals treated with viosterol alone or tuberculin alone. The average degree of tuberculous involvement in animals receiving simultaneous treatment with viosterol and tuberculin and in those treated with viosterol followed in forty-eight hours by tuberculin is considerably less than that of the controls or of the animals receiving tuberculin followed in forty-eight hours by viosterol. The average amount of fibrosis in animals receiving the combined treatment of viosterol and tuberculin is definitely greater than that of the controls.

Archives of Pathology, Chicago

10 611 768 (Nov.) 1933

- *Bone Marrow in Agranulocytosis (Pernicious Leukopenia) R. H. Jaffe Chicago—p. 611
- Cerebral Aneurysms C. R. Tuthill Buffalo—p. 630
- Extramedullary Hematopoiesis in a Retroperitoneal Tumor J. L. Blaisdell Toronto—p. 643
- *Malignant Neurinoma (Schwannoma) with Epithelial Elements W. W. Brandes Dallas Texas—p. 649
- Compensatory Hypertrophy of Thyroid Gland in Guinea Pigs Effect of Potassium Iodide and of Anterior Lobe Pituitary Extract Eliza Beth Moore St. Louis—p. 657
- Peroxidase Activity of Hematin C. A. Johnson Chicago—p. 667

Bone Marrow in Agranulocytosis.—Jaffe discusses the histologic changes of the bone marrow in nine cases of agranulocytosis. Five of the cases belong to the group of the so-called idiopathic form. Two seemed to have developed during antisyphilitic treatment, while the remaining two proved to be cases of prolonged *Streptococcus viridans* septicemia. In agranulocytosis the essential pathologic process is a disintegration of the specific granules of the myelocytes which is followed later by pyknosis of the nucleus and death of the cells. Because of the disappearance of the granulation, the myelocytes lose their characteristic appearance. The degeneration of the myelocytes

is sometimes preceded by proliferation. In a considerable number of cases of agranulocytosis the giant cells of the bone marrow show signs of proliferation and degeneration which suggest relations to the other forms of regressive blood dyscrasia, in particular to aleukia haemorrhagica. The changes of the bone marrow indicate that agranulocytosis is a symptom complex rather than a disease entity.

Malignant Neurinoma (Schwannoma) with Epithelial Elements.—Brandes reports the case of a solitary tumor occurring in the thigh with many features similar to schwannomas. The clinical features were severe pain in the thigh of a duration of five months and rapid increase in the size of the tumor. Histologic study indicated that epithelial-like structures were the most important elements of the tumor and that they in part at least if not entirely gave rise to the stroma. The rapid growth and the associated degeneration were probably important in the production of metastases.

Archives of Surgery, Chicago

27 817 978 (Nov.) 1933

- *Spontaneous Renal and Ureteral Fistulas C. C. Higgins and N. F. Hicken Cleveland—p. 817
- Effect of Complete and Partial Starvation on Rate of Fibroplasia in the Healing Wound E. L. Howes H. Briggs R. Shea and S. C. Harvey New York—p. 846
- Spastic Paraplegia in Achondroplasia E. Freund Iowa City—p. 859
- *Intussusception Associated with Tuberculosis Case in Adult E. R. Easton New York—p. 868
- Diagnosis and Treatment of Fractured Skulls L. T. Wright J. J. Greene and D. H. Smith New York—p. 878
- Fibromyoma of the Uterus Report of Case of a Sixty-Five Pound Solid Fibromyoma with Review of Large Cystic and Solid Uterine Myomas J. C. Owings Baltimore—p. 897
- Double Gallbladder Report of Case S. F. Herrmann G. S. Hicks and D. L. Martin Tacoma Wash.—p. 905
- Pylephlebitis H. Koster and I. P. Krasman Brooklyn—p. 910
- Electrovisographic Method of Recording Gut R. P. Schwartz A. L. Heath and J. V. Wright Rochester N. Y.—p. 926
- Healing of Fractures and Bone Defects After Venous Stasis J. A. Key and F. Wilton St. Louis—p. 935
- *Ribs Overlying Empyema Cavities Pathologic Study J. D. Bisgard Omaha—p. 941
- Combination Avertin Ether Rectal Anesthesia Experiments on Animals C. H. Hunt Red Bank N. J.—p. 960
- Fifty First Report of Progress in Orthopedic Surgery J. G. Kuhns E. F. Cave S. M. Roberts and J. S. Barr Boston J. A. Freiberg Cincinnati J. C. Milgram New York R. I. Stirling Edinburgh Scotland and P. D. Wilson Boston—p. 970

Spontaneous Renal and Ureteral Fistulas.—Higgins and Hicken present a case each of spontaneous nephrocolic, nephroperirenal, renocolic, ureterovesicoperitoneal and ureteroperiureteral fistula and state that spontaneous renal and ureteral fistulas are the result of advanced kidney disease such as tuberculosis, nephrolithiasis, pyonephrosis, hydronephrosis or neoplastic disease and occasionally arise from perinephric abscess secondary to caries of the vertebrae, perityphlic abscess, pelvic disease or peripheral infections. The diagnosis is made on the basis of the clinical symptoms, corroborated by cystoscopic and roentgenographic studies. The most important consideration in the treatment of spontaneous urinary fistulas is prophylaxis, the prevention of advanced kidney diseases to the stage of fistula formation by the use of early corrective measures. Closure of a renal fistula usually requires nephrectomy as the kidney is so generally diseased that practically no functioning tissue remains. In cases constituting a grave surgical risk, conservative measures are indicated, primary drainage of a perinephric abscess usually results in improvement, so that a nephrectomy may be performed later. The use of indwelling ureteral catheters may facilitate the repair of a ureteral fistula, but usually the kidney is harboring infection which has destroyed the parenchyma to such an extent that its conservation is useless.

Intussusception and Tuberculosis.—Easton suggests that every tuberculous patient be regarded as a potential victim of intussusception and his treatment planned with this complication in view. This may mean simply an intensification of the regular treatment for tuberculosis with special emphasis on overnutrition, protection from overexertion and an increased watchfulness for gastro-intestinal symptoms. In cases of pulmonary tuberculosis it is a complication to be feared since it may not only lessen the possibility of recovery by interfering with the patient's nutrition but in its acute form is more than

likely to precipitate a fatal termination. On the other hand, pulmonary tuberculosis, with its weakening effect of the gastrointestinal tract, predisposes the patient to intussusception. Undernourishment, through an insufficient or ill balanced diet, is a definite causative factor and perhaps the only one through which effective preventive action may be taken. The author reports a case of intussusception in which the immediate cause of death was tuberculous bronchopneumonia, localized peritonitis, necrosis of the ileum and old intussusception. The direct cause of the intussusception could not be determined as there was no neoplasm or tuberculous ulceration at the site of the lesion.

Ribs Overlying Empyema Cavities—Bisgard describes the structural changes commonly observed in ribs overlying empyema cavities and the relation of these changes to the parietal pleura and presents certain deductions relative to the pathogenesis of these changes based on clinical, histologic roentgenographic and experimental data, which indicate that the transformation has been brought about by the inflammatory response or periostitis, which probably is most active during the acute stage of an empyema, and a functional response in which the osteogenic elements of these ribs bring about certain transformations in accord with the principles outlined in Wolff's law. It would appear that the greatest abnormal force acting on these ribs overlying chronic empyema cavities is the centripetal traction of the contracting pleural scar. To resist this force, the transformation of the inner architecture constantly observed in the specimens examined would logically be anticipated.

Journal of Immunology, Baltimore

25 381-460 (Nov.) 1933

- Volume of Precipitate in Precipitin Reactions F. S. Jones and R. B. Little Princeton N. J.—p. 381
Studies in Microbic Dissociation. I. Effects of Dissociation on Antigenic Behavior of *Salmonella* and *Shigella* Cultures G. M. Mackenzie and Helen Fitzgerald Cooperstown N. Y.—p. 397
Studies on Cultures and Broth Filtrates of *Staphylococci*. IV. Antitoxin Content of Rabbit Serums Immune to *Staphylococcus Toxin* and Precipitin Reactions of Such Serums E. L. Burky Baltimore—p. 419
Complement Fixation Test in Carcinoma W. Saphir and Nell Hirschberg Chicago—p. 439
Refractory State as Concerns the Schwartzman Phenomenon. Observations on Potency of Individual Venoms S. M. Peck New York—p. 447

Complement Fixation Test in Carcinoma—Saphir and Hirschberg applied the complement fixation test for carcinoma to twenty-seven serums of cancer patients and eighty-two control serums. The tests were positive in 77.7 per cent of the twenty-seven serums and in only one of the eighty-two control serums. A patient having lobar pneumonia gave the positive reaction. The authors are of the opinion that the reaction is of a physiochemical nature due to the influence of the antigen on the serum globulins rather than a specific antigen-antibody reaction. The clinical value of the reaction awaits further observation after refinement and a better understanding of the nature and the limitations of the test. The technique of the complement fixation test for cancer parallels the original Wassermann technique in one-tenth amounts being a five tube quantitative test with incubation at 37°C.

Journal of Pediatrics, St. Louis

3 539-678 (Oct.) 1933

- Significance of Water Metabolism in Health and Disease I. McQuarrie Minneapolis—p. 539
Chronic Peptic Ulcer in Childhood C. S. White Washington D. C.—p. 568
Serum Albumin and Globulin of New Born Premature and Normal Infants D. C. Darrow and M. Katharine Cary New Haven Conn.—p. 573
Management by Mechanical Respirator of Postdiphtheritic Respiratory Paralysis J. E. Gordon D. C. Young and F. H. Top Detroit—p. 590
Neurocutaneous Syndromes in Childhood H. Schwarz and H. Abramson New York—p. 586
Determining Appropriate Weight for Body Build Helen Brenton Pryor and H. R. Stolz San Francisco—p. 608
Hereditary Ataxia A. P. Blossom Houston Texas—p. 623
Virus and Hypertension in Infancy Associated with Adrenal Tumor F. Van Der Bogert Schenectady N. Y.—p. 629
Treatment of Pertussis with Gold Tribromide Report of Seventy Five Cases J. Epstein New York—p. 635

Serum Albumin and Globulin of Infants—Darrow and Cary determined the serum concentration of total protein, albumin and globulin in twenty new-born fourteen normal,

aged about 5 months, and twenty-six premature infants. They made similar studies in full term and premature infants suffering from various diseases. They found that the total protein is decreased in all infants, the decrease being due chiefly to low globulin. The diminution in globulin is greatest in premature infants. Postmortem serum of small fetuses shows essentially the same albumin-globulin ratio as that of full term infants. Both premature and normal infants may show an increase in globulin during infection. The authors suggest that the low globulin in infants may indicate the lack of the usual stimuli that give rise to globulin production in adults.

Whooping Cough Treated with Gold Tribromide—Epstein observed that gold tribromide was an effective remedy in cases of whooping cough. Treatment consisted in the oral administration of a solution of gold tribromide in water. The dosage varied with the age of the child and the severity of the paroxysmal cough. Generally, from one-twentieth to one-tenth grain (0.003 to 0.006 Gm.) was given after meals and at midnight. The author found that a solution of gold tribromide in water did not keep well on standing and he now uses chloroform gold tribromide (a teaspoonful three or four times a day). In about two thirds of his whooping cough patients, the cough subsided in three weeks, in the others, it abated within from five to seven weeks. In all cases, after a treatment of three or four days with gold tribromide, the cough was less frequent and less distressing, the attacks were shorter and milder, the vomiting ceased and sleep was more restful. There were no recurrences, complications or fatalities in this series of cases. In twenty-five controls who received the usual antipertussis remedies, the cough was frequent and racking and the course of the disease varied from three to four months.

Journal of Urology, Baltimore

30 499-638 (Nov.) 1933

- *Cystoscopic Prostatectomy. Final Report F. E. B. Foley St. Paul—p. 501
Factors of Safety in Prostatic Resection G. J. Thompson Rochester Minn.—p. 525
*Two Way Resection of Very Large Prostates E. G. Ballenger O. F. Elder and H. P. McDonald Atlanta Ga.—p. 531
Influence of Type of Current on the Postoperative Complications in Transurethral Surgery J. R. Caulk and J. T. Patton St. Louis—p. 537
Some Dangers and Difficulties of Transurethral Resection J. C. Sargent Milwaukee—p. 559
*Carcinoma of the Prostate J. R. Dillon San Francisco—p. 567
Chronic Prostatitis Its Relation to Anatomic Changes in Prostatic Urethra and Vesical Orifice D. M. Davis Phoenix Ariz.—p. 579
Primary Carcinoma of Ureter J. C. Sargent and C. R. Marquardt Milwaukee—p. 625
Rupture of Urinary Bladder from Self Catheterization C. O. Ritch Chicago—p. 631
Attachments for Converting a Standard Surgical Table into a Table for Perineal Operations A. B. Cecil Los Angeles—p. 635

Cystoscopic Prostatectomy—Foley describes a new instrument and method that represent a radical new departure from the punch principle. An electrode projected far beyond the sheath lumen and operated under accurate visual control permits rapid excision of practically any desired extent of the obstructing gland, amounting in fact to "cystoscopic prostatectomy." The radial incisions are made first. In this process bleeding is controlled by alternating the cutting current with periods of coagulation. Particularly in the bottom of each incision, thorough coagulation should be employed. During operation of the electrode, continuous "down draft" irrigation is used. A brisk stream of fluid is supplied from an irrigating tube surrounding the telescope and opening above the vesical neck, with a continuous return flow down the urethra and through the sheath. This carries any bleeding from the incision downward and minimizes interference with vision. By the use of either retrograde or foroblique telescopes in the working element, vision may be had of the incision either on the vesical neck side with the periphery of the gland in view or up through the urethra with the intra-urethral surfaces of the lobes in view. After the radial incisions have been made and the bleeding in each one has been controlled, the sections of gland between them are cut away by rotation of the whole instrument. In making this circular part of the excision, the cutting element describes a conoidal surface of rotation. Except for their rotation in making the circular incision, the sheath and

retrograde telescope remain in fixed position in relation to the vesical neck during the whole procedure and the peripheral part of the enlarged gland is always in the visual field without a change in the magnification, as would occur if there were alterations in the level of the objective lens above the vesical neck. When the foroblique telescope is used, the lower end of the electrode is at the lower edge of the field and the telescope moves with the electrode, giving vision from down in the urethra upward through the vesical neck with the whole electrode in the field. The author states that, from the cases in which operation has thus far been performed, it appears that, if bleeding in the radial incisions has been adequately controlled, only slight bleeding will occur from the circular or rotating incision. The excised pieces of tissue may be divided into smaller pieces with the electrotome forceps and may be removed from the bladder with the grasping forceps. When the procedure is completed, a 26 F catheter is fixed in the urethra. The author concludes that in the hands of the competent cystoscopist a majority of prostatic obstructions can be relieved by cystoscopic prostatectomy or by transurethral prostatic resection and that removal of the gland by a major operation is justified only in a limited number of cases. A comparison of transurethral resection with suprapubic prostatectomy in identical groups of material has shown that the clinical results with resection are as good as those obtained by suprapubic operation, while the postoperative mortality is less.

Two-Way Resection of Large Prostates—Ballenger and his associates present a two-way resection method, which is particularly indicated when large vesical calculi or diverticuli coexist with massive prostatic hypertrophy. With the patient in the Trendelenburg position, retractors are placed so as to hold the bladder away from the protruding mass. A large curved Cameron light is used. A tube, ordinarily used in tonsil operations, is attached to the suction apparatus employed to remove urine and blood. When the protruding prostate is exposed, pieces are resected, with suitable loops, until the intravesical mass is removed. Bleeding is stopped by fulguration as the resection proceeds. After sufficient tissue has been taken away and all bleeding stopped, a large retention catheter is placed in the incision, which is closed as usual, a Penrose drain being left in the prevesical space. Within a week or so, under low spinal anesthesia preferably with a brand of procaine hydrochloride containing strychnine sulphate transurethral resection is carried out. The suprapubic mushroom catheter is clamped and pulled up until its head is against the anterior wall of the bladder. The subsequent management and time of removing the suprapubic tube varies according to the condition of the patient and complicating factors. Less than 5 per cent of prostates require this method, as transurethral resection in one or two stages can be done by competent resectionists in more than 95 per cent of obstructions.

Carcinoma of the Prostate—Dillon outlines a procedure for carcinoma of the prostate in which the prostate is exposed through the perineum by the usual technic and enucleated in its entirety by an inverted V incision in the prostatic capsule, the entire prostatic urethral mucosa being removed from the membranous urethra to the neck of the bladder. In the advanced cases in which the prostatic capsule is infiltrated, the growth is shaved off, a sufficient thickness of capsule being left to form a new prostatic urethra. In a few cases with marked infiltration into the seminal vesicles, the growth was partially removed by following the ejaculatory ducts in the posterior flap, but it was found that this procedure caused delayed healing and closing of the perineum, owing to the large cavity produced. Infiltration around the neck of the bladder should be carefully trimmed off and any induration in the region of the middle lobe or suggestion of a median bar should be removed. Bleeding of the neck of the bladder is controlled by interrupted catgut ligatures. Two rubber tubes containing 50 mg of radium each, in four 25 mg ampules spaced according to the size of the prostatic capsule are placed in the regions of each lateral lobe, on each side of the perineal drainage tube and urethral catheter in the bladder. The posterior flap containing the posterior lobe, is brought up and sutured at its apex between the radium tubes. The rectum is separated from the pelvic fascia well below the level of the radium tubes and the

space packed with iodoform gauze at least a half inch in thickness, covering the entire prostatic capsule to the membranous urethra. The radium tubes, the bladder drainage tube and the gauze packing are brought out together on the right side of the perineal wound. The radium tubes are left in place from ten to fourteen hours, giving from 1,000 to 1,400 mg hours of crossfire irradiation to the wall of the bladder round the vesical neck and the posterior flap containing the posterior lobe, as well as irradiating the lateral walls of the prostatic capsule. The author presents this method as a palliative measure that will give the greatest comfort and relief of urinary symptoms for the remainder of their existence in patients suffering from carcinoma of the prostate.

Kentucky Medical Journal, Bowling Green

31 511 548 (Nov.) 1933

- Treatment of Typhoid Fever J F Dunn Arlington—p 512
- Traumatic Injuries to the Spine F P Strickler Louisville—p 516
- Early Diagnosis of Pulmonary Tuberculosis P A Turner Louisville—p 521
- Primary Carcinoma of the Lung D B Harding Lexington—p 524
- Fracture of Humerus Treated with Dr Henderson's Bone Key Case Report W B Atkinson Campbellsville—p 526
- Fractures Fractures of Lower End of Humerus Diagnosis and Early Treatment J A Arnold Louisville—p 528
- Id Complications of Fractures of Lower End of Humerus Cause and Treatment W B Owen, Louisville—p 530
- Id Volkmann's Contracture Its Causes and Treatment H Goldberg Louisville—p 531
- Phytozoar Case Report W E Fallis Louisville—p 537
- Neroderma Pigmentosum W U Rutledge Louisville—p 540
- Carcinoma of the Larynx W O Johnson Louisville—p 542

New England Journal of Medicine, Boston

200 815 866 (Oct 26) 1933

- Isolation from Case of Brill's Disease of Typhus Strain Resembling the European Type H Zinsser and M Ruiz Castaneda Boston—p 815
- Studies on Tumor Metastasis IV Metastases of Cancer of the Stomach S Warren Boston—p 825
- Training of Interns in Social Aspects of Medicine H A Derow and Ethel Cohen Boston—p 827
- Orthopedic Treatment of Infantile Paralysis F A Jones Manchester N H—p 831
- Diagnosis and Treatment of Multiple Sclerosis P de Nicola N. H. N. H.—p 834
- Value of Cod Liver Oil in Treatment of Anemia A. D. Holmes, Madeleine C Pigott and I P Bowser Stoneham Mass—p 839
- Progress in Surgery of Sympathetic Nervous System in 1932 J C White Boston—p 843

New York State Journal of Medicine, New York

33 1249 1306 (Nov 1) 1933

- Apparent Cures of Papillary Carcinomas of Urinary Bladder J J Valentine and J W Rogers New York—p 1249
- Noise Deafness in Industry and Environment (Occupational Deafness) J C Seal New York—p 1251
- Migraine Symptom of Focal Brain Edema F Kennedy New York—p 1254
- Study of Faintness and Syncope in Association with Cardiovascular Disease L F Bishop and I F Bishop Jr New York—p 1258
- Routine Management of Gastrostomy Patient W L Watson New York—p 1261
- Unfiltered X Rays and the Ten Milligram Flat Radium Element Applicator in Dermatology G M Mackee New York—p 1266
- Personal Experiences in Prophylaxis and Treatment of Ringworm of Hands and Feet E D Osborne F D Putman and R J Rickloff Buffalo—p 1270
- Observations on Effect of Iodine Administration in Cases of Hyperthyroidism G M Goodwin New York—p 1274

Pennsylvania Medical Journal, Harrisburg

37 81 198 (Nov.) 1933

- Important Applications of Thoracic Surgery J Alexander Ann Arbor Mich—p 81
- Low Back Pain in Adults J T Rugh Philadelphia—p 83
- Clinical Manifestations of Vitamin B Deficiency in Adults K O Elsom Philadelphia—p 87
- Correction of Postural Defects in Children D P Willard Philadelphia—p 89
- Report of International Congress of Ophthalmology Madrid Spain H W George Middletown—p 92
- Etiology and Treatment of Pemphigus L G Beinbauer Pittsburgh—p 95
- Chronic Iritis Role of Focal Infection N S Weinberger Sayre—p 98
- Management of Maxillary Sinus Infections F E Magee Oil City—p 102

Vitamin B Deficiency in Adults—Elsom presents a case in which definite symptoms followed a voluntary restriction of diet. The symptoms strongly resembled those of pernicious

anemia marked pallor, glossitis and symptoms and signs of posterolateral sclerosis. The typical observations of pernicious anemia, achlorhydria and anemia were lacking. When liver was administered in a dosage adequate to produce a remission in pernicious anemia there was no response, with the exception of some improvement in the glossitis. When vitamins B₁ and B were administered there was rapid improvement in the fatigue, anorexia, dyspnea, vertigo, paresthesias, edema, glossitis, scaling of the forearms and brittleness of the nails. This improvement began in two weeks and was complete at the end of six. The author concluded that the patient's symptoms and physical signs were due to a deficiency of the vitamin B complex. The improvement of the glossitis during liver therapy is believed to be due to the fact that liver contains measurable amounts of vitamin B. The close resemblance of many aspects of this case to the characteristic picture of pernicious anemia suggests some common factor between the two. At no time did the patient show anemia or detectable impairment of gastric secretion. It has been noted that pitting edema of the lower extremities disappeared with vitamin B therapy. The plasma proteins rose to a normal figure regardless of the fact that there was no increase in the protein of the diet. It seemed possible that the vitamins might be responsible either for increased absorption or for increased utilization of protein already present in the diet. This is believed to be important since it suggested a cause for edema not found in the usual etiologies of cardiac or renal disease, low protein intake, or the failure of the absorption of protein secondary to gastrointestinal disease. Detailed studies are at present under way in an effort to determine the exact explanation for the occurrence of this edema as well as of the symptoms described.

Public Health Reports, Washington, D C

48 1363 1388 (Nov 10) 1933

Experimental Studies of Natural Purification in Polluted Waters VIII Dissolved Oxygen in the Presence of Organic Matter Hypochlorites and Sulphite Wastes E J Theriault and P D McNamee —p 1363

South Carolina Medical Assn Journal, Greenville

29 243 266 (Nov) 1933

Parinaud's Conjunctivitis Case Report T R Games Anderson —p 245
Postoperative Atelectasis A E Baker Jr Charleston —p 247
Chronic Erythema G H Bunch and E L Midden Columbia —p 250
Tuberculin Skin Test Hilla Sheriff Spartanburg —p 253

Tennessee State Medical Assn Journal, Nashville

26 465 508 (Nov) 1933

Rat Bite Fever Case Report C F James Memphis —p 465
Fracture of Body of Vertebrae R C Robertson Chattanooga —p 469
Sarcoma of Kidney in Children C F Clayton Jr Knoxville —p 475

West Virginia Medical Journal, Charleston

29 449-496 (Nov) 1933

Heart Disease Digitalis Its Indications and Contraindications W C Swann Huntington —p 449
Id Bedside Diagnosis of Cardiac Arrhythmias R M Wylie Huntington —p 451
Id Interpretation and Significance of Cardiac Murmurs F A Brown Huntington —p 454
Practical Value of Information Obtained from Cerebrospinal Fluid Studies A A Wilson Charleston —p 456
Effect of Analgesics on Clinical Course of Rheumatoid and Mixed Arthritis Preliminary Report W B Rawls B J Gruskin and A A Ressa New York —p 462
Healing Gods or Medical Superstition J L Miller Thomas —p 463
Management of Benign Prostatic Obstruction H L Tolson Cumberland Md —p 479
Confessions of an Obstetrician N R Price Marlinton —p 484

Effect of Analgesics on Arthritis—The observations of Rawls and his associates indicate that palliation of pain is usually accompanied by unmistakable clinical improvement, as judged not only by the signs and symptoms but also by a reduction in the sedimentation rate and the shift to the left in the nuclear count. In the cases in which these effects were noticed the authors employed solely as analgesics a combination of magnesium and amidopyrine, as suggested by the work of Barbour and Winter, and amidopyrine, as suggested by Leher.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2 807 852 (Nov 4) 1933

Treatment of Acute Head Injuries G Jefferson —p 807
Ulcerative Colitis Survey of Ninety Five Cases T L Hardy and E Bulmer —p 812
*Treatment of Chorea by Induced Pyrexia J W Cheetham —p 815
Treatment of Chorea by Induced Pyrexia H Fish —p 816
Bornholm Disease Account of a Yorkshire Outbreak W N Pickles —p 817
Primary Thrombosis of Subclavian Vein C H S Taylor —p 818
Some Observations on Whooping Cough and Its Treatment by Vaccines R W Cockshut —p 819

Treatment of Chorea by Induced Pyrexia—Cheetham treated four cases of chorea by induced pyrexia. The treatment consisted of the daily intravenous administration, for a period of from seven to ten days, of TAB vaccine in sufficient quantity to produce a temperature of from 103 to 106 F. The vaccine contains 1,000 million *Bacillus typhosus*, 750 million *B. paratyphosus A* and 750 million *B. paratyphosus B* organisms in 1 cc. The initial dose is 0.1 cc intravenously, which almost invariably produces a satisfactory response. There is a severe constitutional reaction. The patient vomits and develops a peculiarly cyanosed appearance. The choreic movements are markedly increased for the time being. Subsequent doses are increased in accordance with the response to the first injection. An approximate rule is to double the dosage each day. The final dose may be as much as 25 cc. Sutton recommends the administration of acetylsalicylic acid and an icebag to the head if the temperature rises above 106 F. With careful attention to dosage, however, this is a rare incident and did not occur at any time in the author's cases. The injection is given in the early afternoon to enable the subsequent reaction to subside before night and thus not to interfere with the child's sleep. The constitutional reaction becomes less marked with each injection, until the final injection produces no obvious reaction apart from the pyrexia. The author observed that the treatment of chorea by artificial pyrexia shortens the duration of choreic movements, does not prevent recurrence and appears to have no beneficial action on rheumatic carditis. Its grave danger lies in the tendency to produce a false impression of cure by abolishing the movements, which in themselves are merely a symptom, when serious changes may be occurring in the heart. The author does not allow a child with acute rheumatism out of bed as soon as the joint swellings have subsided under the influence of salicylates. In the same way it is undesirable to allow a child out of bed two weeks after the onset of an attack of chorea unless it can be conclusively proved that the treatment which cuts short the choreic movements also cuts short any accompanying carditis. When these facts are borne in mind, it is clear that the use of artificial pyrexia has a limited place in the treatment of chorea.

Lancet, London

2 1021 1074 (Nov 4) 1933

Conditions of Fetal Respiration J Barcroft —p 1021
Carbohydrate in Relation to Treatment of Thyrotoxicosis N Kletz —p 1024
Peroneal Muscular Atrophy in Five Generations I Gordon —p 1026
*Aural Vertigo Amenable to Treatment by Ossiculectomy Cases J Dundas Grant —p 1029
Duct Papilloma of Breast Series of Cases Elizabeth H Lepper, Alfreda H Baker and Helena Hartog —p 1031
Recent Advances in Treatment of Lupus Vulgaris Evelyn M Holmes —p 1033

Aural Vertigo Treated by Ossiculectomy—Dundas-Grant is convinced that in suitable cases ossiculectomy is of the utmost value. It does not do away with the necessity for the radical mastoid operation, but in certain cases presenting symptoms indicating radical procedure the operation of ossiculectomy has relieved these symptoms and shown the radical operation to have been avoidable. Ossiculectomy should be considered before such operations as obliteration of the labyrinth or section of the eighth nerve on account of vertigo are undertaken. Often the practiced eye will detect changes attributable to retractions of the membrane or fixation of parts produced by the residue of inflammation in the middle ear. In some of the twelve cases that the author describes the ossicles obstructed

the outlet of the attic and prevented the escape of thickened discharges or cholesteatomatous collections and in others their fixation led to immobility of an otherwise mobile stapes. In the former the removal of the ossicles permitted the free escape of contents of the attic, with relief from vertigo and headache and, to some extent, from dullness of hearing. In the latter the restored mobility of the stapes provided the normal safety valve for variations of intralabyrinthine tension, with a disappearance of the distressing vertigo. He concludes that, in the normal subject, such removal would probably reduce the hearing to about 6 feet for the soft whisper, a useful but a much diminished amount of hearing power. In a patient having a greater degree of hearing, ossiculectomy would therefore be undesirable unless called for by a major disability, the removal of which rendered a moderate reduction of hearing a matter of relatively minor importance. In most of the cases in which ossiculectomy is required the hearing power is less than this and the operation, while making it no worse, sometimes makes it better than before, as in one of the author's cases.

Quarterly Journal of Medicine, Oxford

2 463 588 (Oct.) 1933

Hypertensive Cerebral Attack D McAlpine—p 463

*Action of Atropine in Complete Heart Block A R Gilchrist—p 483

*Action of Adrenalin in Complete Heart Block A R Gilchrist—p 499

Edema in Nephritis J B Rennie—p 521

Calcification of Kidneys in Pyloric Stenosis A M Cooke—p 539

Pituitary Secretion in High Blood Pressure C Hoyle—p 549

*Diagnosis of Anemia with Special Reference to Cell Volume and Blood Iron Estimation H W Fullerton, A Lyall and L S P Davidson—p 561

Action of Atropine in Complete Heart Block—Gilchrist tested the response of ten persons suffering from complete heart block to the intravenous administration of $\frac{1}{30}$ grain (0.002 Gm.) of atropine sulphate. Repeated electrocardiograms taken at intervals before and after the injection, demonstrated that this drug produced an acceleration of the ventricular rate. The dose of atropine was sufficient to produce almost complete paralysis of the vagus. The maximal increase in the ventricular rate was 47 beats per minute, representing a gain of almost 96 per cent over the initial rate. The minimal acceleration was 12 beats per minute, giving an increase of 54 per cent. In only one case was the gain after atropine within the maximal range recorded under similar resting conditions. At low initial rates, atropine produces but little acceleration. The coefficient of correlation between the rate before atropine and the amount of ventricular acceleration produced by it is +0.97. The use of atropine as a means of distinguishing the bradycardia of complete heart block from that of other causes is therefore unreliable. Further work must be done on this subject with the object of determining the precise nature of the response to atropine in those cases of slow heart action in which complete heart block is not present. To obtain a decided effect on the ventricular rate, it is necessary to use an amount of atropine approaching the full paralyzing dose, $\frac{1}{30}$ grain of atropine given intravenously in 1 cc of physiologic solution of sodium chloride was found to be sufficient. The auricular range after atropine does not bear any relation to the ventricular. The amount of auricular acceleration varies irregularly in each individual. The auricular response probably reflects no more than the degree of vagal tone existing at the moment of injection. The nature of the ventricular response suggests that the amount of acceleration is determined by the inherent rhythmicity of the specialized tissue at the center of impulse production. The author suggests that when the lesion producing the block is situated in the uppermost part of the conducting tract, a greater response will occur after atropinization than when the center of impulse production lies at a lower level in the specialized tissues. As a converse, vagal stimulation is more likely to be effective in slowing the idioventricular rate when the center of impulse production lies high in the conducting tract.

Action of Epinephrine in Complete Heart Block—Gilchrist observed the reaction of twelve patients suffering from complete heart block to repeated subcutaneous doses of epinephrine. Acceleration of auricles and ventricles may occur within two to four minutes of the injection. The amount of ventricular acceleration induced bears a striking relationship to the rate existing immediately before the injection. High

initial rates are followed by little or no gain in rate, slow rates by pronounced acceleration. The gain in rate after 0.25, 0.75 and 1 cc of epinephrine is similar to that recorded after 0.5 cc. In other words, for a given initial rate 0.25 cc. of epinephrine will produce as much acceleration as a dose four times that amount. The independence of the size of the dose and the response recorded suggest that a surface action is involved and that epinephrine is being adsorbed on some (? enzyme) surface, as an essential condition of its action. The observation that the initial rate determines the degree of acceleration finds support in blood pressure studies. It has not been found possible to demonstrate as close a correlation between the initial auricular rate and its increment after epinephrine as that observed in the case of the ventricles. The auricular response is modified to some extent, particularly in those cases in which the magnitude of the ventricular response is maximal, that is, when the initial ventricular rate is relatively low. It would appear probable that reflex vagal influences, induced by a marked ventricular reaction, limit the auricular response. The amount of limitation is apparently determined largely by the initial ventricular rate. The reaction to a subcutaneous dose of epinephrine varies as much in complete heart block as it does in the normal beating heart. The maximal auricular and ventricular reactions are not necessarily synchronous. As a general rule, the auricles attain the height of their reaction before the ventricles have completed their acceleration. An increased frequency of both chambers of the heart persists after the blood pressure rise has returned to its preexisting level. No untoward symptoms resulted from the employment of the drug. Reactions differing from the foregoing were encountered in four patients. One suffered from intermittent complete block. When tested during complete block no change occurred in the rhythm, but a branch defect changed from one side of the heart to the other. Tested during 2:1 rhythm, complete block was induced. The direction of the main ventricular deflection varied according to the presence or absence of conduction through the main stem of the bundle. During half-rhythm the ventricular complex in lead 3 was directed downward whereas during complete dissociation its direction was upward.

Anemia, Cell Volume and Blood Iron Estimation—To compare the value in diagnosis of the color index, cell volume index and iron index, Fullerton and his associates made a full hematologic investigation consisting of 129 observations in pernicious anemia, fifty-seven in idiopathic microcytic anemia, forty-one in posthemorrhagic anemia and fifty-seven in other anemias. They observed that in all types of anemia and at all stages the indexes run parallel to one another. The cell volume index and particularly the iron index, gave higher readings than the color index. The advantages claimed for these methods in the diagnosis of macrocytic hyperchromic anemia are confirmed but they are offset by an increased difficulty in the diagnosis of microcytic hypochromic anemia. Accordingly, the color index, if accurately estimated, still remains a simple and satisfactory procedure for routine diagnostic purposes, but for difficult cases and research work the addition of one or both of the subsidiary methods affords a valuable check. The authors present the results of investigations into cell diameter, blood pigments and iron metabolism.

Japanese Journal of Obstetrics and Gynecology, Kyoto

16 281-430 (Aug.) 1933

Elimination of Follicular Hormone in Urine of Man I Determination of Hormone in Urine of Normal Sexually Mature Female Persons and in Patients Having Hyperplasia of the Uterus J Kosakae T Ohga and S Okamoto—p 282

Id II Determination of Hormone in Urine of Patients Having Cancer of the Uterus J Kosakae T Ohga and S Okamoto—p 299

Comparative Microscopic Anatomy of Ovarian Ligament in Man and in Mammals Y Shimazaki and H Yamada—p 311

Study on So Called Anterior Lobe Hormone of the Pituitary Body K Mizuno—p 332

Effects of Diathermy Heat to Animal Cancer T Fuke—p 344

Blood Sugar in Normal and Cancerous Albino Rats Heated with Diathermy T Fuke—p 353

Effects of Diathermy to the Healing of Wounds T Fuke—p 357

Effects of Narcosis to Quantity of Glutathione in Tissues Organs and Blood I Kushiya—p 360

Influence of Roentgen Irradiation on Uropoietic System Part III Experimental Study on Radiosensitivity of Kidney S Takita—p 365

Archives Med-Chir de l'App Respiratoire, Paris

S 383 476 (No 5) 1934

- *Clinical and Pathogenic Considerations on Ayerza's Black Cardiac
M R Castex E L Capdehourat and R L Repetto—p 385
Contribution to Study of Pathogenesis of Pleuropulmonary Perforations
R Jeanneret and W Froehlich—p 408
Pleural Calcifications in Fifty Roentgenologic Observations
Stuhl Camendron and P Marques—p 411
Place of Collapse Therapy in Treatment of Pulmonary Suppurations
H Costantini and E Curtillet—p 427
Formation of Free Intrapleural Body After Section of Adhesions by
Method of Jacobaeus J Stephani T Stephani and R Kirsch—p 436

Ayerza's Disease—Castex and his co-workers state that chronic bronchopulmonary lesions are of greater importance in the genesis of Ayerza's disease than lesions of the pulmonary artery. The disease may occur with or without arteriosclerosis of the pulmonary artery, but the sclerotic lesions of the pulmonary circulation are important as evolutive factors because, by increasing the work of the heart, they accelerate its insufficiency. The disease cannot develop if the patient is not previously affected by a protracted bronchopneumonia, but the clinical syndrome is seldom observed in these conditions whether associated or not with sclerotic lesions of the pulmonary artery. The basic lesion a bronchopneumopathy of any kind, must lead to such a deficiency of alveolar air content as to create a reduction of at least 15 per cent of oxygen in order to produce cyanosis as the first stage of the evolution of the disease. It is also necessary that the individual possess a bone marrow capable of reacting by polyglobulism to direct or indirect stimuli, constituting a compensatory mechanism through which the organism may secure sufficient oxygen for the needs of the tissues despite the fall in the alveolar tension of this gas. Patients whose erythropoietic organs are incapable of offsetting the bronchopulmonary process inducing anoxemia cannot present the clinical picture of this disease. This explains why the majority of patients are afflicted with the disease in early youth rather than in advanced age. Thus, despite the frequency with which the protracted bronchopneumonic diseases are observed in elderly patients, the pathologic syndrome of black cardiac is seen only exceptionally. The constitutional peculiarities explain why, in spite of similar pathologic conditions so few persons develop the syndrome.

Semana Medica, Buenos Aires

40 1837 1944 (Dec 14) 1933

- Supracondylar Fracture of Elbow in Children Treatment and Results
R Finochietto and A Llambras—p 1837
Spinal Anesthesia in Vaginal Cesarean Section in Pylonephritis
Case T A Chamorro—p 1860
*Paroxysmal Tachypnea of Decubitus Due to Tuberculous Adenomedias-
tinitis Case R Cibils Aguirre and J L Araoz—p 1863
Biologic Reactions in Early and Differential Diagnosis of Pregnancy
P E Borris—p 1874
Infectious Endocarditis Caused by Enterococci Case P Cossio I
Bereonsky and A Fisher—p 1911
Extrapleural Fibrosarcoma Case R C Ferrari—p 1914
Duododenitis in Hypertyroidism D Boccia and A E Torre—
p 1917
Urban Brucella Infection in Argentina E A Molinelli—p 1919
Ultraviolet Rays in Erysipelas of Children G A Schiavone—p 1923

Paroxysmal Tachypnea of Decubitus—Cibils Aguirre and Araoz report the case of a girl, aged 9 in whom decubitus caused instantaneously a crisis of paroxysmal tachypnea and bradycardia. The respiratory rhythm before and after the crisis was normal but was accelerated in decubitus to from 120 to 150 respirations a minute. The pulse rate which before the crisis was 120 a minute was retarded to between 78 and 86 pulsations during decubitus. The disappearance of the crisis was as rapid when the child sat up as its appearance had been when she reclined. During sleep the respiratory movements were from 24 to 28 a minute and the pulse was 70. Except for a slight corticopleuritis there were no other pulmonary and bronchial symptoms. A roentgenographic study of the thorax showed tracheobronchial adenomediasitis which the authors diagnosed as being of tuberculous origin based on the positive results of the Mantoux test on the presence of corticopleuritis and on the fact that the child lived in intimate contact with her sister who died from pulmonary tuberculosis. That the tuberculous adenomediasitis was the cause of the respiratory and pulse syndrome by a compression of the pneumogastric

nerve was proved by the results from the functional tests of the vagosympathetic system, by the symptoms given by the patient and by the symptomatologic exclusion of the sympathetic nerve in its mediastinal course. The authors failed to find any similar case in the modern literature. In the classic literature, however, they found a relation between decubitus and the changes of the respiration and the pulse explained as being caused by compression of the pneumogastric nerve during decubitus by swollen mediastinal nerves.

Archiv fur klinische Chirurgie, Berlin

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- Short Circuiting and Plastic Operations on Biliary Tracts O Hoche
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Treatment of Prolapse of Rectum by Means of Aponeurotic Colopexy
A G Radsiewsky—p 628
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Mechanism of Increase of Antiproteolytic Blood Content in Stasis
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*Delayed Callus Formation as Result of Antiseptic Treatment of Wound
in Compound Fractures J Boerema—p 666
*Claudication Venosa Intermittens of Upper Extremity W Lohr—
p 701
*Symptomatology Diagnosis and Pathologic Anatomy of Lymphogranu-
lomatos Z W Mankin—p 744

Delayed Callus Formation Resulting from Antiseptic Treatment of Wound—Boerema studied the results of treating compound fractures in pigeons and in hens with and without antiseptic solutions, with particular regard to the question of delayed callus formation. He cut across the radius of a pigeon separated the periosteum, and then held a pledget soaked in a 5 per cent solution of tincture of iodine or a 3 per cent solution of phenol in contact with the fragments for about three minutes. The wound was then closed by suturing. An identical procedure was repeated on the corresponding opposite side without, however, the use of antiseptic solution. Roentgenologic control, as well as histologic studies, demonstrated conclusively a marked delay in callus formation in every bird in which antiseptics were used. In some instances necrosis of soft tissues or of a bone fragment took place. The author believes that retardation of callus formation was due to the effect of antiseptic solutions on the specific bone building tissues, the cambium layer of periosteum and the endosteum. The use of a solution of 3 per cent hydrogen dioxide as well as of iodoform gauze did not have, in his experiments, the effect of delaying callus formation.

Claudication Venosa Intermittens of Upper Extremity—Intermittent claudication of venous origin affecting the upper extremity need not be due to an actual thrombosis of the axillary or the subclavian veins, according to Lohr. He differentiates a special clinical entity in which the syndrome was due to venous stasis. The condition presents an analogy to the intermittent claudication of the lower extremity, with the difference that in the lower extremity muscular activity becomes arrested because of insufficient arterial blood supply, while in the upper extremity the same phenomenon is caused by the inadequate return of the venous blood. Intermittent claudication in the lower extremity does not occur without a simultaneous thrombotic closure of the main vein, while in the upper extremity this is not necessary. Muscular contractions in the lower extremity drive the venous blood toward the heart, while in the upper extremity they retard the return of venous blood. It appears, therefore, that the conditions for the venous return are less favorable in the upper than in the lower extremities. Because of narrowness (in the physiologic sense) of the subclavian vein, it is not necessary, in order to produce venous stasis, for the vein to be obstructed by a thrombus, as hard muscular work may produce it by causing backflow. The functional demands on the lower extremities, however, are so much greater than those of the upper that the actual incidence of the vascular diseases in the former is much greater than in the latter. The immediate relief in the objective and subjective signs and symptoms on the completion of operation is a definite proof of the existence of types of venous claudication due to minor hindrances of the return flow in the axillary cavity. These types must not be confused with those caused by throm-

basis of the large veins. The patients operated on made a rapid recovery. For patients not operated on, anatomic restitution and functional recovery are a matter of months, at times of a year. The author believes that the incidence of intermittent claudication due to venous stasis is probably greater than that due to thrombosis of the axillary or the subclavian veins. The most important etiologic factor in this group is an unaccustomed, unusual, prolonged muscular effort, the effect of which is to dilate and overstretch the axillary or the subclavian vein. Among the contributing factors are mentioned enlarged axillary lymph nodes, compression of the dilated vein by fascial strands of the costocoracoid fascia, tumors, subscapular bursitis, large callus of a recent clavicular fracture, goiter or lung tumor. The author observed thirteen patients of this type. Four were operated on by him for what was considered classic thrombosis of the axillary vein. No thrombosis was found. The vein in three cases was partly constricted by fascial strands. The differential diagnosis of the two types presents many difficulties. The distended axillary vein may easily suggest a thrombosed vein. However, patients with real thrombosis are usually elderly, either debilitated by malignant disease or presenting a severe trauma and infection. Characteristic for the syndrome described is that the patients are younger persons in the best of health, that the onset is sudden, that they have no fever or infection, and that they show a normal blood count and a negative Wassermann reaction. The patients give a history of prolonged, unaccustomed hard muscular strain. The condition does not give rise to embolic phenomena and serious complications. Signs of stasis disappear after the development of collateral circulation. The author cites his own four cases and Wulsten's, one case as a definite proof of the existence of venous stasis without thrombosis because in all five the absence of a thrombosis was demonstrated in the course of the operation. Operative treatment is recommended for all cases.

Lymphogranulomatosis.—On the basis of 103 cases of lymphogranulomatosis (Hodgkin's disease) studied at the Leningrad Oncologic Institute Munkin arrives at the following conclusions: 1. Lymphogranulomatosis is a rather common disease of the reticulo-endothelial system, especially of the portion located in the lymph nodes. 2. The disease presents a symptom complex not present in any other chronic disease of the hematopoietic system. 3. Included in this symptom complex are a progressively increasing lymphopenia, monocytosis and increase in neutrophils, while the colorless blood elements remain unaltered, itching of the skin, prurigo, bronzing of the skin and eczematous eruptions. The temperature curve presents characteristic fluctuations consisting of periodic alternations of high temperatures of an irregular type with afebrile periods. The involved glands are of an irregular consistency, and the skin over them is not adherent or fistulous. The involvement of the lymph nodes is always progressive and not a simultaneous process. The disease runs a severe clinical course with fatal termination on the average after from two to three years. 4. The author differentiates three histologic types: (a) the productive inflammatory, (b) the hyperplastic and (c) the tumor forming. 5. The more frequent type is the productive inflammatory, characterized by polymorphism and pleomorphism of the cells, fibrosis and areas of local necrosis. 6. However, even in this type there are found in some of the lymph nodes involved alterations of a more simple character consisting of hyperplasia of the reticular cells alone without fibrosis and admixture of hematogenous elements such as lymphocytes and polymorphonuclear leukocytes. 7. Hyperplasia of the reticulo-endothelium was the only alteration found in the lymph nodes in a number of the cases. These types cannot be differentiated from the so-called reticulosis. It is quite possible that a number of cases described in the literature as reticulosis were in reality a hyperplastic form of lymphogranulomatosis. 8. Because the lymphogranulomatous tissue may invade the neighboring structures and penetrate vessels, one is justified in speaking of a blastomatous type of lymphogranulomatosis. This applies particularly to the hyperplastic monomorphic type, difficult of differentiation from reticulocytomas and similar tumors. 9. The giant cells of Sternberg develop from the reticular cells, more rarely from the endothelial cells of the sinuses of the lymph nodes.

Medizinische Klinik, Berlin

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- *Infection and Vaccination in Tuberculosis J. Heimbeck—p. 131
- *Investigations on Vitamin Content of Hypophysis E. Vogt—p. 131
- *Treatment of Various Forms of Chronic Pemphigus by Means of Dye Derived from Naphthylamine Sulphonic Acid G. Scherber—p. 133

Infection and Vaccination in Tuberculosis.—Since 1924 Heimbeck has studied the tuberculous infections found in the nurses of the communal hospital of Oslo. The experience gained during the first three years, was an inducement to extend his studies to the population of Oslo. He reaches the conclusion that only a small minority of persons contract tuberculosis during childhood, the majority becoming infected in later life. The disease manifestations of tuberculosis appear as a rule shortly after the primary infection. The allergy that is detected by means of the Pirquet reaction is a sign of immunity, no matter whether produced by an attack of tuberculosis or by vaccination with BCG. In reporting his experiences with BCG the author states that, of 168 nurses who were vaccinated with it, eighty-four became allergic as a result of the vaccination before they were exposed to tuberculosis. Of these eighty-four, only one contracted tuberculosis, but of the other eighty-four who had not become allergic, eighteen contracted tuberculosis. This corroborates the author's opinion that allergy to tuberculosis is immunity to tuberculosis. Consequently if a BCG vaccination does not produce allergy, it has not conferred immunity and should be repeated.

Vitamin Content of Hypophysis.—Vogt examined ninety different hypophyses for their vitamin A content. He wanted to determine whether the vitamin content fluctuates, and particularly whether it influences the growth of malignant tumors. In summarizing his observations he states that the hormone activity of the hypophysis is dependent on a certain content in vitamin A. In chronic, exhausting diseases, such as sepsis, the vitamin finally disappears entirely from the hypophysis. The vitamin A content of the hypophysis is closely related to the growth of tumors. In the case of rapidly growing tumors the vitamin A content of the hypophysis is normal or increased, but in cancerous cachexia the entire vitamin A content of the hypophysis has been exhausted by the growth of the neoplasm and consequently is no longer demonstrable. The author suggests that the relatively slow growth of tumors in patients over 60 may perhaps likewise be a result of the depleted vitamin A content of the hypophysis. For the diet of cancer patients he concludes from this that, although care should be taken that it is of sufficient caloric value, it should not be too rich in vitamins. The mechanism of the interrelation between the vitamin content and the hormone production is not fully understood as yet. At any rate, the investigations have made it appear highly probable that there are close connections between hormones and vitamins.

Zeitschrift für Kinderheilkunde, Berlin

55 639 734 (Dec. 18) 1933

- *Simultaneous Occurrence of Sugar and Acetone in Urine of Nondiabetic Children (Glycetonuria) F. Altmann—p. 639
- *Reversion of Hemolysis During Childhood F. Erben—p. 669
- *Stages of Whooping Cough from Hematologic Point of View and Nature of So Called Whooping Cough Relapse I. Inaba—p. 677
- *Various Courses of Extrapulmonary Primary Tuberculosis and Aspects of Primary Tuberculosis of Mucous Membrane of Mouth J. Daken—p. 687
- *Necroses of Subcutaneous Fat Tissue in the New Born J. Bernheim-Karrer—p. 695
- *Tolerance to Levulose and Galactose in Premature Infants W. Fabisch and F. Etzold—p. 702
- *Malignant Metastasizing Sympathicoblastoma Case R. Rupilius—p. 708
- *Contribution to Physiology of Digestion in Nurslings XVII. Bile Activator of Prolipase in Human Milk E. Freudenberg—p. 714
- *Estimation of Size, Weight and Circumference of Chest in Children and Young Persons W. Kornfeld—p. 720
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- *Aspects of Testicular Hydrocele During Nursling Age G. Papp and J. Steinert—p. 726
- *Trichomonas as Cause of Vulvovaginitis in Children M. Rodecurel—p. 729

Sugar and Acetone in Urine of Nondiabetic Children.—Altmann reports observations on the simultaneous occurrence of sugar and acetone in the urine of nondiabetic children. After

acetonuria had been produced by a diet deficient in carbohydrates, the children were given large amounts of dextrose. In a high percentage of the cases the author observed the development of glycoketonuria. It was regularly observed after a tolerance test in febrile acetonuria. The behavior of the blood sugar curve resembled that of diabetes mellitus. While the stomach was empty the blood sugar content was reduced after the ketogenic diet, but there was a tendency to hyperglycemia. The author was unable to obtain reliable results on the behavior of the acetone bodies in the blood following the tolerance test. After the ketogenic diet had been instituted, the development of the acetonuria required from twenty to ninety-six hours. There seemed to be no definite ratio between the acetone content of the urine and of the blood, respectively, and of the expiratory air. The author proposes two explanations for the glycoketonuria. 1. The content of acetone bodies in the blood changes only slightly after the sugar tolerance test and, for this reason, acetone continues to pass into the urine, and at the same time there develops an alimentary glycosuria. 2. Since the pancreas has become weakened by the abstinence from carbohydrates, the administered sugar cannot be sufficiently oxidized and thus cannot exert its anti-ketogenic function, that is, acetone continues to enter the urine. The hyperglycemia and the glycosuria are indications of incomplete utilization of the sugar. The therapeutic lesson taught by glycoketonuria is that, in spite of the fact that sugar appears in the urine, more sugar must be given to strengthen the pancreas. The author calls attention to the differences in the behavior of the temporary, artificially produced and the true diabetes mellitus but also points out that there are intermediate stages between the two and that a slight infection may be sufficient to turn the dietetically produced acetonuria into a true diabetic coma. This indicates that, in case of fever, acetonuria must be avoided. For unknown reasons the glycoketonuria does not develop regularly. The well known fact that a ketogenic, carbohydrate deficient, diet causes loss of weight was corroborated in these investigations.

Reversion of Hemolysis During Childhood—According to Erben it was Spiro who first called attention to the phenomenon known as the reversion of hemolysis. If to a varnish colored solution of blood corpuscles, which under the microscope appears free from erythrocytes, hydrophilic substances are added, the solution assumes color again, and pale but otherwise intact erythrocytes become once more visible under the microscope. Starlinger investigated the clinical significance of this phenomenon and found that in healthy persons the reversion stays within narrow limits (between 10 and 15 per cent) but that in patients suffering from blood diseases, particularly in those having pernicious anemia, the reversion is increased fluctuating between 20 and 40 per cent. The increase in reversion is most pronounced during the periods of increased regeneration while there is no increase during the aregenerative stages. Since many chemical and morphologic reactions of the blood of children differ from those in adults, the authors decided to study the phenomenon of reversion in children. He describes a micromethod for the determination of the reversion of hemolysis in the capillary blood. He employed this micromethod in tests on fifty-five children without blood diseases, on six normal adults and on twelve children presenting disturbances of the blood. In the healthy children and adults he obtained values between 15 and 25 per cent, the average being 19.8. Taking the ages into consideration, a maximum of reversion was noticeable during the first few weeks of life, but this decreased to a minimum during the second and third months. The author believes that with certain reservations this may be considered an indication of a reduced hematopoiesis at the end of the first three months of life. However, the material and the fluctuations are too small to permit definite conclusions. In secondary anemia of various origins, his observations tally with those of Starlinger in that an increase in reversion ran parallel with the intensity of the regeneration, and after regeneration ceased the reversion gradually assumed normal values again. He found that his micromethod gave somewhat greater fluctuations than did Starlinger's method and he ascribes this partly to the higher levels of the normal values in the micromethod and partly to the greater reactivity during childhood.

Necroses of Subcutaneous Fat Tissues in the New-Born—Bernheim-Karrer states that, since his previous report on necroses of the subcutaneous fat tissues in the new-born, he has observed fifteen more cases, a sign that the condition is not as rare as is generally believed. Of especial interest was one case because the necrosis was congenital, which proves that a prenatal trauma (perhaps pressure of the uterine wall) may cause a necrosis of the subcutaneous fat tissue, other cases were noteworthy because the fat tissues of the kidney were necrotic. These cases indicate that deeper lying fat tissues likewise may become impaired by the trauma of birth. Another important observation was that in several cases the necrosis ended in calcification. The author evaluates the different theories of the pathogenesis of necrosis of the subcutaneous fat tissues. He ascribes the greatest significance to trauma of birth. He shows that it may be the cause even in delivery by cesarean section, for circulatory disturbances, stases, hemorrhages and ischemia may cause necroses of the subcutaneous fat tissues. The trauma of injection has also been known to be the cause. That necrosis of the subcutaneous fat tissues is often absent in extremely difficult deliveries and occasionally is present in deliveries that are not so difficult may be due to the thickness of the layer of fat tissue. In support of this theory the author cites the fact that many of the children in whom necrosis developed were comparatively heavy at birth. But although the author considers the traumatic origin the most frequent one, he also admits other factors. He calls attention to observations reported by other authors, such as the concurrence of the fat necroses with calcium deposits, the presence of fatty acid crystals and certain resemblances with sclerema.

Tolerance to Levulose and Galactose in Premature Infants—Studies in which Fabisch and Etzold determined the threshold values for elimination in the urine revealed that premature infants have an average galactose tolerance of 16 Gm and a levulose tolerance of 15 Gm for each kilogram of body weight. Infants born at term have a galactose tolerance of 22 Gm and a levulose tolerance of 26 Gm. This shows that the liver of premature infants can utilize larger quantities of galactose than of levulose, while in mature infants more levulose than galactose is tolerated.

Zeitschrift für Krebsforschung, Berlin

40 105 202 (Dec 16) 1933

- *Comparative Measurements of Nuclei and Nucleoli of Various Tissues with Especial Consideration of Malignant Tumor Cells. Eva Haumeder—p 105
- Growth Processes and High Frequency Radiation Experiments on Plants and Tumors. F. Ludwig and J. von Ries—p 117
- Antineoplastic Immunity. Heterologous Implantation of Tumors into Chicken Embryos. V. Bisceglie—p 122
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- *Characteristics of Cancerous Diseases of Face. E. Palyschewsky—p 159
- New Investigations on Presence of Sarcomagen in Blood of Chickens with Sarcoma. F. Pentimalli—p 166
- *Is Tomato Juice to Be Considered a Cancer Producing Factor? Anna Goldfeder—p 181
- Investigations on Influence of Acid Substances on Actual Reaction of Normal and Malignant Tissues by Means of Glass Electrode. Anna Goldfeder, H. M. Partridge and J. A. C. Bowles—p 186
- Growth Mechanism of Experimental Teratomas. K. Pichler—p 192

Measurement of Nuclei and Nucleoli in Malignant Tumors—In micrometric studies on the nuclei and nucleoli of nonmalignant and malignant cells, Haumeder found that in malignant cells the nuclei and nucleoli were considerably larger. But even when the nuclei were only slightly larger, the nucleoli showed a great increase in size. The ratio between the size of the nucleolus and the nucleus fluctuated in nonmalignant cells from 1/13 to 1/45 and in malignant cells from 1/5 to 1/17. Thus the enlargement of the nucleoli can be considered a characteristic of malignant cells. After pointing out that enlargement of the nucleoli in malignant cells has been demonstrated by several other authors (Quensel and Karp), the author reaches the conclusion that enlargement of the nuclei, and particularly of the nucleoli, is important for the early cytologic diagnosis.

Cancerous Diseases of Face—On the basis of observations on 500 patients with cancer of the face 247 of which

were examined histologically, Paljtschewsky reaches the following conclusions. Cancer of the face occurs nearly twice as often in men as in women. It is most frequent in farmers, and then follow workers who are exposed to various chemical and thermic influences. About 50 per cent of cancers of the face are basal-cell carcinomas. The aceratic forms of the spinocellular cancers predominate in younger patients, the basal-cell carcinomas are most frequent in middle age, and the canceroid forms predominate in the aged. The spinocellular cancers are found mainly near the natural openings of the face or at the border of the mucous membrane, and the basal-cell carcinomas at the sites where there are many sebaceous glands. A certain regularity in the development of cancer is undeniable and the location corresponds to the physiologic atrophies of the skin. As a rule, the spinocellular forms are preceded by lesions of the epidermis, whereas pathologic processes of the sebaceous glands or of the hair roots, or comedones, acne and nevus frequently are the precursors of basal-cell carcinomas. The varying behavior toward roentgen and radium therapy indicates considerable differences in the histogenesis of the different kinds of cancers.

Is Tomato Juice a Cancer Producing Factor?—Goldfeder treated sixty rats with tomato juice. Some of the animals were treated according to the method of Bellow, and others were given sterilized tomato juice either by intraperitoneal injection or by mouth. Malignant growths developed in none of the animals. However, at the site of the injection there always developed foreign body granulomas, abscesses and inflammatory granulation tissues.

Zentralblatt für Gynäkologie, Leipzig

57 3009 3072 (Dec. 23) 1933

Papillomatosis of Urinary Organs and Total Nephro Ureterectomy. O. Kneise —p. 3011

Treatment of Pyloric Gravidity. H. Kustner —p. 3015

Transcervical Drainage of Urinary Bladder. T. Diels and L. Elaut —p. 3019

*Genesis of Vesical Endometriosis. G. Haselhorst —p. 3021

*Vaginal Calculus in Congenital Urinary Incontinence with Double Formation of Vagina. B. Kriss —p. 3030

Genesis of Vesical Endometriosis—Haselhorst points out that, although there is considerable literature on the endometriosis of the bladder, the how and wherefore of the endometrioid proliferation have not been cleared up in most instances. In reviewing twenty-five cases from the literature he found three cases in which the vesical endometriosis was the result of a proliferation of the uterine mucous membrane through the scar of the uterine wall after Beutner's amputation of the bladder. In ten reports the anamnesis was incomplete, but, considering all cases, the author found an unusually high incidence of sterility. Myomatosis of the uterus was frequent among the patients, a sign that tendencies to connective tissue proliferation and to epithelial proliferation frequently concur. Disturbances of the adnexa likewise were frequent. Moreover, all except three of the patients had either had a gynecologic disorder or undergone a gynecologic operation. Not a single case has been reported in which it was established beyond a doubt that only the bladder was diseased. The localization of the endometriosis in the bladder is worthy of note. It is always the posterior portion of the bladder that is involved. The foci are, as a rule, between the orifices of the ureters or somewhat higher. There is no case on record in which the endometriosis was on the anterior wall or the free portion of the bladder. This seems to indicate that the section of the uterus adhering to the posterior wall of the bladder is principally the origin of the endometriosis. The author advises that the adjoining regions be searched for a focus in all cases of vesical endometriosis. He gives a detailed report of one case studied by him. On the basis of the histologic examinations he rejects the possibility of an invasion of the endometrioid epithelium from foci within the abdominal cavity, for a glandular connection between the cervix and the vesical wall was found in the center of the pedicle and the cervical glands and the endometrium shaded off into one another, a phenomenon that would be unexplainable if a proliferation from the outside was assumed. Moreover, the abundance of glands and

cysts in the cervical wall is a sign of a strong proliferative power in the glandular epithelium, whereas endometrioid foci were not found in the region of the pelvic peritoneum. Endometrioid proliferations were present also in the uterine tubes. Thus the case represents, on the part of the cervical glands and of the tubal epithelium, a tendency to proliferation beyond the physiologic limits, and the mucus forming epithelium of the cervical glands assumes an endometrioid character. The author sees the cause of this pathologic growth of the epithelium in disturbances in the hormonal equilibrium, and he thinks that these hormonal disturbances play a part also in the pathogenesis of sterility.

Vaginal Calculus—Kriss relates the clinical history of a woman, aged 30, who from early childhood had had urinary incontinence. Beginning with the tenth year she had had the feeling of a foreign body in the genitalia. At the age of 11, a stone (5 cm in length) was discharged. Subsequently calculary fragments were discharged from time to time. The patient married became pregnant at the age of 17, and had a normal child. A pregnancy, four years later, was interrupted. During all these years the urinary incontinence persisted and even became exacerbated as the result of the childbirth. Examination revealed a double vagina. The smaller one on the right side contained a number of small concretions. Roentgenoscopy of the spinal column revealed abnormalities in the lumbar region indicating spina bifida. Hysterosalpingography with the aid of contrast filling showed that the double formation did not involve the uterus and that the tubes were normal. The author explains the case in the following manner: The accumulation of urine in the nearly completely closed vagina led to the precipitation of salts and to concretion formation. Exertion (abdominal pressure) caused the calculus to be discharged. Following defecation the urine no longer could accumulate in the main vagina on the left side, whereas in the right accessory vagina the urine continued to gather, and thus there was still a possibility for the formation of small vaginal concretions. Not until the repair of the incontinence can the complete cessation of the formation of calculi be expected.

Hygiea, Stockholm

95 897 944 (Dec. 15) 1933

*Contribution to Knowledge of Prognosis and Treatment of Massive Hemorrhages in Gastric and Duodenal Ulcer. O. Mossberg —p. 897

Massive Hemorrhages in Gastric Ulcer—There was hemorrhage in some form in 46 per cent of Mossberg's 1,032 patients suffering from gastric and duodenal ulcer treated from 1922 to 1931 and manifest hemorrhage in 35 per cent. Of the cases of manifest hemorrhage 236, or 75 per cent, were more massive hemorrhages, and of these 90, or 38 per cent, were extremely grave. In 30 per cent of the patients presenting hemorrhage the ulcers were clinically acute (ulcers with history of up to one half year). There were 46 fatal cases of acute hemorrhage from 1912 to 1921, and 28 from 1922 to 1931 hemorrhage being the direct cause of death in most of them, with complications as a contributing cause in some. Necropsy in 35 instances showed that the anatomopathologic conditions did not always agree with the clinical picture and that in half of the cases the fatal hemorrhage was due to recent ulcers of the mucous membrane. The mortality from acute hemorrhage was 27 per cent of the total 1,032 cases, 9 per cent of the cases of manifest hemorrhage, 12 per cent of those of more massive hemorrhages, and 31 per cent of those regarded as extremely grave. When blood transfusion was given, the hemorrhage ceased in half the patients, mostly suffering from acute ulcers, some of these recovered. Operation was successfully performed on others after transfusion. Hemorrhages usually recurred after transfusion. The author states that operation is excluded in patients bleeding from a clinically acute ulcer, in patients having hemorrhage from clinically chronic ulcers with a pronounced longer history or in whom the ulcer has been located by earlier examination, especially in persons over 40, operation seems advisable and to offer good prospects if the intervention is made in so early a stage that the acute grave anemia from bleeding has not yet caused grave injuries to the internal organs.

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TOBACCO, ALCOHOL AND ANGINA PECTORIS

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The relationship of the use of tobacco and of alcohol to angina pectoris is a matter of widespread interest and great importance, and yet it continues to be merely a topic for idle speculation and medical gossip. No extensive and reliable data have been published to throw light on it, although occasional remarks and opinions have been expressed in accounts of this symptom of angina pectoris, or if statistics have been presented they have been either inadequate in themselves or else inadequately controlled. We have therefore considered it worth while to study one aspect of the subject by analyzing the habits in the use of tobacco and alcohol of a series of 750 patients of our own with angina pectoris as contrasted to the habits of a series of 750 individuals of the same sex and age incidence and from the same walks of life who did not have angina pectoris. The result of this study we are presenting in this paper.

LITERATURE

Tobacco and Angina Pectoris—Johnson¹ in 1929 reported that of sixty fatal cases of angina pectoris in males forty-two patients, or 70 per cent, were smokers, and eighteen, or 30 per cent, were nonsmokers. A control series of 1,000 men whose names were taken from telephone directories in five cities gave the incidence of smokers as 81.8 per cent.

Gallavardin² found that 27 per cent of 200 patients with nonsyphilitic angina pectoris had never smoked tobacco and that 4 per cent more had given up smoking years before their first attacks of angina pectoris, while only 18.5 per cent were immoderate smokers.

Lian³ from his own experience and from the literature has found that intoxication with tobacco is so often lacking in cases of cardiovascular pain and that the omission of tobacco has so feeble an influence on the evolution of the condition of angina pectoris that there is no reason to consider that the use of tobacco has any importance in the etiology of angina pectoris, he admits however, that the act of smoking, above all after a long interval without tobacco, may perhaps be the occasional cause of an attack. In his personal statistics of 800 cases of angina pectoris he has sought

in vain for a clear observation of tobacco angina, in two cases, tobacco seemed to be in part responsible for the appearance of angina pectoris.

Huchard⁴ cited four cases observed by himself in which angina pectoris was apparently excited by tobacco, other cases of the sort he borrowed from various authors, which confirms the impression that no one observer has encountered personally many such individuals.

In 1914, Pawinski⁵ asserted that tobacco was the most frequent etiologic agent in the production of "coronary sclerosis (angina pectoris)" in man chiefly because excessive smoking was found in 457 (41.9 per cent) of 1,075 men with coronary sclerosis as compared to obesity in 284 (26.3 per cent), the use of alcohol in 230 (21.3 per cent), and syphilis in 111 (10.3 per cent). In contrast to these figures he noted that among 2,081 cases of "arteriosclerosis not involving the coronaries" obesity headed the list at 540 (25.9 per cent), alcohol was second at 486 (23.3 per cent), tobacco third at 485 (23.3 per cent) and syphilis fourth at 282 (13.3 per cent). He quoted Bouchard's figures on the etiology of angina pectoris with 14 per cent smokers, Huchard's figures on causes of sclerosis with only 9.5 per cent smokers and Dunin's report on sclerotic patients of whom 48 per cent of the men and only 8 per cent of the women smoked to excess. Pawinski further stated that among women in his own series with angina pectoris excessive smoking was found in only 7.1 per cent (in contrast to the men with 41.9 per cent). It is evident from these statistics and from an analysis of his paper that Pawinski's conclusion that tobacco is the commonest cause of angina pectoris is unjustified.

Mackenzie⁶ in his monograph on angina pectoris did not mention the association with tobacco or alcohol except to refer to the old time treatment of an acute attack by an alcoholic drink. He has, however, in other publications referred to the well known fact that sometimes tobacco is apparently primarily responsible for the occurrence of premature beats. Tobacco has also been known to have been used excessively in rare cases of paroxysmal tachycardia or even paroxysmal auricular fibrillation with cessation of attacks on its omission.

Kohn⁷ in 1926 discussed the reputed epidemic of angina pectoris due to tobacco on a French warship in 1858 reported by the ship's surgeon Gelneau and demonstrated clearly that these severe pains suffered

⁴ Huchard. *Traite clinique des maladies du cœur et de l'aorte* ed 3 Paris: Gaston Doin, 1899.

⁵ Pawinski J. Ueber den Einfluss unmässigen Rauchens (des Nikotin) auf die Gefässe und das Herz. *Ztschr f klin Med* 80: 284 1914.

⁶ Mackenzie J. *Diseases of the Heart* ed 3 London, Henry Frowde and Hodder and Stoughton 1913. *Angina Pectoris*, London Henry Frowde and Hodder and Stoughton 1923.

⁷ Kohn H. Die epidemische Angina pectoris auf der 'Embuscade' (Eine angebliche Tabakangina). *Deutsche med Wchnschr* 52: 447 (March 12) 1926.

¹ Johnson W M. Tobacco Smoking. A Clinical Study. *J A M A* 93: 665 (Aug 31) 1929.

² Gallavardin L. Tabac et angine de poitrine d'effort. *Presse med* 32: 622 (July 23) 1924. *Les angines de poitrine* Paris: Masson et Cie. 1925.

³ Lian C. *Angine de poitrine* Paris: Masson et Cie 1932.

by a number of the crew after an exhausting four-year voyage followed colic and anemia and were in all probability the result of lead poisoning rather than tobacco poisoning

Frequently writers have referred to patients who have suffered angina pectoris only during periods of smoking, with cessation of attacks on omitting tobacco. Such cases have generally been few in number when specifically mentioned, as in an article published in 1928 by Moschcowitz,⁸ who reported four cases in three men, aged 41, 52 and 61, respectively, and one woman, aged 35, in one of these four cases there was definite evidence of heart disease. Gallavardin, in nearly 800 personal observations, found only two cases of "tobacco angina" and a third in which the relationship although possible was improbable. Schlager⁹ wrote of knowing several cases of this sort, one over a period of thirty years. Now and then various physicians have told us of rare individual patients of their own, and we have encountered three such instances, one with evidence of heart disease (bundle branch block by electrocardiogram) and two without.

Nicotine poisoning in man has occasionally been reported aside from cases showing the acute toxic effects of tobacco. Nausea, vomiting, faintness, dyspnea, collapse and coma have been noted in nicotine poisoning,¹⁰ and the first mentioned of these symptoms is commonly experienced in acute tobacco poisoning, especially in young people smoking tobacco for the first time, but the heart itself has apparently not been affected so much as have the nervous system and vasomotor control. Faulkner's case of serious nicotine poisoning showed as the only cardiac abnormality ventricular premature beats, which as a matter of fact, were not surely due to the nicotine.

Alcohol and Angina Pectoris—Most writers have had little to say about the relationship of the use of alcohol to angina pectoris. It is a common opinion that the use of alcohol may help to prevent angina pectoris and that the apparent increase of angina pectoris in the United States of America during the past decade may be in part the result of prohibition. Leary¹¹ has found relatively little aortic sclerosis in alcoholic individuals. Cabot¹² in 1904 found that only 6 per cent of 283 patients with chronic and excessive alcoholism under 50 years of age showed any clinical evidence of arteriosclerosis, while only 13 per cent of 45 patients with arteriosclerosis gave any history of alcoholism and 57, or 60 per cent, of 95 patients who showed arteriosclerosis at postmortem examination were total abstainers. Gallavardin,¹³ however, stated that he had never been impressed by the influence of the prohibition of wine or alcohol in the development of the anginal syndrome, in France, where there had been no change in the alcoholic habits of the population for many years, it appeared certain that cases of angina pectoris were more numerous than before. Gallavardin believed that some other influence than the amount of alcohol used was responsible, he added that he did not

consider that alcoholism engendered the condition and, further, that "it is sufficient to see how healthy the arterial system is generally found to be in cases of cirrhosis of the liver to know that alcohol is not a poison for the arterial system."

PRESENT STUDY

A series of 750 private patients with angina pectoris examined consecutively by us over a period of twelve years from 1921 to 1933 has been analyzed to determine the amounts of tobacco and alcohol habitually used prior to the development of the angina pectoris, and this series has been compared with a control series of 750 individuals without angina pectoris and of exactly the same sex and age incidence and from the same walks of life. A group of friends has helped us in the careful collection of data of many of the individuals of the control series, and we take pleasure in expressing herewith our gratitude to these friends.

Each series that with angina pectoris and that without was composed of 566 men (75.6 per cent) and 184 women (24.4 per cent). The age distribution in

TABLE 1—Tobacco

	None	Slight to Moderate	Much to Excessive
Angina pectoris			
Cases (total of 750)	346	221	183
Per cent	46.1	29.5	24.4
Control series			
Cases (total of 750)	270	220	261
Per cent	37.2	29.3	33.5

TABLE 2—Alcohol

	None	Slight to Moderate	Much to Excessive	Great Excess
Angina pectoris				
Cases (total of 750)	480	230	8	1
Per cent	64.4	31.5	1.1	
Control series				
Cases (total of 750)	463	224	63	4
Per cent	61.7	29.9	8.4	

each series was as follows: 30 to 40 years 16 patients (2.2 per cent), 40 to 50 years 106 patients (14.1 per cent), 50 to 60 years 269 patients (35.9 per cent), 60 to 70 years 271 patients (36.1 per cent), 70 to 80 years 85 patients (11.3 per cent), and 80 to 90 years 3 patients (0.4 per cent). Many of the patients with angina pectoris had complications of hypertension, valvular heart disease, coronary thrombosis and noncardiac lesions, some were uncomplicated. Most of the control subjects were healthy but some had heart lesions without angina pectoris and a few had a noncardiac disease.

The amount of tobacco used was graded as follows: 0, + (one to five cigarettes a day), ++ (five to ten cigarettes a day), +++ (ten to fifteen), ++++ (fifteen to twenty), and +++++ (over twenty). One cigar of average size was considered equivalent to four cigarettes and one pipe of average size to two cigarettes. If the tobacco smoke was not inhaled or the cigarettes, cigars or pipes only partly smoked, the amount was graded down accordingly. There was only rarely a habit of chewing tobacco in the series, this was gaged as to the number and size of the "chews" each day, the average size being graded as equivalent to a cigar.

The amount of alcohol used was graded as follows: 0, + (an infrequent drink of whisky, gin or wine, or occasional beer), ++ (two or three drinks a week), +++ (a daily drink), ++++ (more than one

8 Moschcowitz, Eli. Tobacco Angina Pectoris. J. A. M. A. 90: 733 (March 10) 1928.

9 Schlager, C. R. Ueber Angina pectoris. Munchen med. Wchnschr. 75: 1998 (Nov. 23) 1928.

10 Faulkner, J. M. Nicotine Poisoning by Absorption Through the Skin. J. A. M. A. 100: 1664 (May 27) 1933.

11 Leary, Timothy. The Therapeutic Value of Alcohol with Special Consideration of the Relations of Alcohol to Cholesterol and Thus to Diabetes, to Arteriosclerosis and to Gallstones. New England J. Med. 205: 231 (July 30) 1931.

12 Cabot, R. C. The Relation of Alcohol to Arteriosclerosis. J. A. M. A. 43: 774 (Sept. 17) 1904.

13 Gallavardin, L. Personal communication to the authors. November 1931.

daily drink), and + + + + + (heavy drinking, as for example a pint or more of whisky a day). At times it was difficult to gage the amount of alcohol accurately, as was also true of the amount of tobacco, but for the most part the data are accurate and the conclusions derived therefrom reliable.

The accompanying tables record our observations.

Other effects of tobacco and alcohol, for example in the production of premature beats or extrasystoles, were not included in our present study.

CONCLUSIONS AS TO TOBACCO AND ANGINA PECTORIS

Our observations have shown a somewhat higher percentage of total abstainers from tobacco among the patients with angina pectoris than among the individuals without angina pectoris (46.1 per cent as compared to 37.2 per cent) and a somewhat lower percentage of persons using much or an excessive amount of tobacco in the angina pectoris series than in the control series (24.4 per cent as compared to 33.5). One may simply conclude from these figures that past habits of tobacco smoking are not primarily responsible for angina pectoris. The actual balance of "better habits" in favor of the individuals who developed angina pectoris may perhaps be explained, as in the case of neurocirculatory asthenia, by their greater sensitivity to tobacco, which makes them avoid it altogether or at least in excess. Although the smoking of tobacco (especially cigarets) is largely a "nervous habit," many nervous people do not use it. Occasionally patients in our series of angina pectoris either volunteered the information or responded to questioning that omission or reduction of tobacco was helpful by causing a decrease in the frequency of attacks of angina pectoris, rarely patients ceased having attacks of angina pectoris altogether when they stopped smoking.

CONCLUSIONS AS TO ALCOHOL AND ANGINA PECTORIS

There was little difference between the two series of the cases of angina pectoris and of the control individuals with regard to the number of total abstainers from alcohol, there were 64.4 per cent in the angina pectoris series and 61.7 per cent in the control series. On the other hand, considerable or excessive use of alcohol was rare among the angina pectoris cases (eight individuals, or 1.1 per cent) but far more common among the "controls" (sixty-three individuals, or 8.4 per cent). Only one person of all the 750 patients with angina pectoris drank very heavily, while there were four such in the series without angina pectoris.¹⁴ The one case of angina pectoris just referred to proves that alcohol is not a certain prophylactic measure against angina pectoris, the patient was a man, aged 66, whose intake of strong liquor had averaged at least a quart daily for forty years or more, however, other factors, which included excessive eating, excessive physical exertion for his years and syphilis forty-six years earlier existed to counteract the beneficial effect of alcohol if such there be, the angina pectoris was of slight to moderate degree, came only on effort, and had existed for two years and four months. Among the eight other patients with angina pectoris who drank a considerable or excessive amount of strong liquor the one who drank the most (next to the record made by

the patient just referred to) survived a longer time (twenty-three and one-half years) after his first attack of angina pectoris than any one else in the series to date. Thus it may be concluded that abstention from alcohol neither protects from angina pectoris nor causes it but that the drinking of much alcohol is rarely found in the past history of patients with angina pectoris.

In the treatment of angina pectoris both for the prevention of individual attacks and for their immediate treatment, alcoholic drinks have been occasionally useful ever since they were first advised by Heberden himself more than 160 years ago. They have been largely replaced by nitrite therapy in the past sixty years, but they should not be abandoned wholly, for they frequently are still helpful and are regarded gratefully by some patients. Several of our patients with angina pectoris have referred, sometimes spontaneously, to the benefit they derived from liquor.

SUMMARY

An analysis has been made of the past habits in the use of tobacco and alcohol of 750 consecutive private patients with angina pectoris and of 750 individuals without angina pectoris of exactly the same sex and age incidence and from the same walks of life.

Comparison of these habits of the two groups shows that 46.1 per cent of the angina pectoris patients had been abstainers from tobacco while 24.4 per cent had used tobacco to excess, in contrast to 37.2 per cent of the control series who did not smoke and 33.5 per cent who smoked excessively.

Total abstinence from alcohol was the history of 64.4 per cent of the cases of angina pectoris and of 61.7 per cent of the control series. Only eight of the 750 patients with angina pectoris (1.1 per cent) drank considerable or excessive alcohol and only one of them drank very heavily, while sixty-three individuals (8.4 per cent) of the control series drank much alcohol, four of them very heavily.

It appears from this study that neither the use of nor the abstinence from tobacco or alcohol plays an important role in the genesis of angina pectoris. In occasional cases the use of tobacco apparently aggravates or precipitates attacks of angina pectoris and in occasional cases alcohol helps to prevent or to relieve such attacks.

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Calcium and Phosphorus in Foods—Calcium is needed for bones, for the clotting of blood, for normal action of the heart, in the physiology of nerve conduction, and for the energy exchange of muscle contraction. It is found primarily in milk, fruits and vegetables are relatively rich, while meat and milled cereals are poor in calcium. Phosphorus is needed for the nuclear construction of every cell and is thus intimately concerned in all cell multiplication. It contributes largely to the bones and the plasma and other fluids, being found in organic union with proteins, fats and carbohydrates. It aids in the work of various glands and can be found in their products, particularly in milk and the sexual elements. It is found abundantly in eggs and milk, also in wheat (entire grain but not white flour), oatmeal, dried beans and many nuts. A growing animal can, however, fully supply its mineral requirements from inorganic sources, it is therefore unnecessary to consider the calcium, phosphorus and iron content in natural foods to the degree currently believed.—Nixon J. A. *Food Values and Their Practical Application in Dietetics*, *Brit M J* 1:1 (Jan 6) 1934.

¹⁴ Since the completion of this paper we have encountered another instance of angina pectoris in a man who has drunk to excess for fifteen years or more; this patient now 71 years old had drunk at least 1 pint of whisky a day.

NEUROLOGIC DIAGNOSIS IN TWO HUNDRED AND FIFTY CASES OF CORD BLADDER

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The term cord bladder is applied in cases in which the bladder fails to function because of lesions in the nervous system. The term neurogenic dysfunction of the bladder would be more accurate, if less picturesque. Cord bladder is used without any special reference to the site of the lesion, whether in the central or peripheral nervous system. In recent years the attempt has been made to use the term atonic bladder for the condition resulting from a lesion in the peripheral nerves and to restrict the term cord bladder to cases in which actual lesions are present in the spinal cord.¹ In 1926 Moore² investigated the sensibility of the mucosa of the bladder and stated "My findings favor the opinion that two main types of neuropathic bladder exist: (1) those resulting from some disturbance in the peripheral or local nervous mechanism and (2) those dependent on pathologic conditions of the central nervous system." The difference is not always clear cut on cystoscopic examination; however, and the distinction has not come into universal use. Learmonth,³ in observations on the physiology of the bladder, pointed out the extreme complexity of the mechanism involved. Cord bladder has received little statistical consideration since the work of Caulk and his associates⁴ in 1919.

CASES STUDIED

At the Mayo Clinic between Jan 1, 1920, and March 1, 1931, a diagnosis of cord bladder was made in 558 cases. The histories were examined, and in 250 cases the positive diagnosis of cord bladder was confirmed by cystoscopy and neurologic examination was completed. These 250 cases form the basis of this study. The patients who had both cystoscopic and neurologic examinations constitute a somewhat selected group with regard to the whole group of patients with the diagnosis of cord bladder. For example, patients with serious lesions of the spinal cord and relatively minor vesical symptoms, as in advanced multiple sclerosis, fracture of the spine or tumor of the spinal cord, were frequently not referred for cystoscopic examination. Likewise, children with lesions of the spinal cord were often not subjected to cystoscopy. Conversely, patients with but few neurologic signs or symptoms were frequently referred for cystoscopy but not for a neurologic examination. Only the neurologic observations in these 250 cases were considered, no attempt has been made to analyze the varying degrees of tribeculation, relaxation of the sphincter, failure of expulsive force or loss of vesical sensation revealed by cystoscopic examination.

¹ Braasch, W. F. Data with Regard to Lesions of the Nerves of the Urinary Tract. *J. Urol.* 13: 383-397 (April) 1925.

² Moore, T. D. Bladder Sensibility. *Arch. Surg.* 9: 176-187 (July) 1924.

³ Learmonth, J. R. A Contribution to the Neurophysiology of the Urinary Bladder in Man. *Brain* 54: 147-176 (June) 1931.

⁴ Caulk, J. R., Greditzer, H. G. and Barnes, F. M. Urologic Findings in Disease of the Central Nervous System. A Study of Five Hundred Cases. *J. A. M. A.* 73: 1594-1599 (Nov. 22) 1919.

Distribution by Sex—There were 221 males and 29 females in this series. This is in contrast with the almost equal sex relationship of patients of the clinic in general. Alvarez and Ascanio⁵ in 1930 noted that 12,931 male patients registered, compared to 12,412 female patients. The view is commonly expressed that the higher incidence of cord bladder among males is due to the higher incidence of syphilis among males, and to the higher incidence of tabes dorsalis among male than among female syphilitic patients. It may be noted in table 4, however, that the preponderance of male patients is almost equally great in each of the causes of cord bladder. It would appear either that the neurologic apparatus controlling the function of

TABLE 1—Distribution by Age

	Age Years															
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	Total
Males	1	0	0	2	7	13	20	23	31	39	28	26	17	6	4	221
Females	0	1	3	1	0	1	2	6	5	3	3	3	1	0	0	29

the bladder is definitely less stable in the male than in the female or that male patients with cord bladder are far more likely to arouse clinical interest than are female patients.

Distribution by Age—Distribution by age is recorded in table 1. The median age among male patients was 46.4 years and among female patients 40.5 years. The number of female patients, however, was too small for the difference to be of any significance. The highest absolute and relative incidence of cord bladder falls

TABLE 2—Chief Complaints

	Cases
Treatment of syphilis	21
Unrelated	30
Urinary	
Incontinence	30
Retention	20
Frequency	20
Dysuria	4
Urgency	4
Urethral discharge	3
Nocturia	2
Suprapubic pain	1
Hematuria	2
Other urinary symptoms	8
Neurologic	
Ataxia	8
Shooting pains	7
Spasticity in legs	4
Weakness in legs	4
Paresthesia	4
Nervousness	4
Fecal incontinence	3
Root pains	3
Other neurologic complaints	14
General	
Lassitude and weakness	11
Constipation	6
Backache	5
Painful feet	2
Total	250

between the ages of 40 and 60. In each of the major etiologic groups, however, distribution by age was distinctive. Of the patients whose cord bladder resulted from a developmental defect, 81.2 per cent came to the clinic before the age of 40, of those whose cord bladder resulted from syphilis of the central nervous system, 73.7 per cent came to the clinic between the ages of 40 and 60, and of those whose cord bladder was associated

⁵ Alvarez, W. C. and Ascanio, Hugo. The Age and Sex Distributions of Patients at the Mayo Clinic. *Human Biology* 2: 185-198 (May) 1930.

with arteriosclerosis of the central nervous system, 78.5 per cent came to the clinic after the age of 60.

Chief Complaint—The complaints with which the 250 patients came to the clinic are listed in table 2. Twenty-one patients had no complaints but came for treatment of syphilis. Thirty-six patients came because of conditions wholly unrelated to the cord bladder. The largest number of patients, 118, came because of urinary

TABLE 3—Duration of Urinary Symptoms Before Diagnosis of Cord Bladder

	Cases
No symptoms	11
Duration unknown	17
Duration	
Less than 1 month	6
1 to 5 months	13
6 to 11 months	14
1 year or more	20
2 years	47
3 years	30
4 years	14
5 years	11
6 years	9
7 years	8
8 years	10
9 years	3
10 to 11 years	11
12 to 14 years	6
15 to 19 years	10
20 to 24 years	9
25 to 29 years	3
30 to 34 years	2
35 to 39 years	1
Total	250

complaints, chiefly frequency, incontinence and retention of urine. Fifty-one patients came on account of neurologic symptoms, those symptoms due to tabes dorsalis were the most common. Six patients complained of constipation, this may have been an unrelated condition or due to loss of sensation from the rectum. Similarly, the lassitude and weakness of which eleven patients complained may have been irrelevant or a consequence of the vesical condition or a result of tabes dorsalis. The duration of symptoms before the cord bladder was diagnosed may be noted in table 3. As a result of experience with cases of absolute paraplegia associated with compression myelitis, the view has grown that cord bladder is ordinarily fatal in a few years. It is apparent, however, that the gradual and usually incomplete loss of control of vesical sphincters that was observed in most of our cases is not incompatible with a long life.

Neurologic Diagnosis—The neurologic diagnosis in these 250 cases is recorded in table 4. When the neurologic examination was equivocal, the diagnosis which the consultant deemed most probable is the one that has been entered in the table. By far the most conspicuous etiologic agent was syphilis of the central nervous system, which accounted for 42.5 per cent of the cases in our series. The next most important etiologic factor, namely myelodysplasia (developmental defect) of the spinal cord, will be considered later. In 33 cases (13.2 per cent) the neurologic data were negative, and no cause for the cord bladder could be discovered. In 39 of the 250 cases a second neurologic examination was made a year or more after the first. In 34 cases the original diagnosis was confirmed and in 5 it was changed. In these 5 the final diagnosis is the one that appears in the table.

In one case a diagnosis of tabes dorsalis was changed to inflammatory myelitis at a later examination. In another case the earlier diagnosis of combined sclerosis was changed to multiple sclerosis. In the third case a

diagnosis of multiple sclerosis was changed to lateral sclerosis. In two cases in which the first neurologic examination gave entirely negative results, the patients returned later with symptoms from which the diagnosis of myelodysplasia was made.

Myelodysplasia (Developmental Defect) of the Spinal Cord—The complete picture of cord bladder resulting from myelodysplasia may be described as follows: (1) spina bifida with or without hypertrichosis over the sacrum, a deep posterior anal dimple, or other visible deformity, (2) congenital deformities of the feet or genito-urinary organs, and other congenital abnormalities, including mental defect, (3) enuresis in childhood, (4) progressive loss of urinary function in early adult life, (5) loss of sexual function, (6) loss of rectal control, (7) diminished sensation in the anal and coccygeal region, (8) atrophy of the muscles of the legs, and (9) frequently abnormalities of the reflexes.

This complete picture is rarely found. In fifty-two cases, however, the evidence was sufficient to indicate that the patients belonged in this group. In the original neurologic examination the condition was variously expressed as developmental defect of spinal cord, abiotrophia, myelodysplasia, cord bladder associated with spina bifida, primary cord bladder, or even central nervous system essentially negative. When reviewing these cases, however, the consultant was convinced that they all belonged to this single group (table 5). The diagnostic significance of spina bifida, enuresis in childhood, and early onset of urinary symptoms is apparent.

In twenty-one cases spina bifida was regarded as roentgenographically typical, and in four cases as incomplete or anomalous. In eighteen cases spina bifida was reported following roentgenograms of the kidney, ureter and bladder made as a routine. In seven cases it was noted when the films were reviewed in the light of the cystoscopic observation of cord bladder. The incidence of 48.07 per cent of spina bifida in these

TABLE 4—Neurologic Diagnosis

	Total	Male	Female
Syphilis of central nervous system	106	95	8
Developmental defect of caudal end of spinal cord	52	41	11
Neurologic examination negative	33	20	4
Arteriosclerosis of central nervous system	14	14	
Traumatic injury to spine with fracture	9	7	2
Traumatic injury to spine without fracture	4	4	
Myelitis, inflammatory	6	5	1
Cord tumor (2 sacral tumors involving cord, 2 cord tumors unverified, 1 endothelioma of cord operation)	5	5	
Multiple sclerosis	4	4	
Parkinson's syndrome	4	3	1
Combined sclerosis	2	2	
Lateral sclerosis	2	2	
Caudal neuritis	2	2	
Other diagnosis (males: meningomyelitis, cerebellar pontile angle tumor, diffuse poliencephalitis, residue of radiculitis and cerebral vascular lesion) (females: residual hemiplegia and encephalomyelitis)	7	5	2
Total	250	221	29

cases contrasts with an incidence of 5.16 per cent found by Sutherland in 12,000 roentgenograms of the spinal column made at the Mayo Clinic⁶ and an incidence of 2.8 per cent which he noted in 1,000 roentgenograms of the urinary tract.⁷

The tendency for symptoms to progress in cases of developmental defects of the spinal cord has been

⁶ Sutherland C. G. A. Roentgenographic Study of Developmental Anomalies of the Spine. *J. Radiol.* 3: 357-364 (Sept.) 1922.
⁷ Sutherland C. G. Radiography in the Examination of the Urinary Tract. *J. Radiol.* 4: 221-225 (July) 1923.

pointed out by Woltman⁸. Four of the patients in this group were given second neurologic examinations a year or more after the first examination. The symptoms in three of the patients had definitely progressed, one patient examined a year after the first examination showed no change.

This syndrome of loss of control of the vesical sphincters and of function of the sacral cord associated with spina bifida has been described by numerous observers. Woltman, Chute⁹ and Braasch¹⁰ have pointed out that the same process may occur in the spinal cord without any change that is demonstrable by roentgenograms.

CONCLUSIONS

1 Cord bladder is preponderantly a disease affecting males.

2 In each of the major etiologic groups of cord bladder, age distribution was distinctive.

3 Almost half of the patients come for treatment because of urinary symptoms (47.2 per cent) and almost

TABLE 5—Observations in Fifty-Two Cases of Cord Bladder from Developmental Defect (41 Males, 11 Females)

	Cases
Spina bifida	
Urinary symptoms before age of 30	36
Enuresis in childhood	23
Roentgenologic evidence of spina bifida	2
Palpable deformity, lumbosacral spine	5
Fovea sacralis	6
Hypertrichosis	7
Spinal meningocele	1
Congenital spondylolisthesis	1
Associated defects	
Deformity in genito urinary tract	3
Deformity of feet	8
Atrophy of legs	7
Loss of sexual function	8
Rectal incontinence	7
Mental defect	4
Abnormal gait	2
Cleft palate	2
Other congenital defects	3
Neurologic defects	
Loss of anal reflex	14
Saddle anesthesia	8
Positive Babinski sign	6
Loss of tendon reflexes	10
Loss of skin reflexes	4
Loss of vibratory sense	4
Chief complaint back pain 2 root pain 2	4
Other neurologic defects	3

half of the remainder come because of neurologic symptoms (20.4 per cent).

4 The history of urinary symptoms frequently extends over many years, and the condition is apparently not incompatible with a long life.

5 The chief cause of cord bladder is syphilis of the central nervous system (42.4 per cent), myelodysplasia (developmental defect) of the spinal cord is the second chief cause (20.8 per cent). In 13.2 per cent of patients, no cause of the cord bladder could be found.

6 Myelodysplasia of the spinal cord resulting in cord bladder is a specific entity. Spina bifida occulta and associated congenital deformities, enuresis in childhood, early onset of symptoms of cord bladder, and loss of other functions of the sacral cord are the characteristic features of this condition.

7 Careful urologic and neurologic study of patients with disturbances of vesical function is highly important.

8 Woltman H W. Spina Bifida. A Review of 187 Cases Including Three Associated Cases of Myelodysplasia Without Demonstrable Bony Defect. *Minnesota Med* 4: 244-259 (April) 1921.

9 Chute A L. Some Cases of Retention of Urine Associated with Defects of the Sacrum. Probably Spina Bifida Occulta. *Tr Sect Genito-Urinary Dis A M A* 1918 pp 75-86.

10 Braasch W F. in discussion on Chute.

DIABETES INSIPIDUS

TREATMENT BY INTRANASAL INSUFFLATION OF POSTERIOR LOBE PITUITARY POWDER

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No fundamental change in the symptomatic treatment of diabetes insipidus has occurred since 1913, when von der Velden¹ in Germany and Farini and Ceccaroni² in Italy, working independently, discovered the prompt, almost specific though temporary, control of excessive thirst and polyuria in patients suffering from diabetes insipidus following subcutaneous injections of extracts from the posterior lobe of the pituitary gland. Although the rôle of the posterior lobe in regulating normal water metabolism is still obscure, its antidiuretic effect with the adjustment of water balance and the correction of dehydration in diabetes insipidus has been abundantly confirmed.³

In seeking to remove the necessity for daily, painful hypodermic injections, attempts have been made to obtain the specific effect of the posterior lobe by the enteral administration of extracts⁴ and of fresh glands⁵. All have proved totally ineffective or so variable in their action as to be impracticable.

A distinct improvement in the clinical management of diabetes insipidus was made in 1922 when Blumgart⁶ demonstrated complete relief of excess thirst and polyuria by the intranasal application of pituitary extract in the form of a spray or swab as by subcutaneous injection. The technical procedures involved were thereby considerably simplified and the subjective discomforts incident to frequent hypodermic injections and the not infrequent unpleasant gastro-intestinal and circulatory side effects of the extract eliminated.⁷

The object of this comparative study is to show that successful symptomatic treatment of diabetes insipidus can be obtained in a still easier and distinctly less expensive manner by the nasal insufflation of a dry powdered posterior pituitary preparation.

Curiously enough, no comprehensive study of this form of therapy has yet appeared in the American literature, although several such reports have been published on the continent. The first report was that of Andre and Lucie Choay.⁸ A polyuria of from 15 to 18 liters was reduced to from 1,800 to 2,000 cc by snuffing three times daily 50 mg of a dry powder of posterior lobe. Each dose lasted from six to eight hours. Subsequent studies⁹ of twelve cases followed for over five years showed this treatment to be as enduring and as effective as hypodermic injections.

From the Scripps Metabolic Clinic.
1 Von der Velden R. *Berl klin Wchnschr* 1: 2083 1913.
2 Farini A and Ceccaroni B. *Gazz d osp* 34: 879 1913.
3 Christie C D and Stewart G N. Study of a Case of Diabetes Insipidus with Special Reference to the Mechanism of the Diuresis and of the Action of Pituitary Extract on It. *Arch Int Med* 20: 10 (July) 1917. Kennaway E L and Mottram J C. *Quart J Med* 12: 225 (April) 1919. Gibson R B and Martin F T. Administration of a Pituitary Extract and Histamin in a Case of Diabetes Insipidus. *Arch Int Med* 27: 351 (March) 1921. Weir J F. Observations on the Influence of Pituitary Extract on the Metabolism in Diabetes Insipidus. *Arch Int Med* 32: 617 (Oct) 1923.
4 Barker L T and Mosenthal H O. *J Urol* 1: 449 (Oct) 1917.
5 (a) Olmstead W H and Rees M H. *Endocrinology* 6: 230 (March) 1922. (b) Motzfeldt K. *ibid* 2: 112 (April June) 1918.
6 Blumgart H L. The Antidiuretic Effect of Pituitary Extract Applied Intranasally in a Case of Diabetes Insipidus. *Arch Int Med* 29: 508 (April) 1922.
7 Campbell J R Jr and Blumgart H L. *Am J M Sc* 176: 769 (Dec) 1928. Blumgart H L. *M Clin North America* 15: 895 (Jan) 1932.
8 Choay Andre and Choay Lucie. *Rev neurol* 11: 267 1924.
9 Choay Andre and Choay Lucie. *Press med* 36: 1155 (Sept 12) 1928. *abstr Compt rend soc de biol* 99: 359 (July 6) 1928. *Rev franç endocrinol* 6: 434 (Dec) 1928.

The powder represented a 5 X concentration of the fresh gland and was snuffed either from the "tabatiere anatomique" or from the finger tip. In five patients with urine volumes of from 15 to 20 liters, from 0.15 to 0.2 Gm of powder divided into three to six doses taken at intervals during the twenty-four hours reduced urine volumes to from 2 to 3 liters. Each dose lasted from five to ten hours during the night and from three to seven hours during the day. In five other cases urine volumes of from 8 to 12 liters were reduced to from 1,500 to 2,000 cc by a similar dosage, the effect lasting on an average to six hours during the day and from eight to ten hours at night.

Lesne and his associates¹⁰ reported the case of a child aged 11 years, suffering from diabetes insipidus due to encephalitis, in whom pituitary extract by hypodermic and nasal instillation was without effect in reducing a polyuria of from 5 to 8 liters. Two hundred milligrams of powdered posterior pituitary lobe was then given intranasally in divided doses. Two doses were without notable effect on the twenty-four hour urine volume, five reduced the volume to from 1 to 4 liters, but six doses effected a steady antidiuresis, with urine volumes of from 1 to 1.5 liters and a gain of 4 pounds (1.8 Kg) in weight. Omission of the powder allowed rapid recurrence of a polyuria, which was promptly controlled by resumption of 200 mg of powder divided into six doses.

Powdered posterior lobe and pituitary extract deposited on milk sugar to form a powder were among the various pituitary preparations tested by Rosenberg¹¹ in four cases of diabetes insipidus. He concluded that the best method of treatment was pernasal administration of extracts from the posterior lobe in the form of powder. Nothmann¹² and Calderon and Mazzei¹³ have reported similar results. Vidgoff's¹⁴ patient had the unique experience of obtaining symptomatic relief while assisting in pulverizing dry posterior lobe material. Powder treatment was started by using from 5 to 10 mg intranasally every eight to ten hours. The urine volume was reduced from 10 liters to 1,500 cc in twenty-four hours and the specific gravity was raised from 1.002 to 1.018. The symptomatic relief was prompt and complete.

METHODS

To facilitate an accurate clinical comparison of the different pituitary preparations, various disturbing factors were either eliminated or controlled in the two cases studied. The patients were hospitalized but allowed to be out of bed part of the day. The diet was repetitive, varying in selection, but throughout the test periods was of constant water, salt, protein and energy content. Patient 1 took 2,730 calories consisting of 90 Gm of protein, 130 Gm of fat, 300 Gm of carbohydrate and 2.15 Gm of sodium chloride. Patient 2 received 1,688 calories protein, 70 Gm, fat, 84 Gm, carbohydrate, 163 Gm, and sodium chloride, 1.84 Gm. All the food was completely consumed. The patients were urged to drink as much water as desired. Tea and coffee were omitted. The total volume of fluid intake consisted of all fluids as such plus the calculated water content of the food. The urine was collected in twenty-four hour periods and its volume, specific gravity and

chloride content were determined. To minimize daily variations, each therapeutic procedure was observed over a period of four consecutive days.

The powdered posterior lobe preparation,¹⁵ physically of dustlike fineness, with a slight tendency to become hygroscopic, was administered by nasal insufflation, a powder blower of small volume being used. The chosen amount was placed in the chamber, and the atomizer nozzle introduced well into the nostril and so directed that its tip pointed upward between the eyes. A few puffs deposited part of the powder on the mucous membrane, the anterior portion of the nasopharyngeal roof being covered. The remainder of the powder was then blown into the opposite nostril. Too vigorous blowing was avoided, as it scattered the powder to nonabsorbing areas of the mucous membrane. Both patients experienced a slight stinging sensation "between the eyes" when the powder was correctly placed and they soon became very expert in its application. Continued use for over a year has produced no local irritation.

OBSERVATIONS

CASE 1—Robert B., a school boy, aged 18, seen, July 17, 1932, complained of severe thirst, polyuria and fatigue. The onset in March, 1932, was insidious with nocturia as the first symptom. Several days later, thirst and polyuria appeared. All symptoms so increased in severity that by May from 8 to

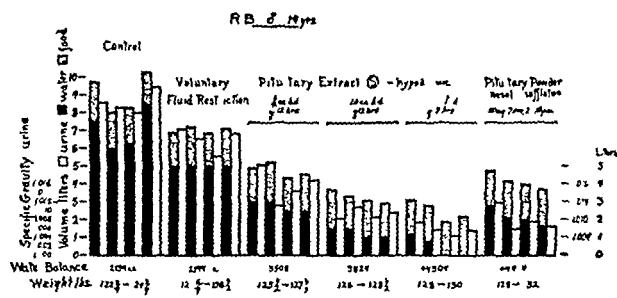


Chart 1 (case 1).—Comparative effects on water balance and specific gravity of urine of voluntary fluid restriction, hypodermic injections of double strength solution of pituitary in varying doses and nasal insufflation of powdered posterior lobe. Observation periods consist of four consecutive days. The black and stippled column represents total fluid intake, white column urine output every twenty-four hours. The specific gravity of the urine is indicated by the small circles.

10 quarts of water was drunk and an equal volume of "water-like" urine passed. Fatigue appeared, the appetite was lost, rest and sleep became impossible, the weight decreased from 145 to 132 pounds (from 66 to 60 Kg), sweating ceased, the bowels became constipated, and the mouth became extremely dry. Medical assistance was sought, May 22, a diagnosis of diabetes insipidus was made, and 0.5 cc of double strength solution of pituitary twice daily by hypodermic was prescribed, with prompt relief of all symptoms. A gradual gain in weight and recovery of physical strength followed.

The past and family histories revealed no suggestive etiology other than a light case of measles one year before, and a gain of 6 inches (15 cm) in height during the past two years.

Complete physical and neurologic examinations, including perimetry, showed no abnormalities other than a distinct adolescent appearance, moderate underweight for the height (height 71½ inches [185.6 cm] and weight 124 pounds [56.2 Kg]), dry skin, and an acrocyanosis with moist, cold palms.

Stereoscopic roentgenograms of the skull showed no evidence of cranial or intracranial abnormalities.

There was no anemia. The blood serology was negative. The spinal fluid was not examined. The urine was colorless, with a specific gravity of from 1.001 to 1.004, the volume without treatment was from 8 to 10 liters every twenty-four hours,

15 A commercial powdered posterior preparation purchased in one eighth ounce (4 Gm) bottle. It represents a 5 X concentration of the wet gland.

10 Lesné, Hutinel, Marquerez and Benoist. Bull. et mem. Soc. med. d. hop. de Paris 53: 70 (Jan. 28) 1929.

11 Rosenberg, Max. Klin. Wchnschr. 9: 152 (Jan. 25) 1930.

12 Nothmann, Martin. Deutsche med. Wchnschr. 55: 579 (April 5) 1929.

13 Calderón, C. and Mazzei, E. S. Bull. et mem. Soc. d. hop. de Bucarest 11: 217 (Nov.) 1929.

14 Vidgoff, Ben. Endocrinology 16: 289 (May June) 1932.

there was a neutral reaction and it was free from albumin and sugar.

A diagnosis of diabetes insipidus of undetermined etiology was made after sterile hypodermic injections and the insufflation of an inert powder failed to influence the polydipsia and polyuria. Chart 1 shows the comparative results in this patient.

Without specific treatment the total fluid intake and output were high. The urine varied from 8,000 to 9,500 cc in twenty-four hours but was sufficiently less than the total fluid intake to allow a gain of 2 pounds (900 Gm) during the four-day test period. With great subjective discomfort the total fluids

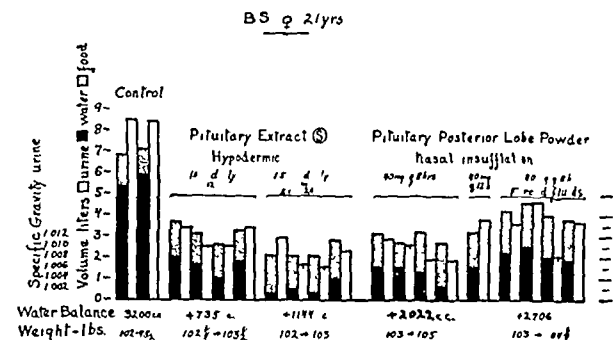


Chart 2 (case 2) — Comparative effects on water balance and specific gravity of urine of varying doses of double strength solution of pituitary hypodermically and posterior lobe powder by nasal insufflation. Each experimental period while not sequential consisted of from two to four consecutive days. The black and stippled column represents total fluid intake, the white column urine output for twenty-four hours. The specific gravity of the urine is indicated by the small circles.

were voluntarily restricted to about two thirds of the former intake. A corresponding decrease in urine volume followed. The specific gravity of the urine was very slightly increased, but in both instances it ranged from 1001 to 1004.

In order to determine the efficiency of the proposed treatment with powdered posterior lobe, the well known effect of solution of pituitary¹⁰ by hypodermic injections was recorded. The action of increasing doses served as an excellent measure of antidiuresis and symptomatic relief. With 0.5 cc every twelve hours, urine volumes were moderately reduced but variable—from 2.5 to 5 liters. With this dose doubled, urine volumes varied but slightly and decreased to 2,000 to 2,800 cc. One cubic centimeter of solution of pituitary hypodermically every eight hours lowered the urine output to from 1,200 to 1,880 cc. A proportionate decrease in total fluid intake and a progressive increase in water balance with a gain in weight was effected. The urine became increasingly concentrated, as shown by the rising specific gravity, the appearance of normal urine pigmentation and the increased chloride concentration. All subjective complaints were characteristically and promptly relieved.

When 40 mg of the powdered pituitary substance was insufflated into the nose at eight-hour intervals, an antidiuretic effect comparable to that produced by two injections of 1 cc of solution of pituitary at twelve-hour intervals occurred. With a distinct retention of water in the body, the urine became normally concentrated with specific gravities of from 1012 to 1014, and with volumes reduced to about 2,000 cc.

Both forms of pituitary preparation allowed a daily, progressive decrease in the voluntary consumption of fluids during the four-day test period. With the powder, a very nice balance of intake and output at from 1,500 to 1,800 cc was reached on the third and fourth days.

The patient has now been under treatment for a year, using 40 mg of the powder insufflated into the nose three times a day (7 a m, 2 p m and 10 p m), and this fluid balance has been maintained.

CASE 2—Barbara S., aged 22, a musician, unmarried, had never been seriously ill, although she had been frail as a child. The family history was irrelevant. At the age of 20 a heart murmur and infected tonsils were found during a life insurance examination. The tonsils were removed and perfect health was enjoyed until Jan 30 1932, when, without apparent reason, an extreme thirst and dry feeling in the mouth suddenly

appeared. Large quantities of water were taken for two days before polyuria was noticeable. The symptoms reached a maximum in about two weeks when from 6 to 8 quarts of water was drunk and an equal amount of urine passed in twenty-four hours. Sleep was greatly disturbed, the weight decreased from 115 to 105 pounds (52 to 47.6 Kg). A diagnosis of diabetes insipidus was made six weeks after the onset. Voluntary fluid restriction reduced the urine volume to 4 or 5 quarts daily, but the thirst became unbearable. Injection of 1 cc of double strength solution of pituitary daily at noon promptly reduced all symptoms. The urine volumes averaged from 2 to 3 quarts. Severe abdominal cramps, dizziness and palpitation lasting from fifteen to twenty minutes followed each injection. The patient was much relieved otherwise.

Pertinent physical manifestations were mild undernutrition, nervousness and emotional instability. Neurologic examination, including perimetry and stereoscopic roentgenograms of the skull, was negative. The blood counts were normal. The Wassermann test was negative. The spinal fluid was not examined. The urine was colorless, with a specific gravity of from 1002 to 1005, and was negative for sugar and albumin. A series of sterile hypodermics failed to influence the symptoms, so a diagnosis of diabetes insipidus of the idiopathic type was made.

Chart 2 records the experimental results in this case.

Owing to general weakness, nervousness and rapid loss of weight, discontinuance of specific treatment for more than two days was impossible. During this time 9½ quarts of colorless urine was passed daily, a markedly negative water balance with a loss of 4 pounds (1,800 Gm) occurred. Although the patient was extremely thirsty, water provoked a nasty taste almost as disagreeable as the polydipsia.

Solution of pituitary hypodermically, 1 cc daily, promptly controlled the distressing thirst and polyuria. Several days of specific treatment were necessary before the patient could cooperate sufficiently to take the daily repetitive diet. When it was stabilized, the four-day observation recorded in chart 2 was made.

A small water balance allowed additional gains in weight. The urine volumes were reduced but varied between 2,500 and

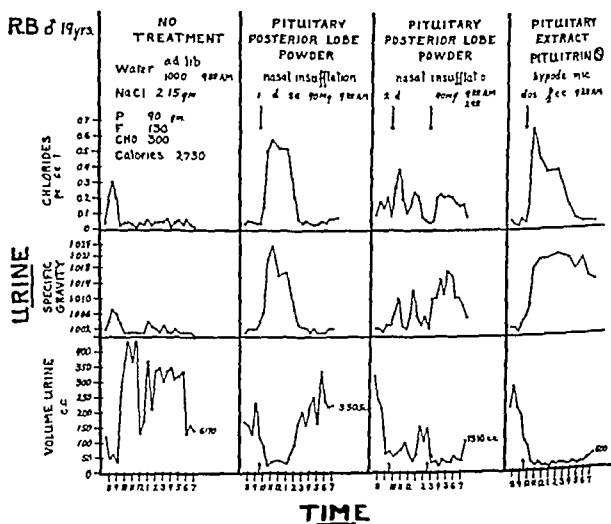


Chart 3 (case 1) — Comparative effect of different methods of treatment with pituitary preparations on volume, specific gravity and chloride content of the urine collected at half hour intervals.

3,500 cc. A low specific gravity persisted. The injection of a second but smaller dose (0.5 cc) of solution of pituitary twelve hours after the large dose caused proportionately greater effect. Urine volumes diminished to 2,000 cc daily, the specific gravity increased to 1006, and more water was retained.

After standardization of antidiuresis had been effected at two levels of subcutaneous pituitary extract administration, the comparative effect of powdered posterior lobe was tested, as will be seen in chart 2. Intranasal insufflation of 40 mg of powder at eight-hour intervals during a four-day period caused a progressive decrease in voluntary fluid intake, and the urine

volumes diminished from 2,800 to 1,800 cc. The specific gravity reached 1.011. From these results it appears that the therapeutic effect of 40 mg of powdered posterior lobe three times a day compares favorably with 15 cc of solution of pituitary given in two injections at twelve-hour intervals. A dose of 40 mg of powder twice daily had about the same effect as 1 cc of solution once a day. Even when fluids were forced a considerable portion was retained in the body so long as a steady dosage of the powder was continued.

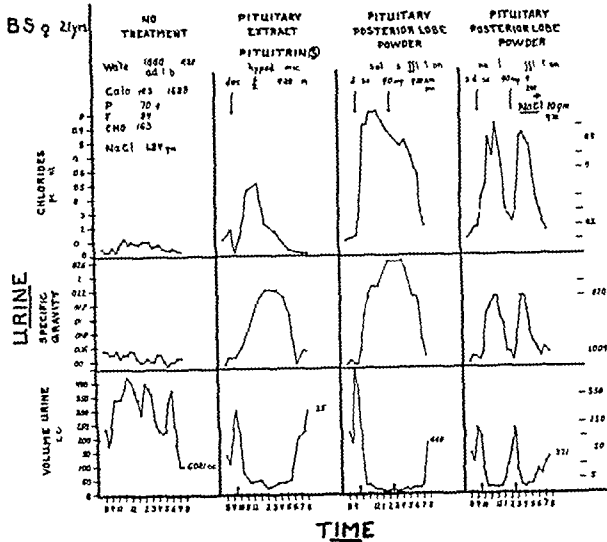


Chart 4 (case 2)—Comparative effects of different methods of treatment with pituitary preparations on volume, specific gravity and chloride content of urine collected at short intervals

The patient has now been observed for over a year and has maintained a normal condition by taking approximately 40 to 50 mg of the powder three times a day at eight-hour intervals. The urine varies from 1,500 to 2,500 cc daily, depending on the season, the fluid intake and the salt content of the food. Several head colds with rhinorrhea have left the therapeutic benefits unaffected. The nasal mucous membranes have not become irritated by the constant local application of the powder. Troublesome intestinal and cardiac reactions induced by injections of the solution have been uniformly absent under the new form of treatment.

A more detailed investigation of the comparative effects of the two posterior lobe preparations was made to determine the time of onset and the duration of antidiuresis. In addition to the standard conditions already indicated, a constant diuresis was provoked by the ingestion of 1,000 cc of distilled water between 9:15 and 9:30 a.m. Promptly at 9:30 a.m. the pituitary preparation to be tested was given by hypodermic needle or by nasal insufflation. The urine was collected at from half hourly to hourly intervals for twelve hours, beginning at 7:30 a.m. and its volume, specific gravity and chloride concentration were determined. The results are shown in the accompanying table and in charts 3 and 4.

In both patients the absence of specific medication allowed a rapidly increasing diuresis to be added to that already present because of diabetes insipidus. Reaching its maximum from one to two hours after water ingestion, it remained high, although variable throughout the day, to drop sharply after eight or nine hours. The chloride concentrations were for the most part below 0.10 per cent, and specific gravities ranged from 1.001 to 1.004. The reactions following the injection of 0.5 cc of double strength solution of pituitary were also very similar in the two cases. The urine volumes dropped precipitously, reaching a uniformly low volume within one hour, at which they remained for from eight to ten hours and then rapidly increased. The specific gravities increased to a maximum of about

1.021 in four hours. The chloride concentrations closely followed changes in the volume of urine but began to decline before the antidiuretic effect of solution of pituitary had lessened.

Only quantitative differences in the results cited appeared when specific medication was applied in powder form. As shown in charts 3 and 4 and in the table, a single dose of 40 mg reduced the urine volume, and increased the specific gravity and chloride concentration as promptly as did the injection of the solution. The duration of effect (case 1) was shorter, lasting about five hours. Two doses of powder in case 2 produced a prolonged antidiuresis, and the specific gravity and chloride concentrations were the highest observed in any experiment. Gutmann¹⁷ has shown that exactly the same changes in water economy are produced when solution of pituitary is injected into normal persons.

That ingestion of sodium chloride increases diuresis is well known. It seemed of considerable practical importance to determine its influence on the therapeutic effects of postpituitary medication in diabetes insipidus. Chart 4 shows the effects of ingestion of 1,000 cc of 0.10 saline solution in place of the distilled water used in the other comparative tests. The urine volume was doubled and the total effective period shortened. A distinct thirst appeared and the patient's spontaneous fluid intake was 1,000 cc more than in the other experimental periods. Evidently pituitary therapy is specific only in controlling water diuresis. This corresponds to the observations of Adolph and Erickson¹⁸ in normal men. Tallquist¹⁹ recognized the benefit of salt restriction in the management of diabetes insipidus thirty years ago. Urine volumes were reduced 50 per cent or more in three cases studied by Allen and

Comparative Antidiuretic Effect of Different Methods of Administration of Pituitary Preparations

Case	Method and Preparation	Dose	Volume of Urine Cc	Specific Gravity (Max) (Min)	Chloride per Cent (Max) (Min)	Duration Effect Hours
1	No treatment		6,170	1.002	0.05	
	Double strength solution of pituitary, hypodermically	0.5 cc	600	1.021 (4)	0.6 (1)	10
	Powder (nasal insufflation)	40 mg	3,300	1.024 (2)	0.55 (2)	5
	Powder (nasal insufflation)	{40}mg {40}	131	1.016 (2.3)	0.40 (1)	10+
2	No treatment		6,081	1.004	0.10	
	Double strength solution of pituitary, hypodermically	0.5 cc	730	1.022 (4)	0.50 (3)	8
	Powder (nasal insufflation)	{40}mg {40}	660	1.026 (4)	1.0 (2)	9
	Powder + 10 Gm of sodium chloride	{40}mg {40}	1,321	1.020	0.9	4

* Bracketed figures in columns 5 and 6 indicate time in hours after administration of pituitary product.

Sherrill,²⁰ when an absolutely salt-free diet was used continuously. As indicated by this experiment, restriction of salt to below 10 Gm daily will assist symptom control and yet allow a palatable diet to be consumed.

17 Gutmann, Karl. Arch f Verdauungskr 42: 551 (April) 1928.
18 Adolph, E. F., and Erickson, George. Am J Physiol 79: 377 (Jan) 1927.
19 Tallquist, T. W. Ztschr f klin Med 49: 181 1903.
20 Allen, F. M., and Sherrill, J. W. J Metabolic Research 3: 479 (March) 1923.

The treatment of diabetes insipidus in common with other diseases requiring prolonged substitution therapy with a glandular product presents a distinct economic problem in many cases

Judging from the experience of the two cases here reported, the powder form of treatment reduced the daily cost about 80 per cent. The retail price of solution of pituitary varies from about 45 cents to 65 cents for a 1 cc ampule, according to the form used.

Powdered posterior lobe costs from \$3.75 to \$4 for 4 Gm, or about 5 cents for a 50 mg dose.

SUMMARY AND CONCLUSIONS

1 Two cases of diabetes insipidus of undetermined etiology were studied under standard conditions to determine the relative effects of the usual treatment by subcutaneous injections of solution of pituitary and a modified treatment by intranasal insufflation of a powdered posterior lobe preparation.

2 Intranasal insufflation of the powder in doses of from 40 to 50 mg three times a day was shown to be as effective in maintaining a normal water balance with attendant alleviation of all symptoms as from 15 to 2 cc of double strength solution of pituitary, administered subcutaneously.

3 Advantages of the powder treatment include ease of application, absence of intestinal, cardiovascular or other side effects, and most of all a reduction in cost to less than one-fifth that of solution of pituitary.

4 A moderate dietary salt restriction is beneficial in the management of diabetes insipidus.

ASTHMA IN CHILDREN

ITS CAUSES AND TREATMENT

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NEW YORK

The incidence of asthma, whether in children or in adults, has never been accurately determined but has been roughly estimated at 2.5 per thousand of population. Its importance lies not in its great frequency and certainly not in its mortality but essentially in the fact that in those afflicted with it the morbidity is very high; hence in infants and children it assumes economic importance because of professional care during the attack and the loss of time at home from nursing. For the child, it is important because of the interference with nutrition, education and recreation.

The knowledge of asthma has advanced in the last fifteen to twenty years with the development of allergy.

Asthma is defined as a condition of dyspnea caused by an allergic reaction involving the bronchi and bronchioles. This, of course, excludes all such causes of dyspnea as pleural, pulmonary, cardiac and mediastinal disease, chemical alterations of the blood causing dyspnea, and bronchial stenosis from tumors and foreign bodies.

In defining asthma as an allergic reaction it is necessary, then, to define allergy and to explain briefly the present conceptions of it, for, as will be seen, there are several different forms and many different specific causes.¹

An allergic reaction is one that is qualitatively altered from the normal of the species and is specific. This purposely does not indicate whether the allergic state is artificially induced by contact with the specific cause or whether it develops spontaneously without known contact. But this at once furnishes the thought for a basis of differentiation. There are allergic states that are readily induced by proper contact with foreign substances, as, for example, in man or animal by the injection of foreign serum or after infection with tubercle, and in man after contact with oil of poison ivy. I have coined the term "physiologic allergy" to designate those forms of specifically altered reactivity because they are the normal response of the majority of the species under proper conditions of contact. The tuberculin reaction is a normal and therefore physiologic response to tubercle infection. About 90 per cent of human beings injected with sufficient horse serum will have serum disease, which is an allergy, and thereafter for some time they will show a positive skin reaction to horse serum.

But the allergic reactions to tuberculin and to horse serum are not identical. The former is a delayed inflammatory reaction, while the latter is an immediate edematous one; hence clinically and histologically and immunologically these allergies have important differences and yet they are allergies according to the definition given.

Of more importance to the physician, however, are those clinical allergies which apparently develop spontaneously in but a limited percentage of the human race and as clinical entities have never been artificially induced by contact. I refer to such conditions as asthma, hay fever, eczema, urticaria and the varied manifestations of angioneurotic edema. In contrast with the physiologic they may be grouped as spontaneous or pathologic or hereditary allergies and the reason for the latter appellation is that in all these clinical allergies there is an extraordinary degree of familial occurrence.

And yet these hereditary allergies may have histologic, immunologic and clinical differences. They may be divided into two types: the immediate and the delayed.

CLASSIFICATION OF ALLERGIES

Immediate Allergies—If a child has asthma on contact with a horse or with pollen, it will be noted that the attack develops almost immediately on contact, that is, within one hour. When skin tested with the proper extract of horse dander or pollen, the positive wheal appears within a very few minutes. In the serum of such cases the specific sensitizing antibodies can be demonstrated by the method of passive transfer of Prausnitz and Kustner. The immediate clinical response can be verified by the immediate skin test, and with reservations the immediate skin test can be verified by an immediate clinical reaction, never a delayed one.

Delayed Allergies—In contrast with this there are reactions that begin not immediately but in from two hours to two or even three days after contact with the exciting cause. These are called the "delayed reactions," and this distinction is important because, in them, skin tests with the specific substance are quite uniformly negative, and immune bodies are not demonstrable in the serum. In this group occur most of the cases of urticaria, angioneurotic edema, eczema and infective asthma and a few cases of asthma due to foods and to air-borne substances. These delayed

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From the Department of Medicine of the New York Hospital and Cornell University Medical College and the Department of Allergy of Roosevelt Hospital.

¹ Cooke, R. A. Diseases of Allergy, in Textbook of Internal Medicine, edited by John Musser, Philadelphia, Lea & Febiger, 1932.

allergies account for the unsatisfactory results of tests in cases that happen to fall in this group. A brief synopsis of such a case will illustrate this point.

A boy, aged 4½ years, seen in July, 1931, had been asthmatic over two years. Originally the attacks were paroxysmal and afebrile, but they had been continuous for the past six months. There were no gastro-intestinal symptoms. By intradermal test, positive reactions were obtained to house dust and to

TABLE 1—*Etiologic Factors in Asthma**

Asthma Onset, Age	Total Num ber Cases	Classification						Positive Antecedent History					
		Skin Sensi tive		Infec tive		Com bined		Skin Sensi tive		Infec tive		Com bined	
		No	Per Cent	No	Per Cent	No	Per Cent	No	Per Cent	No	Per Cent	No	Per Cent
0-3	106	54	50	33	31	19	19	36	67	30	91	14	74
3-5	42	23	59	7	17	10	24	16	64	6	86	8	80
5-10	70	48	68	13	19	9	13	34	71	9	69	2	56
10-15	55	36	65	13	24	6	11	24	67	6	46	6	100
15-20	79	50	63	17	22	12	15	24	48	8	47	6	40
20-30	123	70	57	39	32	14	11	31	44	14	36	6	43
30-40	117	44	37	50	43	23	20	13	30	17	34	7	30
40-50	54	15	28	37	59	7	13	5	33	8	23	4	57
Over 50	42	7	17	31	74	4	9	0	0	8	26	1	23
Total Average	688	349	51	233	34	104	15	183	52	106	43	57	55

* Reprinted from the American Journal of the Medical Sciences by permission.

horse and dog danders. Tests with all foods, including milk, were negative. Under proper environmental conditions the attack continued. After milk was avoided, the attacks ceased. August 11 at 6 p. m. he was given a supper of bread and milk. At 8 o'clock he began to be asthmatic and at 9 the attack was severe and continued all night. There was a noticeable edema of the face the following morning. During the day the attack disappeared. On a milk-free diet and with environmental care he has been free to date.

The important points to bear in mind, then, regarding the clinical types of allergy and their relation to skin tests are these:

1. The so-called positive skin test to foods and air-borne substances is an immediate reaction and can occur only in those cases in which the clinical reaction is immediate.

2. The skin test is negative if the clinical allergy is of the delayed type, hence a negative skin test does not exclude the possibility of allergy to the test substance.

3. Delayed skin tests to foods and air-borne substances have no known clinical significance.

ETIOLOGIC FACTORS IN ASTHMA

Predisposing Cause of Asthma—It has been shown and is now generally accepted that heredity is the important predisposing cause of asthma as well as the other allergies.² This is well shown in the figures of table 1.³ The antecedent history of allergy is positive in 110, or 67.5 per cent, of 163 cases of asthma of the skin-sensitive (immediate) type with asthma beginning before the age of 15, and is positive in 73 per cent of 66 cases of infective asthma (delayed type) in the same age group. This is evidence that these two types, the immediate and the delayed, have a common background of inheritance. Further, the age of onset of the allergy is influenced by the degree or amount of

inheritance,⁴ as shown by the fact that with bilateral inheritance 75 per cent of the offspring will be affected and in 66 per cent of these the onset will take place before the tenth year. When inheritance is unilateral, about 50 per cent of the offspring will develop allergy and in 31 per cent of these the onset will occur before the tenth year. But neither the specific sensitization nor its clinical form is inherited, only the capacity for or tendency to it.

Cause of Sensitization—Proper inquiry is then in order as to, first, the cause of the development of the sensitization mechanism and, second, the factors determining the particular allergen in a given case. As to the former, stimulation by contact is suggested on the basis of knowledge of artificial sensitization, and support to the view is given by the fact that nearly 65 per cent of the reactions in infants are caused by foods, contact being possible in intra-uterine life, but the proof that contact is necessary is not yet entirely complete. As to the second point, the factors determining the allergen, there is no definite knowledge. Excessive contact is not a requisite. Assuming that contact is necessary, one must also assume that the allergen is predetermined for the organism by nature or inheritance, for other contacts great and small will not be effective.

Cause of Asthmatic Dyspnea—The free entrance and exit of air through the bronchi is impeded. The lumen may be narrowed by increased thickness of the wall, by muscular contraction or by plugging with exudate. The theory of bronchospasm is an old one. Theoretically it is possible, and actual hypertrophy of

TABLE 2—*Comparative Measurements in Bronchitis and Asthma*

Patient	Condition	Diameters in Mm					
		Out side	Wall	Epi thellal	Subepi thellal	Mus cular	Glan dular
Mr I	Asthma	0.50	0.12	0.033	0.023	0.019	
Mr Gr	Chronic bronchitis	0.50	0.14	0.013	0.020	0.033	
Mrs B	Asthma	0.55	0.13		0.014	0.014	
Mr Gr	Chronic bronchitis	0.55	0.11		0.056	0.042	
Miss L	Asthma	1.60	0.35	0.040	0.030	0.033	
Mr A	Chronic bronchitis	1.60	0.44		0.056	0.140	
Mrs B	Asthma	2.40	0.70		0.10	0.10	0.38
Mr A	Chronic bronchitis	2.40	0.70		0.12	0.18	0.38
Mrs B	Asthma	3.00	0.75		0.070	0.070	0.88
Mr A	Chronic bronchitis	3.00	0.77		0.070	0.140	0.72
Mrs B	Asthma	4.64	0.92		0.10	0.14	0.86
Mr Gr	Chronic bronchitis	4.50	1.05		0.09	0.180	0.60
Mrs B	Asthma	5.76	1.68		0.22	0.18	1.0
Mr Gr	Chronic bronchitis	5.60	1.53		0.20	0.2	0.71
Mrs B	Asthma	6.50	1.95	0.032	0.11	0.11	1.10
Mr Gr	Chronic bronchitis	6.40	1.55	0.062	0.036	0.110	0.62
Miss L	Asthma	7.50	2.25	0.036	0.140	0.240	1.0
Mr Gr	Chronic bronchitis	7.50	1.65	0.036	0.040	0.180	0.71
Mr G	Asthma	9.00	2.25	0.071	0.12	0.090	0.72
Mr Gr	Chronic bronchitis	9.20	2.50		0.12	0.14	0.88
Mr G	Asthma	10	2.00	0.03	0.12	0.24	0.31
Mr A	Chronic bronchitis	10	1.75		0.20	0.10	0.88
Miss L	Asthma	12.0	1.75	0.071	0.022	0.24	0.72
Mr A	Chronic bronchitis	12	2.50		0.2	0.35	0.88

this layer has been shown, notably in the paper of Huber and Koessler,⁵ but a survey of their work shows that the muscular hypertrophy is not as great in asthma as it is in chronic bronchitis. This is well shown in table 2, which was made from their figures but has been rearranged for comparison. It is necessary only to point out that, in the twelve sets of comparative measurements of bronchi from 0.5 to 120 mm in

² Cooke R. A. and Vander Veer Albert Jr. Human Sensitization J. Immunol. 1: 201 (June) 1916. Atkinson June Genetics 5: 363 1920. Spain W. C. and Cooke R. A. The Familial Occurrences of Hay Fever and Bronchial Asthma J. Immunol. 9: 521 (Nov.) 1924.

³ Cooke R. A. Infective Asthma: Indication of Its Allergic Nature Am. J. M. Sc. 183: 504 (March) 1932.

⁴ Cooke R. Spain and Cooke.²

⁵ Huber H. L. and Koessler K. H. The Pathology of Bronchial Asthma Arch. Int. Med. 30: 689 (Dec.) 1922.

diameter, the wall is thicker five times in the asthmatic cases and six times in the chronic bronchitis cases. As for the epithelial layer, there is no comparison. The subepithelial layer is wider five times in asthmas and five times in bronchitis. The muscular layer, however, is thicker twice in asthma and nine times in chronic bronchitis. This is to be contrasted with the fact that the glandular layer is greater six times in asthma, all in the smaller bronchi, while it is greater three times in bronchitis, all these, however, are in the larger bronchi from 9 to 12 mm. These facts seem very significant.

Further, there is no mechanism for muscular contraction such as occurs in the anaphylactic animal.⁶ The smooth muscle sensitizing antibodies have never been demonstrated by animal experiment to exist in asthmatic man, though they are present in man artificially sensitized by injection of horse serum. This leaves only the hypothesis that the bronchial muscle may be stimulated to contract through the reflex action of the autonomic nervous system. That some such action takes place may be assumed in order to account for the hypertrophy, but it can hardly be believed that it is the principal factor in dyspnea since the hypertrophy is less than in chronic bronchitis in which dyspnea is not a feature.

TABLE 3—Analysis of Two Hundred and Sixty Skin-Sensitive Cases of Asthma

Age of Onset	Number of Cases	Cause of Asthma	
		Foods	Inhalants
0-3	27	10	8
3-5	21	10 (2)	10
5-10	30	11	39
10-15	28	5	28
15-20	33	0	33
20-30	37	6 (1)	56
30-40	38	6	38
40-50	12	2	12
Over 50	5	2	5

Edema of the bronchial wall is entirely in conformity with what is seen of the allergic reaction in hay fever, which is so frequently associated with asthma and in the allergic test reaction of the skin, as well as in pathologic sections of bronchi of asthmatic patients. Bronchial plugging with the tough viscid exudate must also be regarded as an important factor in bronchial obstruction. Clinical experience with epinephrine in relieving asthmatic dyspnea indicates that its main effect on the bronchi is obtained by its stimulation of the capillaries of the mucous membrane, and edema disappears just as it is seen to do in the nasal membranes similarly affected and in urticaria. As a result of this tissue shrinkage, the mucoid plugs are loosened and may be expelled by coughing, and air again freely enters the pulmonary alveoli. I believe that this explanation of the epinephrine action in asthma is more satisfactory than that the drug has any action to relax contracted smooth muscle fiber of the smaller bronchi.

Specific Causes of Asthma—The substances acting as exciting causes of the asthmatic attack may be inhaled from the air, ingested as foods and drugs, injected subcutaneously or absorbed from foci of infection. Inhaled, ingested and injected substances are the important factors in what have been called the "immediate" reaction and therefore they usually give the immediate positive skin test in proper cases.

Rarely, foods and inhalants do act to produce the delayed reaction of asthma and in such cases skin tests are negative, as in the case cited. Infection is the chief cause of the delayed reaction. So far as is known, it always acts in this way.

The causes of asthma have been determined in a specially studied group of 260 cases (table 3), in which all of the cases were of the immediate type and therefore skin sensitive, and in all cases the foods and inhalants actually caused asthma. They were not merely called causes on the basis of positive skin tests.

In the first age group, up to 3 years, the twenty-seven patients were sensitive either to foods or to inhalants, never to both. In the next age group, from 3 to 5 years, only two of the ten patients who were sensitive to food were sensitive to foods alone, and thereafter all the patients sensitive to food were also sensitive to air-borne substances with one exception (in the 20-30 year group).

This table illustrates very well the importance of the foods in the early years of life and the relative unimportance after the tenth year, indeed almost after the fifth year. On the contrary, the air-borne substances come to the fore after the fifth year and begin in the third year, but rarely sooner.

The principal air-borne substances rank as follows in the ninety-four cases (up to 15 years of age): house dust, 55 cases, ragweed, 21 cases, feather, 19 cases, animal epithelia, 12 cases, grass pollen, 6 cases, orris root, 5 cases, cottonseed, 1 case, and kapok, 1 case.

There are 118 causes for the 94 cases, as in many cases reactions occur to several substances. In the forty-five patients under 15 years of age who are sensitive to food, only twelve have single reactions. The rest vary from two to six. The list with the number of reactions is as follows: egg white, 13 cases, chicken, 8 cases, cereal, 12 cases, milk, 10 cases, fish, 10 cases, beef, 8 cases, nuts, 7 cases, cinnamon, 1 case, pea, 4 cases, spinach, 1 case, shad roe, 1 case, celery, 1 case, cauliflower, 1 case, potato, 2 cases, chocolate, 1 case, mustard, 2 cases, orange, 1 case.

The striking peculiarity of the food allergy of infancy is its tendency to spontaneous disappearance by or before the age of 10. My impression is that this occurs in about nine out of ten cases. Occasionally food sensitizations develop in later life, hence the fact that they are found in adults does not necessarily indicate the continuance of an allergy of infancy. Unfortunately, however, this loss of early food sensitization does not end the difficulties of these children, for about 50 per cent acquire clinical allergy to air-borne substances by the age of 10 years and another 25 per cent by the age of 25. This indicates strikingly what is meant by the allergic constitution.

Cause of Infective Asthma—In practically all these cases the infection begins in the upper respiratory tract. In many cases there is a history of a previous acute respiratory infection such as whooping cough, measles or pneumonia, followed after several months by recurring bronchitis, which finally assumes a definite asthmatic character. It is my belief, not susceptible of actual proof, that such diseases have left behind foci of infection from secondary invaders, which in their turn become primary causes of the asthmatic allergy. Up to the age of 5 these foci are located in the lymphoid tissue of tonsils, pharynx and nasopharynx. After this, and with the development of the paranasal sinuses, infection not infrequently becomes localized also in these cavities. The organisms most

⁶ Cooke R. A. and Spain W. C. A Comparative Study of Antibodies Occurring in Anaphylaxis Serum Disease and the Naturally Sensitive Man. *J. Immunol.* 17: 295 (Oct.) 1929. de Besche A. *Am. J. M. Sc.* 166: 265 (Aug.) 1923.

frequently responsible are *Pneumococcus*, *Streptococcus haemolyticus*, *Staphylococcus* both hemolytic and non-hemolytic, *Micrococcus catenulalis* and *Streptococcus viridans*.

COMPARISON OF SENSITIVE AND INFECTIVE GROUPS

It is interesting and instructive to compare the relative frequency of the two forms of asthma and for this purpose a chart has been prepared from table 1 the combined group being omitted. It shows that infection, while certainly not negligible in the early years is relatively less important but becomes much more important with age and especially so in asthma beginning after the patient is 30.

NONSPECIFIC CAUSES

Much emphasis is laid by patients on the group of apparent causes of asthma such as exercise eating heat humidity and extreme cold. It is true that in the asthmatic many or all of these do excite an attack, but as far as I can see they are not fundamental causes. The bronchial tissues rendered unstable by long continued specific reactions do respond to many irritations. The best proof of their nonspecific action lies in the fact that asthmatic patients freed of attacks for a reasonable period no longer respond to this form of irritation. The same cannot be said for the action of certain gases, such as sulphur dioxide and incense fumes. There is no proof as yet of the specificity of action of these irritants but there is clinical ground for believing it may exist because these fumes and gases precipitate the attack in relatively few asthmatic patients and may do so even after long periods of freedom from asthma. Recently a patient who had been practically free from asthma for nearly a year had a severe attack lasting three days almost immediately on entering a room in which incense was burning.

THE TREATMENT OF ASTHMA

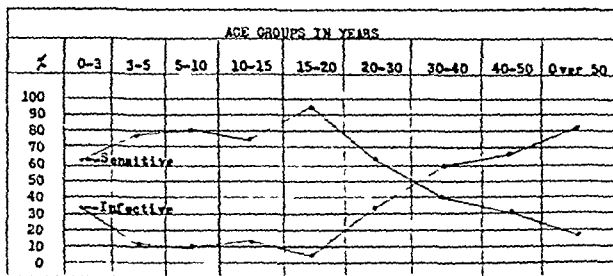
The Acute Attack—Epinephrine in sufficient amounts by hypodermic injection and repeated if necessary at frequent intervals is the drug on which chief reliance is placed to combat the acute attack. When the attack is severe and continued, codeine or morphine may be required. The oxygen chamber or oxygen by nasal catheter is very useful especially when cyanosis exists. Inhalation of stramonium powders or benzoinated steam may also help. Mustard or flaxseed poultices may be applied to the chest but only in those children known not to be sensitive to these substances. Expectant drugs such as ammonium chloride and iodide seem to accomplish very little, but ipecac in doses to produce vomiting may be very useful. I have never seen any benefit from atropine, benzyl benzoate or glyceryl trimurate. Ephedrine alone or with amylal is useful in the milder attacks when the dyspnea is a discomfort and does not represent a vital struggle for air. The diet must be very light. The bowels should be kept freely open with catharsis or an enema. The room should be warm but the air fresh.

In those cases in which the acute attack is associated with an infection of the upper respiratory tract a local cleansing nasal douche may be beneficial as is also the occasional intral irrigation in older children, but the use of irritant antiseptics and mild silver protein packs have not been efficacious.

Management of the Asthmatic Child—But more important is the treatment directed toward the cause of the asthmatic state. Accurate and complete diag-

nosis of all the causes is the prerequisite of successful treatment, which also depends on a knowledge of the habits the diet and the physical state of the patient. It is not within the sphere of my topic here to discuss the details of diagnosis. Much has been written and much might be said about the uses the interpretations and the vagaries of the skin tests. A proper conception of them is that they are important aids when used with proper care, but they constitute only one phase of a complete diagnostic study.

In the management of these cases it must be remembered that not a particular disease entity is being dealt with but rather a condition which is the expression of the inherited allergic constitution, which usually remains through life. "Once an allergic always an allergic" contains more than a gram of truth, so that these cases are not problems of the moment but should be supervised and examined for developing tendencies at regular but infrequent intervals. Good and lasting results are not to be obtained in a short time. Hence those who are specially working in this field of medicine can succeed only with the full cooperation of the family physician. The object of treatment is to reduce to nil the clinical manifestations of existing allergy and to prevent the development of conditions favoring new allergies. The constitutional background cannot be changed. The former I seek to obtain by treatment.



Curve showing age of onset of sensitive as against infective asthma group

directed against the specific cause the latter will be outlined under preventive measures.

General measures to promote growth and improved physical condition are of course important. Fatigue should be avoided. Attention must be paid to nutrition but asthmatic children do better when not overfed. The evening meal should be light. Vitamin A preparations of animal or vegetable origin have a certain scientific basis in raising resistance to infection and are useful especially in children subject to the so-called winter cold. On account of the frequency with which air-borne substances such as house dust and animal danders act as causes scrupulous measures for environmental cleanliness are necessary, especially with regard to mattresses and pillows. Household pets should preferably be banned for though not at the time proved factors they may at any time become so in the developing child. Iodides are not really useful and over an extended period may upset digestion.

Specific Treatment of the Skin-Sensitive Type—In children clinically sensitive to foods or air-borne substances, the simplest procedure is avoidance of the cause. In infants sensitive to foods this is most satisfactory, as they usually outgrow the sensitiveness in a few years' time, but in older children this is not so and resort must be had to injection with the specific allergens if it is an important food such as milk or eggs. These must be continued for a long period of

time My procedure is slowly to increase injections at weekly intervals up to a point of sufficient clinical tolerance The injections are then continued at monthly intervals for several years This is the principle on which I also act when the allergen is an air-borne substance such as dust, dander or pollen

Treatment of the Infective Type—Cases of asthma due to infection are managed on the same general principles Although primary asthmatic bronchitis does occur in infants, it is rare Practically all these babies show infection or hyperplasia of the lymphoid tissue of the pharynx and nasopharynx Most of the acute exacerbations are associated with a general infection of the nasal membranes A little later in life as the sinuses develop the infection spreads to them and after repeated attacks the sinuses become important primary foci This, I believe, is one reason for the poor results of tonsillectomy The operation has been deferred too long, whereas it should be done early in life Another reason is faulty operative technique It is necessary to emphasize this point on account of the frequency with which secondary tonsil operations are required In the clinic with which I am associated, over 50 per cent of the tonsil and adenoid operations are of this type Early removal of the tonsils is frequently opposed on the ground that it leads to lymphoid hyperplasia of the posterior pharyngeal wall Dr Grove and I have examined many children with this idea in mind and do not believe that this objection is valid, for hyperplasia was found as frequently in children with as in those without tonsils Our feeling is that it results from long continued infection higher up in the sinuses and adenoids This condition requires treatment when once well established, but it is not usually susceptible to surgical procedure For a number of years Dr Remei has been treating these patients for us with x-rays This treatment appears to be effective provided the infected sinuses are properly treated and any mass of adenoid is surgically removed In our clinic operative procedures on children under 15 are limited to those which have been outlined We have not found it necessary to operate on sinuses at this early age

Vaccine Therapy—The mechanism by which bacteria produce the allergic reaction of asthma is not yet known It is possible to produce asthma in certain of these cases with minute doses of vaccine of the proper organism It is known that allergy of the delayed type begins in from six to thirty-six hours after the vaccine injection Contrary to the reports of Thomas⁷ and others, the skin test with bacterial vaccines has proved of no value in our hands in determining the organism responsible for the asthma in the individual case An immediate vaccine reaction rarely occurs, and when it does it has no clinical significance A delayed skin reaction does reveal some sort of sensitization, but this may be obtained with vaccines that do not produce asthma, while a negative skin reaction frequently results with a vaccine that gives asthma This symptomatic reaction is at present the sole accurate criterion Treatment with vaccines of such capacity has to be given with extreme care I have seen a symptomatic reaction with such doses as 0.0001 cc of a 1 per cent suspension Such vaccines given carefully over long periods of time may produce beneficial results in certain cases but only in those cases in which primary foci have received appropriate treatment The effect of vaccine therapy is very hard to evaluate

It is, of course possible to produce these symptomatic asthmatic reactions with nonautogenous vaccines and in the absence of autogenous cultures it may be necessary to use them, and good results may be obtained at times It is my practice to use those autogenous vaccines which produce a symptomatic asthma and thus I secure my best results

Nonspecific Treatment—On account of the difficulties of treatment in asthma and especially in the bacterial group, many procedures have been and are being proposed in the hope of temporary or permanent relief Tuberculin typhoid vaccine, milk, calcium, peptone and polypeptides, whether by injection or by mouth, can, I believe, be dismissed as of no value

The use of vaccines for nonspecific immunity is not so easily discarded but they are certainly not superior to autogenous cultures

Measures to produce hyperpyrexia simulating an intercurrent infection⁸ such as heat or intravenous vaccine do seem to produce an effect, but it is temporary and hardly worth the dangers or the exhaustion incident to their use

Preventive Measures—From what has been said and from what is known regarding the familial occurrence of the clinical allergies I believe that certain steps are justified in the offspring of parents known to be allergic and especially if the parents have asthma There is no known way to prevent the development of a predetermined allergy of the immediate type (skin sensitive) to foods or air-borne substances Difficult cases in such families are often due to sensitizations and should be studied with this idea in mind Of considerable practical value is the fact that allergic children frequently exhibit an instinctive dislike for foods to which they are sensitive and children who are not 'finicky' but regularly refuse one or several foods while showing a rational relish for the remainder of their diet should not be forced to eat them Tests have frequently shown the correctness of their instinct

For these predisposed children, even before the development of symptoms, unusual, unnecessary and intimate animal contacts are not desirable Even though the sensitization is not prevented, the clinical expression of it can be delayed during the formative years

Of greater importance, however, are the steps that may be taken for these infants or children who early show the probability of infective asthma by repeated 'colds' Practically all these cases show lymphoid hyperplasia The early and complete removal of tonsils and adenoids is to my mind, distinctly indicated, and when house dust or other factors are contributing causes by producing nasal congestion, specific treatment is also indicated Repeated infections of the upper respiratory tract in these predisposed children are not infrequently the result of contact with parents and nursemaids who themselves have a chronic respiratory infection This exposure of susceptible children is not much more excusable than contact with tuberculosis It should be avoided

In all cases, treatment should be begun with the first indication of an asthmatic tendency A proper control of these early attacks lessens the chances of returning trouble in later life

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⁷ Thomas W. S. and Tourant M. D. The Late Vaccine Skin Reaction *J. Allergy* 4: 243 (May) 1933

⁸ Feinberg S. M., Osborne S. L. and Afremow M. L. Fever by Diathermy in the Treatment of Allergic Disease *J. Allergy* 2: 414 (Sept.) 1931
Leopold S. S. and Stewart S. G. The Effects of Fever Either Accidentally Incurred or Artificially Produced in Bronchial Asthma *J. Allergy* 2: 425 (Sept.) 1931

CALCIUM AND PHOSPHORUS STUDIES

IN THE IMPORTANCE OF LOW DIETARY
PHOSPHORUS IN THE TREATMENT
OF PARATHYROID TETANY

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Although the incidence of parathyroid tetany is rather small, nevertheless its treatment is sometimes attended by certain difficulties, especially when the disease assumes the chronic form and the injection of parathyroid extract and the ingestion of large doses of calcium salts become necessary. The observation of MacCallum and Voegtlin¹ that parathyroidectomy results in a lowering of the concentration of the serum calcium led to the use of calcium salts as a specific for this and other forms of tetany. Later studies by Greenwald² and others³ demonstrated that in parathyroid tetany not only is the calcium in the serum reduced but the inorganic phosphorus is elevated and retained in the organism.

The latter observations indicated that the hyperphosphatemia may be as important as the hypocalcemia in the maintenance of hyperirritability, if not more so. That the phosphorus retention may be an important factor in parathyroid tetany is also borne out by recent experiments.^{3a} It was found that when an excess of phosphorus is added to an otherwise adequate diet and fed to rats with intact parathyroids, the animals partake of fairly optimal amounts of the food and rid themselves of the excess phosphorus by excretion, mainly in the urine. After parathyroidectomy, however, these animals are unable to dispose of the excess phosphorus ingested unless an abundance of calcium is also present in the diet so that it might be excreted in the bowel as the insoluble calcium phosphate. If the food calcium is insufficient or the phosphorus intake is unduly high so that the serum inorganic phosphorus becomes elevated, the animals refuse to eat the rations. When, however, the phosphorus of the diet is diminished, the animals resume eating and lose their tetany.

Apparently, the same amount of calcium in the diet which is ineffectual in relieving tetany when the dietary phosphorus is high becomes adequate when the phosphorus intake is lowered. Thus the ingestion of an excess phosphorus along with a seemingly adequate calcium intake may induce tetany just as if a low calcium diet had been partaken. This may be due to the fact that the retained phosphorus tends to be excreted into the bowel as the insoluble salt of calcium and thus robs the body of its available calcium necessary to ward off the tetanic manifestation, and also to the fact that the solubility product constant (K_{sp}) of calcium phosphate in the blood is more or less limited so that an increase in phosphate [$PO_4^{'''}$], due to retention will result in a reciprocal decrease in calcium [Ca^{++}] and thus maintain the hypocalcemia.

For these reasons it seemed advisable that in the dietary treatment of parathyroid tetany much better results could be obtained in ameliorating the hyperirritability and the calcemia by keeping the phosphorus content of the diet at minimal levels and the calcium intake higher than that of phosphorus. Of course, the maintenance of a nontetanic serum calcium level may be accomplished by the judicious use of parathyroid extract, but the fact that its use is attended by certain difficulties such as the necessity of frequent blood chemical examinations, the danger of hypercalcemia, metastatic calcification and renal impairment makes its use unsatisfactory in the ambulatory patient. Also, as will be shown later much larger doses of the hormone are required to elevate the levels of serum calcium when the intake of phosphorus is high than when it is low.

Because of the relative infrequency of parathyroid tetany, the opportunity to test this diet under controlled conditions is therefore limited to but a few cases. However, the encouraging results obtained in the few cases and some of the chemical observations on the blood and urine prompted this preliminary report, with the hope that others might find this type of diet of value in similar cases.

REPORT OF CASES

CASE 1⁴—A Negress, aged 36, who had had exophthalmic goiter for about three years, underwent a partial double thyroidectomy in September, 1931. Two weeks after operation she had epigastric distress, stiffness and cramps in her hands and feet. On admission to the hospital she was found to have hypertension (160 systolic, 110 diastolic), typical pedal spasm, positive Chvostek and Trousseau signs and a positive Trousseau test in less than a minute. The serum calcium and inorganic phosphorus were 55 and 52 mg per hundred cubic centimeters, respectively. She was placed on a weighed diet with added calcium lactate so that she consumed about 10 Gm of phosphorus and 20 Gm of calcium daily. But, in spite of the added calcium to the diet, the serum calcium rose but little, the phosphorus remained at high levels and the symptoms of tetany persisted. Because of the slow progress, the diet was changed on the sixteenth day after admission. She was given a diet in which the calcium remained at about 20 Gm but the phosphorus was reduced to about 0.270 Gm daily. On this regimen the serum inorganic phosphorus fell and the stiffness and tingling sensation disappeared, although the serum calcium rose but moderately. On the twenty-third day of the low phosphorus period, twenty-four hour specimens of urine were begun to be collected and the daily urinary excretion of calcium and of phosphorus were determined. It is interesting that the urine obtained during the low phosphorus regimen contained little or no phosphorus as shown in the accompanying chart indicating that the low serum inorganic phosphorus was brought about by (1) the low phosphorus intake and (2), possibly, by the excretion in the feces as the insoluble calcium phosphate, rather than by loss through the kidney.

Since the advent of viosterol as an antirachitic and antispasmodic in the rickets and tetany of infants, its use has also been extended by some⁵ to parathyroid tetany. Although it is well established that vitamin D will elevate the serum calcium from tetanic to optimal levels, yet its use in parathyroid tetany is not without danger, as pointed out previously⁶ namely, increased phosphorus retention and possible metastatic calcification. In order to prove this point further, the patient was given 4 cc of viosterol 100 D daily for six days. The chemical

From the Harriet Lane Home and the Marburg Pavilion of the Johns Hopkins Hospital.

A preliminary report of this investigation was read before the Johns Hopkins Medical Society Dec 14 1931 (Bull Johns Hopkins Hosp 50 395 [June] 1932) and before the Pediatric Section of the New York Academy of Medicine Jan 14 1932 (Am J Dis Child 43 1629 [June] 1932).

¹ MacCallum W G and Voegtlin C Bull Johns Hopkins Hosp 19 91 1908

² Greenwald Isidor J Biol Chem 59 329 (March) 61 649 (Oct) 1924

³ (a) Shelling D H J Biol Chem 96 195 (April) 1932 (b) Ellsworth Reed J Clin Investigation 11 1011 (Sept) 1932

⁴ A detailed clinical history of these cases was reported by Ellsworth (Bull Johns Hopkins Hosp 52 131 [Feb] 1933). We are indebted to Drs Reed Ellsworth and E S Cross for permission to report these cases.

⁵ Brougher J C Viosterol (Irradiated Ergosterol) in Treatment of Parathyroid Tetany J A M A 94 471 (Feb 15) 1930 Boothby, W M Haines S F and Pemberton J de J Am J M Sc 181 81 (Jan) 1931 Stern A Deutsche med Wchnschr 54 1292 (Aug 3) 1928 Bauer Walter Marble Alexander and Claflin Dorothy J Clin Investigation 11 47 (Jan) 1932

⁶ Shelling D H and Asher D E Bull Johns Hopkins Hosp 50 318 (May) 1932 Shelling D H Proc Soc Exper Biol & Med 28 308 (Dec) 1930

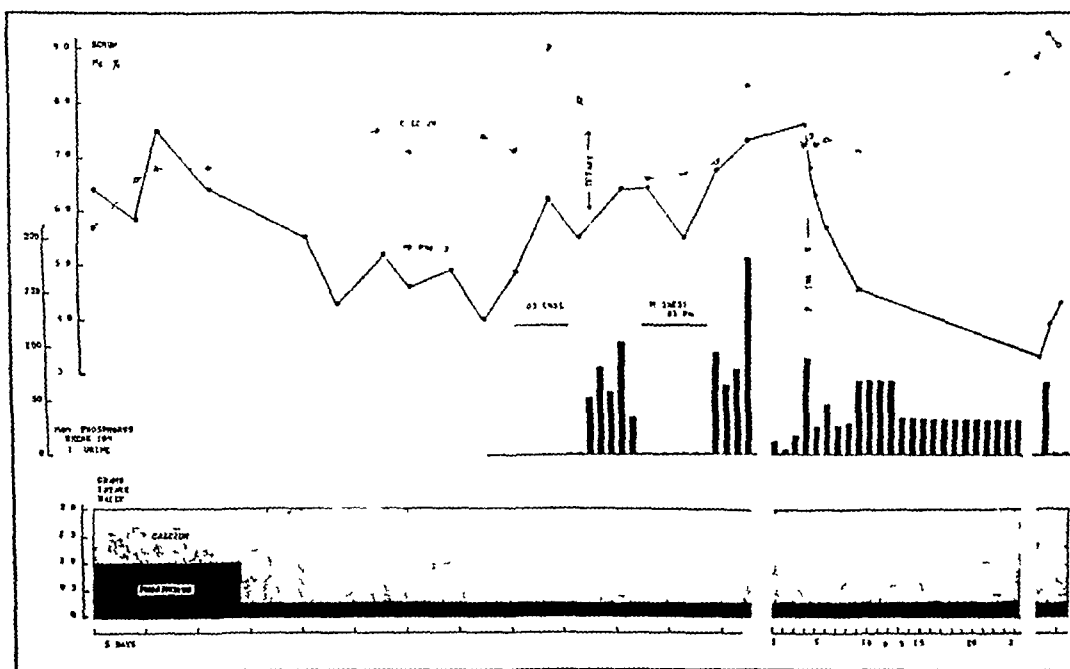
changes in the blood and urine are shown in the accompanying chart. It is seen that, in spite of the low phosphorus intake, there was an elevation in the concentrations of both inorganic phosphorus and calcium in the serum and an absence of phosphorus in the urine. Also, in spite of the elevation of the serum calcium the patient became nervous and irritable and on the third day of the viosterol feeding she felt cramps and tingling in the extremities. After viosterol was discontinued the serum calcium fell abruptly but the serum inorganic phosphorus remained elevated and began to appear in the urine. On the third day the patient developed active tetany and continued to have chronic tetany for the following five days during which time moderate amounts of phosphorus were present in the urine.

For the following seven days the patient was given 0.85 Gm of magnesium daily in the form of magnesium carbonate. The magnesium was given for two reasons. First it has been found that magnesium salts may relieve parathyroid tetany in animals in the same manner as do calcium salts probably by diverting the retained phosphorus to be excreted in the feces. Second it was previously demonstrated by Shelling, Kramer and Orent and Shipley and Holt⁸ that magnesium [Mg +] inhibits calci-

80 units of parathyroid extract-Collip was injected on the sixth-third day after admission and its effects on the serum calcium and inorganic phosphorus and on urinary calcium and phosphorus excretion were studied. Blood samples were analyzed at frequent intervals and each sample of urine voided during the twenty-four hour period was analyzed separately. The results, shown in the accompanying chart, illustrate the differences in behavior between viosterol and parathyroid extract. In contrast to viosterol, which increased both the calcium and the inorganic phosphorus of the serum and caused retention of the latter, parathyroid extract produced an abrupt fall in the serum inorganic phosphorus, a gradual rise in the serum calcium and an enormous rise in the excretion of phosphorus in the urine (0.888 Gm in twenty four hours, intake 0.270 Gm). On the third day after parathyroid extract administration the serum inorganic phosphorus began to rise slowly and the urine contained only traces of phosphorus. The patient was free from tetany and she was continued on the low phosphorus diet. She was discharged the latter part of December with instructions as to her dietary care at home.

The urinary calcium excretion during the periods of observation was extremely low varying between 15 and 155 mg per day in spite of the high calcium intake and in spite of the absence of phosphorus in the urine during some of the periods. On the day when parathyroid extract was administered the urine was entirely free from calcium, but on the next day, when the serum calcium rose to 8.8 mg per hundred cubic centimeters and the urine was nearly free from phosphorus the twenty four hour specimen of the urine contained but 6.4 mg.

At home the patient followed the dietary instructions for some time but later she began to eat a number of foods high in phosphorus. The



The effect of low phosphorus intake and of viosterol of parathyroid extract and of magnesium on the levels of calcium and inorganic phosphorus in the serum and on the excretion of phosphorus in the urine (case 1)

fication in vitro probably by forming an unionizable compound with phosphate and thus inactivating phosphate [PO_4^{3-}] and it was hoped that it might do likewise in the case of parathyroid tetany with phosphorus retention. The chemical changes in the blood and the urine and the clinical improvement strongly suggest this possibility. It is seen that, although the serum inorganic phosphorus was somewhat higher and the calcium lower during the magnesium period than in the preceding period in which active tetany was present, the absence of tetany was probably due to the inactivation of part of the phosphate [PO_4^{3-}] in the serum by magnesium. When the magnesium was discontinued the calcium and inorganic phosphorus in the serum continued to be somewhat elevated the urine contained moderate amounts of phosphorus and the tetany remained latent.

In order to prove or disprove the contention of Taylor and his associates⁹ that viosterol and parathyroid extract are more or less identical in their physiologic and pathologic behavior

cramps and tingling sensations soon returned and, Feb 1, 1933 after a feast of meat she was readmitted to the hospital in a state bordering on active tetany. The serum calcium was 6.6 and the inorganic phosphorus 6.9 mg per hundred cubic centimeters respectively. She was again placed on the low phosphorus diet and the tetany became latent. During her second stay in the metabolism ward, the studies with viosterol parathyroid extract and magnesium carbonate were repeated and the results were nearly identical to those found during the previous admission. When the symptoms disappeared she was again discharged home on the low phosphorus diet and because of her activities and possible breaks in her dietary regimen she was instructed to take larger doses of calcium.

CASE 2—S. M., a white woman aged 32 married, had had two normal pregnancies and deliveries. She had had symptoms of hyperthyroidism at the age of 14 and a thyroidectomy was done at the age of 20. Tetany followed soon after the operation, persisting for ten days and then gradually disappearing. At 26 following a prolonged chronic postpartum infection she had a major convulsive seizure. Since then there had been epileptiform convulsions at irregular intervals. She had also had frequent clinical signs of active and latent tetany, which were corroborated by chemical analyses of the blood. Up to

7 Shelling D. H., Kramer Benjamin and Orent E. R. J. Biol. Chem. 77: 157 (April) 1928. Bull. Johns Hopkins Hosp. 41: 426 (Dec) 1927.

8 Shipley P. G. and Holt I. E. Jr. Bull. Johns Hopkins Hosp. 41: 437 (Dec) 1927.

9 Taylor A. B., Weld C. R., Bramon H. D. and Kay H. D. Canad. M. A. J. 24: 763 (June) 1911.

the present admission to the hospital, she had been treated with calcium, phenobarbital, bromides and parathyroid extract. The opinion of several physicians who examined her was that she suffered from both parathyroid tetany and epilepsy. The tetany and the epilepsy were usually accentuated during periods of infection. In spite of the sedatives, calcium and parathyroid extract therapy, she nearly always manifested some signs of latent tetany, such as positive Chvostek and Trousseau signs. She was admitted to the Marburg pavilion of the Johns Hopkins Hospital, Feb 8, 1932, for study. On physical examination it was found that she had bilateral choked disks, the etiology of these could not be explained but it was thought that the epilepsy and changes in the eyes were probably related. The clinical signs relative to the tetany were intermittent muscle spasms, cramps in the extremities, and positive Chvostek and Trousseau signs. February 9, the serum calcium and inorganic phosphorus were 63 and 64 mg per hundred cubic centimeters, respectively.

She was placed on a regular diet with added calcium lactate (18 Gm daily), but in spite of this calcium addition the patient still exhibited symptoms of tetany. February 12, the serum calcium was 52 and the inorganic phosphorus 55 mg per hundred cubic centimeters. February 13, the serum calcium dropped to 46 and the inorganic phosphorus rose to 64 mg per hundred cubic centimeters and on February 15 the values were 63 and 69 mg per hundred cubic centimeters, respectively. During this period she was receiving in her diet about 15 Gm of phosphorus and a total of about 2 Gm of calcium daily. February 16, the diet was changed so that the phosphorus was reduced to about 0.9 Gm daily and the calcium kept at the former level of 2 Gm, and three days later the phosphorus was further reduced to about 0.3 Gm daily. On this regimen the patient felt much better, the spasticity and the tingling sensation in the extremities diminishing considerably. February 25, the serum calcium rose to 68 and the inorganic phosphorus fell to 46 mg per hundred cubic centimeters. She was kept on this diet and in addition, 18 Gm of magnesium carbonate was administered daily. March 1, the calcium and inorganic phosphorus were 82 and 56 mg per hundred cubic centimeters, respectively. The patient's condition, so far as the tetany was concerned improved and she was sent home and instructed to follow the diet and the calcium and magnesium therapy. In November, 1932, the serum calcium and inorganic phosphorus were 90 and 47, March 6, 1933 91 and 64, June 5, 1933, 93 and 51 and Oct 10, 1933 98 and 40 mg per hundred cubic centimeters, respectively.

During her entire stay in the hospital and at home she has had several attacks of epilepsy but her symptoms of tetany have been only mild or entirely absent although parathyroid extract has been eliminated. The daily calcium magnesium therapy apparently did not interfere with normal intestinal function, since it did not produce diarrhea or constipation.

The association of epileptiform convulsions and hypoparathyroidism had been noted previously by many observers. Redlich¹⁰ collected seventy-two cases of epilepsy associated with tetany, and in twenty-two of these the combined symptoms followed strumectomy as in the case cited. A similar case has been described recently by Lissner and Shepardson.¹¹ Their patient subsequently came to autopsy and, except for a few small atherosclerotic plaques in the smaller basal blood vessels, there were no pathologic changes in the brain.

Two other cases of tetany were treated with the low phosphorus diet but, as metabolic and follow-up studies in these were not possible they will not be discussed in detail. However, the clinical results during the short periods of observation were quite striking after the change to the low phosphorus diet. In both of these the tetany followed strumectomy for hyperthyroidism and before dietary control was instituted both required frequent administrations of parathyroid extract and large doses of calcium salts.

COMMENT

As early as 1891, Horsley¹² divided animal species with respect to their reaction to thyroidectomy (in reality thyroparathyroidectomy) into four classes and attributed these variations in symptoms to the dietary habits of the different species. Carnivora developed acute tetany much sooner and fared worse than did herbivora. Horsley's views gained support from the observations of Breisacher¹³ that dogs fed meat diets before and after thyroidectomy (thyroparathyroidectomy) suffered more severely and succumbed much sooner than did those fed milk. These observations were repeatedly confirmed by many investigators. However, the deleterious effects of meat are usually attributed to the formation of toxic protein metabolic end products which are not destroyed in the absence of the parathyroids,¹⁴ and the beneficial effects of milk are thought to be due to the presence in it of detoxifying agents or the secretions from the parathyroids.¹⁵ It must be apparent, however, that the detrimental or beneficial effects attributed to these substances are due not to hypothetical ingredients but to the calcium and phosphorus that they contain—a fact previously pointed out by MacCallum,¹ Greenwald,² Salvesen¹⁶ and Shelling^{3a}. Thus, meat is more conducive to tetany because of its high phosphorus and extremely low calcium contents, and its ingestion would therefore favor phosphorus retention, which the parathyroprivic organism is unable to excrete except as an insoluble salt with calcium, in the latter of which meat is lacking. On the other hand, the partial alleviation of tetany by feeding moderate amounts of milk is due primarily to its high calcium content, although it does contain an appreciable amount of phosphorus because of this relatively high phosphorus content milk by itself seldom alleviates tetany completely, unless appreciable amounts of calcium salts are also added.

But in spite of these evident facts in regard to the importance of phosphorus in tetany, very little attention is paid to this element in the dietary treatment of parathyroprivic tetany in human beings. Even in metabolism studies¹⁷ in which the intake of calcium is controlled milk and other food substances are frequently added in large amounts in order to increase the calcium intake without cognizance of the fact that these articles of diet also contain large amounts of phosphorus, which the parathyroprivic organism is unable to cope with unless large doses of parathyroid extract and calcium are administered at the same time. This lack of appreciation of the relation of phosphorus to parathyroid function¹⁸ may account, in part, for the occasional failure of calcium and parathyroid extract therapy in parathyroprivic tetany. Such resistance to treatment has been reported by Hjort and Eder.¹⁹

12 Horsley V. Internat Beitr z Wissenschaftl Med 1891 p 1
13 Breisacher L. The Clinical Application of Some Thyroid Gland Experiments J A M A 40 566 (Feb 28) 1903

14 Berkeley W N and Beebe S P J M Res 20 147 1909

15 Blum F. Studien über die Epithelkörperchen Jena Gustav Fischer 1925

16 Salvesen H A J Biol Chem 76 443 (June) 1923

17 Bauer Marble and Claffin Aub J C Albright Fuller Bauer Walter and Rossmel Flac J Clin Investigation 11 211 (Jan) 1932

18 It is interesting that in Queries and Minor Notes (J A M A 100 1957 [June 17] 1933) a salt mixture in which diodium phosphate is included was recommended for the treatment of parathyroid tetany. The proportions of calcium to phosphorus in this salt mixture is about 2:1 apparently the purpose of adding phosphate was to bring the calcium phosphorus ratio to that contained in bone. It was not realized however that the addition of disodium phosphate and sodium bicarbonate to an equal amount of calcium gluconate doubles the amount of salt taken daily (23.4 Gm) and serves no purpose in amelioration of tetany in fact it increases the daily requirement of calcium and parathyroid extract since about 0.650 Gm of phosphorus is added to the diet daily.

19 Hjort A M and Eder L F Treatment of a Case of Strumiprivic Tetany with Parathyroid Extract J A M A 88 1475 (May 7) 1927

10 Redlich E. Monatsschr f Psychiat u Neurol 20 439 1911
11 Lissner Han and Shepardson H C Endocrinology 13 427 (Sept Oct) 1929

Snell²⁰ John,²¹ Aub,¹⁷ Sahlgren,²² Lissner and Shepardson¹¹ and others

Hjort and Eder's patient received a low protein diet, 3 quarts of milk, from 30 to 40 Gm of calcium lactate and parathyroid extract as high as 130 units daily. But in spite of this therapy they state that "a calcium rich diet and rest proved unavailing" and that "parathyroid extract, 130 units daily, failed during the course of a week to induce any appreciable rise in the serum calcium." While it is quite true that the 3 quarts of milk contributed more than 30 Gm of calcium daily, it is equally true that it contained nearly the same amount of phosphorus. Since the effect of parathyroid extract is reflected in a reduction of the serum inorganic phosphorus by excreting it primarily in the urine as may be seen from the accompanying chart, the greater the phosphorus intake and retention the more parathyroid extract would be necessary to relieve the tetanic manifestations. Similarly, if the beneficial effects of calcium in parathyroid tetany are due to its ability to eliminate the retained phosphorus by way of the bowel as the insoluble phosphate the increase in phosphorus intake will, of necessity, impair the efficacy of each gram of calcium ingested. Had a low phosphorus diet been given, much less calcium and parathyroid extract would have been required to alleviate the tetany and to maintain a nontetanic calcium level in the serum.

Snell's patient received a general diet, much milk, vegetables, and from 10 to 30 Gm daily of calcium lactate. On this regimen the calcium rose but slightly—from 4.8 to 6.7 mg per hundred cubic centimeters. When from 200 to 400 units of parathyroid extract was administered daily, the serum calcium rose and the inorganic phosphorus declined and, in order to keep the serum calcium above tetanic levels, it was necessary to continue with 14 Gm of calcium lactate and 100 units of parathyroid extract daily. Obviously, as in Hjort and Eder's case, the diet contained, aside from large amounts of calcium, much phosphorus hence the requirement of such large doses of calcium and parathyroid extract.

The refractoriness of Aub's patient to parathyroid extract is of considerable interest, since what Aub and his associates term "immunity" to the extract may also be explained as due to a greater phosphorus intake and retention during the period of "immunity." Their data on intake and output of calcium and phosphorus are complete, so that this point may be ascertained. Reference to their table 1 (K L) shows that (1) during the low-calcium periods (intake 0.33 Gm) the phosphorus intake varied from 1.34 to 2.49 Gm, (2) when, in the later periods, the calcium of the diet was increased to 2.25, the phosphorus intake was also increased, in some instances to 3.89 Gm, (3) during the period when parathyroid extract was effective, the phosphorus intake was but 1.34 to 1.63 Gm, and when it became ineffective the phosphorus intake was more than doubled and (4) the calcium concentrations in the serum were higher and the inorganic phosphorus lower during the low phosphorus periods in spite of the fact that during the latter periods the calcium intake was seven times that partaken in the earlier periods. A similar resistance to therapy also existed in their second patient (B W). During the low calcium periods his phosphorus intake was between 1.04 and 1.94 Gm but

when the calcium was increased from 0.30 Gm to 6.0 Gm the phosphorus was also increased to as high as 6.47 Gm. On the latter regimen, in spite of the twenty fold increase in calcium in the diet and in spite of the administration of thyroxine (which supposedly was effective in elevating the serum calcium in the earlier periods of study), the calcium and phosphorus in the serum remained at tetanic levels. Obviously aside from the possibility of a development of immunity or resistance to parathyroid extract the inefficacy of the therapy may well be accounted for by the increase in the phosphorus intake or by other factors conducive to hyperphosphatemia.

The relation of the phosphorus intake to the resistance to therapy in the other reported cases is difficult to ascertain since in most instances the dietary regimens are not mentioned or are not given in detail. In Lissner and Shepardson's patient, it is difficult to determine whether the refractoriness to parathyroid extract was due to phosphorus intake or to the concomitant fever which may have resulted in the liberation of considerable amounts of phosphorus from tissue breakdown.

The difference in the response of the first patient to calcium, magnesium, parathyroid extract and vitamin D is illustrated in the accompanying chart. It is seen that (1) during the high calcium-low phosphorus periods there was a reduction in the serum inorganic phosphorus with little or no phosphorus in the urine, indicating that the removed phosphorus was probably excreted in the feces as the insoluble calcium salt, (2) during the magnesium period there was no phosphorus in the urine in spite of the retention of phosphorus in the blood and in spite of the absence of tetany. In this case as explained previously, magnesium probably inactivated part of the phosphorus in the blood and also aided by the excretion of phosphorus in the feces, (3) effects of parathyroid extract are primarily on the phosphorus and the elevation of the serum calcium usually follows the reduction in the serum inorganic phosphorus, which was brought about by excretion in the urine and (4) vitamin D not only elevates the serum calcium but also increases the phosphorus retention as indicated by the absence of phosphorus in the urine and by the elevation of serum inorganic phosphorus during the cholesterol feeding period. For this reason, vitamin D should be used cautiously, or not at all, in the treatment of parathyroid tetany. The dangers of the injudicious use of vitamin D in parathyroid tetany, in renal rickets and in nephritis with phosphorus retention have been discussed elsewhere.²

The advantages of the low phosphorus diet in the treatment of parathyroid tetany are as follows: 1 It prevents phosphorus retention and thereby allows the serum calcium to approach nontetanic levels. 2 Less calcium is needed to rid the body of the retained phosphorus as the insoluble salt. 3 It minimizes or dispenses with the use of parathyroid extract in cases with marked phosphorus retention and thus reduces the possibility of metastatic calcification and renal impairment. 4 It obviates the use of vitamin D, since its administration in the presence of phosphorus retention may predispose to metastatic calcification. 5 The diet may be derived from a variety of food substances and thus eliminates the monotony of eating the same articles of food daily. 6 The treatment may be con-

²⁰ Snell A. M. Parathyroid Extract in Treatment of a Case of Tetany. *J. A. M. A.* 85: 1632 (Nov. 21) 1925.
²¹ John H. J. Ann. Surg. 85: 410 (March) 1927.
²² Sahlgren E. Hygiea 89: 722 (Sept. 30) 1927.

²³ Shelling and Asher. Shelling. Shelling D. H. and Hopper Katharine B. Calcium and Phosphorus Studies. *Am. J. Dis. Child.* 47: 61 (Jan.) 1934.

tinued at home without inconveniencing the patient and without the need of too frequent analyses of the blood for calcium, as when parathyroid extract is used

Menus for low phosphorus diets may be easily calculated from tables given by Sherman²⁴ and Simmonds²⁵

The added calcium may be given as the lactate or carbonate and the magnesium as the lactate, carbonate or oxide

The low phosphorus diet may be used after thyroidectomies to prevent transient or permanent tetany, in renal rickets and in nephritis with phosphorus retention. The use of high calcium diets for the treatment of nephritis with phosphorus retention was previously suggested by Briggs²⁶

SUMMARY

1 Two patients with parathyroid tetany have been treated with low phosphorus diets

2 Studies were made of the effect of calcium, magnesium, parathyroid extract and vitamin D on the concentration of calcium and inorganic phosphorus in the serum and on the excretion of these substances in the urine

3 There are certain theoretical and practical advantages of the low phosphorus diet

4 The low phosphorus diet is also recommended in cases of renal rickets and nephritis with phosphorus retention

CHRONIC NONTUBERCULOUS BRONCHOPNEUMONIA

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For a number of years I have been interested in a form of disease of the lungs which has not received much attention at the hands of systematic writers. An early paper published in 1913¹ was followed by a few corroborative articles, but it is only within recent years, chiefly through the conjoint work of the roentgenologists and the clinicians, that the frequency and the importance of the condition have been recognized.² In the earlier paper, my conclusions were as follows:

1 The disease is a confluent lobular pneumonia of lobar distribution characterized by long duration, low fever, and the following physical signs: impairment of resonance, bronchovesicular breathing and showers of crackling rales. 2 It must be looked on as one of the causes of obscure long-continued fever. 3 The disease always seems to end in complete recovery both symptomatically and anatomically. 4 In the beginning typhoid may be suspected in the later stages, tuberculosis. 5 The disease is, I believe, often overlooked, owing to the fact that the lower posterior aspects of the chest are seldom examined in ambulatory cases, especially when the symptoms are rather trivial. I am quite sure the diagnosis of tuberculosis is often made in these cases of chronic cough, with low, continued

fever, but if the chest is carefully examined, back and front, above and below, the peculiar, almost specific character of the disease will be discovered, and then the thought of tuberculosis will be no longer entertained. (Of these, further experience has shown that the third is too optimistic.)

The disease derives its importance from the fact that it is a cause, at least a possible one, of prolonged ill health; furthermore, it may lead to the diagnosis of tuberculosis and to useless as well as costly confinement in a sanatorium, and, finally, it is a cause of recurrent colds. Until a few years ago it was not known that this type of pulmonary disease might be related to infection in the paranasal sinuses. Ignorance of this fact was in some degree responsible for the not infrequently unsatisfactory results of treatment.

The disease is most common in children and young adults but is encountered at all ages. I have at present under my care two men, aged 54 and 65, in whom the disease presents all the characteristic features.

Physical examination in a typical case shows the signs confined to a lower lobe, perhaps the left more often than the right. There is slight impairment on percussion, and the tactile fremitus is normal, increased or diminished. The most striking feature presents itself on auscultation, then one hears many moist râles, either fine and sticky or coarse, and more abundant after coughing. The voice sounds may be diminished, normal or increased. In the whole picture nothing is really significant or important on examination except the rales of lobar distribution.

ETIOLOGY

In my first paper I looked on the disease, which I then called a lobar form of bronchopneumonia, either as a direct sequel of influenza or as due to primary infection with the influenza organism or with other common varieties of bacteria, chiefly the pneumococcus and the streptococcus. I am excluding from consideration here the inflammatory diseases of the lungs caused by yeasts, fungi, *Streptothrix*, *Coccidioides* and other organisms of similar nature, as they rarely show lobar or unilateral distribution. Psittacosis is also not included, as that generally runs an acute course and presents a much graver clinical picture.

With wider experience I have learned a few facts that are important in understanding the causes of the disease in question. In the University Hospital through the cooperative study of the roentgenologists Drs. Pancoast and Pendergrass, we have come to feel that the majority of cases of the chronic type of bronchopneumonia are associated with disease of the sinuses, and we are inclined to believe that the sinuses are often the primary factor in the morbid process. This idea is not entirely new but was suggested by a French writer a few years ago, his name I do not recall. At the present time it is well known to a number of roentgenologists and to pediatricians and tuberculosis specialists, as well as to laryngologists and bronchoscopists.

Now that the x-rays have revealed the presence of infection in the accessory nasal sinuses in association with chronic lung infection, and since improvement follows the clearing up of the sinus trouble, the conclusion seems justified that the two are connected as cause and effect, that is the view of Manges.³ The Dunns⁴

²⁴ Sherman H. C. *Chemistry of Food and Nutrition*, ed. 3. New York, 1929.

²⁵ Simmonds Rose M. *Handbook of Diets*. London: William Heinemann Ltd., 1931.

²⁶ Briggs A. P. *Some Metabolic Aspects of Calcium Therapy*. Arch. Int. Med. 37: 440 (March) 1926.

Read in the Post Graduate Course of the Academy of Medicine, New York, Nov. 18, 1932.

¹ Riesman David. A Lobar Form of Bronchopneumonia of Long Duration Occurring in Children and Young Adults. Am. J. M. Sc. 141: 313 (Sept.) 1913.

² Riesman David. Protracted Nontuberculous Unilateral Bronchopneumonia of Lobar Distribution. Pennsylvania M. J. 26: 222 (Jan.) 1922.

³ Manges W. F. West Virginia M. J. 26: 588 (Oct.) 1930. Arch. Pediat. 49: 141 (March) 1932. Pennsylvania M. J. 35: 240 (Jan.) 1932.

⁴ Dunn A. D. and Dunn F. L. Ann. Int. Med. 6: 235 (Aug.) 1932.

among other effects of paranasal sinusitis, mention bronchitis, acute and chronic (occasional misdiagnosed tuberculosis), bronchiectasis and lung abscess. One must admit the possibility that the two conditions may be present without being dependent one on the other. In all probability influenza may become a localized, subchronic process in the lung. It is also possible that the lung disease, whether influenzal or not, may be primary and the sinus disease secondary.

While in many instances the sinus involvement is clearly indicated by the symptoms, especially in persons with a history of frequent colds, there are many cases in which the involvement would escape detection if roentgenograms were not taken, hence the importance of making in every case of these chronic lung infections, or in recurring colds in children, roentgenologic study of the paranasal sinuses. The following case shows the value of such an examination even in a young child.

CASE 1—E. H., a girl aged 2 years, had been short of breath since the age of 3 months. She had had repeated attacks of pneumonia, dyspnea and bronchitis followed after the second attack of bronchopneumonia.

A roentgenogram showed a marked increase of the hilus and trunk shadows, probably a tracheobronchitis from a sinus infection. In an older person the appearance could have been due to bronchiectasis. A roentgen examination showed that the frontal sinuses had not developed, the ethmoids were clouded on both sides, the maxillary sinuses were probably clouded on both sides, an opaque foreign body, a button, was seen in the left nasal passage. Four days later the button had disappeared, unsuccessful attempts were made to find it. Three months later the ethmoid cells were much clearer and the maxillary sinuses had cleared up. Five months later the condition was improved but by no means normal; there was still a purulent tracheobronchitis. The child had also had some asthmatic attacks.

Can the disease occur at the apex? There is no inherent reason why it should not, but just as tuberculosis prefers to begin its work in the upper lobe, so this condition of which I speak, chronic or subacute bronchopneumonia of lobar distribution, prefers the lower lobe. It would be difficult, except by prolonged observation, to differentiate between tuberculosis and the process in question when the upper lobe is involved. A few cases have been described in the German literature in which, through accidental death, an opportunity for autopsy was given and the process proved to be a nontuberculous pneumonia. Jacobi describes chronic pneumonia located in the apical region especially on the right side, as a frequent occurrence in children. I doubt, however, whether he would today give his explanation of thirty years ago that these lesions are nontuberculous and result either from a bronchopneumonia or from a syphilitic process. To him, syphilitic disease of the lung apart from pneumonia alba of infants was a common occurrence. Today it is known that syphilis of the lung is rare and difficult of diagnosis. The most recent textbooks do not mention it as a possible factor in the case of chronic pneumonia. I am inclined to think that, even though the disease in the cases described by Jacobi did not look like tuberculosis, the majority were due to that type of infection.

CLINICAL COURSE

For a certain group of cases this has been well set forth by Allen K. Krause.⁶ The patient usually complains of some impairment of health, which he may

date back to an attack of influenza. In children it may have followed measles or whooping cough, simple bronchitis or bronchopneumonia. From that time on the patient may have been subject to repeated colds, although often this tendency is outgrown even though the physical signs of a basal lesion remain. The cough may be slight or severe, or it may be absent. Expectoration is also scanty, rarely it is blood streaked. The loss of flesh is minimal. In many cases there is hardly anything to call attention to the lungs. At times there is a protracted subfebrile course—a temperature between 99 and 100 F. for weeks—suggesting a low grade typhoid fever or tuberculosis. A roentgen examination may show very little—some haziness, perhaps of the lung markings, but in severe cases that have lasted a long time fibrotic changes, adhesions to the diaphragm and bronchiectatic cavities may be discovered.

Dr. J. Alexander Miller⁷ has suggested a good classification of chronic nontuberculous lung disease. He divides the cases into (a) subacute, (b) subacute with recurrences and (c) chronic. My own cases very readily fall into these three groups.

The disease usually terminates in recovery, but the spot originally affected remains a locus minoris resistentiae, so that whenever the individual has a cold or bronchial attack the old area will again show physical signs, especially showers of rales. It is not at all certain as Betty Shaw observes, that the recurrent attacks in such patients are the result of reinfection from the outside. They may be recrudescences of the existing internal infection. Many patients may become chronically bronchitic and are in fact carriers. The infection is a reinfection from within.

When complete restoration does not occur the inflammatory process may penetrate more deeply and may eventually lead to definite bronchiectasis from which full recovery is unlikely, hence the importance of early recognition and treatment. In a discussion of the subject with an "allergic" friend, he made the suggestion that some cases of asthma might take their origin in the disease I am describing. My personal experience suggests that this is quite probable.

I can illustrate the condition by citing a few cases.

CASE 2—J. R., a man aged 52, came under my observation in 1919 complaining of dyspeptic symptoms and constipation. He has been under my care ever since. His lungs were normal until October 1929 when he had cough with expectoration and a subsiding neuritis of the right brachial plexus. At that time I found scattered rales through the right side of the chest but much more marked over the left side posteriorly. These rales continued and were eventually limited to the left side of the chest. The sputum was free from tubercle bacilli. On his occasional visits I found nearly always the same sticky moist rales over the left base with a little pain on that side. The vocal resonance and breath sounds were increased. Just a year ago he had a shower of moist rales in the left base although his chief complaint was indigestion, regurgitation of food and intermittent irregular heart beats. (He had an attack of erysipelas in the spring and another one during the summer.) Only last summer the chest began to become clear. Roentgen examination revealed a marked increase in density at both bases with intensification of trunk shadows and bilateral cervical rib.

CASE 3—L. A., a young man who has been under my care since he was a little boy, coughed a good deal and had an asthmatic tendency in his early years, his sinuses were bad. For years, physical examination showed at the right base posteriorly impaired resonance and subcrepitant and sonorous rales.

⁵ Jacobi, Abraham. Arch. Pediat. 20, 1903.
⁶ Krause, A. K. Tr. Am. A. Physicians 46, 227, 1931.

⁷ Miller, J. A. Am. J. M. Sc. 154, 805 (Dec.) 1917.

and increased tactile and vocal fremitus. Whenever he had the slightest cold I was able to find the same type of rales at the right base. Roentgen examination of the chest showed a definite area of increased density at the right base strongly suggestive of a chronic pneumonic process. There was no suspicion of a tuberculous process in the apex, the trunk shadows were somewhat intensified but there was no mottling found at their distributions. The rales were still present in 1928, a matter of sixteen years since the boy had come under my observation, but by about 1930 after treatment of his sinuses they disappeared.

CASE 4—S S, a man, aged 45, a tailor and native of Russia, came under my observation in 1923. He had a 4+ Wassermann reaction and his chief trouble was indigestion. In February 1924 he came to see me on account of a cold and sore throat. The heart was rapid 112, the temperature, 98.4, the blood pressure, 135 systolic, 60 diastolic, he weighed 135 pounds (61.2 Kg). Physical examination showed as the most interesting finding showers of fine and bubbling rales over the lower lobe of the left lung, tactile fremitus and vocal resonance were normal over this area. This condition persisted for a long time. Not until May 1924 was there a note in my record that the rales had practically disappeared. Later he came on account of a cough. The rales were again present in quantity over the left lower lobe posteriorly and the percussion was slightly impaired. There was tenderness over the right maxillary sinus. In the spring of 1925 the rales were very much diminished. In July he complained of burning in the epigastrium, a coated tongue and constipation. Again numerous rales were present over the left side of the chest, although he did not complain of any respiratory symptoms. In 1927 the rales were very few. At the end of 1927, after a hot bath he became a little hoarse. Examination showed a number of moist rales in the same area as in the past. They disappeared within a month. In the spring of 1928 his chest was entirely clear also in June 1930. His last visit was in April 1933 and at that time I found his chest normal on examination.

CASE 5—L T, a man aged 36 married, complained, Dec 7 1931 of cough and expectoration. He had been well except for frequent colds until June 1931 at which time fever, cough and expectoration developed and he was put to bed. The cough, the expectoration and the irregular fever continued for five or six weeks. Then the temperature gradually became normal but the cough and expectoration persisted. His physician stated that there were rales throughout the left lung. A roentgenogram taken at that time was said to have shown tuberculosis. With abatement of the fever he was allowed up, but the cough and expectoration which was never blood streaked, persisted with occasional evening rises of temperature to 99.5 F. Physical examination showed a good deal of pus draining from both ethmoidal areas and from the left sphenoid. Both antrums were opaque on transillumination. Examination of the chest showed slight impairment at the left base and the left axilla with diminution of breath sounds and a few rales. The blood was within normal limits. The sputum was repeatedly found negative for tubercle bacilli and on culture showed a pure growth of influenza bacilli. Roentgen examination of the chest showed slight haziness of the left lung field with exaggeration of trunk shadows to the left base. The patient was admitted to the hospital where a bilateral ethmoidectomy and a bilateral antrum drainage were instituted. Rapid recovery from these operative procedures ensued. It was followed by a course of autogenous vaccine made from the secretion from the ethmoids and antrums. Since then the patient has been seen repeatedly. He has been free from colds. His nose and throat physician Dr. H. P. Schenck reports that the condition of his nose is satisfactory. There are now no symptoms and physical examination is entirely negative.

Here is a history of an illness of seven months duration characterized by a low grade pneumonitis limited to one lower lobe and associated with extensive sinus disease. The case was mistaken for tuberculosis. Dr. Pancoast who studied the case roentgenologically,

writes: "On reviewing the history and the course of the disease as judged from the physical signs, which are rather characteristic with the finding of extensive sinus disease, which we know to be an etiologic factor in this type of nontuberculous basal pneumonitis, we would call this Riesman's pneumonia."

Diagnosis in such cases is impossible for the man who examines only the front of the chest or the front and the supraspinous fossae. Only by the unvarying routine of examining the entire chest, back and front, above and below, will the condition be discovered. When signs are found in the lung, roentgen examination of the chest should be made. A roentgenogram as well as specialistic study of the sinuses is also desirable.

In the differential diagnosis, some of the dust-inhalation diseases, and infections with organisms of the streptothrix, leptothrix and blastomyces and coccidioides groups must be kept in mind. The differentiation may require frequent sputum examinations as well as sputum culture on special mediums. When a definite sinus disease exists, the conclusion that the case is of the simpler type of chronic pneumonitis is usually justified. In expert hands the fluoroscopic examination with study of roentgenograms may prove of the greatest help.

Tuberculosis comes into the picture whenever the disease runs a protracted course. However, a primary tuberculosis of the base is exceedingly rare. Norris and Landis deny its occurrence in adults, but Lawra-son Brown,⁸ Lyman⁹ and Jacob⁹ have observed it, I myself have seen two or three cases. Nevertheless, the presumption should always be that a basal lesion is not tuberculous unless a sputum examination reveals the presence of tubercle bacilli.

TREATMENT

Rest in bed is demanded in the febrile and usually in the subacute cases and in cases, febrile or not presenting acute exacerbations. Locally, counterirritation may prove useful—mustard or a weak iodine application. For the cough a simple remedy with creosote may be used, when the cough has been severe, I have found the following combination helpful: terpin hydrate, 2 Gm. and codeine sulphate 0.12 Gm., the ingredients are mixed and divided into twelve capsules. One is given every three hours.

If there is sinus infection, local treatment by a competent specialist is indicated. I am rather averse to radical measures although opening of an infected antrum in a radical manner may be advisable.

Attention to the general health, with special efforts to prevent recurrent colds, is of prime importance. Regulation of exercise, work and play is required, cold bathing and massage are useful. The diet should contain an abundance of vitamins and cod liver oil in the cold season and viosterol at other times. Vaccines prepared from sinus secretion or sputum or stock vaccines often work beneficially. Climatic therapy is useful. Florida, California and parts of Arizona are good winter climates. For those who cannot afford to go away the sun lamp may prove useful. In the summer season I have found the rocky coast of Maine and of Massachusetts to exercise a beneficial influence. But in addition to all other forms of medicinal or climatic treatment, psychotherapy occupies a prominent place.

⁸ Per oral communication to the author.

⁹ Jacob, M. Med. J. & Rec. 129:32 (Jan. 2) 1929.

When the process has gone beyond the curable stage and bronchiectasis has developed, therapy is more difficult. The bronchoscopist, even the thoracic surgeon, may be needed. I shall, however, do no more than mention this phase of treatment.

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ABRUPTIO PLACENTAE FOLLOWING ACUTE PLACENTAL INFARCT

CESAREAN SECTION, STAPHYLOCOCCUS AUREUS SEPTICEMIA, RECOVERY FOLLOWING TRANSFUSIONS FROM IMMUNE DONORS

R A BARTHOLOMEW, MD

ATLANTA, GA

This case is deemed worthy of reporting for the following reasons: 1 It supports the theory¹ that abruptio placentae is the result of poisonous split products of placental protein, particularly histamine elaborated during the autolysis of an acute infarct on the maternal surface of the placenta. 2 It illustrates the conditions warranting the use of cesarean section rather than slower conservative measures in the treatment of abruptio placentae. 3 It illustrates the ever present possibility of infection following cesarean section, even in a clean case. 4 It illustrates the apparently life-saving value of blood transfusions, particularly from donors immunized against the specific organism by vaccine treatment.

Mrs W D, aged 24, a primigravida, had reached the ninth month of pregnancy without any evidence of toxemia or other complications. At 10 p m May 26 1932 her husband reported that she had suddenly felt very weak. There had been no edema or headache. Following the administration of a mild sedative she slept well. After breakfast the following morning a severe and constant pain developed over the entire abdomen associated with weakness, nausea and vomiting.

When seen at 10 30 a m May 27 the patient was lying in bed. An expression of anxiety and distress and a gray pallor gave evidence of some complication of a serious nature. The blood pressure was 120 systolic 70 diastolic, the temperature 98 pulse, 106, respiration rate, 22. The abdomen was of normal size and contour for a pregnancy of eight months duration. Palpation showed the uterus to be uniformly rigid and tender. There were no labor pains. The fetal parts and heart sounds could not be obtained. The fetal movements had not been felt since the onset of the pain. There had been no vaginal discharge. Rectal examination showed the cervix to be short and undilated. A diagnosis of abruptio placentae with concealed hemorrhage and intra-uterine fetal death was made. The patient was given morphine, one-sixth grain (0.01 Gm), and scopolamine, $\frac{1}{200}$ grain (0.0005 Gm) by hypodermic injection and sent to the hospital.

On account of the evidence of concealed hemorrhage and undilated cervix and the absence of labor pains, the classic cesarean section was deemed to be preferable to a slow induction of labor and conservative treatment. A catheterized specimen of urine showed one plus albumin. The blood pressure had dropped to 100 systolic, 70 diastolic. Thirty cubic centimeters of 4 per cent mercurochrome was injected into the vagina. When the abdomen was opened under ethylene anesthesia, a small amount of blood tinged serous fluid escaped. The uterus was in a state of tetanic contraction and showed a mottled appearance due to hemorrhagic areas under the peritoneum and marked dilatation of the veins. The placenta was completely separated from the uterine wall by large dark clots and fluid blood, and the patient was delivered of a still born male infant weighing 6 pounds (2720 Gm). The blood pres-

sure had dropped to 70 systolic, 50 diastolic at this stage of the operation and 500 cc of acacia-dextrose solution was given intravenously to combat shock. The uterus contracted well with the aid of solution of pituitary, and there was no excessive bleeding during repair. The patient reacted well and her condition improved rapidly after operation. On the third day the temperature was 98 pulse 80 and respiration rate 20.

On the fourth day May 31 the temperature pulse and respiration increased to 102, 140, 24 with a further rise to 104 145 25 on the fifth day. Marked herpes appeared on the lips and the patient complained of constant headache weakness and occasional chills. There were no localizing symptoms or observations to explain the condition the abdomen remaining soft and the lungs clear. Examination of the blood showed 2 230 000 red cells 15 500 white cells and 6 Gm of hemoglobin.

June 1 the patient was given a transfusion of 300 cc of whole blood. Blood culture June 2 yielded a growth of hemolytic *Staphylococcus aureus* within forty eight hours which was verified by further cultures on June 3, 4 and 5. Subcultures were taken from these growths and a vaccine was prepared. Meanwhile the patient was given a second transfusion (300 cc) June 3 and third (320 cc) June 7 and a fourth (400 cc) June 9. During this time the red cells increased to 3 000 000 the white cells to 19 000 and the hemoglobin to 8 Gm. The temperature was intermittently high ranging from 100 to 104 the pulse from 115 to 125 and the respiration rate from 20 to 25. There were no chills after June 6 but on this date a small amount of pus was obtained from the lower end of the wound and there was marked superficial and deep seated tenderness over the pubic region and vulva.

In the meantime three donors had been immunized by daily injections of the vaccine beginning with 0.25 cc (125 000 000) increasing 0.25 cc daily up to and continuing with 1 cc daily. After receiving daily injections of vaccine for at least one week these donors were used for transfusions of 240 cc. June 11 320 cc June 13 240 cc June 15, and 260 cc. June 18. The opsonic index of one of the immune donors June 15, was found to be 19 whereas that of the patient, June 16, was 17. Blood cultures, June 13 and 18 showed no growth.

June 12 the patient complained of sharp pains in the right axilla on breathing. Auscultation showed rales and a slight friction rub. This symptom disappeared within two days. From the date of the first transfusion with immune blood June 11 the fever became remittent in type and except on June 15 (103.5) ranged from 98 to 101 and remained normal after June 20. The patient was discharged June 25.

Examination of the placenta showed an acute brown red infarct exposed on the maternal surface of the placenta and definitely demarcated from the surrounding normal placenta. The consistency was more homogeneous and slightly firmer than the surrounding normal placenta. Microscopically, the villi showed dilated engorged and occasionally ruptured capillaries and veins severe necrosis of the syncytium, Langhans layer and the stroma. There was an absence of intervillous hyaline substance which apparently characterizes infarcts of acute development. The presence of this type of lesion exposed on the maternal surface of the placenta, probably permits a concentration of the poisonous split products of placental autolysis particularly histamine on the decidual sinuses in contact with the lesion. The dilatation and rupture of the sinuses from the action of histamine probably brings about extravasation of maternal blood at the placental site, with resulting abruptio placentae.¹

Blood transfusions have long been considered the most efficient means of conserving and increasing the patient's resistance during the course of blood stream infections particularly in those infections accompanied by rapidly developing anemia, and in many cases have undoubtedly averted an otherwise fatal outcome. However, if specific immune bodies can be developed in the donor by the injection of a vaccine prepared from the specific organisms obtained from the patient's blood culture, it is reasonable to believe that such specific immunotransfusion would be of greater value than any other possible measure.

¹ Bartholomew R A and Kracke R R The Relation of Placental Infarcts to Eclamptic Toxemia Am J Obst & Gynec 24 797 (Dec) 1932

Immunotransfusion is by no means new, as reports have appeared in the literature, from time to time, bearing out the value of this method. It is probably true, however, that the apparently successful cases are reported much more frequently than the failures, making it difficult to arrive at a true estimate of the value of the treatment, as compared with ordinary blood transfusions. Brody and Crocker² recently reported in detail the apparently favorable response in a case of *Streptococcus haemolyticus* septicemia, in which ordinary blood transfusions and various other measures seemed of no avail. They also refer to other reports, illustrating the value of immunotransfusion.

In the case here reported the patient showed more rapid improvement, both subjectively and objectively, coinciding with the use of immune donors. The rapidly fatal outcome in some cases makes it impossible to secure a positive blood culture, prepare a vaccine, immunize one or more donors and give the patient the benefit of immunotransfusions. It would seem advisable, however, to obtain the specific organism by blood culture as early as possible in the course of the illness and, in the meantime, use ordinary blood transfusions to keep up the patient's resistance until donors can be immunized with the specific vaccine.

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POSTERIOR PITUITARY IN PYELITIS

USE OF EXTRACT FOR ACCELERATION OF
DRAINAGE AND RELIEF OF PAIN

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It is conceded by many authors that atony of the musculature of the renal pelvis and ureter with the resultant sluggish drainage of these structures plays an important role in the development and course of pyelitis. The efficacy of drainage induced by ureteral catheterization in the treatment of this condition is well established. Unfortunately, however, this procedure requires a technical skill and specialized apparatus which are often beyond the resources of the general practitioner. For this reason a simpler method available to any physician for accelerating the drainage of these structures would be of obvious value.

It has long been known that the pelvic and ureteral musculature in common with smooth muscle elsewhere in the body is responsive to systemically administered drugs, and certain depressants of the parasympathetic innervation, particularly atropine have found a wide employment in the treatment of excessive muscular activity of these structures. It is surprising, therefore, that until recently little attempt has been made to investigate the possibilities of the augmentor group of drugs in the therapeutics of the opposite condition of atony.

The autonomic reactions of the isolated ureter have been studied by a number of investigators. Satani¹ has shown that an augmentor response occurs to both the stimulants of the sympathetic and the parasympa-

thetic nerve endings. Accordingly, an increase in the tone and peristaltic activity of the isolated organ is seen when either epinephrine or physostigmine is added to the bath. The subject has also been recently investigated by Gruber,² who has shown that the ureteral muscle responds with augmentation to the myotropic drugs histamine and solution of pituitary. Recently a similar response of the renal pelvis and ureter in situ has been observed by a number of workers. Reimann³ has shown by serial roentgen studies on the normal human subject that the pelvic and ureteral shadows obtained after intravenous *ioapan* rapidly disappear after the subcutaneous injection of postpituitary extract. Jona and Flecker⁴ have demonstrated that in dogs the oscillations of the intrapelvic and intra-ureteral pressure are increased by intravenous solution of pituitary, morphine, strychnine and especially physostigmine. They interpret their observations as indicating that these drugs cause increased peristalsis of these structures. In a number of cases of pyelitis in human beings these authors, by direct observation under the fluoroscope after the intrapelvic instillation of sodium iodide, determined the particular drug that in each case gave the best contraction of the pelvis and ureter and administered this to the patient. "Patients who for years had failed to obtain relief from the usual recognized forms of treatment derived immediate relief in this way."

The treatment of pyelitis by the subcutaneous injection of postpituitary extract was first advocated in 1928 by Miller.⁵ He successfully treated with solution of pituitary nine adult patients having recurrent pyelitis who had failed to obtain relief from the usual methods of treatment. Following this lead, Ginsberg⁶ similarly treated a 2 year old child who had been acutely ill with pyelitis for twenty-six days. The resultant clinical improvement was prompt. The observations of Reimann, previously referred to, have been confirmed. Studies show that following the intramuscular injection of 1 cc of solution of pituitary or ampoules of pitressin the pelvic and ureteral shadows produced by intravenous *ioapan* in normal human subjects disappear or are markedly diminished in from three to seven minutes. A case of infected hydronephrosis is described in which symptomatic relief, especially of pain, repeatedly followed the exhibition of the solution.

In this communication further studies are reported on the therapeutic value of postpituitary extract in pyelitis. Our series consists of fourteen adults and two children and comprises seven cases with no history suggestive of a previous pyelitis, five cases of recurrent pyelitis, one case of postpartum pyelitis and three cases of postoperative pyelitis. All these patients presented the well defined symptom complex that is characteristic of pyelitis. The diagnosis could have been strengthened by preliminary ureteral catheterization, but we were attempting to evaluate a nonsurgical method of drainage and this procedure would have impaired the validity of our control observations.

² Gruber, C. M. Peristaltic and Antiperistaltic Movements in Excised Ureters as Affected by Drugs. *J. Urol.* **20**: 27 (July) 1928.

³ Reimann, F. Die Pituitärwirkung auf das mit Urosclektan dargestellte Nierenbecken. *Kurze Mitteilung Med. Klin.* **26**: 960 (June 27) 1930.

⁴ Jona, J. L. and Flecker, H. Pyeloscopy. Radioscopy of the Kidney Pelvis. *Surg. Gynec. & Obst.* **51**: 50 (July) 1930.

⁵ Miller, J. A. Pituitary Extract in Pyelitis. *New York State J. Med.* **28**: 720 (June 15) 1928.

⁶ Ginsberg, N. Report of a Case of Acute Pyelitis in Infancy Treated with Pituitary Extract. *M. J. & Rec.* **131**: 28 (Jan. 1) 1930.

⁷ Draper, W. B. Darley, Ward and Harvey, J. L. The Effect of Pituitary Extract on the Tonus of the Human Pelvis and Ureter and Its Possible Application in the Therapeutics of Pyelitis and Related Conditions. *J. Urol.* **26**: 1 (July) 1931.

² Brody, William and Crocker, W. J. Specific Immunotransfusion in Treatment of Septicemia. Report of a Case. *J. A. M. A.* **98**: 2191 (June 18) 1912.

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¹ Satani, A. Experimental Studies of the Ureter. *Am. J. Physiol.* **49**: 474 (Aug.) 1919.

In the interests of brevity, our sixteen cases have been summarized in the accompanying table. The solution was administered subcutaneously in doses ranging from 3 to 15 minims (0.2 to 1.0 cc). The intervals between injections varied from four to eighteen hours, and they were continued until all signs of acute illness

The following pertinent facts are evident from a analysis of our data. In nine of the sixteen cases presented (1 to 9, inclusive) the usual medical treatment, including alkalis and urinary antiseptics, had been given a clinical trial for periods ranging from two to twenty-eight days (an average of eight days) without relief of

Summary of Cases*

Clinical Progress While Under Observation

Case	Sex and Age	History and Character of Attack	Number of Attacks Observed	Treatment in Hospital Prior to Pituitary Therapy	Drugs Administered Simultaneously with the Solution of Pituitary	Results of Extract Therapy			
						Duration of Pain Prior to Solution of Pituitary	Approximate Time for Relief of Pain	All other notes	
1	♀ 23	Recurrence while under observation fever vomiting, right sided pain	One	Methenamine for 2 days no relief	Alkaline mixture	12 q t h	2 days	1 hr permanent	Temperature normal in 4 days
2	♂ 38	14 days after prostatectomy fever vomiting bilateral pain	One	Methenamine for 2 days then alkaline mixture for 4 days no relief	Alkaline mixture	12 q t h	6 days	4 hr permanent	Temperature normal in 3 days
3	♀ 38	Fever dysuria left sided pain for 6 hours	One	Methenamine for 3 days no relief	Methenamine	15 1 dose	4 days	4 hrs lasting	Pain recurred in 3 days permanent relief from urethral catheterization
4	♀ 35	Fever dysuria vomiting right sided pain for 3 days not treated	One	Methenamine for 2 days no relief	Methenamine	10 q 4 h	7 days	2 hr permanent	Urine clear and temperature normal after 3 days
5	♀ 26	Chills fever right sided pain for 7 days treated † no relief	One	Methenamine for 24 hrs no relief	Methenamine	10 q 8 h	8 days	1 hr permanent	Temperature normal in 3 days
6	♀ 21	Pregnant delivered 1 hour after admission fever dysuria bilateral pain for 1 week not treated	One	Methenamine for 4 days no relief	Methenamine	15 q 8 h	11 days	1 hr permanent	Urine partially clear and temperature normal in 3 days
7	♀ 4	45 days postoperative (repair of vesicovaginal fistula) chills fever bilateral pain	One	Methenamine for 3 days no relief	Methenamine	10 q t h	6 days	4 hr permanent	Temperature normal in 3 days
8	♀ 3	Fever dysuria bilateral pain for 4 wks treated † no relief	One	None	None	8 q t h	2 days	1 hr permanent	Temperature normal in 4 days
9	♀ 33	Chills fever dysuria right sided pain for 1 week treated † no relief	One	None	None	8 q t h	7 days	1 hr permanent	Temperature normal in 3 days
10	♀ 12	Fever dysuria fretfulness for 2 wks treated † no relief	One	None	Alkaline mixture	q t h	14 days	1 hr after 4 hrs	Potassium citrate continued throughout hospitalization second attack 10 days after discontinuance of the extract no further symptoms for 1 year when third attack occurred
11	♀ 3	First attack chills fever vomiting fretfulness for 7 weeks treated † no relief	Three	1 cc slum citrate for 8 days no relief	Potassium citrate	q t h for 10 days	7 days	Resting after 4 hrs no symptoms for the 30 days following the first dose	Temperature normal in 12 hours
Second attack				Potassium citrate for 2 days no relief	Potassium citrate	4 q t h	2 days	Resting after 4 hr relief permanent	Temperature normal in 6 hours
Third attack fever dysuria vomiting pain for 2 weeks treated † no relief				None	Potassium citrate	4 q 6 h	14 days	Resting after 4 hrs relief permanent	Temperature normal in 12 hours
12	♂ 54	Recurrence fever left sided pain for 8 hours	One	2 doses each of morphine sulphate or 1/4 atropine sulphate gr 1/10	None	8 q t h 2 doses	1 day	1 hr permanent	Temperature normal in 6 hours
13	♀ 33	Recurrence fever bilateral pain for 3 hours	Two	None	None	1 dose	hrs	1 hr permanent	
		Recurrence fever bilateral pain for 3 hours	None	None	None	1 dose	3 hrs	Temporary 15 min after each dose permanent after fourth dose	Patient, a physician continued office practice comfortably during attack
14	♀ 20	Recurrence chills fever dysuria right sided pain for 24 hours	One	None	None	8 q 6 h	1 day	1 hr permanent	Urine clear and temperature normal in 3 days
15	♂ 64	Fever frequency vomiting left sided pain for 24 hours	One	None	Potassium citrate	1 q 6 h	1 day	8 hrs permanent	Urine clear and temperature normal in 2 days
16	♀ 23	Fractured hip 4 weeks in body "plea" chills fever right sided pain for 24 hours	One	None	Tr. hyoscynamus potassium acetate	15 q 15 h 2 doses	1 day	Temporary 1 hr after first dose permanent 1 hr after second	Temperature normal in 2 days urine clear in 6 days

* Pain in each instance characteristic of pyelitis.
† Treated outside hospital by private physician.

All patients were placed on a large fluid intake during observation. Details of treatment unknown.

had disappeared. Fever, urinary pus and albumin were common to all cases, and data regarding these are not given except as they may have been modified by treatment. The majority of the patients could not be followed subsequent to their discharge from the hospital, and we can speak, therefore, only of clinical or symptomatic relief and not of a permanent bacteriologic cure.

pain or other apparent benefit. This is in sharp contrast to the relatively brief interval of from one to four hours (an average of approximately two hours) between the exhibition of the solution and the therapeutic response as indicated by the relief of pain. The two cases of small children (cases 10 and 11) in which the time for pain relief could not be accurately determined presented similar time relationships to those

of cases 1 to 9. The symptoms of acute pyelitis are well known to be frequently self limited, and the evaluation of a new therapeutic measure in this condition is difficult. It is apparent however, when the short interval between the exhibition of the solution and the relief of pain is compared with the relatively prolonged duration of symptoms prior to pituitary therapy, that our favorable results cannot logically be attributed to spontaneous remissions.

The remaining patients in this series (patients 12 to 16, inclusive) were ill for an average of only twenty hours before the exhibition of the solution and consequently in this group the customary methods of medical treatment were not given a fair trial. Patient 12 had had constant renal pain for twenty-four hours. This was not controlled by two full doses of morphine and atropine, but complete and permanent relief followed within one hour after the first dose of the solution. In cases 13 and 14, solution of pituitary was the only medication employed. The pain had lasted three and twenty-four hours respectively, and in both cases relief was obtained one hour after the solution of pituitary was given. Patients 15 and 16 had had pain for twenty-four hours. In both instances alkalis were simultaneously administered with the solution. Pain was permanently relieved in eight hours in case 15 and in case 16 temporary relief was obtained one hour after the first dose and permanent relief one hour after the second.

The striking relief of pain noted was in all cases associated with mitigation of such complaints as urinary frequency, dysuria and nausea.

Objective improvement was also apparent following the use of the solution. The fever was lowered in two days or less in cases 6, 11, 12, 15 and 16. Case 11 deserves emphasis.

A girl aged 3 years was in the hospital for eighty-four days and afforded well controlled observations during two acute attacks. She had been acutely ill for seven weeks before hospital entry and intensive medical treatment throughout this period had been of no avail. During the first eight days of hospitalization fluids and alkalis were forced without apparent benefit. On the eighth day the administration of solution of pituitary was added and the fever promptly subsided. Ten days later the solution was discontinued and the child remained symptom free for the following ten days. At this time a second acute attack occurred in spite of the continued forcing of fluids and alkalis. Two days after the onset of the second attack, solution of pituitary was again given, and the fever again promptly subsided. She remained symptom free for the remaining fifty-two days of her hospital stay.

Disappearance or diminution of the pathologic elements of the urine often paralleled the clinical improvement but was not a prominent feature of the therapeutic action of the solution.

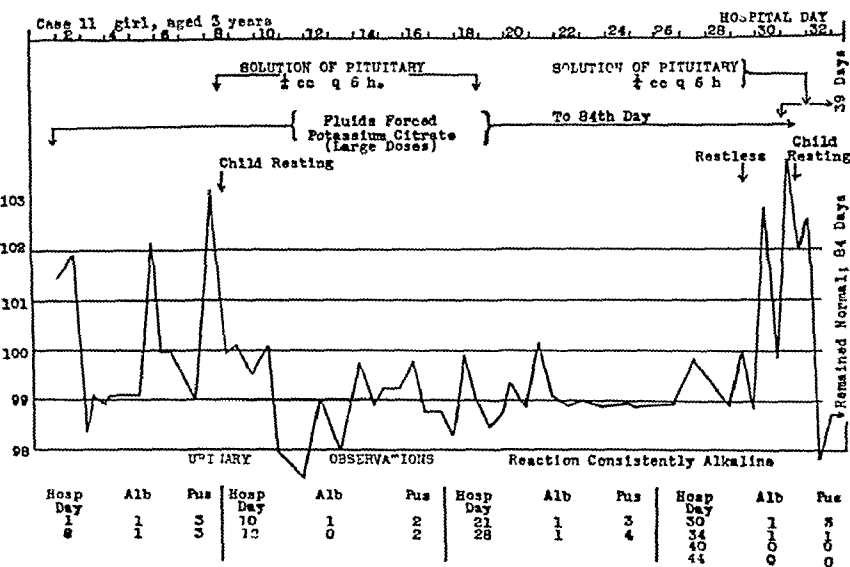
Sufficient pharmacologic evidence is available to afford a rational basis for the use of systemically administered drugs to augment the tone and peristalsis of the renal pelvis and ureter in atonic conditions of these structures. Our experience is limited to solution of pituitary which acts directly on smooth muscle but it is quite possible that certain other drugs especially

the stimulants of parasympathetic innervation, may prove to be more efficient for this purpose.

It is not our intention to suggest that ureteral catheterization can always be advantageously supplanted by drug stimulation, but we are of the opinion that this method of accelerating drainage will prove useful in certain selected cases in which instrumental drainage is for some reason difficult or impossible. In our opinion, a course of pituitary therapy is logically a suitable follow-up measure to instrumental drainage.

In the cases of pyelitis secondary to definite organic obstruction to urinary drainage, the increased intrapelvic pressure induced by the solution of pituitary may increase the pain. This effect of the solution was observed by one of us in a case that was subsequently shown to present an almost complete organic ureteral stricture. Tschernjak⁸ has reported a similar experience with the solution in patients having ureteral stone.

Although the exhibition of solution of pituitary is simple and relatively safe certain contraindications may be noted. Recent experiments⁹ indicate that it causes



Clinical course in a girl aged 3 years

constriction of the coronary arteries. It is therefore contraindicated in the presence of coronary disease. Conditions in which it should be used with caution are myocardial weakness, hypertension, arteriosclerosis and pregnancy.

SUMMARY

1 Evidence from the literature establishes the fact that certain systemically administered drugs such as solution of pituitary, augment the tone and peristalsis of pelvic and ureteral musculature.

2 In sixteen cases of pyelitis renal pain of relatively prolonged duration was promptly relieved by solution of pituitary. The associated symptoms of fever, nausea, frequency and dysuria were also ameliorated, although in a less spectacular manner.

3 In our opinion these results are due to accelerated drainage of the upper urinary tract induced by the solution.

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⁸ Tschernjak, I. S. Zur Frage der konservativen Behandlung der Harnleitersteine. *Ztschr f urol Chir* 31: 20, 1930.
⁹ Ross, J. B., Drejer, A. B. and Stehle, R. I. The Cardiac Action of Pituitary Extract (Posterior Lobe). *J Pharmacol & Exper Therap* 38: 461 (April) 1930.

DERMATOMYOSITIS

REPORT OF CASE

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The comparative rarity of cases of myositis with associated neuritis, dermatitis or arthritis makes the report of individual cases seem advisable. Dermatomyositis has been well defined as "an acute subacute or chronic disease of unknown origin characterized generally by a gradual onset with vague and indefinite prodromata followed by edema, dermatitis and multiple muscle inflammation." The very rarity of the disease militates against an early diagnosis, especially since the symptoms are indefinite and common to frequently encountered entities.

It is agreed that the condition most readily confused with dermatomyositis is trichinosis, the absence of eosinophilia in the former being an important diagnostic point. However in this case eosinophilia was quite pronounced and has been frequently reported in similar cases. There is a pronounced difference in the usual onset of the two diseases, that of trichinosis tending to be fulminating, that of dermatomyositis tending to be insidious. In the majority of cases of dermatomyositis a history of shortly antecedent infection of the upper respiratory tract is obtained. The finding of trichina embryos in the blood, of course determines positively the nature of the disorder, as does a biopsy of affected muscle. Various bacteria have been found in the muscle tissue at biopsy, but not in every case. The finding of *B. coli*, staphylococcus, streptococcus and meningococcus has been reported. Unfortunately a biopsy was not permitted in this case.

There is, naturally, no specific treatment for dermatomyositis. Attention to the patient's general well being with a view to the development of a possibly specific resistance, is essential. The use of salicylates or their derivatives is one of the most frequently mentioned therapeutic measures, with some apparent comfort to the patient but with little effect on the underlying pathologic condition. Physical therapy in one or several of its forms has been freely used. No mention of the use of vaccine therapy has been found in the literature reviewed. That procedure seemed of enormous value in the case presented here, even though the nature of the infecting organism was proved only presumptively.

REPORT OF CASE

T. H. P., a white man, aged 23, a radio salesman, admitted to the Cohoes Hospital, Aug. 1, 1932, for observation, complained chiefly of aching of the joints, especially the knees, stiffness, and general malaise.

His was a premature birth, a seven months uterogestation. At 8 months and at 9 years he had had attacks of bronchopneumonia. Tonsillectomy was performed at 12 years. At the age of 10 years he began to put on excessive weight, at 17 years his weight reached 240 pounds (108.8 Kg.). He had measles and chickenpox and, at 12 years, an acute articular rheumatism. At 15 years he was treated for a skin condition accompanied by marked thickening and discoloration of the finger and toe nails thought to be glandular in origin. He had gradually lost weight to 200 pounds (90.7 Kg.) before the onset of the present illness.

In April, 1932, the patient had what was considered an influenzal type of infection. Following this attack he did not regain his strength and shortly noticed that his ankles were larger than normal. Walking was slightly painful. Later his wrists were painful. His temperature at this time ranged

slightly above 99 F. in the evening. No distinct pathologic condition was located and he was advised to have roentgenograms made of his teeth and sinuses. No evidence of a pathologic condition of the sinuses was determined, but three apical abscesses were located. The affected teeth were removed and the patient was put on salicylates with but little demonstrable effect. The patient went for a two weeks stay in the mountains, returning unrelieved. At this time the evening temperature reached 101 F. at times. On his return, the complaint of unproductiveness cough made a roentgenographic examination of his chest seem advisable. This showed no evidence of active pathologic changes. The patient was urged to consider hospitalization for study in view of his increasing fatigability, slightly increasing fever and the persistence of his arthritis. This he refused to do. He was referred to an internist for diagnosis and advice when a differential count revealed 31 per cent eosinophilic cells. In the meantime negative reports had been obtained from agglutination tests for typhoid, paratyphoid A and B and undulant fever. Urinalysis showed no evidence of a genitourinary infection. The consultant felt that the patient's condition was the aftermath of an influenzal infection and advised bed rest and salicylates. The patient finally consented to enter the hospital for rest and further study.

On admission to the hospital there was nothing remarkable in the physical examination except for the pallor of the patient's skin, the evidence of considerable recent loss of weight, palpable spleen and some thickening about the ankles and wrists with slight limitation of motion. The basal metabolic rate determined the day following admission, was normal.

On the evening of the fourth day after admission the patient suddenly noticed that the right side of his face and right arm were numb and he was unable to enunciate words clearly. Following this there developed a left frontal headache of a severity requiring morphine for relief. There was some weakness of the muscles of the right side of the face and the right arm. He vomited several times during the night. The following day these signs and symptoms slowly subsided. A blood culture taken that day was sterile. The attack was apparently allergic, secondary to an enterocolitis which cleared up in a few days.

The patient was given salicylates in moderate dosage 10 grains (0.65 Gm.) every four hours. The greatest relief was obtained by the use of local heat at the wrists and ankles, flannel bandages being used, with baking for three half hour periods daily.

The pulse and temperature were erratic, the evening temperature often reaching 99 F. rarely 100 and frequently remaining normal. The pulse rate ranged between 90 and 100. The respiratory rate was practically constant at 20.

During the first four weeks of hospitalization the patient gradually showed evidence of general improvement under the regimen of complete rest. During this period, however, it was noticed that the swelling about the wrists and ankles was becoming firmer. The skin was becoming glossy in small slightly elevated patches about one fourth inch in diameter some of which gradually became confluent. The patient complained of the gradual stiffening of his fingers and of a marked tremor when using his hands. The firmness of the forearm and leg muscles was then obvious with slightly increased firmness of the thigh and upper arm muscles. While active use of the involved muscles was not painful, stretching of the muscles was quite painful. The muscles were not tender to palpation. No involvement of muscles other than those of the extremities could be demonstrated. There was no evidence of nerve involvement and no change in the deep reflexes.

At this time biopsy to determine, possibly, the nature of the infecting organism was advised. Permission was refused for this. The teeth having been cared for and the tonsils out, it was felt that the offending organism was most probably to be found in the nasal passages or nasopharynx. Intradermal skin tests were made with a group of organisms found in association with respiratory infections on the theory that the patient might show a reaction to the organisms against which there was no systemic resistance. All tests were negative except for staphylococcus, which gave a pronounced local reaction. Three successive nasal cultures yielded pure growths of *Staphylococcus aureus* and from these an autogenous vaccine was made.

The administration of the vaccine was begun, September 24. By this time the skin of the dorsum of the hands and forearms and the dorsum of the feet, the lateral aspects of the ankles and the anterior surfaces of the legs had become firm, white and glossy. The skin was not tender and pitted but slightly. It was difficult to get the pulse in the radial or the dorsalis pedis arteries. The patient was complaining of some coldness and numbness of the hands and feet. There was a noticeable increase in the boggy firmness of the thigh and upper arm muscles. The temperature at this time rarely exceeded normal.

Two weeks after inauguration of the vaccine therapy there was a pronounced improvement in the condition of the proximal muscles of both upper and lower extremities with slight improvement in the distal muscle groups. The skin lesions were subsiding and, while still pale and glossy, were no longer raised.

The patient was sufficiently improved to be in a chair by the middle of October. At this stage the chief difficulty was due to the gradual contraction of the affected skin about the joints, with involvement of the underlying tendons. Palpation of the wrists yielded no sense of the normal feel of the periarticular structures, skin and tendons seemed almost a solidly agglutinated mass. The fingers could be flexed with difficulty. The ankles were almost inflexible.

By the middle of November the patient was taking a few steps around the room and two weeks later was able to walk by himself through the corridors. His gait was badly restricted by the condition of his ankles. He was discharged from the hospital, December 5.

The white count exceeded 7,000 cells per cubic millimeter only once. The percentage of eosinophilic cells presents an interesting picture:

July 19, 26 per cent
July 22, 29 per cent
August 1, complete bed rest
August 2, 18 per cent
August 5, 13 per cent
August 13, 14 per cent
August 29, 14 per cent
September 7, 17 per cent
September 24, vaccine begun
October 4, 11 per cent
October 26, 3 per cent
November 12, 5 per cent
November 23, 5 per cent

Since the patient left the hospital he has made slow but steady improvement in regaining the function of his hands and feet. Flexion of the hands progressed to the point at which he could handle his car even in heavy traffic with comparative ease. At the present time flexion of the fingers and thumb is just short of complete closure of the hand. The ankles have not recovered so well. The patient had long suffered from a moderate degree of pronation with some flattening of the longitudinal arches in both feet presumably as a result of his earlier excessive weight. Because of the location of the major amount of scar tissue at the outer aspects of the ankles, the foot fault was greatly aggravated. Some improvement has resulted from raising the entire inner border of both soles nearly three-eighths inch.

The areas of involved skin have softened materially and the anchoring of the tendons to the skin is much lessened. Particularly about the ankles, where the scars resemble closely those caused by third degree burns, the interference with skin nutrition by scar contraction has caused repeated cracking and peeling of the epidermis. Physical therapy has been discontinued because of the sensitiveness of these areas, and entire reliance is being placed on exercise to restore function so far as may be possible.

Muscle atrophy is present to some degree in the involved muscles but whether this is a primary result of the inflammatory process or is secondary to the involvement of the tendons in scar tissue is impossible to say. Since the thigh and upper arm muscles have become almost normal in consistency and volume and since there was no demonstrable involvement of periarticular structures at the knees or elbows, the presumption is that much of the atrophy is due to diminished activity.

CONCLUSION

The report covers the progress of a case of dermatomyositis with recovery. The outstanding features of the case are the preliminary influenzal type of cold, the low grade arthritis, the low grade febrile reaction, the eosinophilia, the inflammatory process in the muscles of the upper and lower extremities, the stiffening of the wrists, fingers and ankles with the involvement of the periarticular structures, the rash of slightly raised papules becoming confluent, the slow convalescence and the final difficulties due to scar contracture.

The return of the percentage of eosinophilic cells to within normal limits in approximately four weeks after the inauguration of treatment with an autogenous vaccine from the probable focus of infection, together with the pronounced clinical improvement in the same period suggests the possible value of this type of therapy in cases of dermatomyositis.

2 White Street

CONGENITAL ANOMALY OF THE OMENTUM CAUSING TORSION

REPORT OF A CASE

G. G. O'BRIEN, M.D.
CHICAGO

D'Errico¹ defined torsion as "a pathological displacement in which the involved structure becomes, in whole or in part, so twisted on itself as to produce strangulation of its tissue." Of the abdominal viscera, torsion of the intestine and appendix is comparatively common, and torsion of the omentum comes next in frequency.

The question of the etiology of torsion of the omentum has been discussed in the literature with many suggestions. Payr,² after experimental work in which he produced spontaneous torsion, finally concluded that torsion was due to hyperemia in the veins. Anatomic variations in the blood supply of the omentum have been considered a cause also. Baldwin³ expressed the belief that the etiologic factor was congenital formation of a pedicle, Draper⁴ that it was congenital omental bands, and Bierman and Jones⁵ that it was congenital accessory omentum. Inflammation, exaggeration of normal omental movements and increased peristalsis have also been suggested. German,⁶ of the Cambridge City Hospital, expressed the belief that the basic etiologic factors were thrombosis and embolism; that thrombosis could be caused by slight trauma to the delicate endothelium lining the omental veins, or an endoventis secondary to a focus of infection elsewhere, and that embolism could follow the thrombosis or come from some obscure source. Wakeley,⁷ however, believed that hernia is the most common cause of torsion of the omentum and that those occurring on the right side seem to be most frequent. Up to 1929, he could find only twenty-five cases, including two of his own in which the condition was unaccompanied by any form of hernia.

- 1 D'Errico, Emilio. Primary Torsion of the Great Omentum with Report of Two Cases and Review of Twenty Nine Cases Collected in the Literature. *New England J. Med.* 203: 1181-1188 (Dec. 11) 1930.
- 2 Payr, Erwin. Ueber die Ursachen der Stieldrehung intraperitonealer gelegener Organe. *Arch. f. klin. Chir.* 68: 501-523, 1902.
- 3 Baldwin, J. F. A Contribution to the Study of the Intra-Abdominal Omental Torsion. *Ann. Surg.* 36: 940-944, 1902.
- 4 Draper, J. W. and Johnson, R. A. The Pathologic Omentum. *J. A. M. A.* 58: 376-379 (Feb. 5) 1927.
- 5 Bierman, M. I. and Jones, W. M. A Third Omentum. *Surg. Gynec. & Obst.* 36: 708-711 (May) 1923.
- 6 German, H. H. quoted by D'Errico¹.
- 7 Wakeley, C. P. G. Torsion of the Great Omentum. *No. e. on Two Cases.* *M. Press.* 127: 38 (Jan. 9) 1929.

Cowell⁸ classified torsion of the omentum as (1) abdominal either primary without apparent cause or secondary in which it is associated with diseases of an abdominal or pelvic organ, and (2) hernial, intra-saccular, intra-abdominal or combined.

Primary torsion is commonly a progressive condition with a history of intermittent short attacks of cramp-like pains. There may be a history of attacks of nausea and vomiting of a constant type. According to Thorek,⁹ acute torsion may be ushered in with severe incapacitating pain in the upper or lower right quadrant of the abdomen suggestive of peritonitis. MacWhorter¹⁰ stated that the exquisite tenderness in the right side of the abdomen and the cramp-like pain produced by movement are the most characteristic symptoms, rigidity and muscular spasm may prevent palpation of a mass.

In the differential diagnosis, Jeffries¹¹ mentioned Henoch's purpura, intussusception, acute pancreatitis, enterospasm or organic intestinal obstruction, appendicitis and tuberculous peritonitis as some of the pitfalls. The chief points in the differential diagnosis as given by D Errico,¹² are as follows: 1. Nausea and vomiting which are usually present in acute appendicitis may both be lacking in torsion. 2. A mass if present develops suddenly with torsion and slowly with appendicitis and may be movable in torsion but is fixed in appendicitis. 3. Tenderness and spasm in the right lower quadrant are almost always present with appendicitis whereas in torsion the tenderness is less marked and more diffuse. If the possibility of torsion of the omentum is considered in the differential diagnosis, acute pain in the abdomen may suggest it. In torsion of the omentum the percussion is dull but in acute appendicitis it is resonant at first and the temperature is between 99 and 102 F, whereas in torsion of the omentum it is between 98 and 100 F, and leukocytes may increase from 9,000 to 17,000 in each cubic millimeter of blood.

In the hernial types of torsion, especially when a long standing painless scrotal type of hernia suddenly becomes irreducible, painful and enlarged and a rapidly developing mass above Poupart's ligament appears, Morris¹³ states that acute torsion of the combined hernial type should be suspected.

As far as the differential diagnosis is concerned, Thorek⁹ believes that it is of academic interest only, the significant thing being to recognize the presence of a grave condition in the abdomen which calls for surgical intervention. Radical removal of all the twisted portion of the omentum is the treatment of choice, he believes, because even if it is possible to untwist the torsion there is always a tendency for it to recur. D Errico¹² advocated care in handling the omentum because of the possibility of embolism and also that in resecting the omentum care should be exercised to ligate the pedicle in small sections to avoid kinking of the bowel. All investigators seem to agree that the prognosis is favorable.

REPORT OF CASE

A housewife aged 63 admitted to the South Shore Hospital with severe and lancinating pain on the right side of the abdomen about the level of the umbilical region, had been well until seven days previously when after a dinner of baked beans distress developed in the abdomen which the patient thought was gas. This disappeared and two days later she again ate baked beans and severe pain developed in the left upper quadrant of the abdomen. The next day since the pain continued she took a dose of magnesium sulphate. The following day, the pain moved to the lower right quadrant and a good bowel movement followed the dose of magnesium sulphate. She ate a hearty dinner. Later nausea developed during an automobile ride. As the nausea persisted the patient took castor oil and went to bed. The sixth day from the onset of symptoms she was up and around but the pain in the lower right quadrant was so severe that she returned to bed. The pain and nausea persisted, the bowels moved freely. The following morning the seventh day from the onset of the illness a physician was called and the patient was moved to the hospital.

The patient had had six children, four of whom were living and well, one had died following thyroidectomy and one from tuberculosis. The history of previous illnesses and the family history did not reveal anything of significance.

On admission to the hospital the patient who was well developed seemed to be acutely ill. The general examination revealed an injected pharynx but nothing abnormal in the thorax or cardiovascular system. The temperature was 98.6 F, the pulse rate was 90 beats a minute and the respiration rate was 20. The abdomen on which there was considerable fat was covered with striae gravidarum and was rigid, particularly on the right side, the muscles were flaccid. There was no pain or tenderness over the kidneys but in the region of the appendix the pain was severe. The urine was acid in reaction and contained numerous epithelial cells. Leukocytes numbered 12,800 in each cubic millimeter of blood of which 70 per cent were polymorphonuclears, 1 per cent eosinophils, 18 per cent small lymphocytes, 2 per cent large lymphocytes and 1 per cent transitional.

The preoperative diagnosis was acute appendicitis and operation was performed immediately. Under general anesthesia a right rectus incision about 12.5 cm long was made and the rectus muscle split. When the peritoneum was opened a bloody serum escaped. A tongue-shaped process of omentum extending from the right margin of the transverse colon, separate and distinct from the main body of the omentum was found. This tongue-shaped process which was dark and indurated was adherent to the anterior abdominal wall and to the intestine beneath. It was raised up and the adhesions between the small intestine and this portion of omentum were broken. This process of omentum was twisted on itself five times in a counterclockwise direction, was very dark and showed beginning gangrene. It was about 8 inches (20 cm) long, 3 inches (7.6 cm) wide and about 2 inches (5 cm) thick. It contained fresh blood within it but otherwise showed no significant abnormality on gross examination. It was crushed above the torsion, clamped and tied close to the transverse colon. No area of inflammation was found in the abdomen below the omentum. The main body of omentum was on the left side of the abdomen and was normal in appearance. Because of the danger of infection no further exploration of the abdomen was made. A split tube drain was inserted and the abdomen closed.

Sections through the hemorrhagic area revealed dilated blood spaces filled with fresh blood. The mesothelium was proliferating and there was slight infiltration of polymorphonuclear leukocytes at the surface. The postoperative diagnosis was torsion of the tongue-shaped anomalous process of omentum with acute hemorrhage into it and early inflammation.

The patient's convalescence was uneventful and she was dismissed from the hospital on the twelfth day after operation. Four days later on a follow-up visit to her home the patient was found to be up and around and in good condition.

Blood-stained fluid was encountered in this case when the peritoneal cavity was opened. This is at variance

- 8 Cowell, Ernie. Abdominal Torsion of the Omentum. *Brit J Surg* 12: 738-751 (April) 1925.
- 9 Thorek, Max. Primary Torsion of the Omentum with Report of Case. *M J & Rec* 133: 526-528 (June 3) 1911.
- 10 MacWhorter, G. L. Torsion of the Omentum Without Hernia. *Arch Surg* 16: 569-582 (Feb.) 1928.
- 11 Jeffries, J. W. Torsion of the Great Omentum. *Ann Surg* 93: 761-765, 1931.
- 12 D Errico, Emilio. Primary Torsion of the Great Omentum. Report of a Case. *New England J Med* 205: 1147-1148 (Dec 10) 1931.
- 13 Morris, J. H. Torsion of the Omentum. Its Clinical Importance. *Arch Surg* 24: 40-76 (Jan.) 1912.

with Black's¹⁴ case in which there was an absence of blood-stained fluid but like that of Cowell⁸ who stated that a rush of blood-stained fluid when the abdomen is opened should remind one of the possibility of torsion of the omentum. In Black's case, however, there was marked distention of the colon a form of reflex ileus due to irritation of the splanchnic nerves involved in the torsion.

The congenital anomaly, a tongue-shaped process, which was separate from the omentum, was probably the etiologic factor in the torsion. Bierman and Jones⁵ described two cases with an accessory omentum. Although torsion was not present in either of their cases the accessory omentum has been suggested as an etiologic factor by many authors.

9157 Commercial Avenue

ADENOMATOSIS COLI AND CARCINOMA OF THE COLON

REPORT OF CASE ILLUSTRATING MULTICENTRIC MALIGNANCY

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AND

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The purpose underlying the publication of this report is to point out certain pertinent observations relative to the development of multiple primary malignant tumors of the large bowel on the basis of adenomatous polyps. No attempt will be made to dispute the validity of Billroth's strict criteria with regard to multiple primary malignant tumors. It appears to be quite generally conceded that the simultaneous and independent development of carcinomas from two or more adenomatous polyps of the colon or rectum does occur. The evidence that has accumulated in support of this contention is too voluminous to permit of full presentation within the limited scope of this paper. The entire subject of multiple primary tumors has been extensively reviewed by Major,¹ Owen,² and Warren and Gates.³ The following case in which relevant data only are presented, is particularly instructive in that a benign adenomatous polyp and two stages in the development of a malignant growth from such a polyp are quite clearly shown.

REPORT OF CASE

Anamnesis—J. H., a man aged 44 admitted to the Bronx Hospital Jan. 23, 1932 complained chiefly of obstipation of four days' duration accompanied by cramplike pains near the umbilical region. These pains occurred irregularly and increased in severity during the twenty-four hours prior to admission possibly because he had taken several cathartics. There was no nausea or vomiting. Several enemas returned clear, and no flatus was passed.

There were two previous attacks of a similar nature, two and four months before both of which lasted only two days and were relieved by cathartics and enemas. Before the onset of these attacks the bowel movements had been fairly regular.

The patient had never noticed any blood in the stools. Two weeks prior to the present attack he complained of rectal tenesmus for the first time.

He had lost about 20 pounds (9 Kg.) during the past six months, which he attributed to voluntary restriction of diet.

Examination—Marked distention was present throughout the abdomen, especially on the right side. The distended cecum and ascending colon could readily be made out by palpation. The sigmoid could not be definitely outlined. No other masses could be felt. No hernial protrusions were present.

No masses could be felt in the rectum. The prostate was not enlarged.

Röntgen examination without the use of a contrast medium was made in both the prone and the erect position. This procedure demonstrated an enormous gaseous distention of the large intestine, which began at the cecum and ended abruptly in or just above the sigmoid colon. The erect position demonstrated fluid levels.

Operative Procedure and Result—Two hours after admission, a first stage cecostomy was performed under procaine hydrochloride infiltration anesthesia. Twenty-four hours later the cecostomy was completed by perforating the cecum with a cautery.

Twelve days later an exploratory laparotomy revealed a constricting tumor of the descending colon, about 3 inches below the splenic flexure. A few other scattered polypoid masses were felt proximal to this point. The splenic flexure and part of the transverse colon were resected.

Convalescence was uneventful, the patient being discharged from the hospital approximately one month after operation. At the time of discharge he was in excellent condition, with the wound on the left side healed and a very slight opening remaining on the right side.

Pathologic Report—A specimen submitted for examination consisted of a portion of colon 21 cm. in length. On the mucosal aspect just above the center of the specimen, there was a definite hour-glass constriction due to the presence of a round sessile, pinkish tumor mass that measured 6 by 4 cm. in its largest dimensions. The margin of this mass was sinuous, elevated, very much indurated and somewhat everted. The surface was moderately blood tinged and exhibited a dimpled or depressed ulcerated central area. The latter corresponded to the site of greatest constriction and was densely hard. Eight centimeters below this region was another sessile tumor, 2 by 3.5 cm. characterized by being somewhat mammillated without exhibiting any ulceration or necrosis but with a raised, rolling edge. The intervening mucosa appeared to be quite normal. Situated approximately 5 cm. above the large ulcerated tumor was an oval, somewhat papillary, solid dark red slightly pedunculated polyp measuring 1 by 1.2 cm. Four small, hard, shotty lymph nodes could be felt in the mesocolon and another larger node directly beneath the floor of the ulcerated area just described.

Microscopic examination revealed (1) large ulcerated mass, adenocarcinoma, grade 3, (2) smaller sessile mass, adenoma malignum, grade 1, (3) benign polypoid adenoma, (4) lymph nodes, inflammatory hyperplasia except for one epicolic node that exhibited possible very early involvement.

Follow Up—The patient was examined at intervals following discharge and one year later showed no evidence of recurring malignancy. The large intestine appeared to be functioning normally. There was no abdominal discomfort or bleeding by rectum, and the patient had gained considerable weight.

Tables 1 and 2 summarize quite briefly the general incidence of multiple malignant tumors and their relative frequency in the large intestine. It is interesting to note that double carcinomas occurring in the same organ are most frequent in the large intestine (55 out of 150 cases). The explanation lies quite clearly in the development of a malignant condition on the basis of multiple polypoid adenomas. It is with this phase of the subject that the remainder of the paper will be concerned.

¹⁴ Black, J. M. Abdominal Torsion of the Omentum. Brit. M. J. 2: 458 (Sept. 7) 1929.

From the Pathological and Surgical Departments of the Bronx Hospital.

¹ Major, R. H. Bull. Johns Hopkins Hosp. 29: 223 (Oct.) 1918.

² Owen, L. J. Multiple Malignant Neoplasms. J. A. M. A. 76: 1329 (May 14) 1921.

³ Warren, Shields, and Gates. Olive. Am. J. Cancer. 16: 1358 (Nov.) 1932.

The etiology of multiple polypoid adenomas is unknown. The earliest stages in their development have never been thoroughly studied for the simple reason that the patients are generally seen after the tumors have been definitely established. Ribbert⁴ attributes the origin of the polyps to misplaced embryonal cells of the intestine, while Verse⁵ concludes that they arise as a result of diffuse catarrhal inflammation of the normal mucosa. These divergent views are important, in that they concern subsequent malignant degenerative changes. Ribbert presupposes an invasive cancerous process that involves the polyp only in part rather than a primary change in the epithelial cells per se. Lockhart-Mummery and Dukes⁶ agree with Verse in that they have observed a diffuse hyper-

transverse colon which is the seat of multiple sessile and polypoid adenomas, a large arborescent papillary tumor and a diverticulum. It appears quite logical to assume, therefore, that knowledge regarding the origin of polyposis is incomplete.

In actual practice, the patient is seen with the tumors already visible in the gross. Though many authors, notably Schmeiden and Westhues⁸ and Fitzgibbon and Rankin,⁹ have classified polyps according to their gross

TABLE 1—Type Frequency and Distribution of Multiple Primary Malignant Tumors

Author	No of Cases	Nature	Reference
Wells	20	17 multiple primary tumors and 3 carcinoma sarcomatodes	J Path & Bact 7 57 1901
Wooley	30	26 multiple primary carcinomas 5 multiple primary sarcomas 4 malignant more than one type	Boston M & S J 148 1, 1903
Thellhaber and Edelberg	80	44 multiple primary carcinomas same system organs 41 various organs	Deutsche Ztschr f Krebs for ch 5* 261, 1901
Bartlett	90	Multiple primary tumors	Arch Int Med 13 671 1914
Major	623	485 multiple primary carcinomas 123 cases different types tumor in same persons	Bull Johns Hopkins Hosp 27 22 1918
Ward	93		Brit M J 2 311 1920
Ribbert	70	Multicentric carcinoma in cases of multiple polyposis	Ztschr f Chir 170 457, 1912
Norbury	4	2 simultaneous carcinomas of breast and rectum 1 bilateral carcinoma of breast later rodent ulcer of nose 1 carcinoma of breast 15 years	Proc Roy Soc Med 24 190, 1930
Halstead	1	1 duct carcinoma in each breast in old woman removed with recurrence	Loc cit
Warren and Gates	129	Include 150 (Major) 143 (Owen) 93 (Ward) 40 (Warren and Gates) 794 (literature)	Am J Cancer 16 100 1902

TABLE 2—Postmortem and General Incidence of Multiple Malignancy with Special Reference to the Large Intestine*

Source of Material	Observation
14 774 cancer autopsies from combined statistics	277 instances of multiple malignancy (1.9%)
20 735 cases of malignant disease	277 instances of multiple malignancy (1.3%)
1 075 cancer autopsies	2 instances of multiple primary cancers of large intestine total of 40 cases of multiple malignancy (3.7%)
794 cases of multiple malignancy collected from literature	3 double carcinomas of large intestine

* Compiled from tables and text of Warren and Gates

Fig 1—Gross specimen illustrating three stages in the development of carcinoma from a benign polyp. A benign polypoid adenoma. B adenoma malignum grade 1 (tumor no longer polypoid note depressed center adherent edge and general flatness). C adenocarcinoma grade 2. Arrow points to hour glass stenosis which is the result of extensive desmoplastic response to tumor growth.

plasia of the mucous membrane followed by the development of multiple polypoid adenomas, and they regard this as an intermediate or precancerous stage. Lynch and Felsen⁷ have made similar observations but find it difficult to eliminate a fundamental underlying tendency to tumor formation, aside from any pre-existing inflammation. This is to say, the intestine exhibiting polyposis often appears to be peculiarly susceptible to other types of neoplasia or pathologic changes. For example, the last named authors have in their collection a resected portion of ascending and

characteristics and histogenesis it appears quite probable that these are all different stages in the development of the same tumor. One of us (Felsen) has been privileged to study a number of exquisite examples of what perhaps may be more properly termed "adenomatosis coli." All stages of development may often be discerned in a single specimen from the localized, pinhead areas of slight mucosal thickening

4 Ribbert H. Frankfurt Ztschr f Path 2 449 1909
5 Verse M. Verhandl d deutsch path Gesselsch 12 95 1908
6 Lockhart Mummery J P and Dukes Cuthbert Surg Gynec & Obst 46 591 (May) 1928
7 Lynch J M and Felsen Joseph. Tumors of the Colon and Rectum New York Paul B Hoeber Inc 1925

8 Schmeiden V and Westhues H. Deutsche Ztschr f Chir 202 1 1927
9 Fitzgibbon G and Rankin T W. Surg Gynec & Obst 52 1136 (June) 1931

to the 5 to 10 mm sessile tumors and the larger polypoid adenomas. All three are different stages in the development of the same tumor. Sections taken from the earliest lesions exhibit merely a localized area of epithelial hyperplasia. As the process advances, a small flat visible tumor appears on the mucosa, grows progressively laterad and toward the lumen of the intes-

of the disease have been described. Briefly, it may be stated that the growth of the malignant tumor is relatively slow, depending of course on the degree of anaplasia. The process is limited for a long period by the submucosal lymphatic plexus. In general, it may be said that carcinomas in the colon are more highly anaplastic than those in the rectum and that with increasing anaplasia there is a tendency to earlier age incidence and greater radiosensitivity but a correspondingly poor prognosis with regard to duration of life.

The clinical features of adenomatosis coli and multiple primary malignancy of the colon deserve men-

TABLE 3—Incidence of Carcinoma Developing on Polyposis Basis

Author	Percentage of Cases in Which Carcinoma Developed
Doering Arch f klin Chir 83 194 1907	43
Hullstiek Surg, Gynec & Obst 47 346 1928	34.6
Yeomans J A M A 89 837 1927	40.0 (rectum)
Susman J Path & Bact 35 29 1932	23 (colon)
Westhues Therap d Gegenw 69 380 1928	100 (rectum)

tion. First, there is a definite familial tendency of the mendelian type,¹⁰ the disease being transmitted by both male and female. It affects both sexes. Second, there is a distinct tendency toward malignant degeneration. Doering¹¹ reports that, among thirty-six patients with polyposis, twenty-one died of intestinal carcinoma. The statistics covering this point are summarized in table 3.

Verse, Fitzgibbon and Rankin, Westhues and others are of the opinion that all carcinomas of the colon or



Fig 2—Section taken from A (fig 1) normal morphology of glands and uniform well distributed stroma

tine. When sufficiently large, projecting considerably above the level of the surrounding normal mucosa, the tumor serves as a foreign body that the intestine promptly attempts to dislodge. Owing to the fact that there is no fixation to the underlying layers of the large intestine, the process being confined to the mucosa, and because of the loose mucosal stroma, the tumor gradually acquires a pedicle of mucous membrane. This pedicle is often of considerable length but maintains a satisfactory vascular supply for the tumor, which may be seen sitting on the apex of a conical stem of mucous membrane.

The subsequent course of these tumors is a dubious one. In a given case, the majority or all may remain perfectly benign throughout life. In a certain number, however, one or more of the adenomas sooner or later undergo malignant change. The earliest gross indication is a fixation to the underlying and surrounding intestinal wall. A slightly pedunculated oval or round tumor becomes sessile and flattened, increases its surface area and often exhibits a central dimpling or slight necrosis. The latter is probably due to the inability of the vascular supply in the connective tissue stroma to keep up with the relatively rapid growth. Sections show elongation and distortion of the glands and active proliferation, so that the epithelial lining becomes multilayered. The stroma is papillary and well vascularized. Disturbances in cell morphology, loss of polarity, hyperchromatism and elongation of the nuclear substance supervene. The normal, well differentiated glandular tubule, consisting of a single layer of columnar cells resting on a basement membrane is gradually replaced by a dedifferentiated anaplastic carcinoma. Conditions determining the further progress

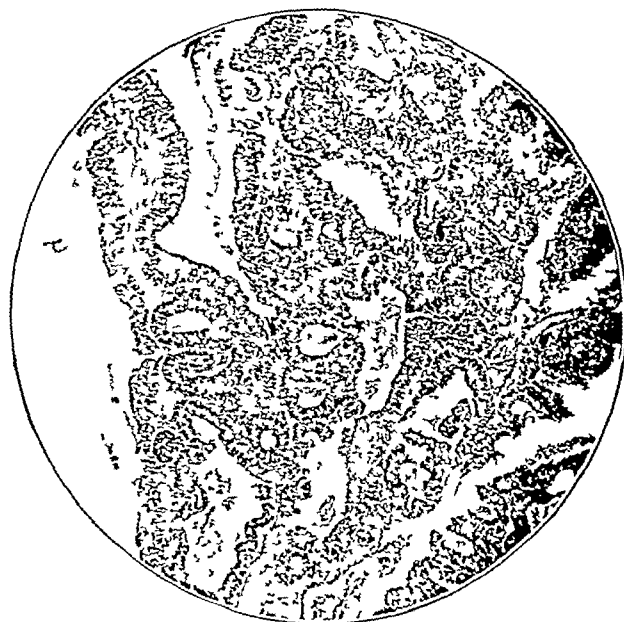


Fig 3—Section taken from B (fig 1) bizarre glands which are beginning to penetrate deeper structures and poorly balanced stroma at this stage the tumor is capable of producing metastases

of the rectum originate in polyps. Lynch and Felsen are inclined to this view but are not willing to accept such an origin in every instance.

The feature of multiple primary carcinomas exhibited in our case is of great interest because of its relatively

10 Norbury L E C Proc Roy Soc Med 24 198 (Dec) 1930
11 Doering H Arch f klin Chir 83 194 1907

frequent occurrence in connection with adenomatosis coli¹² and its relative rarity in most other organs. The multicentric origin of certain carcinomas was first established by the studies of Peterson¹³ and Hauser¹⁴. The striking frequency of such an occurrence in multiple polyposis of the gastro-intestinal tract was pointed out by Ribbert,¹⁵ who collected thirty cases. The theo-



Fig 4—Section taken from C (fig 1) adenocarcinomatous tissue in submucosal lymphatic plexus. This plexus acts as a barrier to further progress of the disease for a relatively long period.

retical aspects of the genesis of multiple carcinomas are too broad to fall within the scope of this paper. Only two points will be discussed. First the interesting breeding experiments with mice carried out by

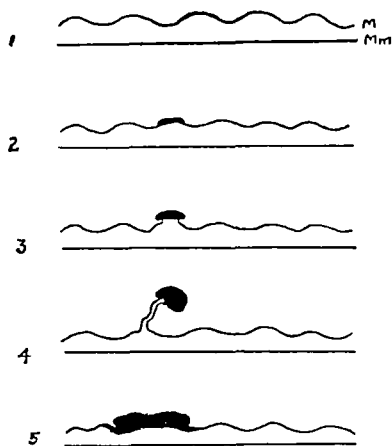


Fig 5—Development of the polypoid adenoma and subsequent malignant degeneration (5). M indicates mucosa, Mm muscularis mucosae.

never seen complete regression of other adenomatous polyps when carcinoma develops in one of them.

12 The term adenomatosis coli is used interchangeably with multiple polyposis in this article.

13 Peterson W. Beitr z klin Chir 34 682 1902.

14 Hauser G. Beitr z path Anat u z allg Path 33 1 1903.

15 Ribbert H. quoted by Theilhaber and Edelberg. Deutsche Ztschr f Chir 170 457 1912.

16 Slye Maude J. M. Research 32 159 1913.

SUMMARY

1 The case reported here admirably illustrates the transition stages from adenoma to carcinoma.

2 Accumulated data point to an underlying tendency to neoplasia in adenomatosis coli.

3 Because of the high incidence of malignant degeneration in adenomatous polyps, their removal at an early stage is important. When removal is impossible because of their number, careful periodic examinations by means of the contrast enema and sigmoidoscope are indicated.

4 When malignancy supervenes, local resection results in a high percentage of cures.

667 Madison Avenue

Clinical Notes, Suggestions and New Instruments

SARCOMA AND TUBERCULOSIS OF THE STOMACH

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The combination of sarcoma and tuberculosis of the stomach is a unique condition.

Sarcoma alone is a comparatively unusual form of neoplasm arising from the stomach wall. Ewing¹ estimates that sarcomas constitute 1 per cent of all stomach tumors. In his review of cases in 1920 Haggard² found that 244 cases had been reported of which 107 came to operation, the diagnosis in the remainder having been made post mortem. Balfour³ and



Fig 1—Appearance before operation.

McCann made a clinical analysis of the fifty-four cases of sarcoma of the stomach that have been studied at the Mayo Clinic from January 1908 to July 1929, inclusive.

1 Ewing James. Neoplastic Disease. A Textbook on Tumors. Philadelphia W. B. Saunders Company 1919 pp 254-374.

2 Haggard W. D. Sarcoma of the Stomach with Report of a Case and an Analysis of 107 Cases Operated on. Surg. Gynec. & Obst. 31 505 (Nov) 1920.

3 Balfour D. C. Surg. Gynec. & Obst. 50 948 (June) 1930.

Tuberculosis of the stomach is also comparatively infrequent. In 1917, Broders⁴ published a report of a case of tuberculosis of the stomach in a patient who underwent surgical treatment. He included an analysis of the cases reported until then and classified them as positive, probable, doubtful and rejected. There were forty-nine positive and 118 probable cases. Accord-

large amounts of mucus were obtained. Rest in bed seemed to help her a great deal and she was well for five years. Then, seventeen years before, she began to suffer pain in the epigastrium immediately after taking food, regardless of the quantity or quality. At this time the pain was relieved by buttermilk and alkali. Following this she was well until November 1932, at which time she contracted a severe cold in the chest. Medication given seemed to irritate the stomach, and she was unable to retain solid food. From this time on she quickly developed vomiting with excessive bloating immediately after the taking of even small quantities of any solid food. There was a continual sense of fullness with a dull ache between the shoulders during the attacks of vomiting. She had lost 20 pounds (9 Kg.) since the onset of her present illness. The patient believed that occasionally dark blood was seen in the stools. For the past two weeks she had been able to take nothing but clear liquids. Otherwise, there were no symptoms or complaints referable to the other systems nor to the special senses. She had been married at 27, her husband and one daughter, aged 32, were living and well.

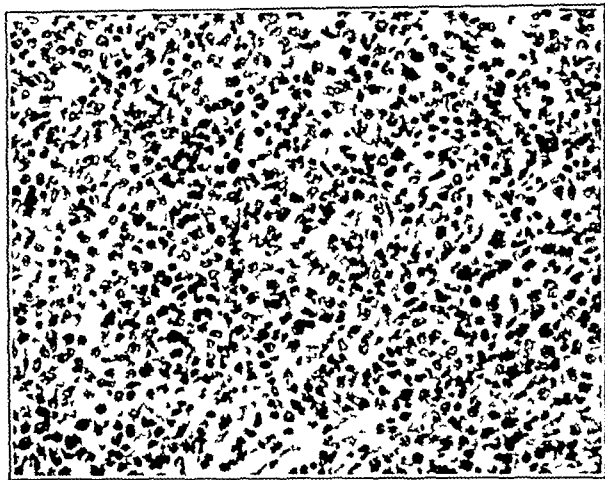


Fig. 2—Lymphosarcoma reduced from a photomicrograph with a magnification of 260 diameters

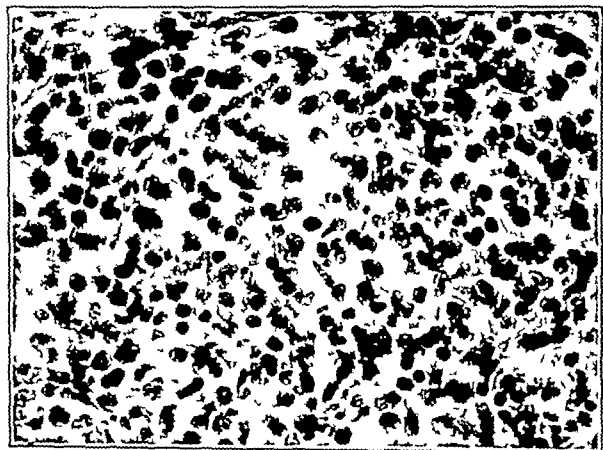


Fig. 3—A field from figure 2 under high power reduced from a photomicrograph with a magnification of 560 diameters

ing to the classification that Broders employed in his paper, Good⁵ in 1931 reviewed thirty-three additional reports of cases from the literature and added two more cases. Two of these thirty-five cases were regarded as positive and twenty-four as probable. The remaining nine cases were excluded because they fell into the doubtful or rejected group or because surgical treatment was not employed.

The extreme infrequency of carcinoma and tuberculosis of the stomach is brought out by the fact that Sprunt⁶ in 1930 found only thirteen cases reported in the literature and added one of his own.

REPORT OF CASE

History—Mrs. E. M. M., aged 65, admitted to the Reading Hospital, June 4, 1933, complained of epigastric distress and vomiting after meals. She stated that twenty-two years before she had been in the American Stomach Hospital for catarrhal gastritis at which time she was treated by gastric lavage, and

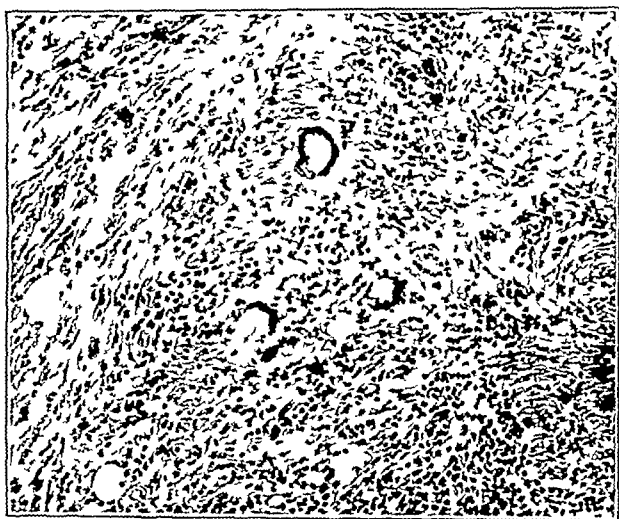


Fig. 4—Tuberculosis reduced from a photomicrograph with a magnification of 170 diameters

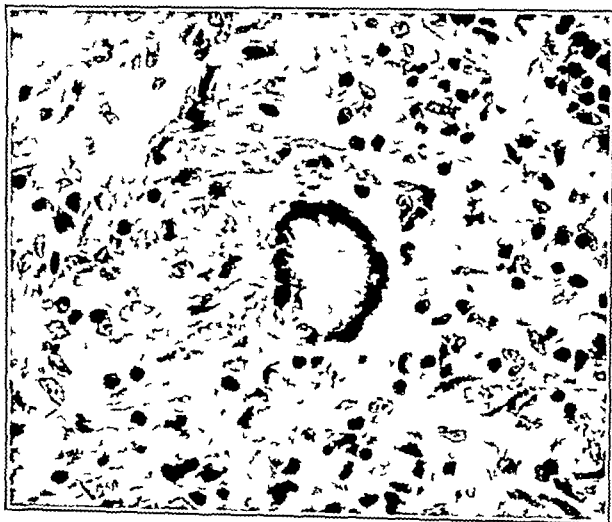


Fig. 5—A field from figure 4 under high power reduced from a photomicrograph with a magnification of 560 diameters

Examination—The patient was slender, quite active and happy. She weighed 100 pounds (45.4 Kg.), the blood pressure was 120 systolic, 70 diastolic, the temperature, 98 F., the pulse, 72, and the respiration rate 18. The teeth had all been removed, and upper as well as lower dentures were in use.

⁴ Broders A. C. Tuberculosis of the Stomach with Report of a Case of Multiple Tuberculous Ulcers. *Surg. Gynec. & Obst.* 25: 490 (Nov.) 1917.

⁵ Good R. W. Tuberculosis of the Stomach. An Analysis of Cases Recently Reviewed. *Arch. Surg.* 22: 415 (March) 1931.

⁶ Sprunt D. H. *Surg. Gynec. & Obst.* 51: 245 (Aug.) 1930.

The chest was of a long flat type. Expansion was limited and was equal and regular. The supraclavicular fossae were deep, and the substernal angle was acute. Tactile fremitus and vocal resonance were unaltered, and the percussion note was resonant. Breath sounds were harsh and vesicular. There were no definite rales nor other adventitious sounds. The apex beat was in the fifth interspace at the midclavicular line. The first sound was considerably slurred and of poor quality. The



Fig 6—Appearance after operation

rhythm was regular and the rate normal. There was no increase in cardiac dullness nor demonstrable murmurs. The abdomen was flat and symmetrical. There was a sense of diffuse resistance in the epigastrium with tenderness on deep palpation.

The urine was normal. A complete blood count showed hemoglobin, 66 per cent, red blood cells, 3,650,000, white blood cells, 4,900, color index, 0.9 plus, polymorphonuclears, 60 per cent, small mononuclears, 39 per cent, and basophils, 1 per cent. The blood Wassermann test was negative. Roentgenologic study of the thorax gave negative results on two occasions.

The roentgenologic examination of the

stomach (fig 1) revealed a large filling defect on both greater and lesser curvatures in the middle third. The contour of the defect did not have the appearance truly characteristic of carcinoma, however, the results were interpreted as indicating a malignant lesion that probably was carcinoma. There was 85 per cent retention at the end of five hours. From the roentgenologic standpoint, the lesion was deemed operable.

Operation—Exploration was advised and was done, June 5. Under spinal anesthesia a high right rectus incision, a little to the right of the midline, was made. The stomach appeared markedly shrunken and was empty. The stomach wall was firm and had irregular masses with complete obstruction, as it seemed. There were several of these masses in the lower and middle as well as lower part of the upper third of the stomach. A diagnosis of carcinoma was made. The glands along both curvatures of the stomach were markedly enlarged, the largest being the size of a walnut. The largest mass in the stomach wall seemed the size of a chicken egg. The gallbladder and liver appeared normal. The uterus and adnexa were small and atrophic. The appendix was small and normal and was not disturbed. A posterior Polya resection of the stomach, removing a little more than two thirds of the stomach as well as the glands along both curvatures, was performed. The abdomen was closed in layers.

Pathologic Examination—Macroscopic. The specimen consisted of a section of stomach measuring 12.5 by 4 by 3.5 cm and weighing 70.4 Gm. Embedded in the mesentery on both curvatures of the stomach section there were numerous firm round masses, the largest 2.3 cm in diameter. The stomach was firm and nodular, and, on sectioning the nodular areas offered increased resistance. At the middle portion of the specimen there was marked stenosis. The mucosa of the stomach was soft and edematous in some places, and in other places especially around the stenosed area, the mucosa was entirely ulcerated.

Microscopic. There seemed to be two distinct pictures, one in which there were a number of areas in which lymphosarcoma predominated (figs 2 and 3). If these areas had stood alone the diagnosis would have been pure lymphosarcoma. Then there were remains of smooth muscle in the wall of the stomach, areas of increased eosin-staining stroma, areas of coagulation necrosis, areas of giant cells, and even tubercles, a picture of tuberculosis (figs 4 and 5). Acid fast stains of the tissue failed to show tubercle bacilli.

The diagnosis of lymphosarcoma and tuberculosis was confirmed by A. C. Broders and Joseph Colt Bloodgood.

Postoperative Course—The postoperative convalescence was entirely uneventful. On the third morning the temperature and pulse both rose to 100 and promptly dropped to normal and stayed there. There was no postoperative vomiting nor gastric lavage. The wound healed by primary intention. The patient was out of bed on the twelfth day and left the hospital on the seventeenth day.

Since she left the hospital, convalescence has continued uneventfully. She is gaining in strength and weight. A postoperative roentgenologic check-up examination five weeks after operation (fig 6) revealed normal filling of the remaining portion of the stomach, with immediate emptying through the stomach. The stomach was completely empty in two and one half hours. No upper intestinal delay was found.

230 North Fifth Street

NECROBACILLOSIS OF THE LUNG

I. W. SHAW, M.D. AND I. A. BIGGER, M.D. RICHMOND, VA.

Necrobacillosis is an acute infectious disease due to *Actinomyces necrophorus* and is characterized by a coagulation necrosis followed by caseation. Infection of the lung by *Actinomyces necrophorus* has been reported but once. This was by Cunningham,¹ and the organism was isolated from the lung abscess at necropsy.

The case reported here is of special interest because of the fact that the organism was isolated from the living patient and also because of the apparent rarity of necrobacillosis of the lung in human beings.

REPORT OF CASE

J. S., a Negro, aged 38, admitted to the St. Philip Hospital, Nov. 11, 1932, complained of a cough, expectoration of a large amount of foul sputum, weakness and loss of appetite. The patient dated the onset of his illness to the latter part of August, 1932, at which time he was working as a gardener in New Hampshire. An infection of the upper respiratory tract developed and a few days later a productive cough, which became progressively worse. Two weeks after the

onset of symptoms a severe pain developed in the midclavicular region of the left side of the patient's chest, and a diagnosis of pneumonia was made. About the middle of October, approximately six weeks after the beginning of his illness a roentgen examination was



Fig 1—Appearance of the chest before operation showing a large cavity partially filled with fluid and extending up to the level of the lower border of the second rib in front.

From the Departments of Bacteriology and Parasitology and of Surgery respectively of the Medical College of Virginia.
1. Cunningham, J. S. Human Infection with *Actinomyces Necrophorus*, Arch. Path. 9: 843 (April) 1930.

made of the chest and he was told that he had pus in the left pleural cavity and was advised to have it drained, whereupon he returned to his home in Virginia. His family physician aspirated a small quantity of foul pus from the left side of the chest and referred him to a local hospital, where another roentgen examination showed a large cavity containing both air and fluid, involving the greater portion of the lower lobe of the left lung. The sixth rib was resected between the



Fig 2—Appearance of chest with the patient lying on his right side showing a large cavity with fluid level

anterior and posterior axillary lines, the parietal pleura was incised, and the interlobar septum and a part of both lobes of the left lung were exposed. There were numerous adhesions between the two layers of pleura but when some of these adhesions were separated a portion of both lobes of the left lung could be visualized. The upper lobe appeared normal but the lower lobe was dark and indurated. An aspirating needle was inserted into the lower lobe and thick foul pus was obtained. The wound was then packed with gauze and the patient sent to the St Philip Hospital for an operation for lung abscess.

At the time of his admission the temperature was 102 F and the pulse rate was 125 a minute. He had a distressing cough and a moderate degree of dyspnea. Because of the recent surgical incision, examination of the left side of the chest was unsatisfactory and the right side showed nothing of significance. Laboratory examination revealed urine, normal except for a trace of albumin, blood red cells 3 800 000, hemoglobin 80 per cent, white cells 17 700, polymorphonuclear leukocytes 88 per cent, lymphocytes 12 per cent. The Wassermann reaction was negative. Roentgenograms showed the right lung to be clear, while the greater portion of the lower lobe of the left lung was occupied by a large cavity.

November 14 three days after admission, the incision was reopened and the gauze packing removed, a segment about 4 inches in length was excised from the midportion of the seventh rib and an additional segment of from 1½ to 2 inches removed from the posterior segment of the sixth rib. An aspirating needle was inserted into the lower lobe of the left lung and thick pus obtained, so a cautery was inserted and a very large relatively smooth-walled abscess cavity was entered. An opening about 6 cm in diameter was made by excising a portion of the lateral wall of the abscess cavity with the cautery. This tissue was sent to the laboratory for diagnosis. The cavity was found to be about three fourths filled with thick cream-looking pus with an odor that was peculiarly pungent and disagreeable. Approximately 500 cc of this pus was aspirated.

Stained smears of this pus showed coccoid forms, rods and thread-like filaments. The longer forms presented a beaded appearance. Capsules were present. The organism was gram negative.

The cultures were prepared for aerobic and anaerobic growth. There was no growth under aerobic conditions. Cultures in the anaerobic shake cultures on the third day showed the colonies to be cottony with dark centers.

This micro-organism was classified as *Actinomyces necrophorus*. It varies in length from micrococci to filaments of more than 100 microns and in width from 0.75 to 1.5 microns. Some of the filaments have one clubbed extremity and the other tapering, while some show irregular thickening at the points at which the filament takes the stain heavily. In general, the filaments present the appearance of a chain of micrococci in a sheath, but when irregular staining takes place the round bodies take on a club shape. Again, the coccus-like bodies may be alternately arranged along the sides of the tubes. Some of the rods take the stain throughout, others at both ends, while some are beaded.

The cultivation of *Actinomyces necrophorus* is rather discouraging at times, as it is a strict anaerobe.²

Microscopic examination of the tissue removed at the time of operation was reported by Dr Lewis C Pusch as follows: "Collapsed pulmonary substance with perivascular and peribronchial fibrosis bordered on one side by dense fibrous granulation tissue infiltrated with leukocytes and histiocytes and having a surface composed of necrotic debris. There is no evidence of a specific infection. Diagnosis: wall of chronic pulmonary abscess."

Two weeks after operation, November 28, the left diaphragm was paralyzed by section of the left phrenic nerve. Following this, the cavity decreased in size rather rapidly, so that by December 21 there was little more than a large sinus leading into the midportion of the lower lobe of the left lung. A rubber drainage tube was inserted to prevent closure of the outside opening, and the patient was discharged from the hospital to his family physician.

Following operation the patient was given potassium iodide in increasing doses for about six months with only two short intermissions, which were necessary because of the appearance of a diffuse rash. The dose reached was 150 minims (9 cc) daily. Four roentgen treatments were given over the lower portion of the left side of the chest, Dec 1, 5 and 16, 1932, and on Jan 23, 1933.

January 23 the patient's general condition was greatly improved, but he still had a deep sinus, which obviously communicated with a bronchus. He was reexamined, April 21, at

which time it was found that the sinus still communicated with a bronchus, he was expectorating a small amount of pus. It was therefore decided that it would be wise to cauterize the walls of the sinus, and under local anesthesia a portion of the old scar was excised and the sinus tract thoroughly cauterized throughout its entire extent and packed with dry gauze. Following this procedure the patient's improvement was continuous and the sinus finally completely closed about September 1. The patient is now entirely symptom free, and roentgen examination shows only



Fig 3—Appearance of chest, Sept 20 1933 approximately ten months after operation. The left diaphragm is elevated and there is still a considerable excess of scar tissue in the left lower lobe. The patient at this time was entirely symptom free and the sinus completely healed.

a small area of relatively dense scar in the lower portion of the left lung and a moderate elevation of the left diaphragm, which is fixed to the lateral chest wall.

Broad and Twelfth streets

² For a detailed study of *Actinomyces necrophorus* and its pathogenesis the reader is referred to Shaw F W Human Necrobacillosis, Centralbl f Bakt 129 132 1933

OBSTRUCTIVE HYDROCEPHALUS DURING COURSE OF CEREBROSPINAL FEVER CURED BY VENTRICULAR PUNCTURE AND INTRAVENTRICULAR INSTILLATION OF SERUM

ARTHUR J. ANTENUCCI, M.D., AND SEATON SAILER, M.D.
NEW YORK

Obstructive hydrocephalus occurring during the course of meningococcal meningitis is quite unusual today with the present methods of diagnosis and treatment. Rarer still is a favorable outcome when such a condition supervenes. In such a case one has to deal with a closed infection of the cerebral ventricles—an ependymitis or a pyocephaly—and the logical course would seem to be to puncture the ventricles, relieve pressure and administer specific serum. Signs of cerebral compression, stupor, increased headache and choked disk, may occur with considerable abruptness in the course of an infection that has seemed to be progressing favorably, and not infrequently late in the disease. Cushing and Sladen¹ in 1908 reported such a case in an infant, aged 6 months, long after the primary infection, and in whom meningococci were demon-

strated in the corpus callosum, thereby obtaining prolonged drainage. This method would seem to be preferable to puncture with a trocar which gives temporary relief and often must be repeated. Cazamian² employed the orbitosphenoidal route, practiced by Biet, for the injection of arsphenamine in dementia paralytica. In place of trephining and drainage, Herrick recommends Cobb's method of breaking down adhesions around the foramen

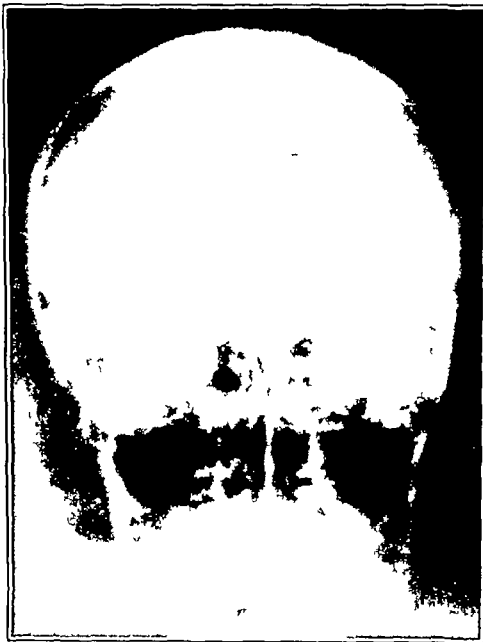


Fig. 1—Anteroposterior view showing anterior horns of both lateral ventricles well filled with air. The temporal horn does not visualize on the right side.

strated in the ventricular fluid, while the spinal fluid was found to be sterile. After repeated ventricular tapping and intra-ventricular administration of antimeningococcus serum, the infant appeared to be doing decidedly better, and tapping was discontinued. The infant died however some time later after exhibiting cyanosis and Cheyne-Stokes breathing.

In an infant the pressure effects may be warded off through the possibility of cranial enlargement.

The operation of ventricular puncture and administration of serum by the ventricular route was first performed by Cushing and Sladen in 1908. In infants, before the closure of the anterior fontanel, the procedure is relatively simple. Eleven cases with five cures were reported by Marchand. In adults the procedure is more formidable but still not too difficult. In thirty-two collected cases there were five cures. In any event, difficult though it may be, the procedure should be tried as a last resort in a condition that would otherwise be hopeless. Stetten and Roberts advise making a wide opening in the

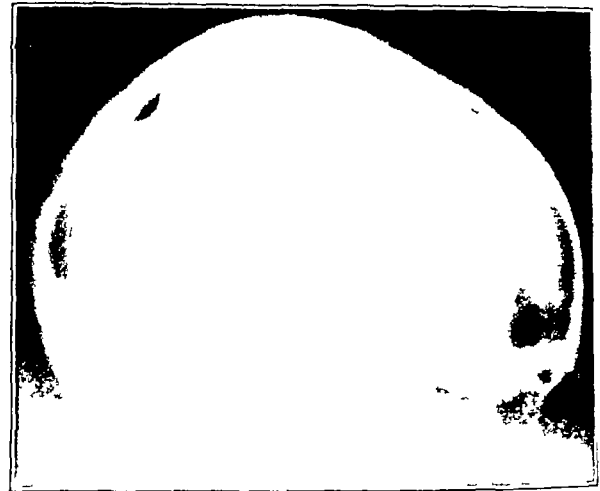


Fig. 2—Stereoscopic view showing dilated right lateral ventricle with foramen of Monro and third ventricle well outlined. Small amount of air in left lateral ventricle above foramen of Monro.

corpus callosum and the fourth ventricle by manipulation of the head under anesthesia. Rolleston suggests that this method might cause dangerous traction on the vagus roots. The method appears to be often successful in causing a flow of cerebro-



Fig. 3—Posteroanterior view. Posterior and temporal horn of right lateral ventricle not visualized.

spinal fluid and, in one instance, brought back respirations after they had stopped.

The case to be presented is an exceedingly interesting one. A presumptive diagnosis of meningococcal meningitis was made on admission, on the basis of the clinical observations and the finding of cloudy spinal fluid. Treatment was started

From the Roosevelt Hospital.
¹ Cushing, Harvey and Sladen, F. J. Obstructive Hydrocephalus Following Cerebrospinal Meningitis with Intraventricular Injection of Antimeningococcus Serum. *J. Exper. Med.* 10: 548, 1908.

² Cazamian, P. Des injections paracerebrales. *Bull. gen. de therap.* 168: 740, 1913, 1916.

immediately, and in a short while improvement was manifest. This was interrupted, however, by a complicating obstructive hydrocephalus, which was treated by ventricular puncture and intraventricular instillation of serum. This had to be repeated, but the patient's recovery was practically complete, despite complicating *Staphylococcus aureus* infection of the skin, and later herpes zoster.

REPORT OF CASE

A white woman, aged 29, married, was admitted, June 20, 1932, to the service of the late Dr Rolfe Flovd, in a semicomatose condition. A history was obtained from her mother. June 24, the patient had come home from work feeling cold and feverish. In the ensuing days, although under a physician's care, she became rapidly worse, severe headache and drowsiness developing. On clinical examination the following positive observations were made. The patient was acutely ill, with a temperature of 101.3 F, pulse 90, and respiration 20. She lay in bed, motionless, occasionally moaning. The skin was hot and moist, but there was no rash. Marked photophobia was present. The neck was stiff and the throat red. A bilateral Kernig sign was present. Otherwise the examination was not remarkable.

The laboratory data revealed spinal fluid, cloudy, under slightly increased pressure, cell count of 792 per cubic millimeter, polymorphonuclears, 100 per cent. A smear showed gram-negative intracellular diplococci. A culture was positive for meningococci. The spinal fluid sugar was 21 mg per hundred cubic centimeters. Hemoglobin was 78 per cent (Sahli), red blood cells numbered 4,190,000, white blood cells, 20,000, with polymorphonuclear neutrophils, 88 per cent, and lymphocytes, 12 per cent. The urine was turbid, straw colored and neutral, with sugar, 4 plus, no albumin, an occasional white blood cell, no acetone or diacetic acid and no casts or red blood cells.

Treatment was begun immediately on withdrawal from the spine of cloudy spinal fluid. Fifteen cubic centimeters of anti-meningococcus serum was given intrathecally every twelve hours, after a slightly larger amount of spinal fluid had been withdrawn. The patient did well during the week after admission. June 27, seven days after admission, the temperature dropped to normal. She appeared bright, cheerful and talkative, she said she felt much better. The signs were unchanged. One sterile culture had been obtained from the spinal fluid prior to this, and the culture of fluid removed on the 27th was later found to be sterile. The sugar had increased to 106 mg per hundred cubic centimeters. The cell count, after soaring from 15,000 to 30,000, came down to 7,000.

June 28, the patient appeared well. Examination of the fundi revealed that the vessels were distended in and around the disks. The disks were not sharp. The temperature stayed normal for about a week, and on July 10 it began to rise. At this time examination of the fundi revealed definite fullness of the vessels and haziness of the disk margins. There was no definite choking of the disks. The temperature continued for about a week, ranging between 100 and 102 F. The patient, however, felt quite well. Up to this time six sterile cultures had been obtained in the spinal fluid.

The patient's general condition was good. The temperature dropped to normal and stayed down for two days. On July 24 the temperature began to rise again. During this period she became definitely worse. It was the general impression in view of the sterile cultures, that the active process had subsided but spinal drainage was continued on the advice of our consultant neurologist, Dr Charles McKendree because of the temperature. The temperature remained elevated until August 3. Next day it came down, but the patient appeared drowsy and disoriented. She lay in bed perfectly still with staring eyes. The pupils were unequal, with the right one greater than the left. They reacted to light, the disks were choked. There was generalized increase of the deep reflexes. The patient was generally in a hypertonic state. A provisional diagnosis of ventricular block with internal hydrocephalus was made. The temperature began to go up, August 8. The condition of the patient was the same. The signs were definitely those of localization of the process with internal hydrocephalus. Ven-

tricular puncture with administration of serum into the ventricles was considered. This procedure was carried out by Dr Howard Patterson, August 13, as follows.

Incision was made into the scalp, after infiltration with procaine hydrochloride, 1 per cent at a point 2 cm to the right of the external occipital protuberance and 6.5 cm anterior to it. The skull was opened with a hand drill. A needle was inserted into the lateral ventricle, which was encountered about 4.5 cm from the surface of the brain. Fifteen cubic centimeters of clear fluid was obtained under slightly increased pressure. A syringe was applied and 15 cc of fluid, definitely less clear than the first specimen, was obtained. About 55 cc of fluid in all was removed. Fifteen cubic centimeters of anti-meningococcus serum was instilled and from 15 to 20 cc of air was allowed to run in. A roentgenogram of the skull was then made. The ventriculograms showed the following.

The left lateral ventricle was dilated and the right lateral ventricle was incompletely filled. The third ventricle and the foramen of Monro were well outlined and showed dilatation. The fourth ventricle was well outlined in a 45 degree angle film.

Fluid removed for culture was sterile. A smear showed a few polymorphonuclear cells, lymphocytes, and rarely a gram-negative intracellular diplococcus.

The temperature went down immediately after the procedure. The patient appeared definitely better. The mentality cleared. The soft tissues over the site where the lumbar punctures were made was by this time quite sore. The skin was macerated and inflamed. Up to this time the patient had had about fifty lumbar punctures.

August 20, a spinal puncture was performed. The fluid obtained was fairly clear. It was sterile. A smear showed a few pus cells. There were no organisms. August 26, the spine was drained again. Meningococci were found on culture. *Staphylococcus aureus* was also present. This was believed to be a contamination from the skin lesions. August 27, meningococci and *Staphylococcus aureus* were again found. There were 432 cells per cubic millimeter with 16 per cent polymorphonuclears. August 29, the spine was drained again and serum was administered in a slightly smaller amount than the amount of fluid withdrawn. The fluid, as reported later, contained meningococci and also *Staphylococcus aureus*.

The patient's general condition was much improved for about ten days after the ventricular puncture, in spite of the finding of meningococci in the spinal fluid. August 28, however, the temperature began to rise. Slowly stupor developed, the patient moaned continuously. The pupils were small, twitches were observed in the muscles of the upper extremities. Ventricular puncture was repeated, August 30 and 50 cc of clear fluid was removed under markedly increased pressure. No serum was given. The temperature went down immediately after the procedure. The next day she appeared in a very reduced state, her mentality was confused. The case from all appearances seemed hopeless. September 2, spinal puncture was done and serum given. Culture of this fluid later yielded *Staphylococcus aureus*, but no organisms were found on smear. It was considered wise at this time to discontinue lumbar punctures. From this time on, slowly but definitely, improvement was noted.

The patient had an uneventful course for the remainder of the period in the hospital, except for troublesome pain in the back over the site of the previous lumbar punctures. Herpes zoster also developed over the left side of the chest and the left flank. At the time of discharge, November 30, she appeared very well, although somewhat undernourished. The only residual signs demonstrable were inequality of the knee jerks the left being more active than the right, and a left patellar clonus.

We present this as a case of obstructive hydrocephalus occurring insidiously during the course of a meningococcal meningitis, at a time when it was generally believed that the patient was getting better. At no time was there difficulty in obtaining fluid by the lumbar route. After two ventricular punctures with administration of serum into the patient's ventricles the patient went on to recovery.

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING
REPORT
PAUL NICHOLAS LEECH Secretary

PERTUSSIS VACCINE

(Eli Lilly & Co., After Method of
Dr Louis W Sauer)

All vaccines of B pertussis were omitted from New and Nonofficial Remedies in 1931. In the twenty years that had then elapsed since the first use of such a vaccine, no conclusive evidence had been accumulated regarding the therapeutic or prophylactic efficacy of such preparations. The Council held, therefore, that it was not warranted in retaining pertussis vaccines in New and Nonofficial Remedies.

The recent work of Dr Louis W Sauer (THE JOURNAL, Jan 28, 1933, p 239, and Nov 4, 1933, p 1449) has aroused renewed interest in the subject. Sauer states that preparations made according to his technic are valuable immunizing agents against whooping cough. Eli Lilly & Co is now manufacturing pertussis vaccine according to the Sauer method.

The Bordet Gengou bacilli are isolated by the cough plate method and cultured for forty-eight hours on the original Bordet human blood medium. Only the most hemolytic strains are used. The harvest is then scraped off into 0.5 per cent phenolized physiological NaCl and placed in a refrigerator for one week. This bacterial suspension is vigorously shaken daily during this time and is then cultured once daily for three days to insure sterility. The product is diluted to an approximate concentration of 10 billion bacilli per cubic centimeter. The dose used for all cases has been 1.0 cc injected into each deltoid followed in one week by 1.5 cc injected into each biceps and followed the next week by the injection of 1.5 cc in each triceps. Thus a total of about 80 billion killed bacilli are injected.

Using this method, Dr Sauer reported the inoculation of 394 children against whooping cough in the past five years. Twenty-nine were from families having one or more other children. 31 of whom were left uninoculated, as controls. All 31 of the controls contracted pertussis within three months to four years, while their inoculated brothers and sisters lived with them throughout the incubation, catarrhal and paroxysmal stages without contracting the disease. Of the remainder of the original 394, 162 were reported to have been definitely exposed to the disease, yet none contracted it. Sauer has thus presented 394 cases of apparent immunity (beginning three months after inoculation and extending to, and possibly beyond, four years following inoculation) to whooping cough under circumstances ordinarily considered conducive to the spread of the disease.

Although the earlier investigators tried to establish the value of pertussis vaccines in therapy, they came to the conclusion that, if such preparations were of any utility whatever, it was in prophylaxis. Accordingly, commercial vaccines have been used for many years in attempts to produce immunity, but, as the Council pointed out in 1930, with inconclusive results. The total dosage used in these earlier attempts rarely was over 20 billion bacilli; the material was injected in small individual doses over a protracted period of time, and the vaccines were made, as a rule, by subculture from stock cultures of variable age.

Sauer attributes his results in the face of the indeterminate results of the past, to the two chief points of difference in his work.

- 1 The use of only freshly isolated, highly hemolytic organisms in making the vaccine
- 2 The use of heavy doses of vaccine

It is well known that most organisms progressively lose their pathogenicity on repeated transplantation in vitro and recover it only on passage through a susceptible animal. This may have some bearing on point 1.

Concerning point 2, since the disease itself does not ordinarily manifest a profound toxemia, it might be expected that larger doses of the organism would be necessary to produce a reaction.

Although Sauer's work appears promising it is pointed out that the present series of cases is quite limited; the work has

been carried on in one locality (where, conceivably, the vaccines used may all have been of the same strain as the current infections), and the past results have been directly contradictory. In view of this the Council does not feel justified, at this time, in recognizing the use of pertussis vaccine of any sort for therapy or prophylaxis until more convincing evidence becomes available. The Council, therefore, postponed consideration of B pertussis vaccine, Lilly (Sauer method) to await the development of further evidence.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMOTION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION. RAYMOND HERTWIG Secretary



VAN CAMP'S PURÉED TOMATOES (ADDED SALT)

Manufacturer—Van Camp's, Inc., Indianapolis

Description—Pasteurized sieved tomatoes, seasoned with salt, largely retaining the natural vitamins and minerals.

Manufacture—Sound tomatoes at their height of color and flavor are washed in troughs of running water, rolled through reel washers equipped with water sprays for thorough rinsing, sorted and trimmed on continuous belts, and the underripe and overripe fruit eliminated. The selected clean tomatoes are sliced, passed through a preheating chamber containing an atmosphere of steam, the pulp is strained out in an atmosphere of steam and is passed over a screen permitting the passage of sieved material of desired fineness and texture. The sieved tomatoes are homogenized by being forced through small apertures into the sieved material itself to avoid incorporation of air, are salted in tanks containing an atmosphere of steam, 'vacuumized' by exposure in thin sheets to 'high vacuum,' filled into enamel lined cans, and pasteurized for a definite period. Precautions are taken to avoid incorporation of air during the entire operation to minimize vitamin destruction.

Analysis (submitted by manufacturer) —	per cent
Moisture	93.1
Total solids	6.9
Ash	0.9
Sodium chloride	0.4
Fat (ether extract)	0.1
Protein (N x 6.25)	1.1
Reducing sugars (as dextrose)	3.2
Sucrose (copper reduction method)	0.0
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	4.5
Alkalinity of ash (cc of normal acid per gram ash)	5.7
pH	4.7

Calories—0.2 per gram 6 per ounce

Vitamins—Careful selection of vine ripened tomatoes, vacuumizing to remove air naturally in the tomatoes, the exclusion of air throughout the preparation and processing of the juice, insure a high retention of the natural vitamins. An excellent source of vitamin C and a good source of vitamins A and B.

Claims of Manufacturer—Valuable for vitamins A, B and C.

GUNZENHAUSER'S HOLSUM BREAD GUNZENHAUSER'S TIP TOP BREAD

Manufacturer—Gunzenhauser Bakery, Inc., Lancaster, Pa

Description—White bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p 817), prepared from white flour, water, condensed skim milk, shortening salt, sucrose, yeast, powdered skim milk, malt extract, and a yeast food containing calcium sulphate, ammonium chloride, and potassium bromate.

**CERTIFOODS CERTIFIED NURSERY FOODS—
TOMATOES (SIEVED)****VITAMIN CONTENT GUARANTEED, NO ADDED
SEASONING OR SUGAR***Distributor*—Certifoods, Inc., New York a subsidiary of the Maltine Company, New York*Packer*—Curtice Brothers Co., Rochester, N. Y.*Description*—Sieved tomatoes prepared by methods efficient for retention in high degree of the natural mineral and vitamin values, no added seasoning or sugar*Manufacture*—Fresh tomatoes are sorted washed rinsed under high pressure water sprays, scalded, hand peeled and cored, heated to 71 C, sieved in an atmosphere of nitrogen gas, canned, processed and packed as described for Certifoods Certified Nursery Foods—Green Beans (THE JOURNAL, Oct 3, 1931, p 1003) The processing is for twenty minutes at 100 C

Analysis (submitted by manufacturer) —	per cent
Moisture	95.4
Total solids	4.6
Ash	0.4
Fat (ether extract)	0.03
Protein (N X 6.25)	0.8
Reducing sugars before inversion as dextrose	2.0
Reducing sugars after inversion as dextrose	1.9
Sucrose	0.0
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	3.2
Calcium (Ca)	0.01
Phosphorus (P)	0.02
Iron (Fe)	0.0004

Calories—0.2 per gram 6 per ounce*Vitamins*—The methods of preparation, sieving and processing are efficient to conserve the natural vitamins in high degree

The product is guaranteed to contain 140 units of vitamin A (Sherman method) 5 units of vitamin B (Chase and Sherman method) and 4 units of vitamin C (Sherman-LaMer method) per ounce

Claims of Manufacturer—See this section for Certifoods Certified Nursery Foods—Green Beans (THE JOURNAL, Oct 3, 1931, p 1003)**CELLU ONE-THREE-THREE FLOUR****PULVERIZED BRAN, CORN STARCH, SHORTENING [HYDROGENATED COTTONSEED OIL], CALCIUM ACID PHOSPHATE, SODIUM BICARBONATE, SALT AND INDIA GUM] SELF RISING***Manufacturer*—Chicago Dietetic Supply House, Inc., Chicago*Description*—Mix of pulverized bran, corn starch, shortening (hydrogenated cottonseed oil), calcium acid phosphate, sodium bicarbonate, salt and India gum*Manufacture*—The bran is washed with water until starch free by iodine test, centrifuged to remove water, dried and ground to pass a 40 mesh screen. The formula ingredients are mechanically mixed and 45 gram portions are packed in glassine bags and sealed in heavy envelopes. Each envelop portion with two eggs and three tablespoonfuls of water is sufficient for one baking

Analysis (submitted by manufacturer) —	per cent
Moisture	5.1
Ash (NaCl free)	8.0
Sodium chloride	0.6
Fat (ether extract)	12.1
Protein (N X 6.25)	6.9
Starch (diastase method)	13.7
Crude fiber	14.3
Carbohydrates other than crude fiber (by difference)	53.0

Calories—15 per gram 99 per ounce*Claims of Manufacturer*—Prepared muffin flour of low food value for making a bread substitute in low carbohydrate diets**ROBERTS VITAMIN D FORTIFIED
PASTEURIZED MILK***Distributor*—Roberts Dairy Company, Omaha, Neb., Sioux City, Iowa, and Lincoln, Neb.*Description*—Bottled pasteurized milk fortified with vitamin D (vitamin D concentrate prepared from cod liver oil) contains 150 vitamin D Steenbock units per quart*Preparation*—The milk complies with legal requirements and is pasteurized by the standard holding method. See THE JOURNAL, July 1, 1933, page 34 for description of fortification with vitamin D*Vitamins*—The vitamin D concentrate used and the fortified milk are regularly tested biologically. Clinical investigation shows this milk to be a reliable antirachitic agent*Claims of Manufacturer*—A vitamin D fortified, antirachitic pasteurized milk having the natural flavor and food values of standard pasteurized milk**PLEE-ZING MIXED VEGETABLES***Distributor*—Plee-Zing, Inc., Chicago*Packer*—The Larsen Company, Green Bay, Wis.*Description*—Mixture of carrots, potatoes, celery, green beans, cabbage, peas, corn, lima beans, onions, sweet peppers, salt and water prepared by efficient methods for retention in high degree of the natural mineral and vitamin values of the respective vegetables. The same as Larsen's Veg-All, "A Magic Garden" for Soups, Salads, Vegetable Dishes (THE JOURNAL, Aug 12, 1933, p 535)**DEFIANCE PURE EVAPORATED MILK****BEAUTY EVAPORATED MILK****FOR-GET-ME-NOT BRAND EVAPORATED MILK****MORNING GLORY BRAND EVAPORATED MILK***Manufacturer*—The Defiance Milk Products Company, Defiance, Ohio*Description*—Unsweetened, sterilized, evaporated milk. The procedure of evaporation and canning is essentially the same as for the usual evaporated milk (THE JOURNAL, April 16, 1932, page 1376)**MCCORMICK'S BEE BRAND CREAM TARTAR***Manufacturer*—McCormick and Company, Inc., Baltimore*Description*—Cream of tartar (U S P)*Manufacture*—Crude potassium acid tartrate or "argols" obtained from wine casks is purified by crystallization from water until it complies with U S P requirements

Analysis (submitted by manufacturer) —	per cent
Moisture	0.4
Potassium bitartrate	99.5
Complies with U S P (N) tests for purity	

PLEE-ZING IODIZED SALT*Distributor*—Plee-Zing, Inc., Chicago*Packers*—International Salt Company, New York
Morton Salt Company, Chicago*Description*—Table salt containing added calcium carbonate (less than 1 per cent), sodium bicarbonate (less than 0.1 per cent) and potassium iodide (0.02 per cent), the same as International Table Salt (Iodized) (THE JOURNAL, June 3, 1933, p 1768) or table salt containing 0.023 per cent potassium iodide, 0.1 per cent sodium carbonate and 0.7 per cent magnesium carbonate, the same as Morton's Iodized Salt (THE JOURNAL, Feb 18, 1933, p 499)

- (1) G W C BRAND CRYSTAL TABLE SYRUP
- (2) IOWA MAID CRYSTAL TABLE SYRUP
- (3) MINNEOPA BRAND CRYSTAL TABLE SYRUP
- (4) VALLEY QUEEN BRAND CRYSTAL TABLE SYRUP

Distributors—(1) Grocers' Wholesale Company, Des Moines, Iowa

(2) Charles Hewitt & Sons Company, Des Moines, Iowa

(3) Bismarck Grocery Company, Bismarck, N. D.

(4) Wilson Mercantile Company, Wausau and Rhinelander, Wis.

Packer—Wheeler-Barnes Company, Minneapolis*Description*—Table syrup, corn syrup base (85 per cent) with rock candy syrup (15 per cent), the same as the accepted White Oak Brand Crystal White Syrup (THE JOURNAL, Oct 15, 1932, p 1353)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 3, 1934

ALLERGY IN ANIMALS

There are few phenomena in biology that are as spectacular as the manifestations of hypersensitivity to foreign proteins. It is a startling fact, as H. G. Wells¹ has written in his *Chemical Aspects of Immunity*, that a guinea-pig, which can tolerate many cubic centimeters of such a protein mixture as horse serum in a single dose, will be almost immediately killed by as little as 0.01 cc of the same serum, provided a similar or even much smaller amount has been injected into it ten days or more previously. The character of the death with violent convulsions, perhaps within a minute of the time the injection is made, makes this observation all the more dramatic. The manifestations of allergy are becoming more and more familiar to physicians. They are forced to take cognizance of variations in the reaction of living tissues to foreign chemical agents whether antigenic or nonantigenic in character, or whether the change is toward hypersensitivity or reduced sensitivity. The discovery of the substance responsible for the sensitization or the intoxication of a susceptible patient often taxes the ingenuity of the medical observer to the utmost. One of the most disconcerting discoveries is the circumstance that milk, "nature's most nearly perfect food," may exhibit marked allergic potencies.

The occasional maladaptation of cow's milk to use in the human dietary, especially in infancy, exemplifies how chemically unique the adjustment of exogenous food to the requirements of the body cells may at times become. How a wholesome food may behave like a veritable poison has recently been illustrated in the usual surprising manner by a young walrus, one of the few in captivity, in the pools of the Zoological Society of San Diego, Calif. The animal, a female, was captured at an early age on the ice floes of Bering Sea -

and was fed with meticulous care on evaporated cow's milk, according to the best practices in human infant feeding. Presently a considerable variety of pathologic features manifested themselves. They included skin disorders (reminiscent of the eczematous manifestations of allergy in childhood), disturbances of the mucous membranes, and alimentary dysfunction. Vaso motor rhinitis and gastro-intestinal disorders, as well as cutaneous symptoms, are, of course, familiar evidences of atopy in which milk is involved. In the case of the baby walrus, despite the failure of all attempts to change the physical environment and care of the animal, immediate relief was experienced when milk was completely eliminated from the diet. Such dramatic results should fortify the efforts to relieve some of the most tantalizing manifestations of discomfort in man.

As Wells has pointed out, animals may become refractory to anaphylactic reactions in several ways, namely, desensitization, through exhaustion of the fixed intracellular antibodies by their union with the antigen, antianaphylaxis, when there are sufficient free antibodies in the circulating blood to unite with all the antigen so that it cannot reach the sensitized tissues in which the reaction takes place, antisensitization against passive anaphylaxis, when the blood contains antibodies against the serum that contains the anaphylactic sensitizer since the sensitizing antibodies cannot then reach the tissue cells, and tissue inactivation, when through exhaustion drug action or other injury the sensitized cells cannot respond to the antigen-antibody reaction. In the study of such phenomena lies the possibility of a great therapeutic advance in human medicine.

A PROPOSED NEW INDEX OF NUTRITIONAL STATUS

The subject of malnutrition in children has been discussed in *THE JOURNAL* several times within recent months.¹ In view of the activity in identifying malnourished children stimulated by the Child Health Recovery Conference any new method offered for the ready screening of large groups to identify those who may need more thorough examination is of interest. The American Child Health Association offers what it terms the ACH index of nutritional status. The initials do not refer alone to the sponsoring organization, as might at first be supposed, but to the measurements on which the index has been based - namely, the measurements of the arm (A), the chest (C) and the hips (H). In a pamphlet issued by the association² the index is explained and indications for its use are outlined. It is developed from material previously pub-

¹ Wells, H. G. *The Chemical Aspects of Immunity*. New York: Chemical Catalog Company, 1929. Other reviews may be found in Doerr, *Ergebn. Hyg. Bakt. Immun. Therap.* 5: 71, 1922; Coca, *Texas Practice of Medicine*, New York: Prior & Co., 1920, p. 107; Wells, *Physiol. Rev.* 1: 44, 1921, and the following chapters in *The Newer Knowledge of Bacteriology and Immunology*, Univ. of Chicago Press, 1929: LXXXIV, Anaphylaxis and Anaphylactoid Phenomena by H. T. Karsner; LXXXIV, The Technique of Experimentation in Anaphylaxis by W. H. Mannering; LXXXV, Atopy by A. F. Coca.
² Schroeder, C. R. *Cow's Milk Protein Hypersensitivity in a Walrus*. *J. Am. Vet. M. A.* 83: 810 (Dec.) 1933.

¹ Height Weight Age Tables for Children, editorial, *J. A. M. A.* 101: 369 (July 29) 1933; *Economic Trends and the Weight of Children*, ibid. 101: 1804 (Dec. 2) 1933; *Malnutrition in Children*, ibid. 101: 1318 (Oct. 21) 1933.
² Franzen, Raymond, and Palmer, G. T. *The ACH Index of Nutritional Status*. New York: American Child Health Association, 1934. 10 cents.

lished in the child health monograph series dealing with measures of growth and nutrition³

There has long been a need for a practical measure having the advantages of convenience inherent in the height-weight-age standard but without the disadvantages of that much abused criterion. The starting point for this new index is medical judgment, together with a complete set of measurements, including shoulder breadth, hip width, chest width and depth, height, weight, arm and calf girth, size of the deltoid, and thickness of the subcutaneous tissue over different areas of the arms and legs. Seven measures were then selected as giving the most satisfactory picture, to which additional data did not add anything of appreciable value. These measurements, plus medical judgment, were applied to more than ten thousand children, of varying social and economic status, in seventy-five cities. These measures were hip width, chest depth, chest width, height, weight, arm girth, and subcutaneous tissue over the upper arm. These offered no practical substitute for the simple procedure of weighing the child and measuring his height. They were accordingly narrowed down to three—arm girth, chest depth and hip width. The arm girth is measured with a special steel tape with spring handle, and the hip width and chest depth with wooden calipers devised for that purpose⁴. The technique of measuring is simple and is fully described in the pamphlet. To select cases by this index, the sum of the two chest-depth readings (inspiration plus expiration) are subtracted from the sum of the two arm girth readings (arm flexed plus arm relaxed). The difference is compared, in an accompanying table which is part of the score card, with the minimum difference allowed between the arm and chest measurements in a child with the hip width of the one being examined. The values in the table are based on the ten thousand sets of measurements from which the index is derived. For example, if a boy has a hip width of from 26.5 to 26.9 cm, his minimum allowable difference would be 6.3 cm. If the difference between the sum of his arm measurements and the sum of the chest measurements is less than 6.3, he is selected as one requiring further examination, if it is more, he is not.

This index can be applied in three ways, which are described. The third way, in which the index is used alone, seems to offer the most practical possibilities. It selects about one tenth of a given group and refers them directly to the physician for his further consideration. It is admitted that some cases of serious defect are missed in this way, but the ones most in need of attention are selected. Teachers must in any event be depended on to give their cooperation in any program of discovery involving large groups of children. It is admitted that further study is needed, especially appli-

cation of the ACH index to age groups below 7 and above 12, for whom data are lacking. If larger experience supports the tentative conclusions indicated by this careful study, which has extended over a period of years, great significance will attach to this index. The inexpensiveness and ready portability of the measuring tools, as compared with scale equipment, plus the convenience of the index, should give a great impetus to an overhauling of the antiquated methods still in vogue in many programs for school physical examinations. Economy and increased effectiveness of the school health examination, now loaded with unproductive routine procedures of doubtful validity, await only the development of a ready screening device. The index here advanced should be studied with great care and tested on a large scale to ascertain whether or not this is the answer to the need that has existed for many years.

SPECIAL EXHIBITS FOR THE CLEVELAND SESSION

As the Board of Trustees and the Committee on Scientific Exhibit continue to develop plans for the Cleveland session of the American Medical Association, June 11 to 15, it becomes apparent that even the extraordinary peaks of previous assemblies are to be surpassed. Among the special demonstrations to be made will be not only the fresh pathologic material collected daily from Cleveland hospitals but also three special showings of current interest. These include a complete laboratory exposition of the pathology and methods of diagnosis of amebiasis, material on epidemic encephalitis especially arranged under the direction of those who made studies in connection with the serious outbreak in St. Louis, and an exceedingly practical exhibit of the newer methods in the treatment of burns. Incidentally, these exhibits are correlated with papers and symposiums in the sections, attention has already been called to the general scientific meeting to be held Tuesday afternoon, June 12, in which leading authorities on amebiasis from various portions of the United States will present the most recent and authentic considerations of this subject.

During the Cleveland session two additional unusual features will be meetings of the Section on Miscellaneous Topics devoted respectively to forensic medicine and to nutrition. Here again the annual session of the American Medical Association leads the way in offering to those who attend complete symposiums on topics in the forefront of medical interest. Moreover, the reading of the papers in the symposiums is to be supplemented by extensive displays on these subjects in the Scientific Exhibit. Authorities from some of the leading criminal investigative offices in the United States will combine to present current aspects of the scientific and medical investigation of crime. In the exhibit on nutrition, the more recent applications of diet to the

³ Franzen, Raymond. *Physical Measures of Growth and Nutrition*. School Health Research Monographs II. New York: American Child Health Association, 1929.

⁴ Obtainable from the American Child Health Association, 450 Seventh Avenue, New York. Tape \$1.65, calipers \$2.10.

control of disease and to purposes of growth will be shown

As is customary at the annual session, the various sections will also arrange practical showings closely related to the material of their programs. Especially significant as defining a trend in medical thought is the exhibit of the Section on Obstetrics, Gynecology and Abdominal Surgery, which will be devoted to the technic of delivery as carried out in the home. Certainly this is an indication of the willingness of the medical profession to do everything it can toward lowering the costs of medical care without hazarding any depreciation in the quality of care. The Section on Ophthalmology will display the methods of first aid in injuries of the eye, the Section on Dermatology and Syphilology will have an exhibit in allergy, and several other sections are planning exhibits in their special fields.

For many years now the annual session of the American Medical Association has been recognized as the most complete in scope and most largely attended of any medical meetings held anywhere in the world. The Board of Trustees proposes not only to maintain these superlative attributes but also to insure so much in the way of practical graduate teaching in the field of medicine that every general practitioner within reasonable distance of the annual session will feel it his duty to qualify for Fellowship in the Association and attend these meetings regularly.

Current Comment

THE DOCTOR AND THE COMMUNITY

Under the heading Medical Economics, immediately following these editorials, appears a report of a meeting held in Philadelphia recently to consider the relationship of the physician to the community. The program aroused interest, first, because it was a joint meeting arranged by the American Academy of Political and Social Science and the College of Physicians of Philadelphia, and, secondly, because of the nature of the debate that developed. Although the program was planned originally to present the aspects of this topic from various points of view, many members of the medical profession asserted that its chief purpose was to overwhelm the medical profession by pressure from without, leading toward the socialization of medical practice. In order to make clear the nature of the debate that developed, it should be said that copies of the addresses were prepared beforehand, and that the editor of *THE JOURNAL* rewrote his address during the meeting in order to answer some of the critics of the profession who had appeared on the program before him. Thereafter, Mr. Foster, the final speaker, also changed his address to answer some of the statements made by the editor, but copies of his final address were not made available. The program established definitely the fact that Mr. Michael Davis, representing the Rosenwald Fund, is himself opposed to the entire leadership in American medicine today, and that a large

part of his efforts and travels throughout the United States are devoted to attacking that leadership and to undermining organized medicine as it endeavors to function in behalf of the medical profession. It is apparent that at least in some places this undermining has been accomplished with a fair degree of success, either through misunderstanding or with willing cooperation by local authorities in the medical field. Mr. Davis announced, as will be seen in the quotation from his article, that it was the purpose of the Twentieth Century Fund, the Milbank Fund and the Rosenwald Fund to carry on such efforts. It is well that the medical profession be advised of this intention.

THE TUGWELL-COPELAND PURE FOOD, DRUGS AND COSMETICS BILL

This week hearings are to be held in Washington on the second revision of the original Tugwell bill for strengthening and extending the pure food and drugs legislation of this country. *THE JOURNAL* has previously stated its complete support of the principles of this legislation, and the Board of Trustees has officially endorsed that point of view. The legislation has been attacked by the proprietary medical interests and by publishing interests. In fear of the effects of such legislation on advertising, the attack not only has been directed toward senators and congressmen but has been carried on in other ways to influence the public as well. Moreover, several other bills have been introduced by various interests in an endeavor to divert congressional attention from the new Copeland bill, which is said to represent the administration's desire. It is conceivable that, after the hearings which are to be held this week, further modifications will be made in the final revision of the Copeland bill, which is known as Senate Bill No. 2800. There are indeed some aspects of this bill which could not be supported by the medical profession and these have been called to the attention of Senator Copeland. Physicians should not be misled however by the legislative manipulation, which is an endeavor to secure a bill that will pass and yet give to the public the protection that it so much needs. When the original food and drugs legislation was introduced and became effective, advertising had not grown to its present proportions as a leading industry in this country. The growth and expansion of advertising have made it possible for manufacturers to sell goods with false, preposterous and misleading claims, simply because it is the advertising that sells the goods rather than the label on the bottle or on the package. The new legislation is designed primarily to give the public additional protection that it requires against such advertising. Moreover, it includes with foods and drugs the cosmetic industry, which has grown to alarming proportions in the last quarter century. The medical profession should support this legislation with all the strength that it possesses through its advisory capacity to the public on matters of health, and through its direct contacts with legislators. Telegrams to senators and congressmen, indicating the wish of the people for the successful passage of Senate Bill No. 2800, will give the aid that is required toward a worthy cause.

Medical Economics

THE PHYSICIAN AND THE COMMUNITY

The American Academy of Political and Social Science combining with the College of Physicians of Philadelphia held a meeting in that city, February 7, with the apparent purpose of presenting from diverse points of view the problems that arise in the relationship of physicians to the public. The inspiration for this assemblage, according to Mr. Michael Davis of the Rosenwald Fund, came to him approximately a year ago but apparently it required the passage of twelve months for its full blossoming. The mere announcement of the program served to arouse resentment members of the medical profession in Philadelphia asserted that the choice of the essayists had been made deliberately with a view to overwhelming the medical profession. Moreover, members of the Committee on Medical Economics of the Philadelphia County Medical Society charged that the choice of subjects was an attempt to stack the program against the medical profession by emphasizing the socialization of medical practice. Incidentally, no Philadelphia physician had been asked to contribute to the program.

The Sociologist Looks At Medicine

The proceedings opened with an essay by Prof. James S. Bossard, professor of sociology in the University of Pennsylvania. He pointed out that the public attitude toward medicine has changed and he asserted that the large amount of free medical care given to children in the schools, to the soldiers in the World War and to workers in industrial plants, and the increasing participation of the government in medical practice had caused the public to look on medical service as they do on education and police protection.

"Over against this newer public demand for a socialized health service that is adequate, effective, easily available and cheap, if not gratuitous," he said, "stands a very old profession, dominated by individualistic conceptions, formulated through a very long and honored past, composed of men who have undergone a long period of training, who have invested a good deal of money and time and effort in their professional preparation, and who are confronted with the necessity of earning a living in accordance with the investment which they have made in that preparation."

Professor Bossard then presented several maps of Philadelphia on which he had indicated the locations of physicians' offices and of hospitals and the centers of population in Philadelphia. From this he derived the conclusions that poor people do not have medical attention easily available, that specialists are even harder to find than good general practitioners, and that hospitals have been forced by shifting of the population to embark on hospital insurance schemes. He ended with the charge that the leaders of the medical profession, being well entrenched and with no difficulties of earning a livelihood, are reluctant to face changes and that such entrenched stubbornness will lead to violent reaction. Indeed, he suggested the possibility that a refusal to socialize medical service will ride the medical profession directly into state medicine.

Abuses of Medical Charity

The second paper was by Dr. Nathan B. Van Etten, one of the signers of the minority report of the Committee on the Costs of Medical Care and vice speaker of the House of Delegates of the American Medical Association. Dr. Van Etten reported the results of a survey of the abuses of medical charity and of the free services of physicians which had been made in the Bronx in New York City, and he established quite certainly the facts that considerable numbers of people well able to pay are taking advantage of the laissez faire attitude of the medical profession in this regard.

Medical Practice and Public Needs

Next Dr. Edgar Sydenstricker, director of research of the Milbank Memorial Fund, attacked the right of medicine to control itself asserting that the medical profession had considered itself sacrosanct and that all the discussions of the subject were inhibited by medical tabus. He particularly deprecated the editorial in which *THE JOURNAL* first discussed the reports of the Committee on the Costs of Medical Care. In general he was opposed to our whole economic system but particularly as it concerned medicine. Thus he said, "Any program of action to be given serious consideration at present must assume the continuance of the economic system under which we

now live—a system that is characterized by a grossly unequal distribution of wealth and of ability to pay for the essentials or the luxuries of life."

In outlining the approach to the problem, he suggested first the possibility of gradual evolution, which he believes is tending toward group payment and group practice, and toward new emphasis on the general practitioner. The second possibility he considered was mass production by private interests and distribution by prices regulated by the public. The third possibility was government control, and the fourth, compulsory insurance on either a state-wide or nation-wide basis. For various reasons he rejected all of these possibilities and suggested instead a combination of various methods. He felt that Americans could never learn to budget their medical care because the costs were unpredictable. He felt that some insurance system should be developed going beyond the systems already established in Great Britain and Europe and providing every type of medical service to every member of the family of people having incomes below an amount sufficient to purchase medical service in any contingency.

Changing Position of Medicine in the Social Order

The afternoon session opened with a scholarly address by Professor Sigerist of the Johns Hopkins University School of Medicine, which comprised a history of the changing position of medicine in the social scheme. His conclusion was that medicine, being a part of the social order, invariably adapts itself to the needs and arrangements of its time.

Canadian and British Experiences

Dr. Grant Fleming, professor of public health and preventive medicine in McGill University, said that the Canadian medical profession became restless under the burden of the care of the indigent and that the indigent were dissatisfied with the type of medical care they were receiving. The Canadian Medical Association urged that medical care be included with food, shelter and clothing among items of relief. The government refused to do this, asserting that this burden should be laid on the provinces. "The important point in all this," Dr. Fleming said, "is that governments, while recognizing in theory that medical care is one of the essentials of life, leave the cost of the burden to be borne by the medical profession alone instead of distributing it over the whole population."

"The acute situation arising out of the depression," he asserted, "has brought about a fairly general acceptance of the idea that there must be some change in the provision of medical services." He pointed out that certain services are already provided without cost to the public, including the care of the mentally disabled, workmen's compensation and public health services. There is also insurance on an individual basis and in lodges. Moreover in some of the provinces hospital insurance has been established. Some of the provinces have established full time municipal physicians.

In British Columbia the medical association has advocated a system of compulsory, contributory state health insurance providing a complete medical benefit with freedom of choice of physician and payment on a fee-for-service-rendered basis.

The Canadian Medical Association in November, 1932 authorized its committee on economics to prepare a plan or plans for health insurance and to pass these plans to the various provincial associations for their consideration, criticism and suggestions.

Dr. Fleming then traced the progress of the British Medical Association in relation to health insurance. He said that the medical profession of Great Britain has concluded that with all its faults health insurance is the best plan available to provide an adequate medical service for the nation. He said further that the vast majority of the medical profession of Canada believe that a change is coming, that many want a change and that the public is going to insist on having medical care arranged for on a basis whereby they can pay for it without being unduly burdened.

The Renaissance of the General Practitioner

Dr. Roger I. Lee of Boston made an impassioned defense of the general practitioner and cited many of the conclusions of the Commission on Medical Education in support of his point of view. Dr. Lee said that the temper of the public and even the temper of the medical profession is toward further experimentation in modification of the methods of practice. He felt that the patient must always be considered as a unit and not as an aggregation of isolated segments—that there must be some integrating force such as the general practitioner, for the handling of the

patient. He emphasized the relation of the mind to disease and therefore the necessity for intimate personal relationship between the doctor and the patient. He concluded with a statement as to the nature of the general practitioner of the future.

Change Comes to the Doctor

The original title assigned to Mr. Michael M. Davis of the Julius Rosenwald Fund was "A Layman Looks at Doctors." As he thought himself something more than a layman, the title was modified to the one which heads this section.

Almost from first to last, Mr. Davis's address was an attack on leadership in the American Medical Association, including its House of Delegates, its Trustees, its General Manager, its Editor, its Bureau of Economics and its publications.

He began with his resentment at the editorial in *THE JOURNAL* which dealt with the report of the Committee on the Costs of Medical Care. He then asserted that physicians throughout the nation are reorganizing to meet the recommendations of the Majority Report, pointing out that California is leading in endorsing sickness insurance and that a commission in that state is investigating the subject in order to report to the legislature in 1935.

He emphasized that Seattle, Tacoma, Yakima and Portland have county medical societies which have organized service bureaus to provide the public of those cities with medical service on the insurance principle. He mentioned county medical societies in the Midwest and in the East which have developed similar plans and asserted that the medical society of New Jersey has directed the reorganization of health service committees in every county society.

Mr. Davis pointed out that during 1933 he had met with representatives of medical societies in four cities to discuss sickness insurance plans which committees had drawn up. He applauded particularly the state of Michigan, which has authorized its committee to prepare practical plans for establishing demonstrations of sickness insurance and which has sent representatives to England in cooperation with the American College of Dentists to secure a first-hand report on British sickness insurance.

Moreover, he pointed out that the American College of Surgeons has been working on an extensive plan of medical service in industry.

Then he attacked the national organization in medicine for blocking such plans and for fomenting opposition to them. He asserted that the Milwaukee plan was blocked by an influence coming from Chicago, that a similar plan in Nashville which he had helped to originate was blocked by one of the officials of the American Medical Association. He asserted that an effort had been made to dissuade the American Hospital Association from endorsing group hospitalization and that the editorials in *THE JOURNAL* have never encouraged the experiments that he advises.

He assailed *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* for failing to endorse the British system and the London correspondent of *THE JOURNAL* for misrepresenting that system. He accused the Secretary of the American Medical Association of misrepresenting an address by Sir Henry Brackenbury in abstracting that address for the *Bulletin of the American Medical Association*.

Then he commended the American Hospital Association for its approval of group hospitalization and described plans developed by Cleveland, Newark, N. J., and Akron, Ohio for such hospital insurance.

Next he endorsed the plan of medical care under emergency relief developed by the Roosevelt administration, asserting, however, that the system is bad because it does not provide for the hospitals and the clinics. He emphasized the manner in which the clinics have expanded during the depression and feels that this is a demonstration of the ultimate change which is coming in medicine. He asserted that only from 2 to 5 per cent of those who use the clinics are actually able to pay.

Then Mr. Davis endorsed group dental practice, and finally he pointed out that the Milbank Memorial Fund, the Twentieth Century Fund and the Julius Rosenwald Fund are exceedingly active in organizing sickness insurance plans and aiding new projects for group hospitalization.

He expressed his resentment at the editor of *THE JOURNAL* because the latter has opposed this type of lay interference in medical practice.

"As one sums up the developments of the last few years," he said, "one is led to contrast the reactionary expressions of some professional bodies with what thousands of physicians and

hundreds of medical organizations throughout the country are now doing. Actions are more conclusive than words, and it is a most significant and encouraging fact that the organized actions of physicians during the past few years through medical societies, hospital staffs and clinic groups represent a larger measure of professional initiative and participation in sickness insurance and other organized projects than appeared in any European country during the period when these undertakings were in their formative stage. The movements abroad were almost exclusively initiated from industrial sources."

He then attacked a national medical official for expressing an "ostrich philosophy" in saying that "this agitation about the costs of medical care will all die down if we just keep things quiet for a while," and he suggested that the public could take care of physicians and medical societies who express these principles without much hesitation.

Americans do not want," he said, "and nobody ought to have, a cheap or impersonal doctor. Nobody questions that the physician is the authority about caring for the sick, but, as to the system under which medical care is to be organized and paid for the people who are the ultimate consumers and who meet the bills of the service must have more than a little to say. The American people are likely to be impatient of those who do nothing to aid experimentation and have nothing themselves to propose except the philosophy of keeping things as they are."

The Health Officer and the Community

The evening session opened with an address by Dr. Thomas P. Pirran, health commissioner of New York, who outlined the manner in which the state now enters into medical care and who urged gradual evolution, experimenting with various schemes of practice, as a hope for the future.

The Doctor and the State

Dr. Morris Fishbein, editor of *THE JOURNAL*, said "The time has long since passed when the family doctor in his relationships to his patients represented complete medical responsibility and care." He pointed out that the medical profession has long since recognized the right of the state to concern itself with preventive medicine as it affects community in the mass.

However, the medical profession has during the past quarter century, been confronted with many facts indicating the desire of the state to enter more fully into the problems of medical care. It has seen the extension of free clinics. It has participated in a multitude of surveys and demonstrations. It has witnessed innumerable attempts by the state to contract for medical care under a variety of conditions. It has observed the establishment in most of the large universities of health services which undertake to provide complete medical care for students, faculty and employees.

It has noticed the attempts of health officers in some communities to broaden unduly the scope of their work. In most plans medicine has given largely of its services and made for their success.

Without the cooperation of the medical profession, no system of medical practice can succeed. One listens with amusement, if not with amazement, therefore, to the threats of many of the leaders of the organizations that have been encouraging wide spread propaganda for nationalization of property and socialization of personal service when they say to the medical profession that unless it socializes itself socialization will be forced upon it. No well organized body can be forced into any position. The medical profession as an intimate part of our nation, will no doubt, indeed, already has participated in the general trend of our government. There has been in our government a trend toward socialization for some twenty years. It is interesting to realize, as was pointed out by the president of the Indiana State Medical Association in a recent address, that all but two of the planks in the socialistic platform of 1912 have today become part of the law of our land. Nevertheless, those who know and understand the nature of medical care, including particularly the diagnosis and treatment of disease in the individual, are inclined to believe that the last stand of the citizen in maintaining his status as an individual human being is going to be in times of disease. A man at work in a gang along the side of the road, a soldier who is a fragment of humanity in a regiment of cannon fodder, a robot in one of our great industrial plants who spends minute after minute, day after day, performing the same mechanical functions, has but little opportunity to feel that he is an individual human being. But when a splinter of steel flies into his eye when his shoulder begins to ache with the stress of the pick and shovel or when he inadvertently takes into his system

a large dose of *Endamoeba histolytica* with drinking water which he has been assured by the state is quite free from contamination, he begins to realize that there are parts of his body that have no realization of the state's desire to care for him. Those parts make their presence known in a most disagreeable manner. At such times he seems to prefer a physician who will look at his eye not as an eye belonging to the state but as an eye belonging to John Smith. He prefers a physician who will treat his amebic dysentery without any relationship to the state's responsibility for having permitted the conditions that caused that dysentery to develop. He finds himself in his relationship to the state exactly as he finds himself in his relationship to an employer who wants from his labor all the work that he can get but who wants to pay to his labor the least that can be paid. Those who have watched the tender care of the state for the public in times of stress realize that the sympathy, the understanding and the humanity of state employees toward the unfortunate is not always manifested with what might be called humanism. Those who have read in "Little Man, What Now?" the experience of the German laborer who was trying to get from his government something in the way of benefits under the insurance act in Germany will find a startling example of the way in which bureaucratic employees under most circumstances concern themselves with the problem of the individual sick man.

"There is hardly one of the socialized medical services and the state medical services that have been developed in various parts of the world that has not constantly been subjected to criticism of political manipulation. The answer of those who would socialize medicine to the charge that under a system conducted by physicians politics would not enter into the picture is in itself too naive to merit consideration.

"As long as men are human beings they will continue to react personally on each other. As long as nations are subject to political manipulation, contracts between a nation and the individual in the nation are merely matters of form. Consider what happened in Germany to its social insurance scheme when the Hitler regime took over the reins. What then of the contracts held by physicians with various sickness organizations? What then of the high standard of medical practice set up in Germany under a different reign? What of the resolution which was promulgated by the new government licensing 5,000 naturopathists and telling the medical profession to turn its face to the naturopathic system of practice. Such are the possibilities in medical care when a nonmedical government is in the saddle.

"What of Russia with its sovietized system of red medicine so sympathetically and joyously considered in the recent writing of Messrs. Newsholme and Kingsbury? Their 9,000 mile jaunt in four weeks obviously gave them opportunity to see all the best that red medicine had to offer, but the review of their observations in the *New York Times* brings to light the remarkable vagaries of their health inspection tour and leads an enlightened reviewer to conclude that it resembles nothing like a scientific investigation of the facts.

If there is any one fact apparent in relationship to all the systems of state and socialized medicine that have been developed throughout the world it is that not one of them has been established as a success. There is not one of even the most prejudiced investigators of such systems who is willing to say that the United States today should establish a similar system for the people of this country. But with the folk that has inevitably characterized the projectors of fantastic schemes for social reorganization, perhaps with an inordinate pride in American democracy, those who urge the socialization of medicine insist that where others have failed with such systems Americans will be sure to succeed.

By 1932 the nation was in the midst of an economic depression from which there is doubt as yet that it has wholly emerged. Perhaps the economists will function satisfactorily as physicians to the nation in its time of depression, but it is doubted that they have the knowledge to cure the social evils which are basic in the nature of man. It is doubted that they know enough about the mind and body of a man diseased to organize a system for his cure. Indeed even the methods of cure for the economic difficulties of the nation are in that stage of science in which medicine was at the time of Hippocrates. They offer remedies for the nation's economic troubles as the physician of today endeavors to treat arthritis knowing of no specific cause of arthritis he recommends salicylates and cinchophen he uses hydrotherapy, diathermy and rest in bed and massage and then is still ready to send the patient to a hot climate and to recommend consultation with three more specialists.

I have said that the question of the attitudes of the speakers is fundamental to a consideration of the subject. Any one who

had studied the bibliographies of the members of the Committee on the Costs of Medical Care could have told long before its report was issued what the nature of the report would be. Since the announcement of the meetings held here today, physicians have written in considerable numbers pointing out that the program seemed to be stacked against the medical profession, for the medical profession as a whole is quite familiar with the points of view not only of its own representatives on this program but also of Sydenstricker, Michael Davis and Parran, and with the views of William T. Foster, who follows me. It is not surprising to hear Sydenstricker assert that the profession is bound by tabus and traditions which must be overthrown, neither is it remarkable to hear him insinuate that our entire economic, social and political system needs reorganizing. It is annoying, however, to have him center his attention on medicine and want to begin all the reorganization with the medical profession. Yet as an employee of the Milbank Foundation, what other course is open to him? That foundation is pledged to a program for socialization of medical care and its executive secretary, Mr. Kingsbury, has become enamored of what was shown to him in a personally conducted tour of Russia.

'No better proof of the necessity for medical advice in a study of medical matters could be offered than Professor Bossard's analysis of the distribution of physicians and hospitals in Philadelphia, of his attempt to trace an analogy between university health services and military medical services offered to special classes of the population under peculiar conditions with the medical care that must be given to people generally, living in their own homes and subject to all of the vicissitudes of existence, such as lack of fuel, bad housing, improper nutrition and want of many of the other necessities of a bare existence. He points out that the poor suffer much more with illness than do the rich, but he does not attempt to cure them of the cause of their illnesses, which lies largely in their poverty. Quite unscientifically and wholly unmedically he would not attack the cause of their illnesses but worries about diagnosis and treatment after the illnesses develop. His maps of the distribution of physicians in Philadelphia prove just one thing—that a patient will travel many miles and pass by the offices of innumerable competent doctors from a legal and scientific and educational point of view to get the doctor that he wants to take care of him. And Professor Bossard ends his discussion with the same old threat. If the doctors do not give us what we want, there may be violence. Well, the doctors in Germany and France and in England have been giving the people what the politicians and the economists said the people wanted and there is violence. And a hundred competent observers, including many in high places, do not find the vast majority of the people of the United States dissatisfied with the type of medical care available to most of them today.

'It is asserted by both Messrs. Sydenstricker and Davis that the organized medical profession does not today represent the majority of physicians. If it does not, then the Congress and Senate and the President of the United States do not represent the people, because the American Medical Association has been since 1901 organized and conducted on a strictly democratic representative basis. He accuses the secretary of the Association and myself as editor of having failed to represent conditions here and abroad adequately to the profession and then he fills his manuscript with quotations from *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* to prove the value of the foreign systems of practice that he supports. Mr. Davis indicts the medical profession because of its opposition to certain plans of hospital insurance. He fails to point out that in the period of prosperity, when money was spent in madness, hospitals over-expanded, attempted to ape the wealthiest hotels in their constructions, provided for nurses in their competition to get free nursing service with dance halls, swimming pools, libraries and great reception halls, and then, when caught by the depression, in many instances tried to save themselves by bankruptcy through the development of schemes that would disrupt, disorganize and exploit the medical profession. He forgets that the quality of service rendered by any hospital can be measured only by the quality of the physicians who compose its staff. And finally he fails to state how many of the experimental schemes to which he points with pride were initiated by personal visitations from members of the Milbank and Rosenwald funds, subsidized by money coming from these funds and promoted with propaganda paid for by these funds. So far as any of the experiments have succeeded, and no one can say now whether or not any of them will succeed they have been made possible by the tolerance and cooperation of the organized medical profession. The American Medical Association has never opposed honest scientific experimentation. But it has asked that the game be played according

to the rules laid down by a thousand years of tradition and experiment. The rules were made to safeguard the interests of the sick individual, not, like the rules of so many of our philanthropies, to make a vast number of people dissatisfied with their hours of work and the wages they receive complacent because somebody else pays for the cost of their illnesses. The famous sociologist Ross, talking of philanthropy with strings, points out that medical care on a philanthropic basis has come to be the philanthropist's panacea for social unrest.

"In the paper of Mr. Foster, who is to follow me, you will hear a remarkable solution to the problem of medical care. It is briefly the conclusions of the majority report of the Committee on the Costs of Medical Care. That report, which has, except for gatherings of little groups of serious thinkers such as this one, lapsed into innocuous desuetude, that report which is kept alive only by the propaganda which is financially sustained by the Milbank and Rosenwald funds, would remove from physicians the right to say how medicine shall be practiced and put it in the hands of nonmedical directors. It is useless to attempt to distinguish between the content of medical practice and the method of administration. The whole question of mutual responsibility between patient and physician is basic. Shall the doctor be responsible to the patient whom he serves, protecting the interests of the patient and considering those interests first or shall he be responsible to the industry which employs the patient, the insurance company which insures him, the government which dictates to him, or the hospital to which he consigns his body in times of sickness? Shall the doctor or the insurance adjuster say how long the patient is to lie in bed after an operation for appendicitis? Shall the doctor or the employer say when the sick man is able to come back to work? I must insist that these are questions which only a physician with the patient as his first interest is able to answer satisfactorily for that patient.

"The medical profession has witnessed some interesting spectacles of late. It has seen a Hugh Cabot who argued for social insurance and state medicine come back from abroad and announce that the standard of medical care in the United States today is better than he found it in five foreign countries. It has seen England disturbed by fear that its system of compulsory health insurance would bankrupt the nation as it has already bankrupted the voluntary hospitals, and it has seen politicians offering as a cure for the situation more social insurance. *Similia similibus curantur*.

"The majority of American physicians have not been greatly concerned about the entrance of the state into medical practice, and Walter Lippmann says that the people generally are even less concerned. In most communities there have been departments of public health which are able to accomplish results in preventive medicine by cooperation with the medical profession. Some of these departments have entered much more fully into medical practice than others. Gradually health departments in some places encroached on the province of the medical profession. When money was freely available, some even attempted to conduct periodic physical examinations. Then came the depression, and with the depression a tremendous lowering of budgets of health departments. When these budgets were lowered, health departments discontinued most of their services to the individual and concerned themselves more and more with those functions involving the prevention of disease by the control of the water supply and of the food supply, the disposal of sewage and the control of epidemics. These may be considered well established functions of health departments.

"Beyond these phases of government participation in medical care there was also the Veterans' Bureau. It would be useless to attempt to repeat here the complete story of the manner in which the veterans through political activity obtained for themselves not only cash compensation but also the right to complete medical care without cost in government hospitals by full time government physicians. However, again, when the depression arrived the government was able to see the folly of giving complete medical and surgical care to men who had been veterans and who were well able to pay for such care when the illness or disability bore no relationship whatever to the government service. It is needless, incidentally, to remark that once having been at the trough the veterans are moving heaven and earth to squeeze their way in again.

"And now comes the present administration with all of the various methods for overcoming the depression that have already been mentioned. Each of these is associated to some extent with medical practice.

"In all of these efforts of the government the medical profession has participated, realizing the existence of the emergency.

No doubt the entire program has been in itself a sort of insidious propaganda for state medicine among the persons who received the benefit and among a considerable number of almost indigent physicians who have been enabled thereby to benefit somewhat their financial status.

"The medical profession has, moreover, been lending itself in various ways in various parts of this country to innumerable other experiments in medical care. Contract practice, industrial practice, hospital insurance schemes, university practice, lodge practice and group clinics are a few of the many forms of medical care now available in various communities, and these simply could not exist without the services of some of the medical profession.

"There are certain criteria by which scientists measure the results of various experiments. In consideration of many of these sociomedical experiments, the scientific criteria have been waived or overlooked. It would be desirable to know first of all whether morbidity and mortality rates in communities where these experiments exist are lower than those in other communities in which the old form of medical practice prevails. Actually, however, no satisfactory scientific statistical data are available to show that sickness and death, even among the low income classes, are lessened after any of these plans for the distribution of medical costs are put into effect.

"It is realized that advance payment covering the cost of sickness is likely to prolong the illness. It is realized that advance payment is likely to cause the patient to consult the physician much more frequently than he would otherwise. This very psychology in itself tends to invalidate a great deal of the statistical data that are made available.

"In European countries with compulsory health insurance schemes the amount of sickness has not been reduced. Moreover, the death rate, which is much more accurate does not seem to be affected in any measurable manner by the introduction of these schemes or by any other method of paying for medical care. In fact it is safe to say that the mortality and morbidity rates in the United States are as low as or lower than those of most civilized countries.

"In reading a vast amount of literary material on this subject I have been struck repeatedly by the statement appearing in the papers of most of the socially minded writers to the effect that medicine is proceeding in a stage-coach or on a bicycle while the world is traveling on an express train or in an airplane. Medicine has always been rather proud of its conservatism. If it had leaped at once to embrace all of the half-baked schemes that have been offered for changing the nature of practice, if it had hastened in its acceptance of thousands of theories of the causation of disease and of millions of panaceas and cures for various disorders, the effects on humanity would have been disastrous. Nevertheless, medicine points with pride to the fact that it has made more progress within the last fifty years than in all the previous years of its existence. As a result of this progress, increasing years of life have been conferred on most of civilized humanity, and the fear of pain, disease and death has been abolished. No doubt the very abolition of this fear has given the world the opportunity for most of the progress that it has made in other fields.

"Nevertheless, with all the progress that it has made, medicine is not yet ready to say to the world that it has standardized mankind. It still finds individual human beings so definitely individual in times of illness that they are not to be handled in the mass. True, even when they are handled in the mass it is possible to benefit ailing human bodies. But there is a great distinction between the quality of medical care that can be rendered to mankind in the mass and the quality that is given to an individual. As I have said previously, medical care can be judged only on the basis of the quality of the service rendered.

"It is conceivable that out of many of the experiments that have been made and that are being made and out of the scientific advancement of medicine itself there may develop a greater and greater tendency toward discounting individuality in medical care. However, the scientific studies of recent years reveal no such tendency. We have seen instead in this period the growth of such a method as psychoanalysis, which requires the closest possible communion between an individual physician and an individual patient for hundreds of hours in order to get at the basis of a great deal of physical and mental disease. Under no system of state medical care is there provision for adequate psychologic investigation and mental hygiene.

"We have seen in this period a reaction of the body of man to this new speed of civilization. A lowering of life expectancy at birth instead of a continued increase begins to reveal itself.

Perhaps the machine age is bad for the health of man. Is it not conceivable that the great machine age in which we take such pride, that the great production in industry which seems to such men as a Ford and a Filene to represent the apotheosis of the purpose of mankind in this world represent a wrong philosophy of human life? The medical profession feels that the sick man is still an individual, a human being. Until it is convinced by properly controlled scientific data that its point of view is wrong, it is likely to continue to insist on the basic idea of personal relationship between doctor and patient as the necessary foundation for good medical care. It has shown repeatedly its willingness to work with economists, sociologists and statesmen toward schemes for making such individual medical care possible for the vast majority of our people."

The Consumer's Point of View

Mr. William Trufant Foster of Newton, Mass., an economist of note, now at work organizing a consumers' league, said

"At least one hundred thousand persons in the United States sorely need hospital care today but are not getting it. Why not? The answer seems to be that only two thirds of the beds in our private hospitals are in use, and the hospitals do not know what to do with their surplus capacity.

"At least seventy million persons in the United States whose teeth are decaying are not receiving adequate dental care. Why not? That is because this country leads the world in dental science and has tens of thousands of partially unemployed dentists.

"Many millions of men, women and children suffer from other preventable diseases. Why is nothing done about that? The answer is that the science of preventive medicine has made marvelous advances in recent years, and tens of thousands of competent physicians are eager to use their new knowledge and their idle hours to save humanity from needless suffering.

"These are mad riddles of the Mad Hatter. The riddles and the answers provide another chapter for Alice in Wonderland.

"Under the prevailing form of medical service—private individual practice—more than 80,000,000 persons in the United States either do not receive the care which they need and which could readily be provided or are heavily burdened by its costs. At the same time, many of the competent practitioners and agencies are underemployed and poorly paid. A barrier, mainly economic, stands between the doctors, dentists and nurses who are able and eager to serve and the patients who are sorely in need of services.

"Even in places where adequate medical care can be purchased, most of the persons in the lowest income groups do not get it. In spite of the large volume of free work done by hospitals, health departments and individual practitioners, and in spite of the sliding scale of charges, it appears that each year nearly one half the individuals in the lowest income group receive no curative professional medical or dental attention.

"Even more extensive is the failure of the people to benefit by preventive medicine. In any one year, fewer than 7 per cent of the population have a complete or even a partial physical examination.

Another difficulty is that the patient does not know what he wants. How can he know? And even when he does know, he cannot tell where to find it. As a result, medical care is now bought with little knowledge of its price. The patient commits himself to an unknown course, in which one bill may merely breed others. The price does not behave the way prices behave in textbooks on economics.

"Worse still, under the present 'fee-for-service' basis of private practice, the patient may fall into the hands of fee-splitting doctors and thus be misled when he thinks he is getting honest advice. Fee splitting increases the cost of professional care, degrades the profession and, in effect, puts the patient in the hands of the highest bidder."

What every sick person needs, evidently, is a single agency, in one place, freed from every taint of commercialism, which will furnish him all the necessary information.

The crux of the problem evidently is to bring doctors, dollars and diseases into such helpful and continuous contact with each other that the practice of medicine can keep pace with the science of medicine.

This evidently must be done by collective action. Medical services both preventive and therapeutic should be furnished largely by organized groups of physicians, dentists, nurses, pharmacists and other associated personnel. Such groups should be organized—preferably around a hospital—for rendering com-

plete home, office and hospital care. The form of organization should encourage the maintenance of high standards and the development or preservation of a personal relation between patient and physician.

"The costs of medical care should be placed on a group-payment basis, through the use of insurance, through the use of taxation, or through the use of both these methods. This is not meant to preclude the continuation of medical service provided on an individual fee-basis for those who prefer the present method.

"This whole program, however, is bitterly opposed by those unprogressive persons who have acquired control of the American Medical Association. They appear to be a recalcitrant minority of the profession, similar to the obstructive minorities which Mr. Roosevelt has deplored in certain industries. On account of my personal acquaintance with hundreds of physicians, virtually all of whom repudiate the backwardness and the politics and the tactics of the American Medical Association, I cannot bring myself to believe that the Association represents the profession.

"This is not a conflict between patients and doctors. It is a conflict between reactionary doctors and progressive doctors. It is merely one phase of the war, now being waged in every profession, between those who imagine that we can still live in an economic age that is gone, and those who realize that we are living in a new economic age.

"It is only yesterday, in the countless centuries of human history, that we took over the education of youth as a public responsibility. Before that, formal education was enjoyed only by those individuals who wanted it and could afford to pay for it. The private practice of education failed, and it failed through no fault of the private practitioners. Now we all realize that the state, for its own protection, must require every one to go to school, whether he wants to go or not, and whether or not he can pay the bills. This is one of the fields in which individualism, however rugged, is not a sufficient protection of society. We tried it out for centuries. For centuries it failed.

"All this is equally true of medical care. For centuries we have relied mainly on individual initiative. For the most part, each individual has been free to care for his health, if he wanted to, and to neglect his health, if he preferred to do that, or could not pay the bills. The result is the shocking condition of the rank and file of our citizens, as revealed by the physical examination of the drafted men in our army and navy. Rugged individualism has failed. The private practice of medicine has failed, and this through no fault of the private practitioners. At least seven men and women out of every ten, to cite a single example, have failed, even in times of prosperity, to receive adequate dental care. Yet health is not one of those personal matters with which we need not be collectively concerned. The health of the public is just as necessary for the safety of the state as the education of the public. The analogy is sound in every essential. That is the reason, apparently, why the recalcitrant minority of the medical profession vehemently object to any mention of the analogy.

"Society must look forward to providing for health on the same basis as education, or else leave the medical profession in its present unfortunate plight. Even the chairman of the minority committee of the Committee on the Costs of Medical Care admits that 'a tide of public opinion inimical to the profession is rising which has already become a distinct menace.' For the sake of both the profession and the public, the dollars should be provided by collective action, the doctors should be professionally in command, and thus the abundant resources, human and material, which are already at hand should be mobilized for the age-old battle against disease.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION confuses the issue when it says, editorially, 'The right to say how medicine shall be practiced must remain with the medical profession.' Nobody proposes that lay boards shall tell surgeons how to operate for cancer, or physicians what to prescribe for pneumonia. Nobody suggests any interference with the science of medicine. On the contrary, the aim is to free the science of medicine from the present chaos of the economics of medicine. What the public demands is the right to say, not how medicine shall be practiced, but how it shall be purchased and paid for. Who has a better right to decide that than those who do the paying? In any event, is it folly to burden physicians any longer with business affairs which they have notoriously mismanaged, for which they are not trained, in which they are not interested, and which interfere with that single-hearted devotion to patients which is the glory of their profession?"

Association News

ABSTRACT OF MINUTES OF MEETINGS OF BOARD OF TRUSTEES HELD AT HEADQUARTERS, CHICAGO, FEB 15 AND 16, 1934

The Board of Trustees held a two day session in Chicago, Feb 15 and 16, 1934, during which the affairs of the Association received careful deliberation

LAWSUITS

The Board was notified that the suit filed by John R Brinkley has been dismissed and the costs assessed against the plaintiff

OFFER OF A HOME FOR THE CARE OF TUBERCULOUS PHYSICIANS

The Board declined an offer to take over an institution as a place for the care of tuberculous doctors and medical students and possibly tuberculous nurses, it being considered inexpedient for the Association to accept the offer at the present time even if its charter will permit

ELECTIONS

The following appointments were made for the various councils, committees and editorial boards Council on Pharmacy and Chemistry—Drs Stanhope Bayne-Jones, Eugene F Du Bois and C W Edmunds to succeed themselves, and Dr Kenneth D Blackfan to succeed Dr Alfred Hess (deceased) Council on Physical Therapy—Drs Harry E Mock, George M MacKee and Ralph Pemberton to succeed themselves Committee on Foods—Dr E M Bailey to succeed himself, and Dr Joseph Brennemann, Chicago, to succeed Dr Julius H Hess Committee on Scientific Research—Dr Noble Wiley Jones to succeed himself *Archives of Internal Medicine*—Dr Reginald Fitz, *American Journal of Diseases of Children*—Drs W McKim Marriott and John C Gittings, *Archives of Neurology and Psychiatry*—Dr Stanley Cobb, *Archives of Surgery*—Dr Everts A Graham *Archives of Otolaryngology*—Dr John F Barnhill, and *Archives of Ophthalmology*—Dr Francis Heed Adler—all to succeed themselves *Archives of Pathology*—Drs S B Wolbach and O T Schultz to succeed themselves, and Dr Frank R Menne, Portland, Ore, to fill the unexpired term of Dr William Ophuls (deceased) *Archives of Dermatology and Syphilology*—Dr Fred D Weidman, Philadelphia, to succeed Dr Jay Frank Schamberg

REQUEST FOR CERTIFICATE OF MERIT OR PRIZE FOR OUTSTANDING CONTRIBUTION TO SURGERY

The Board declined to comply with a request for a certificate of merit or a prize in surgery, to be known as the American Medical Association prize in surgery, for the individuals or groups of individuals making outstanding exhibits in surgery at the meeting of the National Medical Association, in view of the policy of the Association to offer prizes only to participants in its own exhibits

APPROPRIATIONS

Appropriations were made for the conduct of the work of the various councils, bureaus and committees in the headquarters office as well as for exhibits and for research work

BROADCASTING PRIVILEGES

Due acknowledgment was made by the Board of the broadcasting privileges granted the Association by the National and Columbia broadcasting companies for weekly talks for the enlightenment of the public in matters of health The outlets of these two companies extend from Canada to the Gulf and from the Atlantic to the Pacific Ocean the facilities made available include more than sixty stations and the time allotted is worth many thousands of dollars

MISCELLANEOUS

Many other subjects received careful consideration Some of these have been laid on the table others were referred to various bodies or individuals for further deliberation and report and will come before the Board again in the near future

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Abstract of the Minutes of the Council Meeting of February 11

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE

A resolution was adopted that approval of the University of Georgia School of Medicine be withdrawn at this time with the provision that this decision will not prejudice the transfer of the students enrolled to other class A medical schools at the end of the college session

ENROLMENT OF STUDENTS IN GRADUATE SCHOOLS

A resolution was adopted that graduate schools must determine their own policy with respect to the enrolment of students.

EARNED AND UNEARNED DEGREES

It was resolved that the Council on Medical Education and Hospitals in no case will recognize an unearned degree as a substitute for an earned degree

LISTING OF INTERNSHIPS

It was resolved that the suggestion for listing internships as to duration character of service and ratio of private and house cases be adopted, or some similar scheme, convenient for classification, indicating the type of intern experience offered in the approved hospitals

NECROPSY PERCENTAGES

It was resolved that cases removed from the jurisdiction of a hospital by coroner or medical examiner, and in consequence not available as teaching material for interns, may be deducted from the total hospital deaths in computing necropsy percentages This provision also extends to bodies legally assigned to qualified educational institutions for dissection

ADVISORY BOARD ON MEDICAL SPECIALTIES

Dr Louis B Wilson of the Mayo Clinic explained the newly created Advisory Board on Medical Specialties He asked for the cooperation of the Council on Medical Education and Hospitals as indicated in the proposed constitution Thereafter, the following two resolutions were adopted

That the standards of the existing boards should be analyzed and that the Council on Medical Education and Hospitals should approve as soon as practicable standards for such special boards with a view to submitting them to the House of Delegates of the American Medical Association at the Cleveland meeting

That the secretary be instructed to notify the Advisory Board on Medical Specialties that the Council deems it inadvisable to accept membership in the Advisory Board in conformity with the constitution recently adopted, but that, should the Advisory Board so desire, this Council would arrange to be represented at the meetings of the board but without voting power and without accepting any responsibility for decisions reached by the Advisory Board

MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4 30 to 4 45, Central standard time The next three broadcasts will be as follows

March 8	Keeping Your Health	W W Bauer M D
March 15	The Health of the School Child	W W Bauer M D
March 22	Progress of Surgery	Morris Fishbein M D

National Broadcasting System

The Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4 15 Central standard time (5 o'clock, Eastern standard time, 3 o'clock, Mountain standard time, and 2 o'clock, Pacific standard time) The next three broadcasts will be as follows

March 5	Dangerous Drugs	Paul Nicholas Leech Ph D
March 12	Consistent Inconsistencies	R G Leland M D
March 19	Mechanization of Medicine	Morris Fishbein M D

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION, PUBLIC HEALTH ETC.)

COLORADO

No More Hospitals Needed at Present—A resolution adopted by the committee on medical economics, January 3, urges the Colorado State Medical Society to disapprove the construction of any hospitals or related institutions until it is evident that existing facilities are inadequate. The resolution, based on the fact that the bed occupancy of these institutions in the state has been below their capacity for years, was confirmed by the board of trustees, January 9.

Society News—At a meeting of the Medical Society of the City and County of Denver, January 19, the speakers were Drs Ward Darley, on "Use of Postpituitary Extract for the Acceleration of Drainage from the Urinary Pelvis", Roy P Forbes, "Intestinal Intoxication A Retrospect of the Changing Treatment and Its Relation to Mortality", Constantine F Kemper, "Anterior Pituitary Gland Newer Concepts in Outline," and Casper F Hegner, "The Approach to Upper Lobe Pulmonary Cavities"—Dr Royal C Adkinson, Florence, was the principal speaker before the Fremont County Medical Society at Canon City, January 22, on "Artificial Pneumothorax"—At a meeting of the Larimer County Medical Society in Loveland, January 3, Dr Thomas D Cunningham, Denver, spoke on "Chronic Arthritis"—A pediatric clinic was conducted at Children's Hospital, Denver, January 18, under the auspices of the Colorado State Medical Society.

CONNECTICUT

Dr Edwards Made Acting Health Officer—Dr Herbert R Edwards, director of the bureau of tuberculosis, was appointed acting health officer of the New Haven Health Department, succeeding Dr John L Rice, who resigned to become health commissioner of New York City. Dr Rice was granted a leave of absence for one year.

New Haven's Health—For the fourth consecutive year, no deaths were reported in New Haven in 1933 from typhoid, scarlet fever or measles, and a new low total (four) in deaths from common communicable diseases was attained. No small-pox was reported during the year. There were 241 new cases of tuberculosis reported in 1933, a decrease of ninety-three from 1932.

Pediatric Prize Awarded—The New England Pediatric Society presented the John Lovett Morse Prize to Dr Jacob Greenberg, New Haven, at its annual meeting in Boston, Dec 15 1933, for his paper on "An Attempt to Reproduce Celiac Disease Experimentally in Young Animals by Eliminating the External Pancreatic Secretion from the Intestine." Dr Greenberg, who graduated at Yale University School of Medicine in 1933, is associated with the New Haven Hospital. The prize of \$150 is offered annually by the New England Pediatric Society for the best dissertation on subjects of clinical or scientific interest in pediatrics. Only fourth year medical students of class A medical schools in New England are eligible to compete. Information regarding the prize may be obtained from the society, 319 Longwood Avenue, Boston.

DISTRICT OF COLUMBIA

New Surgical Society—The Washington Academy of Surgery was organized, Dec 8, 1933. Among the requirements for membership are eight years of practice with limitation of work largely to surgery or its allied branches, and certification of ethical standing and ability in the practice of surgery. Regular meetings will be held four times a year on the second Friday in February, April, October and December in the library of the Medical Society of the District of Columbia. Officers of the new organization, to serve two years, are Drs Harry H Kerr, president, Frederick R Sanderson, vice president, and Dr Alex Horwitz, secretary.

GEORGIA

Rat Eradication Campaign—Plans have been launched in Georgia to exterminate rats in an effort to eliminate typhus fever from the state. Financed by the Civil Works Administration the activities will be concentrated in Atlanta, Brunswick and Savannah, newspapers report.

Society News—Dr James N Brawner presented a paper before the Fulton County Medical Society, January 18, on "Cerebral Inhibitory Functions and Their Disorders as Related to Mental Symptoms." Dr Dunbar Roy presented a paper on "Epiphora in Infants and Its Treatment" before the society, February 1.

Personal—Dr William L Gilbert has been named health officer of Fulton County, succeeding the late Dr William N Adkins—Dr William A Palmour, Gainesville, assumed his duties as city commissioner, January 1, for a term of three years—Drs Lovick P Longino and James I Garrard, both of Milledgeville, were recently elected medical director and superintendent, respectively, of the Milledgeville State Hospital—Dr James R Dykes, Cairo, was recently reelected commissioner of health of Grady County—Dr James H Jackson, Barnesville, has been elected health commissioner of Lamar County.

ILLINOIS

No Tuberculosis Deaths in County—Schuyler County reported no deaths from tuberculosis for 1933, according to the state department of health. Low figures for other sections of the state suggest a continued improvement in the death rate for tuberculosis, although other evidence indicates a definite increase in prevalence. The tuberculosis death rate in 1933 was the lowest on record for Illinois.

State Society Urges Enforcement of Medical Practice Act—At a meeting of the council of the Illinois State Medical Society in Springfield in January, a resolution was adopted urging the state department of registration in medicine to enforce the "plain provisions of the Medical Practice Act." It is common knowledge, the resolution points out, that corporations are actively, openly and flagrantly violating the medical practice act, as evidenced by advertisements in the press and over the radio. The practice of medicine as a business by a corporation, even though the employees of the corporation are licensed physicians, and the professional connection or association with or lending one's name to another for illegal practice are direct violations of the medical practice act, it was said.

Chicago

The Mathews Lecture—Dr Stephen Walter Ranson will deliver the annual Samuel A Mathews lecture, March 9, at Loyola University School of Medicine. His subject will be "Cutaneous Sensation." The lecture is under the auspices of the Phi Beta Pi Fraternity.

The Tenth McArthur Lecture—Dr Samuel C Harvey, professor of surgery, Yale University School of Medicine, New Haven, will deliver the tenth Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine, March 23, at the Chicago Woman's Club. His subject will be "Reaction to Injury as a Function of Growth."

Program on Medical Illustration—"The Value of Medical Illustration to the Practitioner of Medicine" will be the subject of a symposium before the Chicago Medical Society, March 7. Speakers will include Dr Hollis E Potter, president, Chicago Roentgen Society, on "The X-Ray," W C Shepard, art department, Rush Medical College, "Historical Aspects of Medical Illustration," and Tom Jones, art department University of Illinois School of Medicine, "Modern Medical Illustrations." Dr Morris Fishbein, editor of THE JOURNAL, will discuss the papers. A dinner will be given in honor of the speakers before the meeting.

IOWA

Auxiliary Sponsors Health Essay Contest—The woman's auxiliary of the Iowa State Medical Society is sponsoring a health essay contest in the high schools throughout the state. Prizes are being offered to those students who write the best essays on "Health Our Greatest Asset—And How to Maintain It." The speakers' bureau of the state medical association is cooperating in this project, and the state department of public instruction has endorsed it. The contest closes March 15.

Society News—Dr Edwin P Sloan, Bloomington, Ill, discussed hypothyroidism before the Black Hawk County Medical Society, January 16—A symposium on acute abdominal conditions was presented by Drs Bush Houston, Nevada, and Albert I Haugen, Ames, before the Boone-Story County Medical Society in Boone, January 16—Dr Sylvester E Hinshaw, Newton, discussed "Sarcoma of the Mouth" before the Jasper County Medical Society, January 2, in joint session with the county dental society—Dr Charles W M Poynter, Omaha, addressed the Pottawattamie County Medical Society in Council Bluffs, February 1, on "Modern Trend of Medical

Education"—Speakers before the annual meeting of the Sioux Valley Eye and Ear Academy in Sioux City, January 23, included Drs Sydnor D. Maiden, Council Bluffs, on "Acute Laryngotracheobronchitis," and Dr Thomas R. Gittins, Sioux City, on "Biochemistry in Rhinolaryngology." Dr Charles L. Chambers, Des Moines, is president of the association.—At the meeting of the Upper Des Moines Medical Society in Emmetsburg, January 23, speakers included Drs Fred L. Knowles, Fort Dodge, on "Reduction of Fractures of the Neck of the Femur—Double Pin Method," and Joseph B. Priestley, Des Moines, "Surgical Management of Peptic Ulcer."

MARYLAND

Sanitation Program—A state-wide rural sanitation program has been inaugurated in Maryland with the state department of health and the U. S. Public Health Service cooperating. The state has been divided into four districts with a supervisor in charge in each district and a local supervisor handling the work in each county. Emphasis is placed on properties without sewerage facilities.

Clinics at University of Maryland—Dr. Lewellys F. Barker, Baltimore, conducted a medical clinic at the University of Maryland, February 1, the first in a series under the auspices of the division of medical extension. Dr. Charles R. Austrian conducted a medical clinic February 9, and Drs. Louis Hamman and Hugh R. Spencer a clinical pathologic conference, February 15. Dr. Louis P. Hamburger concluded the series, February 22, with a clinic on migraine.

CWA Supports Carbon Monoxide Research—Efforts to diminish the amount of carbon monoxide that is formed in automobile exhausts and to convert the gas already formed into less harmful products will be carried on in a survey under the supervision of faculty members of Johns Hopkins University, with funds provided by the Civil Works Administration. Twenty-one unemployed chemists will be engaged for the study, newspapers announced, and laboratories will be constructed in a wing of Remsen Hall.

Medical Milk Commission—Announcement is made of the formation of a state medical milk commission for the certification of milk and dairies in Maryland. The house of delegates of the Medical and Chirurgical Faculty of Maryland authorized the appointment of the commission following a recommendation of the state health department. The following physicians are members:

For Baltimore: Allen W. Freeman, chairman; James H. Mason, Jr.; Louis P. Hamburger; and Frederick B. Smith.
For Baltimore County: Frank W. Keating; Owings Mills: For Cecil County: Dr. Clarence I. Benson; Port Deposit: For Montgomery County: Jacob W. Bird; Sandy Springs.

MASSACHUSETTS

Pneumonia Collaborators—The study of pneumonia in Massachusetts, which is now in its fourth year, was extended into the area around Lawrence Dec. 19, 1933, with headquarters at the Lawrence General Hospital. Seven local physicians have been designated pneumonia "collaborators" who, when called by other physicians in suspected cases of lobar pneumonia, will undertake to have sputum or other material from the patient typed at once. An annual appropriation of \$36,200 for three years with a tentative agreement of support for an additional two years was granted by the Commonwealth Fund of New York in 1931. Since that time the experiment has been projected in seventeen selected areas of the state. The appropriation provides the cost of organizing the area, producing and distributing serum, maintaining a typing laboratory and training technicians from the outlying laboratories in the state in pneumococcus typing. The primary objective is to establish, if possible, whether or not pneumonia serum is a remedy for the treatment of pneumonia caused by certain types of pneumococci. If this can be determined, it is hoped that, when the Commonwealth Fund withdraws its support, the state will take over the production and distribution of bivalent antipneumococcus serum for cases of type I and type II lobar pneumonia and supply it to all physicians throughout the state without cost. No charge is made to the patient in the present study although the collaborator receives a consultation fee. In the instances in which patients are unable to pay, the Commonwealth Fund pays the collaborator. A fee is also charged in the laboratories, except the state bacteriologic laboratory in Boston, but, when patients cannot pay, hospitals will do the work without charge. Recently a new plan was introduced in an effort to determine whether physicians in general practice wish to use this serum. In communities adjacent to Boston and Newton any physician may obtain serum provided sputum or other material is sent from the patient to an approved labora-

tory and a type I or type II pneumococcus found, and that the physician is willing to state that his patient has not been ill with pneumonia longer than four days. The fact that only a relatively small amount of serum has been delivered in this manner is attributed to the little amount of publicity. The results obtained thus far in the study confirm previous work on concentrated serum for the treatment of pneumonia, making it positive that the use of this serum in cases of the proper type will save the lives of many patients. A special advisory committee supervises the work, and Dr. Roderick Heffron is field director.

MINNESOTA

Society News—The Hennepin County Medical Society will be addressed March 5, by Dr. Arthur Steindler, Iowa City, on "Treatment of Paraplegia in Tuberculosis of the Spine" and, March 7, by Richard E. Scammon, Ph.D., dean of medical sciences, University of Minnesota on "Indexes to Medical Literature."—Dr. Charles E. Connor, St. Paul, addressed the Minnesota Academy of Medicine, February 14, on "Sinusitis and Asthma." Dr. Paul A. O'Leary, Rochester, presented a thesis on "Disseminated Lupus Erythematosus."

Child Guidance Clinic Reorganized—Dr. Samuel Alan Chaffman has been appointed director of the Minneapolis Child Guidance Clinic, succeeding Dr. Herbert E. Chamberlain, who resigned last year to direct a similar clinic established at the University of Chicago. Reorganized to exist almost completely for the public school system the clinic has been vested with the responsibility for examining and passing on all candidates for the special classes of defectives. Dr. Chaffman recently of Denver, is a graduate of the University of Minnesota School of Medicine, Minneapolis.

MISSOURI

CWA Funds for Sanitation Program—Funds have been made available to carry on a program of sanitation in sixty counties of the state, under the auspices of the U. S. Public Health Service and the state board of health. Labor is being provided by the Civil Works Administration.

Society News—At a meeting of the Kansas City Academy of Medicine, January 19, Dr. William T. Peyton, Minneapolis, spoke on "Advancement in Diagnosis and Treatment of Malignant Disease."—The St. Louis Urological Society presented a symposium on hematuria before the St. Louis Medical Society, January 12, the speakers were Drs. John P. Altheide, Vincennes, Indiana; Leo Bartels and Joseph Hoy Sanford.—A symposium on cardiac arrhythmias was presented before the St. Louis Medical Society, January 19, by Drs. Drew W. Luten, Eugene Lee Shrader, John J. Hammond and Samuel B. Grant.—At a meeting of the Jackson County Medical Society, January 30, the speakers were Dr. Carl F. Nelson, Lawrence, Kan., on "Metabolism of Cholesterol and Other Blood Lipids" and Pearl L. Moorman, Joplin, and Dr. Ralph E. Duncan, Kansas City, "Use of Hydrochloric Acid Intravenously."—The Jasper County Medical Society was addressed January 30 by Drs. Charles C. Conover and Everett R. Deweese, Kansas City, on "Functional Disorders of the Colon from the X-Ray and Clinical Standpoint."—Dr. Edward P. Heller, Kansas City, spoke on "Modern Treatment of Fractures" before the Nodaway County Medical Society, February 7, and Dr. Ernest Kip Robinson, Kansas City, "Avoiding Complications in Gynecological Radium Therapy."—Dr. Julius Frischer, Kansas City, addressed the Randolph County Medical Society at Moberly, January 9, on "Transurethral Electrosurgery of the Prostate."—Dr. LeRoy Sante was among the speakers before the St. Louis Traders Club, February 1, on observations on the use of iodized oil in chest diagnosis.

NEBRASKA

Nebraska University News—Dr. John Jay Keegan has recently been appointed chairman of the department of surgery, University of Nebraska School of Medicine, Omaha, to succeed the late Dr. Byron B. Davis, and Dr. Rodney W. Bliss, acting chairman of the department of internal medicine to succeed Dr. Edson L. Bridges. The department of physiology and pharmacology has received a grant of \$1,800 from the Frederick Stearns Company for investigation under the direction of Drs. A. Ross McIntyre, professor of pharmacology, and Ernest L. MacQuiddy of the department of internal medicine.

Society News—A symposium on acute rheumatic fever and its sequelae was presented before the Omaha-Douglas County Medical Society, February 27, by Drs. John Harry Murphy, Edson L. Bridges, Barney M. Kully, and Benjamin Carl Russum.—Drs. Frank P. Murphy, Omaha, and Ralph H. Lukart

addressed the Otoe County Medical Society, Nebraska City, February 12, on obstetric problems of the general practitioner.—Dr Mason E Lathrop, Wahoo, addressed the Dawson County Medical Society, Gothenburg, January 8, on "Decentralization of Medicine"—Three Lincoln physicians addressed the Madison Six Counties Medical Society, Norfolk, January 16, as follows: Drs Roscoe L Smith, on "600,000 Volt X-Ray Therapy", Clayton F Andrews, "Diseases of the Thyroid Gland," and George W Covey, "Pneumonia"

NEW HAMPSHIRE

Personal—Dr Fred E Clow, Wolfeboro, was elected president of the newly organized New England Association for the Study of Neoplastic Diseases, Dec 13, 1933, in Manchester

NEW YORK

University News—Syracuse University College of Medicine has discontinued its department of obstetrics in order to concentrate all its work in Syracuse Memorial Hospital. This action was taken in accordance with the policy of the school's affiliated hospitals in avoiding duplication in connection with their cooperative development

Society News—The Central New York Dermatological Society, which was organized in June 1933, held its first scientific session at Utica, January 4. Dr Lopo de Mello, Syracuse, was made secretary.—Dr Harold E B Pardee addressed the Medical Society of the County of Nassau, Mineola, January 30, on "The Failing Heart of Middle Life"—The eastern section of the American Laryngological, Rhinological and Otological Association held a meeting in Rochester, January 5, with the following speakers: Drs Harris P Mosher, Boston, on "Treatment of Osteomyelitis of the Frontal and Maxillary Sinuses", Frederick M Law, "Otitic Meningitis—Errors of Interpretation in X-Ray of Accessory Nasal Sinuses," and Samuel J Crowe, Baltimore, "Experimental Evidence of Sound Waves"—Dr Joseph W Moore, Albany, chairman, state parole board, addressed the Medical Society of the County of Albany, January 24, on "Medical Aspects of Crime"

New York City

Sixth Harvey Lecture—The sixth Harvey Lecture of the season will be delivered at the New York Academy of Medicine, March 15, by Dr George L Streeter, director of the department of embryology, Carnegie Institution of Washington, Baltimore, on "The Significance of Morbid Process in the Fetus"

The Coordinating Council—The coordinating committee of the five county medical societies in New York, composed of three representatives from each society, entertained Dr John L Rice, newly appointed health commissioner, at dinner at its January meeting discussing problems of medicine in relation to the department of health. The committee changed its name to the "Coordinating Council" and elected Dr David J Kaliski, chairman

Dr Hartwell Chosen Director of Academy—Dr John A Hartwell has been appointed director of the New York Academy of Medicine to succeed the late Dr Lunsly R Williams. Dr Hartwell, who was president of the academy from 1929 to 1933, acted as interim director during Dr Williams' illness. After graduating from Yale University School of Medicine, he began practice in New York in 1893. Since 1910 he has been associate professor of surgery and clinical professor of surgery at Cornell University Medical School

Society News—Dr Percy S Pelouze, Philadelphia, addressed the Association of Italian Physicians in America, January 15, on "Gonorrhea in the Male". Dr Angelo M Sala is president of the society.—Drs Elaine P Ralli and Alice M Waterhouse addressed the Women's Medical Association of New York, January 10, on "Blood Concentration in Diabetic Coma"—Drs William F MacFee and Robert R Baldrige addressed the New York Surgical Society, January 10, on "Physiological Considerations Related to the Infusion Treatment of Shock"—Drs Cornelius P Rhoads and Thomas T Mackie addressed the Medical Association of the Greater City of New York, January 12, on clinical aspects of sprue and amebiasis, respectively. Drs Theodore J Curphey and Jesse G M Bullock addressed the association, February 9, on "Laboratory Management of Pneumonia" and "Pneumonia Due to Pneumococcus Type 8 (Cooper), Its Occurrence, Characteristics and Treatment with Its Specific Serum," respectively.—Dr Henry W E Walther, New Orleans, addressed a joint meeting of the New York Society of the American Urological Association and the section of genito urinary sur-

gery of the New York Academy of Medicine, January 17, on "Clinical Evaluation of Dye Therapy in Urinary Infections"—Dr George G Ornstein addressed the Medical Society of the County of Queens, January 30, on differential diagnosis of pulmonary diseases, and Dr David J Kaliski discussed the relation of physicians to the Civil Works Administration

NORTH CAROLINA

Society News—The Third District Medical Society met jointly with the Sampson County Medical Society in Clinton, December 15, with the following speakers, among others: Drs David Russell Perry, Durham, "When Surgical Procedure Is Advisable in Pulmonary Tuberculosis", George M Cooper, Raleigh, "High Maternal and Infant Mortality in North Carolina," and Ernest S Bullock, Wilmington, "Injuries to the Head"—Physicians of Avery County reorganized the Avery County Medical Society in December, with Dr Ronda H Hardin, Banner Elk, as president, and Burruss B McGuire, Newland, secretary.—Dr Wingate M Johnson, Winston-Salem, addressed the Mecklenburg County Medical Society, Charlotte, January 2, on "The Case Against State Medicine"

OHIO

Cincinnati Health Officer Retires—Dr William H Peters, health commissioner of Cincinnati since 1918, has retired because of ill health. Dr Peters entered the health department in 1912 as chief medical inspector, shortly after his graduation from the University of Cincinnati College of Medicine. Dr Owen C Fisk has been acting health commissioner since Dr Peters became ill last October

Dr Wolfstein Honored—Dr David I Wolfstein, Cincinnati, was guest of honor at a reception given by his family and friends on his seventy-second birthday, January 11, when he announced his retirement from medical practice. Dr Wolfstein, a native of Hannibal, Mo., was graduated from the Medical College of Ohio in 1888. For many years he was professor of mental diseases at the University of Cincinnati College of Medicine and served on the staffs of the City, General, Jewish and Speers hospitals. He began practice in Cincinnati forty-two years ago and has frequently taken an active part in civic affairs

Society News—Dr Evarts A Graham, St. Louis, addressed the Cincinnati Academy of Medicine, February 26, on "Fads and Fancies in the Treatment of Acute Empyema"—A symposium on arthritis and rheumatism was presented before the Montgomery County Medical Society, February 16, by Drs Thomas E Newell, Jerome Hartman and Sterling H Ashmun, Dayton.—Dr Douglas Quick, New York, addressed the Academy of Medicine of Toledo and Lucas County, February 9, on "Malignant Diseases of the Upper Mucous Membrane Tract"—Dr Alfred P Hancuff, Toledo, addressed the Sandusky County Medical Society, Fremont, January 25, on "Diagnosis and Management of Pelvic Inflammatory Disease"—Dr Arthur C Bachmeyer, Cincinnati, addressed the annual joint meeting of the Miami and Shelby county medical societies, Piqua, January 5, on medical economics.—Drs Ernest Perry McCullagh, Cleveland, and George J Waggoner, Ravenna, addressed the Portage County Medical Society, Ravenna, February 1, on "Research in Endocrinology" and "Legislation and the Doctor," respectively.—Dr Alfred W Adson, Rochester, Minn., addressed the Dayton Academy of Medicine, February 2, on "Surgery of the Vegetative Nervous System"—Dr Ralph K Updegraff, Cleveland, addressed the Lorain County Medical Society, January 9, on the electrocardiograph.—Dr Richard D Giff Wheeling, W Va., addressed the Tuscarawas County Medical Society, January 11, on "Recent Advances in Treatment of Genito-Urinary Disease"—Dr Max M Zimninger, Cincinnati, discussed surgical tuberculosis of the chest at a meeting of the Hempstead Academy of Medicine, January 8

PENNSYLVANIA

Monthly Graduate Assembly—The third monthly graduate assembly at the Geisinger Memorial Hospital, Danville, January 26, under the auspices of the Montour County Medical Society, was devoted to a symposium on urology. Dr Harold L Foss conducted an operative clinic and the following guests took part in the scientific program: Drs Hugh H Young, Baltimore, Thomas C Stellwagen, Jr, Theodore R Fetter and Percy S Pelouze, all of Philadelphia. Drs Henry F Hunt and Carl E Ervin of the hospital staff also presented papers on urologic subjects. Dr Robert Y Grone was chairman.

Society News—Dr William F Rienhoff, Baltimore, addressed the Lackawanna County Medical Society, Scranton, February 6, on hyperthyroidism, Dr Isidor S Ravdin, Phila-

delphia, spoke, January 23, on "Use and Abuse of Fluids" At the request of the mayor of Scranton the society recently appointed a committee of twelve physicians to act in an advisory capacity to the department of health. A central bureau for the collection of convalescent serums from cases of scarlet fever and poliomyelitis has been established and it is planned to make available also serums for treatment of measles and epidemic encephalitis.

Philadelphia

Potter Lecture—The William Potter Memorial Lecture of Jefferson Medical College was delivered by Dr Charles R. Stockard, professor of anatomy, Cornell University Medical College New York, March 1, on "The Genetic Basis and the Internal Secretions in Growth Types and Body Form."

Lectures on Ophthalmology—Dr Alfred Bielschowsky, professor of ophthalmology, University of Breslau, will deliver a series of lectures at the Wills Eye Hospital, March 20-23 on physiology and pathology of ocular muscle paralysis and the more unusual forms of concomitant squint. The fee will be \$10 and the course will be limited to forty applicants.

Joint Surgical Meeting—The Philadelphia Academy of Surgery had as guests the members of the New York Surgical Society at its meeting, February 14. Speakers were Drs Edward J. Klopp, on "Sarcoma of the Small Intestine," George P. Muller, "Subclavian Aneurysm," DeForest P. Willard, "Treatment of Compression Fractures," Eldridge L. Larson, "Perforation in Acute Cholecystitis," and Charles H. Frazier, "Surgical Management of Chronic Subdural Hematoma."

TENNESSEE

Health at Nashville—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million for the week ended February 17 indicate that the highest mortality rate (247) appears for Nashville, and the rate for the group of cities as a whole was 136. The mortality rate for Nashville for the corresponding period last year was 178, and for the group of cities, 124. The annual rate for eighty-six cities for the seven weeks of 1934 was 126, as against a rate of 127 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Society News—Dr Gilbert Madison Roberts addressed the Chattanooga and Hamilton County Medical Society, December 16, on transurethral resection of the prostate. Speakers before the Carroll-Henry-Weakley Counties Medical Society at McKenzie, December 14, were Drs George K. Carpenter, Nashville, on injuries to the back, Willis C. Campbell, Memphis, fractures of the leg, and Peter Whitman Rowland, Jr., Memphis, treatment of traumatic shock. Drs Henry M. Cass and Carroll H. Long addressed the Washington County Medical Society, January 4, on diseases of the rectum and biologic tests for pregnancy, respectively. Drs Harold D. Long, Chattanooga, and Walter S. Moore, Etowah, addressed the McMinn County Medical Society, Athens, January 11, on "Acute Infectious Diseases of Childhood" and "Complications of Influenza," respectively. Speakers at the meeting of the Shelby County Medical Society, Memphis, November 21, were Drs William Battle Malone, on "The Advisability of Having a Fee Schedule," Lucius C. Sanders, "The Economic Problem of Modern Practice" and Henry G. Rudner, "Is State Medicine Necessary?" Dr Charles D. Lucas, New York, addressed the Knox County Medical Society, Knoxville, December 5, on cancer.

TEXAS

Personal—Dr Hugh Leslie Moore, Dallas, was honored with a banquet given by the Dallas County Medical Society and the Women's Auxiliary at the Dallas Country Club, January 5, in recognition of his recent election as president of the Southern Medical Association. Dr William T. Shell, Jr., has been appointed health officer of Corsicana, to succeed the late Dr Walter D. Cross.

Society News—Drs Tate Miller and Oscar M. Marchman addressed the Dallas County Medical Society, Dallas, January 22, on "Medical Treatment of Cholecystitis," and "Anatomy and Development of Paranasal Sinuses," respectively. Drs Robert M. Barton and Cleve C. Nash, Dallas, addressed the Lamar County Medical Society, Paris, January 4, on treatment of anemias and head injuries, respectively. Drs Julius A. Heyman, Wichita Falls, and Fred Hudson, Stamford, addressed

the Wichita County Medical Society, Wichita Falls, January 9, on "Relief of Intractable Pelvic Pain by Sympathectomy," and "An Outbreak of Typhus Fever in West Texas," respectively.

VIRGINIA

Dr McGuire Honored—Dr Stuart McGuire, eminent professor of surgery, Medical College of Virginia, Richmond, was the guest of honor at a dinner given by the faculty of the college in recognition of his forty years of continuous service to the school, January 15, at the Commonwealth Club of Richmond. Dr Roshier W. Miller, who has also been connected with the college for forty years, presided, and tributes were paid to Dr McGuire by the following speakers: Drs Robert C. Bryan, Clifton M. Miller, Joseph F. Geisinger, Douglas Vanderhoof and James Allison Hodges, William T. Santer, L.L.D., and Mr J. R. McCauley, all of the college staff; J. Fulmer Bright, mayor of Richmond, and Mr William P. Miller, member of the board of visitors. At the close of the program Dr Singer presented to Dr McGuire a silver platter on behalf of the faculty.

WEST VIRGINIA

Society News—Dr Roy Benson Miller, Parkersburg, president, West Virginia State Medical Association, addressed the Monongalia County Medical Association, January 2, on medical economics. Dr Walter E. Vest, Huntington, addressed the Academy of Medicine of Parkersburg, January 4, on "The Relationship of Gallbladder Disease to Cardiac Pain." Drs Stephen A. Cunningham, Marietta, Ohio, and Richard D. Gill, Wheeling, addressed the Tyler-Wetzel Counties Medical Society, New Martinsville, January 16, on "Thyroiditis and 'Ureteral Obstructions,'" respectively. Dr Desautour G. Preston, Lewisburg, presented a paper on Rocky Mountain spotted fever, Eastern type, before the Greenbrier Valley Medical Society, Ronceverte, December 12.

GENERAL

Brinkley's Mexican Radio Station Closed—The department of communications of the Mexican government forcibly closed radio station XER at Villa Acuna, Mexico, across the border from Del Rio, Texas, February 24, according to the *Chicago Tribune*. The government charged that the station, which is owned by John R. Brinkley, "goat gland specialist" of Milford, Kan., had "persistently and constantly refused to obey broadcasting regulations, had used English exclusively and transmitted by remote control from the United States medical and hygienic talks and advertised medical articles without authorization." It was said the statement issued by the government said also that the station has displayed "an attitude of open rebellion" and was "of no benefit to the country." Thirty days will be allowed for the station to dismantle its equipment, according to the newspaper report, if this order is not carried out government engineers will remove the machinery.

Conference on the Handicapped Child—A conference on the education and rehabilitation of handicapped children will take place at New York University, New York, March 9-10. The session is sponsored by the National Council on the Physically Handicapped, the National Committee for Mental Hygiene and the university. Section meetings dealing with the problems of given types of handicapped children are each under the auspices of a national organization, with the following societies participating:

- International Society for Crippled Children
- National Rehabilitation Association
- American Occupational Therapy Association
- National Society for the Prevention of Blindness
- American Foundation for the Blind
- American Federation of Organizations for the Hard of Hearing
- National Education Association, department of lip reading
- National Association of the Deaf
- National Tuberculosis Association
- American Heart Association
- American Orthopsychiatric Association
- American Society for the Study of Disorders of Speech
- Child Study Association of America
- American Association for the Study of Mental Deficiency
- National Conference of Juvenile Agencies
- American Association of Visiting Teachers

This conference has been called in the hope that it will provide an opportunity to arouse public interest not only in the New York area but over the country as well in the educational problems of the handicapped child and thereby counteract somewhat the tendency of cuts in educational budgets to bear most heavily on the handicapped.

Interstate Quarantine Regulations Amended—All birds in the psittacosis family offered or accepted for shipment in interstate traffic must be accompanied by a certificate from the

Government Services

General Gilchrist Retires

Major Gen Harry L Gilchrist, chief of the Chemical Warfare Service, U S Army, from 1929 to 1933, retired from active service, January 31, having reached the age of 64 on January 16. General Gilchrist was born in Iowa in 1870. He graduated from Western Reserve University School of Medicine in 1896 and entered the Army Medical Corps two years later. He organized a field hospital following the San Francisco earthquake in 1906. In 1917, General Gilchrist was placed in command of Base Hospital No 4, organized from Western Reserve University, the first unit of American troops to go to Europe. As British General Hospital No 9 at the front, the unit was commanded by General Gilchrist until December 1917, when he was made medical director of the Chemical Warfare Service with the American Expeditionary Forces. After the end of the war he was in command of the American Typhus Relief Expedition to Poland, where he remained for two years during the war of Poland with the Bolsheviks. In 1929 he was appointed chief of the Chemical Warfare Service, a position he held until May 26, 1933. General Gilchrist is one of four officers of the Medical Corps who have been assigned to military duties as general officers and chiefs of branches outside the medical department. Many decorations have been bestowed on him, including the Distinguished Service Medal and Victory Medal with nine clasps, from the United States, General Service Medal and a citation for gallantry in the British Army, and Officer of the Legion of Honor of France.

Annual Report of Surgeon General of Army

The health of the U S Army was satisfactory during the year 1932, according to the annual report of the surgeon general. The average daily strength for officers and enlisted men, excluding nurses, was 131,925, a reduction from 135,425 for 1931. A new low rate for venereal diseases (42 per thousand) was established. However, this group of diseases still heads the list as a cause of lost time from duty. There were 5,539 admissions, 81 discharges for disability, and 220,395 days of lost time attributed to these diseases. Automobile fatalities head the list of causes of death for the third year, although there was a reduction in 1932, 73 as compared with 92 for the previous year. During the preceding twenty years, exclusive of the abnormal years 1917-1919, suicide was the leading cause sixteen times and tuberculosis, four times. During 1932 suicide stood second with sixty-six deaths. Tuberculosis, however, stood seventh on the list with twenty-nine deaths. The admission rate for all causes was 651, slightly lower than in 1931. A total of 567 deaths occurred during the year as compared with 626 during 1931. For the first time on record the deaths among officers and enlisted men from accidents (284) exceeded the deaths from disease (279). There were 1,471,147 days lost during the year on account of sickness and injury. The non-effective rate of 30.5 was lower than the rate of 32.5 for 1931. The average number of days lost per patient was 17.1 as compared with 18.1 during the previous year. The average number of patients in hospitals each day of the year was 6,627. In addition, 1,019,654 outpatients were treated. Of the 6,627 hospital patients, 58.19 per cent were army personnel and 30.12 per cent were beneficiaries of the Veterans' Administration. The cost of hospitalization per patient day in the four general hospitals and the station hospital, Fort Sam Houston, fell to an average of \$4.745 as compared with \$5.03 for 1931. There were 180,115 vaccinations administered and 292,202 physical examinations made. Two new hospitals were opened during the year and six were closed. In 1932, 69 officers and 1,497 enlisted men were discharged as physically or mentally disqualified. Diseases of the cardiovascular and nervous systems continue to be the major factors in reasons for discharge. In 1932 there were 31,287 admissions from respiratory diseases with a rate of 237.2, the highest for several years. Influenza led the causes of admission for the entire army with a rate of 66.4 per thousand, gonorrhea was second, 25.4, and syphilis third, 11.9. One death occurred among 616 cases of malaria as compared with one death among 868 during the previous year. The lowest admission rate for tuberculosis in the last decade was reached (2.2). On the last day of the fiscal year there were 6,523 enlisted men enrolled in the medical department, as compared with 6,528 at the beginning of the year. No new enrolments were permitted in the Reserve Officers Training Corps units of the medical department under a proviso in the army appropriation bill for 1933.

state health officer stating that they came from an aviary or other distributing establishment which, after examination, was found to be free from infection, in accordance with recent amendments to the U S Interstate Quarantine Regulations of the Public Health Service. The certificate accompanying the birds must be surrendered to the health authorities at the destination of the shipment. No bird of the species that is under 8 months of age shall be offered or accepted for shipment or transport in interstate traffic. Another amendment lists the following diseases regarded as contagious and infectious, for the purpose of interstate quarantine: plague, cholera, smallpox, typhus fever, yellow fever, typhoid fever, paratyphoid, dysentery, pulmonary tuberculosis, leprosy, scarlet fever, diphtheria, measles, whooping cough, epidemic cerebrospinal meningitis, anterior poliomyelitis, Rocky Mountain spotted or tick fever, syphilis, gonorrhea, chancroid, anthrax, influenza, pneumonia, epidemic encephalitis, septic sore throat, rubella, chickenpox and psittacosis.

Medical Bills in Congress—Changes in Status H R 7527, continuing the Civil Works program, has been approved by the President (Public No 93). It extends the provisions of the Federal Employees Compensation Act to employees of the Civil Works Administration only for disability or death resulting from traumatic injury while in the performance of duty, subject to certain conditions and limitations. Traumatic injury is declared to be only injury by accident causing damage or harm to the physical structure of the body. It does not include a disease in any form except diseases resulting naturally from the injury. S 2660 has passed the Senate, to regulate broadcasting from a studio located in the United States to be transmitted to a radio station in a foreign country whose emissions are received consistently in the United States. H R 7800 is the companion bill in the House. *Bills Introduced* S 2800, introduced by Senator Copeland, New York and S 2858, introduced (by request) by Senator McCarran, Nevada, propose to prevent the adulteration, misbranding and false advertising of food, drugs and cosmetics. S 2865, introduced by Senator Walsh, Massachusetts provides that all officers now in the Dental Corps of the Navy who entered service prior to July 1, 1918, who prior to that date had not attained such minimum age as to provide for their eligibility for appointment to the Dental Corps of the Navy, and whose active service has been continuous, shall, for purposes of precedence, be credited with their total active commissioned service. H R 7747, introduced by Representative Burke, California, proposes to provide a pension for blind veterans of the military and naval services in the United States. H R 7749, introduced by Representative McKeown, Oklahoma, proposes to provide pensions for the aged, needy blind and those totally incapacitated for work. H R 7756, introduced by Representative Chase, Minnesota, proposes to reenact legislation conferring benefits on veterans that was repealed by the act of March 20 1933. H R 7762, introduced by Representative Sadowski, Michigan, proposes a federal appropriation for allotment to the several states for the "relief" of the aged. H R 7797, introduced by Representative Koppelman, Connecticut, proposes to authorize the payment of claims for unauthorized emergency treatment of World War veterans. H R 7853, introduced by Representative Lozier, Missouri, and H R 8092, introduced by Representative McSwain, South Carolina, propose to confer additional benefits on veterans. Among other things, the bills provide that any World War veteran employed in the active military or naval service between April 6, 1917, and Nov 11 1918, not dishonorably discharged, suffering from disability, disease or defect, who is in need of hospitalization or domiciliary care, and is unable to defray the necessary expenses therefor, shall be furnished such necessary hospitalization or domiciliary care in any Veterans' Administration facility, within the limitation of such facilities, irrespective of whether the disability was due to service. A statement by the veteran that he is unable to defray the expenses necessary for hospitalization or domiciliary care must be accepted by the Administrator of Veterans Affairs as conclusive evidence of that fact. H R 7862 introduced by Representative Disney, Oklahoma proposes to reenact all legislation conferring benefits on veterans of the Spanish-American War, including the Boxer rebellion and the Philippine insurrection that were repealed by an act passed March 20 1933. H R 7868, introduced by Representative Lozier, Missouri, proposes to grant pensions and increases of pensions to certain soldiers, sailors, and nurses of the war with Spain the Philippine insurrection, or the China relief expedition, and their widows and dependents. Pensions for contract nurses are provided for under existing law. No pension is provided under existing law or in the proposed bill for contract surgeons.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb 1, 1934

Effects of Diet on the Teeth

Since 1917, May Mellanby (wife of the physiologist Edward Mellanby) has been continuously engaged in researches for the Medical Research Council on the effects of diet on the structure of the teeth and on dental disease. She has already published two reports (reviewed in *THE JOURNAL*) dealing with experimental work on animals, which showed the nutritional and environmental conditions that control the formation of healthy teeth and jaws. A third report, entitled 'The Effect of Diet on Dental Structure and Disease in Man,' has just been published and completes work which the Medical Research Council describes as marking a definite advance in knowledge of the causes and prevention of dental decay. It raises nutrition above oral hygiene as the chief means of protecting the teeth. Mrs. Mellanby has shown that the liability of a tooth to decay depends largely on the perfection of its structure, which in turn depends on nutritional influences during growth both antenatal and postnatal. Ill formed (hypoplastic) teeth are much more common than has been supposed and are particularly liable to bacterial invasion. The teeth require for their formation adequate supplies of calcium and phosphorus and an ample supply of vitamin D to insure that these are put to use. The same factors are necessary for the health of the teeth during the rest of their lives, and especially for the healing of caries. Thus two main factors control the onset of caries: the better formed the teeth the more resistant they are, and, independent of structure, resistance is directly influenced by diet.

Prolonged studies of children's teeth have confirmed the views formed by Mrs. Mellanby from her investigations in young animals—that the health of the teeth can be largely controlled by certain dietary constituents, some of which are protective and others harmful. Prominent among protective substances is vitamin D (found in egg yolk, animal fat, milk, and cod liver oil). Cereals, such as oatmeal and bread, are given as the best example of harmful foods. Mrs. Mellanby has shown that perfectly calcified and regularly arranged teeth can be produced by including in the maternal diet during pregnancy and lactation, and in the diet of the offspring during dental development, substances containing much fat soluble vitamin, calcium and phosphorus, such as milk, egg yolk, fish and animal fats. The vitamin D can be obtained also by exposure of the skin to sunlight or other sources of ultraviolet radiation. Cereals, especially those rich in embryo, such as oatmeal, tend to produce badly developed (hypoplastic) teeth and call for a corresponding larger supply of calcifying foods for good development. The teeth of the majority of children in the British Isles are imperfect in structure and have a roughish surface, which predisposes them to caries. But resistance to caries can be increased independently of their original structure by a diet of high calcifying activity. Another fact demonstrated was that deficiency of vitamin A or carotene played an important part in the development of the periodontal tissues and in the control of the onset of periodontal disease, including pyorrhea.

In order to reduce the incidence of dental disease, especially in temperate zones, large changes must be introduced into the diets of pregnant and lactating women, infants and children during the whole period of dental development and, indeed, during the whole of life. The consumption of milk, eggs, cheese, animal and fish fats, potatoes and other vegetables must be

greatly increased and the consumption of cereals correspondingly diminished and, for the very young, abolished. Breast feeding must be general and prolonged even up to a year or more, provided a supplementary diet is given after about 6 months, which should include some iron and vitamin C. Cod liver oil or some other source of fat soluble vitamins should be given to all infants and children. If these instructions are followed, more perfect teeth will be formed and they will be more regularly arranged in well grown jaws. The teeth will better resist bacterial invasion, and both dental caries and pyorrhea should cease to be the scourge they are at the present time.

Obstetric Diploma for Practitioners

The recently established British College of Obstetricians and Gynecologists has for one of its main objects the improvement of the standard of midwifery among general practitioners who hold obstetric appointments in hospital or under public health authorities. As the result of three years' experience of its examination committee, the college has come to the conclusion that the present training of students in obstetrics is not sufficient to fit them for such responsible work and has decided to award a diploma (DCOG) to physicians who have had special postgraduate training and experience in obstetrics and satisfy their examiners. The membership of the college is a different matter and is confined to those who aspire to be specialists in obstetrics and gynecology. It requires a larger and wider experience than is possible for physicians engaged in family practice. Many candidates for the membership have been rejected because of insufficient training and experience, and they have reached a stage of their career in which they can no longer undergo such training. It is suggested that many of them will be suitable candidates for the diploma.

The Serum Treatment of Cerebrospinal Fever

In 1932 the ministry of health issued a memorandum on the serum treatment of cerebrospinal fever, making the following recommendations: 1. As soon as the patient is suspected on clinical grounds to be suffering from cerebrospinal fever, lumbar puncture should be performed and serum injected intrathecally without waiting for bacteriologic confirmation. 2. The dose should be about 30 cc of ordinary or 10 cc of concentrated serum. 3. The injection should be repeated every twenty-four hours for at least three or four days or until convalescence is obvious. The ministry has now received reports of 811 cases treated in this way. The case mortality was 26.9 per cent, which is considered encouraging. The inquiry is still proceeding and physicians are invited to send records on the forms provided by the ministry in all cases that are notified.

Tubercle Bacilli in Milk

The extent to which tubercle bacilli are found in the London milk supply was recently reported (*THE JOURNAL*, Nov 23, 1933, p 1737). Despite the fact that about 90 per cent of it is pasteurized, 32 per cent of samples purchased over the counter were found to contain tubercle bacilli. Comparison with an investigation made in Scotland, published by the Medical Research Council, is instructive. The inquiry covered the Scottish cities of Edinburgh, Glasgow, Aberdeen and Dundee. Composite churn samples of raw milk from individual farms were infected to the extent of 10 per cent, while raw tank (the tank for transport of milk, contains thousands of gallons) milk gave a figure of 37.5 per cent, flash pasteurized milk 8.2 per cent, and milk pasteurized by the holding process 2.8 per cent. Milk as retailed gave a figure over 5 per cent. The positive results for pasteurized milk were due to faults in the process, in some instances the result of improper design of the plant, in others to inefficient procedures. The tests for infection were performed by inoculation of guinea pigs. The higher percent

age of infection of milk in Scotland than in England (5 against 3.2) is in keeping with the higher incidence of bovine tuberculosis in the former. In England 45 per cent of the tuberculosis of the cervical glands, 48 per cent of lupus, 30 per cent of tuberculosis of the meninges and 18 per cent of that of bones and joints have been found to be due to the bovine bacillus. In Scotland the corresponding figures are 73, 53, 13 and 42.

Inquiry Into the Conditions of Midwifery

While the general mortality of the country and the mortality of most diseases have declined considerably in recent years, the mortality of childbirth has remained stationary. The government has therefore appointed a committee on midwifery to inquire into such questions as the overcrowding of the midwifery profession, leading to unemployment, the payment of the midwife's fee in necessitous cases, and the preparation of a pension scheme to enable midwives to retire at a suitable age. The chairman of the committee is the Earl of Athlone, and a number of leading politicians and obstetricians and members of the Midwives' Institute are included. The obstetricians represent the British College of Obstetricians and Gynecologists and are Dr T. Watts Eden, Dr J. S. Fairbairn and Mr L. C. Rivett.

PARIS

(From Our Regular Correspondent)

Jan 17, 1934

Unreliable Mortality Statistics

The statistics on the causes of death, as prepared on the basis of certificates filed in the town halls, are highly unsatisfactory, a fact that is deplored every year at the sessions of the *Congrès d'hygiène*. The figures in these statistics cannot be a basis for information of medical importance. Only the diagnoses furnished in case of death by the hospitals and the clinics have a real value. The totals furnished for all of France, as derived from registrations in the town halls, are absolutely unreliable. Mr Marcel Moine, a specialist in medical statistics and a member of the *Comité national de défense contre la tuberculose*, in an article points out the defects in the registration of causes of death, which he regards as unworthy of a large civilized country. There has been some improvement since, in 1925, the *Office national d'hygiène* began its special study of vital statistics. Until then, one fifth of the deaths were designated as being due to unknown cause. In 1930 one death out of eight failed to show the special cause. After age 50, senility is frequently given as the cause of death, without other details. It is certain that chronic bronchitis given in young adults as the cause of death conceals many cases of tuberculosis. The care given to these certifications varies. In the department of the Seine (Paris) only 2 per cent of the deaths fail to show the actual cause, in the department of Lozère, 55 per cent of the deaths are registered without a statement as to the cause. The visit, required by law, of the physician who confirms the death does not furnish the needed information for the reason that the attending physician failed to report the cause of death, often for fear of embarrassing the family of the deceased. It is impossible to secure accurate statistics on deaths from tuberculosis, cancer, syphilis, cerebral softening and the like. In many small communes, death is not even confirmed by a physician and the registration bureau accepts in such cases the declaration made by the family.

The Destiny of Infectious Diseases

Prof Charles Nicolle who has resigned from the Pasteur Institute of Tunis, where he has been more than twenty years, to become a professor in the *Collège de France* has published a book entitled 'The Destiny of Infectious Diseases'. In answering the problem "In generations to come, what will become of our present infectious diseases—in man as well as

animals?" he starts with the premise that all diseases, aside from physical forces and chemical agents, are due to the action of living organisms. With respect to these infectious agents, one is entitled to assume an origin and an end. Have all infectious diseases always existed and will they always exist? Perhaps diseases now confined to limited areas of the earth will finally invade other lands, as a result of rapid means of communication. Micro organisms adapt themselves to new conditions if possible, and they degenerate if the environment becomes too hard. Some changes, as in the higher animals, may become fixed. Other changes may be unstable and reversible. If the virulence is influenced by a transformation, one can explain thus the variable gravity of epidemics. The crusade that mankind carries on against micro-organisms causes them gradually to develop greater resistance. It may be observed that they become less vulnerable to various antiseptics and even to serums, as these become more generally employed in civilized communities. The increasing gravity of diphtheria, in all countries, furnishes a good example of this phenomenon. Then, too, one can count on the disappearance of certain diseases owing to the gradual suppression of the animals that serve to transmit them. It is possible, also, that man will develop a greater resistance to micro-organisms, which resistance will become fixed by heredity.

Leprosy in French West Africa

From a report presented by Mr Gaston Joseph to the *Office d'hygiène publique*, it appears that the crusade against leprosy has entirely renounced the system of permanent internment of lepers even though this system rescued Europe from leprosy in the Middle Ages. To the modern hygienist, permanent isolation appears inhuman, and useless, in view of the present status of medical science. Today in French West Africa the basis of control is the preparation of a list of all lepers, obtained through the aid of physicians, by information collected through sanitary agents, and by other means. If, after a laboratory examination, the diagnosis of leprosy is confirmed, the name of the patient is added to the special lists. If the patient is found to be non-contagious he is given ambulatory treatment and comes every week for inspection. He lives in a house by himself and no one is allowed to use his cooking utensils or any of his belongings. He must notify the authorities if he leaves home for a certain length of time. If on examination he is found to be contagious (open leprosy), he is hospitalized either in an isolated ward of a nearby hospital or at the Central Institute of Leprosy at Bamako. After prolonged treatment and reexamination, if he is no longer contagious, he is admitted to ambulatory treatment. If he is found to be incurable, he is sent either to a village-sanatorium or to the Central Institute of Leprosy. In this institute, which is in process of construction, the patients are grouped according to race, and their surroundings are made to resemble their native homes. There is a nursery, where the children of leprous mothers being treated in the institute are cared for, and a research laboratory. The institute will be in charge of a medical specialist.

Protest Against Free Consultation Centers

At a recent meeting of the *Fédération des syndicats médicaux de la Seine*, protests were raised against the creation of absolutely free consultation centers in the dispensaries, which are increasing in number, being organized in Paris by the administration of the *Assistance publique*. It was emphasized at this session that the medical profession pays annually, to the city of Paris, from twelve to fifteen million francs (\$720,000-\$900,000) in the form of professional taxes, and that as taxpayers, physicians help to pay the cost of this demagogic generosity, to the detriment of their own profession. The federation passed a resolution that barbitol compounds, which are causing an increasing number of fatal poisonings, be not dispensed without a medical prescription.

BERLIN

(From Our Regular Correspondent)

Jan 15, 1934

Restrictions on the Number of University Students

The question of applying vigorous measures to lessen the number of students matriculating each semester for university studies has been much discussed (*THE JOURNAL*, July 22, 1933, p 295). Germany has decided to attack the problem of overcrowded academic professions with a drastic remedy. For the year 1934, the number of pupils of secondary schools allowed to take up university studies on graduation will be limited to 15,000. Of this number, approximately 9,000 have been allotted to Prussia. Bavaria has been allotted 1,670, Lubeck only 34, and Schaumburg-Lippe, the smallest unit of the reich, only 12. The number of places delegated to women students is 10 per cent, which signifies a marked restriction of female students. The total number of women students is to be further limited from year to year, the present age groups date back to the war period and hence are not so well represented as they would be otherwise. Moreover, it is planned in the future to reduce the number of pupils attending the secondary schools and particularly the upper classes, so that the application of restrictions to the graduates of secondary schools, about to enter the universities, will no longer be necessary. Of the annual number of graduates from the secondary schools (about 44,000 at present) usually about 25,000 enter the universities. The new regulation reduces this number by 40 per cent. If the decision had been reached on the basis of present actual needs, it would have been necessary to close the universities to new entrants, for the time being. There is at present a total of 120,000 German students in attendance at the universities, so that only four years, at the most, will be required, according to the new schedule to reduce the total to 60,000, which will correspond to the status of the prewar years. It remains to be seen whether this new regulation will deal a death blow to the three new universities that were established since the war in order to make a university education more generally accessible (Cologne, Hamburg and Frankfurt-on-Main). Another influence of some importance is the fact that the attendance of foreign students appears to be diminishing rather than increasing. At the large universities—more particularly Berlin—where the heavy afflux of students, for many years past, has led to an overcrowded condition, the new regulation will greatly improve the situation. Of the smaller universities, it is not impossible that a few will have to struggle for their continued existence.

In the future, the privilege of attending a university will be based on four criteria: attainment of the necessary intellectual and physical maturity to satisfy the demands of intensive study, quality of character, and "national reliability." The recognition or the denial of the proper maturity for university study will be incorporated in a special certificate issued on request and may not be noted on the pupil's regular graduation diploma, for it is not deemed desirable that two distinct categories of secondary school graduates be created. While it is impossible at present to express a final opinion on these measures with respect to their ultimate effects on the quality of the future scientific accomplishments of the new order of students, it is certain that the new regime will check the growth of an evil that has been becoming prevalent in Germany, namely the exaction of exaggerated qualifications as a result of which a secondary school, or even university, education has come to be demanded of candidates for positions that require no such training.

Concerning the physicians, the statement was made, as one justification of the law, that by 1935-1936, the number of new graduate physicians will be from two to three times the number actually needed, when further restrictions will be necessary.

The repercussive effects of the new principles and the recently established societies of university instructors (*THE JOURNAL*,

Dec 1, 1933, p 1980) gave rise to an address delivered by Ministerialrat Dr Haupt, before the Dozentenschaft of the University of Berlin, on the "Relation of National Socialism to Science." He emphasized that national socialism is not demanding anything revolutionary of science. It is recognized that research cannot be pinned down to narrow rules. It is realized also that not every one who joins a new organization becomes thereby a new man. One of the main purposes of organization today is to develop, in the minds of all citizens, a deep sense of solidarity. It is admitted, however, that these types of intellectual work presuppose an opportunity for selection. It is not expected of research workers that they shall throw themselves with enthusiasm into the work of any society in order thus to give external evidence of their full allegiance to the cause of the German people. But of the large group that heretofore held themselves aloof as outsiders it must be demanded that, during this transition period at least, they give some visible evidence of their sense of oneness with the German people, as revealed, for example, by participation in national parades and public gatherings.

The position of non-Aryan students has been further intensified. At the beginning of the winter semester, a notice was posted at the University of Berlin concerning the admission of non Aryans, which was to the effect that all those who have not been excluded will find in their record book a special entry concerning their admission to further study. The non Aryan students receive a yellow identification card, and the Aryans a gray card. Furthermore, the president (rector) of the University of Berlin, Prof Eugen Fischer, who holds a chair in the science of heredity, has announced that, according to a bulletin received from the Prussian ministry for science and education, non Aryan medical students cannot count on receiving a license to practice medicine. Since, according to the present regulations, the medical and dental doctor's diploma is delivered only to foreigners without reference to whether or not they are granted a license to practice medicine (dentistry) in Germany, the only course left to non-Aryan German citizens who desire the doctor's diploma before securing a license to practice medicine (dentistry) is to renounce their German citizenship and to request liberation from allegiance to Germany. The pursuit of a medical practice in Germany is of course inadmissible for all such students.

Increase in Miscarriages

Since 1902 the number of miscarriages reported by the German maternity hospitals, in comparison with the normal births and premature births, has increased. The adjacent tabulation gives a survey of the conditions in the German maternity during the period from 1902 to 1930 inclusive.

Conditions in German Maternities

Years	Normal and Premature Births	Miscarriages	Percentage of Miscarriage with Relation to Normal and Premature Birth
1902-1904	104,757	9,347	9.0
1911-1913	190,471	8,466	4.4
1917-1919	164,707	19,222	11.6
1920	83,024	8,021	9.7
1922	70,413	8,681	12.3
1924	70,964	10,679	15.1
1926	102,227	11,319	11.0
1928	110,761	12,344	11.1
1929	113,632	15,229	13.4
1928	123,440	18,924	15.3
1929	130,712	21,093	15.9
1930	130,368	21,397	16.4

The criminal abortions are performed in the main, outside of hospitals and do not affect these statistics. An example is furnished by Lubeck where the number of miscarriages was determined by questioning all the midwives, physicians and hospitals. This inquiry revealed that in 1924 there were 168

miscarriages for each 100 confinements, whereas during the period 1926-1931 the proportion of miscarriages ranged around one third of the confinements (1930, 31.8, 1931, 33.7)

The number of persons accused of abortion and receiving a court sentence was 7,809 in 1925 (the maximum number), while in 1930, the last year for which general statistics have been published, the number of persons accused of abortion dropped to 4,111. These figures include the pregnant women and their helpers. Of the 4,111 accused, 3,648 were found guilty and given a sentence, in which number 1,105 men and 2,543 women were involved. The proportion of men was 30 per cent (in 1927, 27 per cent)

VIENNA

(From Our Regular Correspondent)

Jan 15, 1934

A Record for Human Fertility

A short time ago in Vienna a woman aged 48 gave birth to her twenty-ninth living child. The birth, which took place in a hospital, took a normal course and was completed within two hours and a half. Of the twenty-nine children, sixteen are still living—twelve sons and four daughters. Seven sons and six daughters have died. There have been no twin births. In three different years two children were born in one year (January and December). If the statements of the woman are reliable, all her children were normal, and the thirteen children who died were lost only through children's diseases. She gave birth to her first child when she was 19 years old, and she has always had normal pregnancies and normal childbirths and puerperium. An attempt is being made to examine the living children (who are widely scattered) with reference to their fertility and the nature of the offspring, in order to study certain problems of hereditary transmission.

Inherited Predisposition to Tuberculosis

At one of the recent sessions of the Gesellschaft der Aerzte in Vienna, Dr S. Peller and Dr M. Bettelheim reported the results of their examinations of 31,500 juveniles aged 14 to 16. Of this number 22 per cent were orphans, and 6 per cent had lost either father or mother as a result of tuberculosis. The investigators desired to establish whether the offspring showed a special predisposition for tuberculosis. Children of persons who had died from tuberculosis presented three times as frequently signs of tuberculous diseases, as orphans from non-tuberculous families, and four times as frequently specific symptoms of the respiratory organs. This hypermorbidity in juveniles born of tuberculous parents is revealed more commonly by the milder forms of the disease (involvement of the hilar glands), the graver types (apicitis, tertiary phthisis, pleuritic processes) being comparatively rare. This fact would indicate that the cause of the differences in the frequency of the infection does not lie in the predisposition to tuberculosis but is due rather to the factor of increased contamination. In general only slight differences exist between the average height, weight and the height weight ratio of juveniles from tuberculous families and the values in other juvenile orphans and nonorphans. An inherited physical inferiority in those whose parents were tuberculous could not be demonstrated. In the children who had become orphans by reason of tuberculosis, slight differences existed in weight and height (as compared with the average population) but were ascribable rather to the differences in the environment. Motherless half-orphans were usually weaker and smaller than half-orphans bereft of the father, which fact is due to the effects of unequal developmental conditions. It depends somewhat, too, whether the children become orphans before they reach school age or later and whether there are many children—in other words, the social factor dominates. In the case of 1,600 girls examined in recent months in addition to the measurements mentioned the thoracic

girth, in maximal inspiration and expiration, was measured, and the chest expansion was determined. These examinations likewise failed to prove that in the children infected by parents the "asthenic" habitus was more frequent than in the general population. It was found also that, in recent years, the children of tuberculous parents, as well as the other juveniles, have, as a rule, become taller and heavier. It is apparent, therefore, that the influences which, in spite of unfavorable economic conditions, are bringing about a steady improvement in the development of youth in general, are operative in the same manner in tuberculous and nontuberculous offspring. This proves that not eugenic factors but the nature of the entire social fabric determines the course of the development. In combating tuberculosis as a racial disease, these factors should receive primary consideration.

Right of Physicians to Privileged Communication in Public Sanatoriums

The ministry of public health recently informed the public and private hospitals and sanatoriums that the physician's right (and duty) of privileged communication must be strictly preserved, except when public interests (which are specifically enumerated) make it necessary that case reports or other facts affecting the treatment of hospital patients be communicated to third parties. As a rule, copies of case reports should not be given out. Only the courts and the accident insurance departments of public corporations (for example, state-controlled railways) and of public pension institutes have the right to demand such copies. The courts may demand also the privilege of inspecting the original case reports. Toward private sick-benefit societies or insurance companies, the duty of guarding privileged medical communications, on the part of physicians, is absolute. Case reports should not be given out to unauthorized persons, even with the consent of the patient. Only when the question of the need of hospital treatment and the probable duration of such treatment is to be decided can information be given to private corporations. Concerning the course of a disease, or possibly concerning a necropsy report, information may be given to a confidential physician who can identify himself, provided the settlement of the affair in question is impossible without such information. The supplying of information personally to physicians serving in sanatoriums is prohibited. Any information to be supplied must take place through the management. These provisions have of course nothing to do with information given to the near relatives and friends of patients.

Use of Methylthionine Chloride, with Dextrose, in Illuminating Gas Poisoning

During the past eight months, experiments have been carried on in Vienna, in the Childs Hospital, erected with the aid of an American gift, in the resuscitation by chemical means of persons overcome by illuminating gas. Before the Gesellschaft der Aerzte, Dr F. Deutsch gave recently an account of these experiments. On the basis of extensive animal experiments, and taking account of observations of American physicians who recommended methylthionine chloride in cyanide poisoning, Dr Deutsch injected intravenously a mixture of dextrose and methylthionine chloride in cases of poisoning from illuminating gas and achieved excellent results. In Vienna, illuminating gas is used frequently as a means of committing suicide. In accordance with an understanding with the hospital authorities, the emergency ambulance corps has been transporting to the Childs Hospital all grave cases of this nature, where Dr Deutsch in person has been applying his new method. The exceedingly rapid return of respiration and color in persons receiving such an injection has been remarkable. The preparation effects a rapid detoxication of the blood, with the result that the preparation is changed into a colorless compound

With this method it has been found possible to resuscitate persons who have lain for seven hours in a gas-filled room but who were not yet dead. The preparation is to form part of the regular equipment of the ambulance corps, in order that it may render immediate aid in accidents or attempted suicide. The physicians of the ambulance corps report that with this preparation the lives of persons can be saved who otherwise would succumb to the intoxication. Further experiments will be undertaken to discover whether persons overcome by other gases besides illuminating gas can be resuscitated in a similar manner.

Operations for Colloid Goiter

Prof. Dr. Eiselsberg spoke recently at the medical "seminar" of the Vienna Faculty of Medicine on operations for colloid goiter. He stated that colloid goiter must be operated on if it is growing rapidly or if it is blocking respiration—sometimes also for cosmetic reasons. The indications may be elicited by having the patient speak rapidly, walk rapidly or climb stairs. The resulting compression of the trachea may be made objectively visible by means of laryngoscopy or a roentgen examination. Before an operation is undertaken an examination must be made to determine whether the tracheal wall is soft and if so, the exact degree of softness. If the tracheal wall is very soft, a portion of the thyroid may be left at the operation as a support at this point, in order to prevent a collapse of the tracheal wall. In former times tracheotomy often had to be performed, frequently followed by plastic operations. It is better to leave a remnant of the gland than to apply dilatation sutures after the Kocher method. Softening of the tracheal wall may persist for some time after a successful operation, hence, a patient just operated on should be cautious about turning his head suddenly or exerting himself in any way that might cause dyspnea. Professor Eiselsberg operates on colloid goiters, in juveniles under 15 years of age, only in urgent cases. In such patients he prefers a treatment with weak doses of iodine taken internally or iodized ointment applied externally.

In Vienna, the incidence of colloid goiters in school children is surprisingly high. About 40 per cent of the girls from 6 to 14 years of age present such goiters. For this reason a number of years ago, the use of iodized salt (5 mg. to 1 Kg.) was made almost obligatory. But now it appears that the population is sufficiently "iodized" for, if one considers only the adults, there appears to be a distinct decrease in the number of goiter patients, as compared with five years ago.

Chemical Diagnosis of Malignant Tumors

At a session of the Vienna Biologic Society, Dr. R. Links, chemist of the Radiotherapeutic Institute of the city of Vienna, reported on his research on the case material of the institute. He has found that the potassium, calcium and magnesium content of the blood serum varies greatly, dependent on the time when the collected serum is examined, that is whether or not it has stood a long time. Dr. Links has constructed an apparatus that allows every cubic centimeter of serum issuing from the coagulated blood to be examined at once. Further research has revealed that the relation of the magnesium content to the potassium content of the blood varies according as the patient is or is not affected with cancer. If one selects 100 to represent the normal relationship, it is significant that, in the presence of tumors, the numerical relationship was without exception, expressed by a figure above 100, whereas, in all other conditions the relationship was denoted by a figure under 100. Numerous control examinations of patients with tuberculosis, infectious diseases and surgical diseases and of persons in good health, were made, and again and again it was found that this chemicomathematical method gave unequivocal results. In 99 patients with verified neoplasms the tests were positive and in 110 with other diseases they were always negative.

Marriages

JOHN RANDOLPH PERDUE, Rocky Mount, Va., to Miss Jean Barksdale Jones of Petersburg, Dec. 2, 1933.

WILLIAM HENRY GOFCKERMAN, Los Angeles, to Miss Betty Moore of Rochester, Minn., Oct. 18, 1933.

WILLIAM AMBROSIO MCGUFF, to Miss Lois Imogene Lacy, both of Richmond, Va., Dec. 9, 1933.

HARRY W. SHUMAN, Rock Island, Ill., to Miss Ruth Lewis of Chisholm, Minn., January 2.

JASPER NEWTON WAKEMAN to Miss Anne Peightel, both of Springfield, Mo., February 10.

DAVID R. ROSENDALE to Miss Lucille MacArthur, both of Utica, N. Y., Dec. 21, 1933.

EDWARD S. EMERY, Brookline, Mass., to Miss Mary Bradley of Milton, in January.

ROBERT B. BRAY to Miss Eleanor Burnett, both of Fargo, N. D., recently.

DONALD KEYS to Miss Elizabeth Laughry, both of Chicago, February 3.

Deaths

Louis Simon Aronson of New York, Columbia University College of Physicians and Surgeons, New York, 1904, member of the Association for Research in Nervous and Mental Diseases, on the staffs of the Mount Sinai Hospital, Bronx Hospital and Dispensary, Morrisania City Hospital, Vanderbilt Clinic and the New York Infirmary for Women and Children, aged 52, died, February 1, of heart disease.

John S. Van Duyn, Syracuse, N. Y., Kentucky School of Medicine, Louisville, 1865, professor emeritus of surgery, Syracuse University College of Medicine, veteran of the Civil Spanish-American and World wars, formerly on the staff of the Hospital of the Good Shepherd, aged 90, died January 15, of arteriosclerosis and hypostatic pneumonia.

Virgil Martha Gilchrist Wheeler, Urbana, Ill., University of Illinois College of Medicine, Chicago, 1917, served with the American Red Cross in France during the World War, medical adviser to women, University Health Station, and associate in hygiene, University of Illinois, aged 45, died, January 3, at her home in Monticello.

Bart Newton White of Murfreesboro, Tenn., University of Tennessee Medical Department, Nashville, 1909, formerly a dentist, past president and secretary of the Rutherford County Medical Society, served during the World War, aged 54, on the staff of the Rutherford Hospital, where he died, Dec. 20, 1933, of meningitis.

Leonard Hugh Douglass, London, Ont., Canada, Western University Faculty of Medicine, London, 1905, served in the Canadian Army Medical Corps during the World War for five years, alderman of London and for several years chairman of the board of health, died Oct. 11, 1933, following an operation on the jaw.

Richard Leo Sullivan, Baldwinsville, N. Y., Syracuse University College of Medicine, 1900, member of the Medical Society of the State of New York, past president of the Onondaga County Medical Society, for thirteen years health officer of Baldwinsville, aged 58, died suddenly, January 17, of heart disease.

Luther Swiggett Conwell, Camden, Del., Jefferson Medical College of Philadelphia, 1884, member of the Medical Society of Delaware, formerly member of the state legislature, at one time secretary, executive officer and registrar of vital statistics, state board of health, aged 74, was found dead, February 5.

Albert Benjamin Tonkin, Riverton, Wyo., Colorado School of Medicine, Boulder, 1904, member of the Wyoming State Medical Society, past president of the state board of health, veteran of the Spanish-American and World wars, aged 54, died January 18, in a hospital at Denver, of typhoid.

Huntington Richards, New York, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1877, member of the American Otological Society, aged 83, died February 4, in the Phillips House, Massachusetts General Hospital, of bronchopneumonia.

Miles Egbert Varney, Saratoga Springs, N Y, University of Vermont College of Medicine, Burlington, 1889, member of the Medical Society of the State of New York, formerly county coroner, on the staff of the Saratoga Hospital, aged 71, died suddenly, January 23, of heart disease

Robert Henry Wolcott, Lincoln, Neb., University of Michigan Medical School, Ann Arbor, 1893, formerly junior dean and professor and head of the department of zoology, University of Nebraska College of Medicine, aged 65, died, January 23, of carcinoma of the liver

John Joseph Aloysius O'Reilly, Brooklyn, Long Island College Hospital, Brooklyn, 1901, member of the Medical Society of the State of New York, also a lawyer, aged 62, died, January 29, in the Long Island College Hospital, following an operation for appendicitis

E Mitchell Summerell, China Grove, N C, University of Pennsylvania School of Medicine, Philadelphia, 1883, member of the Medical Society of the State of North Carolina, aged 76, died, January 29, in Long's Sanatorium, Statesville, of heart disease

William Edward Errett, New Stanton, Pa., Western Pennsylvania Medical College, Pittsburgh, 1900, member of the Medical Society of the State of Pennsylvania, aged 60, died, in January, at the Westmoreland Hospital, Greensburg, of pneumonia

Homer Berkley Walker, Cumberland, Md., University of Vermont College of Medicine, Burlington, 1919, member of the Medical and Surgical Faculty of Maryland, on the staff of the Allegany Hospital, aged 43, died, Dec. 26, 1933, of pneumonia

Albert Rufus Sheldon * Highland Park, Ill., Hahnemann Medical College and Hospital, Chicago, 1902, member of the Radiological Society of North America, on the staff of the Highland Park Hospital, aged 56, died, February 6, of heart disease

William B Floyd, Rome, Ga., Atlanta Medical College, 1891, member of the Medical Association of Georgia, past president of the Floyd County Medical Society, on the staff of the McCall Hospital, aged 65, died, January 18, of heart disease

Rushton Clark Molloy, Columbus, Miss., College of Physicians and Surgeons, Baltimore, 1892, member of the Mississippi State Medical Association, on the staff of the Columbus Hospital, aged 64, died, January 7, of pernicious anemia

Roy Angelo Sadler * Boston, Harvard University Medical School, Boston, 1907, served during the World War formerly on the staffs of the Massachusetts General and Children's hospitals, aged 51, died, January 18, of coronary disease

Benjamin Franklin Young, Knoxville, Tenn., University of Tennessee Medical Department, Nashville, 1885, member of the Tennessee State Medical Association, aged 82, died, Dec 24, 1933, in the Fort Sanders Hospital, of senility

Martin Collins Woodruff, St. Louis, Beaumont Hospital Medical College, St. Louis, 1891, served during the World War, formerly member of the city board of health, aged 67, hanged himself, January 12, at the City Sanitarium

Frank Barton Schurtz, Spring Valley, Ill., University of Michigan Medical School, Ann Arbor, 1885, for many years president of the board of health of Spring Valley, aged 68, died, January 24, of cerebral hemorrhage

Cecil Ernest Wasgatt, Camden, Maine Medical School of Maine, Portland 1882, member of the Maine Medical Association, aged 80, died, January 9, of carcinoma of the prostate with metastasis to the cervical spine

Cyrus Bowers Eby * Spring Valley, Minn. University of Minnesota Medical School, Minneapolis, 1893, past president of the Fillmore County Medical Society, aged 61, died suddenly, January 20, of heart disease

Carl Robert O'Brien * Bangor, Maine, Tufts College Medical School, Boston, 1907, member of the Massachusetts Medical Society, served during the World War, aged 49, died January 9, of heart disease

Hallick Hart Look * Sacramento, Calif., College of Physicians and Surgeons, Medical Department of Columbia College, New York 1887, aged 71, died, Dec. 26, 1933, in the Sutter Hospital of arteriosclerosis

Albert LeRoy Crittenden * Shellman, Ga., Atlanta College of Physicians and Surgeons, 1902, past president of the Randolph County Medical Society, aged 54, was shot and killed January 25

Charles Edward Clayton, Birmingham, Ky., College of Physicians and Surgeons, Baltimore, 1884, member of the Kentucky State Medical Association, aged 74, died, January 21, of pneumonia

Samuel Marshall Utley, Nashville, Tenn., Meharry Medical College, Nashville, 1912, formerly professor of nervous and mental diseases at his alma mater, aged 65, died, January 25 of heart disease

Euclid D Covington, Murray, Ky., Hospital College of Medicine, Louisville, 1903, member of the Kentucky State Medical Association, aged 50, died suddenly, January 14, of heart disease

Robert C Dunkel, Cokedale, Colo., Denver and Gross College of Medicine, 1904, aged 53, died January 19, in the Mount San Rafael Hospital, Trinidad, of lobar pneumonia and myocarditis

Hugh F Wagley, Mineral Wells, Texas, Louisville (Ky.) Medical College, 1891, member of the State Medical Association of Texas, aged 68, died, Dec 12, 1933, of cerebral hemorrhage

Adam Glandorf Bormann, Toledo, Ohio, Medical College of Ohio, Cincinnati, 1881, aged 70, died, February 1, in St Vincent's Hospital, of burns received when a cigaret ignited a curtain

John Archibald McLean, Glace Bay, N S, Canada, Dalhousie University Faculty of Medicine, Halifax, 1924, aged 37, died recently, in the Victoria General Hospital, Halifax

Leroy S Wallace, Bunker Hill, Ind., Starling Medical College, Columbus, 1875, member of the Indiana State Medical Association, aged 79, died, January 12, of heart disease

James D Barr, Upper Sandusky, Ohio, University of Pennsylvania School of Medicine, Philadelphia, 1879, formerly a druggist, aged 86, died, January 29, of heart disease

Clark Ogden Decker * Crandon, Wis., Milwaukee Medical College, 1901, served during the World War formerly mayor, aged 62, died, January 20, of angina pectoris

John H Harkness, Belleville, Ark., Arkansas Industrial University Medical Department, Little Rock, 1881, aged 85, died, Dec 21, 1933, of carcinoma of the stomach

Charles Christian Rothfuchs, Boston, Harvard University Medical School, Boston, 1896, aged 60, died, January 24, of angina pectoris and coronary occlusion

Archibald Crosse Hunter, Goderich, Ont., Canada, Trinity Medical College, Toronto 1891, medical officer of health and coroner, aged 64, died, Dec 23, 1933

Clifton E Whitney, Little Rock, Ark. (licensed, Arkansas 1903), member of the Homeopathic State Medical Board, aged 67, died, January 16, of heart disease

Henry R Noark * Houston, Texas, University of Louisville (Ky.) School of Medicine, 1888, aged 69, died, Dec 7, 1933, of myocarditis and hypertension

Omer Joseph Ohrel, St. Louis, St. Louis University School of Medicine, 1930, aged 27, died, January 3, in the Christian Hospital, of septicemia

Samuel Tevis, Alameda, Calif., Jefferson Medical College of Philadelphia, 1888, also a lawyer, aged 74, died, Dec 11, 1933, of uremia and pyonephrosis

Levi St John Hely, Richmond, Calif., University of Michigan Medical School, Ann Arbor, 1899, aged 64, died, Dec 19, 1933, of angina pectoris

Lyman Trumbull Waggoner, Los Angeles, Missouri Medical College, St. Louis, 1889, aged 73, died, January 13, of a self inflicted bullet wound

Otto Leonard Wolter * St. Louis, Washington University School of Medicine, St. Louis, 1904, aged 58, died, January 22, of heart disease

Oliver Marion Chapman, Erie, Pa., University Medical College of Kansas City (Mo.), 1896, aged 70, died, January 26, of angina pectoris

John Urquhart, Oakville, Ont., Canada, Trinity Medical College, Toronto 1882, formerly mayor of Oakville, aged 89, died Dec 17, 1933

Charles L McKinnon * McKees Rocks, Pa., Western Pennsylvania Medical College, Pittsburgh, 1899, aged 63, died, Dec 31, 1933

Russel Duncan Brown, Flint, Mich., Detroit College of Medicine and Surgery, 1917, aged 39, died, January 30, of pneumonia

Perry Ernest Doolittle, Toronto, Ont., Canada, Faculty of Medicine of Trinity College, 1885, aged 72, died, in January

Correspondence

USE OF PROCAINE IN PAINFUL ARTICULAR CONDITIONS

To the Editor—In reply to Dr Ralph R Fitch's communication (*THE JOURNAL*, January 13, p 148), I would say that he seemed a bit hasty and unfair in his condemnation of the Paris correspondent's report of the use of procaine in certain painful articular conditions (*THE JOURNAL*, Nov 4, 1933, p 1492). I can understand his objection to permitting patients with severe sprains and luxations to use the part immediately, but the correspondent apparently referred to mild sprains and luxations in which the patient is grateful for relief locally. It appears to me a superior method of pain relief to the use of narcotics in cases in which the latter would be indicated.

As to the use of this method in selected cases of long standing painful monoarthritic conditions, I have two grateful patients on whom this mode of treatment was tried. I am not referring to cases of polyarthritic conditions in which the cause is known but rather to those cases of arthritis and peri-arthritis of several months' duration probably in most instances due to a known or suspected focus of infection. At any rate, when all other methods fail to produce relief of pain the injection method can do no harm if proper aseptic technic is observed.

Mrs A D, aged 35, had for several months been suffering with a painful right knee. Weight bearing was almost impossible. The popliteal space felt "knotted." The pain seemed to radiate down the anterolateral aspect of the leg. She was unable to do housework and had been using a crutch to get about the house. Physical examination revealed a moderate degree of obesity and suspicious looking tonsils. About a year before a peritonsillar abscess had been incised and drained. I advised a reduction diet and tonsillectomy, the latter of which she would not have done at present. I gave her such medications as salicylates, iodides and neocinchophen. She showed absolutely no improvement after a few weeks of such treatment. Finally, and with some tenuity, I injected 10 cc of a 1 per cent solution of procaine hydrochloride into the insertion of the tendons and ligaments of the knee. While the patient experienced no immediate relief within two or three weeks she was limping about the house unaided and in six or seven weeks she was clinically as well as ever. Three months has elapsed with no recurrence.

I am of course not advocating the indiscriminate use of this mode of treatment but am only relating my own experience and defending a suggestion which would warrant further clinical trial.

J C WEISMAN, M D, Elizabeth N J

EXAMINATION FOR AMEBIASIS

To the Editor—In the recent articles and discussions on amebiasis appearing in *THE JOURNAL* no mention is made of a valuable aid in the detection of the organisms. In 1929 at the Boston City Hospital, under the care of Dr George C Shattuck, chief of the tropical service there were sixteen patients with active amebiasis practically all being residents of the city. The diagnosis was quickly and easily made by examining the bloody mucus or liquid stool, with the microscope in a hot box, which keeps it indefinitely at body temperature. The amebas at body temperature are actively motile, and if blood is present the red cells are easily seen in the cytoplasm. As soon as the temperature falls, activity ceases and then their detection is extremely difficult. It is not necessary for the specimen to be collected in a warm container or that it be kept warm after passage or that it be examined immediately. However, drying out of the specimen or contamination with urine should be avoided.

WILMOT C TOWNSEND, M D, Hartford Conn

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

CASTOR OIL AND QUININE FOR INDUCTION OF LABOR

To the Editor—What is the present opinion and practice regarding the use of (a) castor oil and (b) quinine with or without solution of pituitary, for pregnant women who go over time and are anxious to deliver? Please omit name, town and state. M D, California.

ANSWER—Castor oil and quinine are still used almost universally as medicinal means of inducing labor, but the results are not uniform. At or beyond term, these drugs are successful in perhaps 25 per cent of the cases. Because of the uncertainty involved, Watson suggested the use of solution of pituitary as a supplementary method. His technic is as follows:

At 6 p m, castor oil, 30 cc
At 7 p m, quinine, 0.65 Gm
At 8 p m, large soap suds enema
At 9 p m, quinine, 0.65 Gm
At midnight, quinine, 0.65 Gm

If pains have not occurred by 9 o'clock of the following morning, 0.5 cc of solution of pituitary is given hypodermically and repeated every half hour until labor sets in or until six doses have been administered. This method is effective in most cases, but the large doses of solution of pituitary and the large amount of quinine used are dangerous. Solution of pituitary in the doses given often results in tetanic contractions of the uterus and may possibly lead to rupture of the uterus. Quinine has occasionally caused the death of babies in utero, hence most physicians who give quinine prescribe only from 0.65 to 1 Gm altogether. However, even this dose is too high to obtain the best results, because it has been shown recently that small doses are much more effective for stimulating uterine contractions than are large doses. Likewise at present small amounts of solution of pituitary are administered usually 0.1 or 0.2 cc at a time. Because it is difficult to inject exactly 0.1 or 0.2 cc with the ordinary hypodermic syringe, it is best to use a specially marked one like a tuberculin syringe. Even with such small doses, tetanic contraction of the uterus may result, hence care must be exercised regardless of how small the dose is.

A number of years ago, Hofbauer demonstrated that solution of pituitary may be applied to the nasal mucous membrane and produce an oxytocic effect on the uterus. His method consists of soaking a pledget of gauze with 1 cc of solution of pituitary and inserting the pledget beneath the inferior turbinate bone. After a few minutes, uterine contractions are usually observed. This method is safer than the hypodermic administration, because the rate of absorption of the solution of pituitary is slow and because the solution of pituitary may be removed as soon as unusually violent contractions of the uterus are noted. When this method is used, castor oil and quinine should be administered first and the pledget should be inserted into the nose about three hours after the last dose of quinine is given. If labor pains do not set in after thirty minutes, the pledget should be removed and another one inserted on the opposite side of the nose. A third and a fourth pledget may have to be used before the desired results are obtained. The intranasal application with castor oil and quinine is successful in about 75 per cent of the cases at term. However, even the intranasal use of solution of pituitary may result in undesirable contractions, hence here again the cases must be properly selected and carefully watched.

PHRENICECTOMY

To the Editor—Will you please describe the anatomic landmarks that will enable one to locate the phrenic nerve, the technic of the operation for section of this and your opinion as to its relative value in relation to artificial pneumothorax. Please give reference as to articles or books in which this is described.

F C McCLANAHAN, M D, Assiut, Egypt

ANSWER—The phrenic nerve passes over the anterior scale of the subclavian artery, obliquely from behind forward, a short distance above the clavicle. A convenient incision is one-half inch above the clavicle and parallel with it about 5 cm long. The middle of the incision lies over the external border of the sternocleidomastoid muscle. The wound is spread somewhat to mobilize the outer edge of the sternocleidomastoid muscle, which is then retracted inward.

exposing the scalenus anticus with some gland-bearing fat overlying it. This must be dissected through and retracted. Normally the nerve is then seen lying in front of the muscle. It may be either crushed or extracted (excised). Crushing it results in complete paralysis of the diaphragm on the operated side in perhaps 75 per cent of the cases. In the other 25 per cent some tributaries which enter the main trunk below the level of the clavicle maintain a partial innervation. For this reason, if it is desirable to obtain complete paralysis, the nerve should be excised. This is done by separating it from the muscle, clamping it with a hemostat, cutting it and then winding the distal part on to the hemostat very slowly. In most cases this will bring away at least 10 to 25 cm of the nerve and all tributaries.

A phrenic nerve resection produces a 15 to 30 per cent reduction in the volume of the pleural cavity on the operated side, and a corresponding degree of rest of the lung because of the immobilization. This amount of collapse and rest of the lung may be sufficient to bring about an arrest of a tuberculous lesion, but usually, the more complete collapse of the lung secured by artificial pneumothorax or by thoracoplasty may be necessary. In suitable cases phrenic nerve operation may be done first and pneumothorax collapse performed later, if symptoms persist.

A good description of the operation may be found in Howard Lilenthal's "Text-Book of Thoracic Surgery" and John Alexander's monograph on the "Surgery of Pulmonary Tuberculosis."

NARCOTIC ADDICTION IN A NURSE

To the Editor—I have a patient a trained nurse whose husband accuses her of being a morphine addict. She has had an appendectomy, the gallbladder was removed on account of stones, then the right kidney was removed and the colic continued. About a year ago a small stone was removed from the common duct. I had her in a hospital for four days. She showed no signs of morphinism; she took nothing but a night gown and a few cigarets into the room with her. These were inspected before she was allowed to have them. Please advise me what measures to follow to disprove the charge. M D Wisconsin

ANSWER—An addict nurse can outwit almost any physician who has not had an extensive experience treating narcotic patients.

Wise addicts who are using morphine hypodermically know that from one and one-half to two times their daily amount taken by mouth will keep them in balance and prevent a "yen" or abstinence symptoms.

The patient referred to could have had morphine concealed in her hair, ears, mouth, vagina or rectum (in a rubber finger cot in the three latter locations). Linen or handkerchiefs could have been soaked in a strong morphine solution and sucked or redissolved as needed. She could have arranged or made contact with people in or out of the hospital to smuggle her morphine in the food, medicine, clothing, books or papers. After a complete examination she should have been stripped to the skin and a night gown and other clothing supplied in which she could not conceal morphine. She should then have been put under constant surveillance by trustworthy, experienced attendants. It might also be advisable to give her an opportunity to cheat through a relief attendant.

If these instructions cannot be carried out, she should be placed under the care of a physician experienced in narcotic addiction.

CEREBROSPINAL SYPHILIS

To the Editor—Please give treatment for cerebrospinal syphilis and proper technique for making silver arsphenamine solution.

JOHN W. MARTIN, M.D. Roanoke Rapids, N.C.

ANSWER—Cerebrospinal syphilis is a term that includes a good many clinical syndromes. In some cases the disorder is due in large part to vascular disease; in other cases to meningeal inflammation. The treatment must, of necessity, vary considerably in different patients with different pathologic types. In a general way it may be said that in some of the milder cases a combination of arsphenamine and bismuth compounds will be quite effective. In other instances tryparsamide, assisted by these other drugs, will be the method of election and in a limited number of cases febrile treatment would probably be best. In the cases of pure vascular disorder the iodides will be the main drugs with possibly a small amount of bismuth or very small doses of arsphenamine.

Silver arsphenamine is prepared by dissolving the drug in sterile distilled water. Occasionally a little scum occurs; hence it is well to filter the solution through sterile gauze.

POSTMORTEM DIGESTION OF STOMACH

To the Editor—Will you kindly give me what information you have concerning the postmortem digestion of the stomach? Under what conditions does this occur and how soon after death might digestion take place to such a degree as to cause a large perforation of this organ together with perforation of the diaphragm?

GEORGE F. STONEY, M.D. Erie, Pa.

ANSWER—Self digestion of the stomach may occur in varying degrees under a great variety of conditions. The process may begin soon after death, especially in the parts that are in contact with the digestive fluid, notably the posterior wall of the fundus and at the esophageal junction. The state of secretory activity at the time of death naturally must be of much importance. Self digestion is frequent in small children, also, it is said, in persons who are killed by lightning, and following death from cerebral disease. Warm weather favors the process. The digestion may involve the entire thickness of the wall of the stomach and extend to neighboring organs, such as the spleen, the liver, the diaphragm, the lungs and the pericardium. In rare instances, cavities may be produced in the lungs. Just how soon after death digestion may extend through the wall of the stomach and diaphragm cannot be stated definitely, because of the great variability of the factors concerned.

TAYLOR BLAIR METHOD FOR BLOOD UREA

To the Editor—In a note on Karr's method for blood urea in *THE JOURNAL* Nov. 25, 1933 you mention the Taylor Blair modification as superior. I am using Karr's method and I should be interested in learning the details of the Taylor Blair method of which I have not previously heard. It is not given in Kolmer's approved methods, which is the latest book I have. Kindly omit name if published. M.D. Maine

ANSWER—In the Taylor-Blair method (*J. Lab. & Clin. Med.* 17:1256 [Sept.] 1932), crystalline urease is prepared from defatted jack bean meal by Sumner's method (*J. Biol. Chem.* 69:435 [Aug.] 1926, 70:97 [Sept.] 1926, 76:149 [Jan.] 1928). The crystals from 75 Gm of defatted jack bean meal are suspended in 5 cc of water and preserved with toluene containing 5 per cent of thymol. To 5 cc of whole oxalated blood is added 1 drop of the urease suspension plus 10 cc of water. It is incubated for fifteen minutes at 50°C. Next are added 25 cc of water, 5 cc of 10 per cent sodium tungstate, mixed, and then the usual 5 cc of two-thirds normal sulphuric acid. To 5 cc of the filtrate in a 25 cc graduate 15 cc of water and 25 cc of Nessler reagent are added and the mixture is diluted to 25 cc. It is nesslerized against a standard of 0.4 mg of nitrogen in a 100 cc volume. The results are slightly higher than urea by aeration methods. Recovery of added urea was from 99.4 to 101.1 per cent. The same filtrate can be used for protein nitrogen, Folin-Wu blood sugar, creatinine, and uric acid, according to Taylor and Blair.

SIGNIFICANCE OF MORNING DROP AFTER GONORRHEAL URETHRITIS

To the Editor—Please inform me through *Queries and Minor Notes* concerning the diagnosis and treatment of the so-called morning drop following acute anterior gonorrheal urethritis. Please omit name.

M.D., Louisiana

ANSWER—The persistence of a morning drop following an attack of gonorrheal urethritis may be due to the fact that the local treatment has been continued too long or that the drugs have been too strong. It is well known that in certain patients the urethra is sensitive to too long continued instrumentation and also to the long continued use of silver salts. Therefore, under these circumstances, if the urethral discharge no longer shows gonococci, local treatment may be discontinued or astringent injections used, such as a solution containing 0.065 Gm each of zinc sulphate, phenol (carbolic acid) and alum in 30 cc of water. The patient should inject this twice a day.

In the second place, a morning drop is often due to granulations in the anterior urethra or to strictures. These are best treated by the passage of large sounds. The sound should be allowed to remain in the urethra a minute or two and the urethra massaged over the sound and this may be followed with a mild anterior irrigation of warm potassium permanganate solution in the strength of 1:4,500.

In the third place, a morning drop may be due to the presence of infection in the prostate, or seminal vesicles, or both, the prostate and vesicles should be stripped and the fluid examined by the microscope for the presence of pus.

Finally, a morning drop may be due to the presence of infection in the glands of Littre and the crypts of Morgagni. These are best treated by destruction of the glands with the high frequency current.

DOSAGE OF VIOSTEROL IN RICKETS

To the Editor—Why is the average prophylactic and curative dose of cod liver oil 1,596 Steenbock units daily whereas the daily prophylactic dose of viosterol in oil 250 D is from 5,000 to 10,000 units and the curative dose from 10,000 to 20,000 units? Is viosterol in oil 250 D unit for unit, less effective than cod liver oil? A representative of a drug house has made such a claim. Please omit name.

M D, New York

ANSWER—There seems to be some confusion in regard to the number of units of cod liver oil and of viosterol required to prevent or to cure rickets. This is not surprising in view of the various types of units that exist and are used in advertising antirachitic agents. The average dose of cod liver oil is not 1,596 Steenbock units daily but about 200 units, and the corresponding dose of viosterol does not run into the thousands but is about 800 units, in other words, 10 drops a day of the preparation that contains about 80 units to the drop. It is true that, unit for unit, viosterol in oil 250 D is less effective than cod liver oil, this is of course, the reason for the larger dosage of the former. Whether this is due to a difference in nature of the vitamin D of the two substances has not yet been satisfactorily proved.

RICE FEVER

To the Editor—What is the modern equivalent of the term "rice fever"? This term was used by a Philadelphia author about 1810 in describing a fever common in China and supposed to be due to miasms in the rice fields.

MILOSH KASICH M D New York

ANSWER—We have found no dictionary, old or new giving the term "rice fever." It is presumably equivalent to malaria. Reports from Georgia prior to 1840 describe febrile disturbances in the rice country which are attributed to miasms following the flooding of the rice fields. The word "rice fever" is not specifically used in any publication we have seen. The original reference would have been of help. In the Georgia reports the fever is described as of summer and early fall incidences. The descriptions indicated that both malaria and yellow fever were included under the fevers attributed to miasms in the rice regions. As yellow fever does not appear to have occurred in China at the time indicated, presumably the term referred to malaria.

EFFECTS OF MOON ON LUNACY

To the Editor—Is there any evidence whatever based on medical statistical or other study of mental patients to support the belief that mental patients show periods of increased insanity or become more manic or are harder to control during certain phases of the moon while they show decreased signs of insanity and are more easily managed during certain other phases of the moon? Please omit name.

ANSWER—No

M D Virginia

PERSISTENT URTICARIA

To the Editor—I am deeply interested in the report of a case of urticaria of seventeen years standing by Emmett and Logan in THE JOURNAL Dec 16 1933. I have a daughter of about the same age who teaches school and is anything but neurotic. For several years say three she too had urticaria almost daily. I had her see physicians who I felt were better qualified to run the cause down. Tests diets nothing helped her so that she quit consulting these specialists and in desperation sought my advice. For several days I could think of nothing to do. Finally I asked her and learned that though a girl of fine physique and good health save for a headache rather frequently her menses though fairly regular were scanty. I put her on an ovarian preparation and as if by magic her hives and headache left her. Some three or four weeks after this she was unable to get this particular product from the usual source our local druggist and thinking it of no consequence if she went without it for a few days she omitted it. The third day the hives trooped back. Briefly then if she takes ovarian substance or extract she has no hives nor headache. Her improvement is nearing a year's trial.

W L JOHNSON, M D San Marino Calif

ACROPAESTHESIA

To the Editor—In Queries and Minor Notes in THE JOURNAL January 27 there is an inquiry regarding the treatment of the symptom complex known as acroparesthesia. In the August 1907 issue of the Philadelphia Medical Council I published an article under the heading Acroparesthesia (p 27) in which I stated that the only remedy which I had found invariably effective was potassium iodide. This condition is of frequent occurrence in this locality and while not dangerous is exceedingly annoying. Since writing the article referred to I have had an extensive experience and in the twenty four years my faith in this treatment has been confirmed. There is a chapter on page 333 of Observations of a General Practitioner (Gorham Press Boston 1932) which, I believe throws further light on the treatment and possible etiology of this obscure condition.

WILLIAM N MACARTNEY Fort Covington N Y

Council on Medical Education and Hospitals

COMING EXAMINATIONS

- AMERICAN BOARD OF DERMATOLOGY AND SYPHILIOLOGY Cleveland June Sec. Dr C Guy June 416 Marlboro St Boston.
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Written (Grant B Candidates) The examinations will be held in various cities of the United States and Canada April 7 Oral (all candidates) Cleveland June 12 Sec. Dr Paul Titus 1015 Highland Bldg Pittsburgh.
AFRICA BOARD OF OPHTHALMOLOGY Cleveland June 11 and Battle Mont July 16 Sec. Dr William H Wilder, 122 S Michigan Bldg. Chicago.
AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec. Dr W P Wherry 1500 Medical Arts Bldg Omaha.
COLORADO Denver April 3 Sec. Dr William Whitridge William 422 State Office Bldg, Denver.
CONNECTICUT Regular Hartford March 13 14 Endorsement Hartford March 27 Sec. Dr Thomas P Murdock 147 W Main St Meriden Homoeopathic New Haven March 13 Sec. Dr Edwin C M Hall 82 Grand Ave, New Haven.
IDAHO Boise April 3 Commissioner of Law Enforcement at Emmitt Post 205 State House Boise.
ILLINOIS Chicago April 10 12 Supt. of Regis, Mr Eugene R. Schwartz Springfield.
MAINE Portland March 13 14 Sec., Dr Adam P Leighton Jr 192 State St Portland.
MASSACHUSETTS Boston March 13 15 Sec. Dr Stephen Rushmore 144 State House Boston.
MINNESOTA Basic Science Minneapolis April 3-4 Sec. Dr J Charney McKinley 126 Millard Hall University of Minnesota Minneapolis Medical Minneapolis April 17 19 Sec. Dr E J Engberg 350 St Peter St St Paul.
MONTANA Helena April 3 Sec. Dr S A Cooney 7 W 6th Ave. Helena.
NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates May 7 9 (limited to a few centers) June 25 27 and Sept 12 14 Ex Sec. Mr Everett S Elwood 275 S 15th St Philadelphia.
NEW HAMPSHIRE March 15 16 Sec. Dr Charles Duncan State House Concord.
NEW MEXICO Santa Fe April 9 10 Sec. Dr P G Cornish Jr, 221 W Central Ave Albuquerque.
OKLAHOMA Oklahoma City March 13 14 Sec. Dr J M Byrum, Mammoth Bldg Shawnee.
PUERTO RICO San Juan March 6 Sec., Dr O Coita Mandry Box 536 San Juan.
RHODE ISLAND Providence April 5 6 Dir. Dr Lester A Round 319 State Office Bldg Providence.
TENNESSEE Memphis, March 26 27 Sec. Dr H W Qualls 130 Madison Ave Memphis.
WEST VIRGINIA Charleston March 12 State Health Commissioner Dr Arthur F McClue Charleston.
WISCONSIN Basic Science Madison March 24 Sec. Prof Robert N Bruer 3414 W Wisconsin Ave Milwaukee Reciprocity Milwaukee April 5 Sec. Dr Robert E Flynn 401 Main Street LaCrosse.

ADDITIONAL HOSPITALS APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals since the publication of the last previous list in THE JOURNAL, Oct 7, 1933.

Hospitals Approved for Intern Training

Little Company of Mary Hospital Evergreen Park Ill
St Anthony's Hospital Rockford Ill
St Luke Hospital Pittsfield Mass
State Infirmary Tewksbury Mass
Battle Creek Sanitarium Battle Creek, Mich
Menorah Hospital Kansas City Mo
Our Lady of Victory Hospital Lackawanna N Y
Yonkers General Hospital Yonkers N Y
Peoples Hospital Akron Ohio
Oklahoma City General Hospital Oklahoma City
Braddock General Hospital Braddock Pa
Holy Cross Hospital Salt Lake City
La Crosse Lutheran Hospital La Crosse Wis

Hospitals Approved for Residencies in Specialties

Children's Hospital, Birmingham Ala Pediatrics
Mount Zion Hospital San Francisco Medicine pathology and surgery
Fairmont Hospital of Alameda County San Leandro Calif Tuberculosis
Hartford Municipal Hospital Department of Communicable Diseases
Hartford Conn Communicable diseases
Norwich State Tuberculosis Sanatorium Norwich Conn Tuberculosis and thoracic surgery
Bell Memorial Hospital Kansas City Kan Medicine obstetrics gynecology pathology pediatrics and surgery
Church Home and Infirmary Baltimore Medicine and surgery
Maryland General Hospital Baltimore Medicine and surgery
Boston Lying in Hospital Boston Obstetrics
Battle Creek Sanitarium Battle Creek Mich Medicine psychiatry surgery and urology
Providence Hospital Detroit Medicine obstetrics and surgery
Michigan State Sanatorium for Tuberculosis Howell Mich Tuberculosis
Jackson County Sanatorium Jackson Mich Tuberculosis

Brooklyn Eye and Ear Hospital Brooklyn Ophthalmology and otolaryngology
Lincoln Hospital New York Pathology
New York Polyclinic Medical School and Hospital, New York Surgery and ophthalmology otolaryngology
Bloomington Hospital White Plains N Y Psychiatry
Dr W H Groves Latter Day Saints Hospital Salt Lake City Surgery

Hospitals Approved for Additional Residencies

New Haven Hospital New Haven Conn Ophthalmology, orthopedics otolaryngology, psychiatry tuberculosis and urology
University Hospital Augusta Ga Pediatrics
Children's Memorial Hospital Chicago Orthopedics (Fellowship Offered under auspices of Northwestern University Medical School)
Michael Reese Hospital Chicago Malignant diseases, ophthalmology and radiology
Research and Educational Hospital Chicago Neurology
University of Chicago Clinics Chicago Pathology
Evanston Hospital Evanston Ill Pathology
Indianapolis City Hospital Indianapolis Pathology
University Hospitals Iowa City Neurology
Johns Hopkins Hospital Baltimore Psychiatry
Sinai Hospital Baltimore Obstetrics
University Hospital Baltimore Otolaryngology
Boston City Hospital Boston Radiology
Memorial Hospital Worcester Mass Otolaryngology
University Hospital Ann Arbor, Mich Neurology
Hurley Hospital, Flint Mich Radiology
Minneapolis General Hospital Minneapolis Dermatology and syphilology
University Hospitals Minneapolis Dermatology and syphilology
City Isolation Hospital St Louis Communicable diseases and tuberculosis
Buffalo General Hospital Buffalo Otolaryngology
New York Hospital New York Gynecology medicine pathology pediatrics psychiatry, radiology and surgery
New York Post Graduate Medical School and Hospital New York Gynecology orthopedics pediatrics and urology
Willard Parker Hospital New York Communicable diseases
Strong Memorial and Rochester Municipal Hospitals Rochester N Y Gynecology and obstetrics neurosurgery ophthalmology, orthopedics otolaryngology psychiatry and urology
Sea View Hospital Staten Island, N Y Urology
Mount Sinai Hospital Cleveland Pathology
University Hospitals Cleveland Orthopedics and urology
Graduate Hospital of the University of Pennsylvania Philadelphia Gynecology maxillofacial surgery ophthalmology otolaryngology and pathology
Philadelphia General Hospital Philadelphia Anesthesia metabolic diseases pathology and tuberculosis

Massachusetts July Examination

Dr Stephen Rushmore, secretary, Massachusetts Board of Registration in Medicine, reports the written examination held in Boston, July 11-13, 1933. The examination included 46 questions. An average of 75 per cent was required to pass. One hundred and forty two candidates were examined, 70 of whom passed and 72 failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Yale University School of Medicine	(1929)	77	
Georgetown University School of Medicine	(1933)	75, 78.9	
Emory University School of Medicine	(1926)	75.8	
Chicago Medical School	(1933)*	79.8	
Rush Medical College	(1927) 79.5	(1933)	80.1
School of Med of the Div of the Biological Sciences	(1933)	83.7	
Tulane University of Louisiana Medical Department	(1912)	75	
Johns Hopkins University School of Medicine	(1933)	81.3	
Boston University School of Medicine	(1930)	78.4	
(1932) 82.2-83.3 84, (1933) 75.3 77.2 78.2 78.8 78.9 82.4 83.4			
College of Physicians and Surgeons Boston	(1930)	78.1	
(1932) 75 (1933) 81.5			
Harvard University Medical School	(1929) 85.5	(1933) 78.9 84.8	
Middlesex Coll of Med and Surgery	(1930) 75	(1931) 77.9 80.7	
Tufts College Medical School	(1931)	75 77.9	
(1932) 75 75.8 77.3 79.5 80.7 82.4 82.9 (1933) 75 75 78.4 78.5 80.2 80.5 80.7 82 82.1 82.5 83.4			
University of Michigan Medical School	(1929)	75.8	
University of Minnesota Medical School	(1932)	75	
Kansas City Univ of Physicians and Surgeons Mo	(1933)	75	
St. Louis University School of Medicine	(1928)	75	
Albany Medical College	(1931)	77.5	
University of Buffalo School of Medicine	(1913)	81.2	
Hahnemann Med College and Hospital of Philadelphia	(1932)	75.1	
Medical College of the State of South Carolina	(1931)	75.4	
Vanderbilt University School of Medicine	(1925)	75	
University of Vermont College of Medicine	(1929)	78	
University of Virginia Department of Medicine	(1931)	81.9	
University of Wisconsin Medical School	(1931)	80.7	
University of Toronto Faculty of Medicine	(1929)	81.5	
Osteopaths †	75 75 75 75.1 75.6 76.2 76.6		

School	FAILED	Year Grad	Per Cent
Georgetown University School of Medicine	(1933)	69.3	
Boston University School of Medicine	(1931)	69.8	
College of Physicians and Surgeons Boston	(1933) 72.7	73.6	
Middlesex Coll of Medicine and Surgery	(1926) 59 (1928) 60.9 65 (1929) 50.9 52.2 60.4 61 64.1 64.4 64.7 (1930) 66.3 (1931) 60.1 67.4 68.2 68.8 69.5 69.6 72.6	(1923)	66.9
Tufts College Medical School	(1932)	71.1	
Kan as City Univ of Physc and Surg Missouri	(1929)	52.7	
63.7 (1932) 55.7 62.6 65.5 66.7 67.6 67.7 71.6 (1933) 55.5 56 56.1 66 72.2 73.2 73.2 73.5			

St. Louis College of Physicians and Surgeons	(1923)	48.3
Hahnemann Med College and Hosp of Philadelphia	(1933)	69.2
Medical College of Virginia	(1930)	64.7
Univ of Montreal Faculty of Medicine	(1932) 65.8	(1933) 63.6
Laval University Faculty of Medicine	(1925)	59.4
Regia Università di Napoli Facoltà di Medicina y Chirurgia	(1903)†	11.8
Osteopaths †		53.8
55.2 56.5 56.6, 56.7, 57.5, 58.9 62.7 63 63 64.2 64.4, 65.7 66.3 66.4 67.5 69, 69.9 70.1 71.9 72.5, 72.5, 72.6 73.8		

Two applicants were licensed at special examinations held June 9 and July 24, respectively. The following schools were represented:

School	PASSED	Year Grad
State University of Iowa College of Medicine	(1906)	
Long Island College Hospital	(1879)	

Twenty-seven physicians were licensed by endorsement from July 31 to October 19. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad of
College of Medical Evangelists	(1933) N B M Ex	
Johns Hopkins University School of Medicine (1924) (1929), (1931) (1932)	N B M Ex	
Boston University School of Medicine (1930) (1932) N B M Ex		
Harvard University Medical School (1928), (1929 2), (1930 2) (1931 5) (1932 3)	N B M Ex	
Tufts College Medical School (1931 3) (1932) N B M Ex		
Woman's Medical College of Pennsylvania (1931) N B M Ex		
University of Vermont College of Medicine (1932 2) N B M Ex		

* This applicant has received a four year certificate and will receive an M D degree on completion of internship
† Examined in medicine and surgery
‡ Verification of graduation in process

Pennsylvania Endorsement Report

Mr W M Denison, secretary, Pennsylvania State Board of Medical Education and Licensure, reports 17 physicians licensed by endorsement from Aug 30 to Dec 14, 1933. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad of
George Washington University School of Medicine	(1930) Dist Colum	
Howard University College of Medicine	(1932) Missouri,	
Northwestern University Medical School	(1931) Illinois	
Rush Medical College	(1932) Michigan	
Indiana University School of Medicine	(1918) Indiana	
Tulane University of Louisiana School of Medicine	(1930) Louisiana	
Johns Hopkins University School of Medicine	(1930) Maryland	
Harvard University Medical School	(1931) N B M Ex	
Tufts College Medical School	(1928) Mass	
University of Michigan Medical School	(1915) Michigan	
University of Nebraska College of Medicine	(1920) New York	
Hahnemann Med College and Hosp of Philadelphia	(1932) New Jersey	
Temple University School of Medicine	(1931) New Jersey	
University of Pennsylvania School of Medicine	(1929) N Carolina	
University of Pittsburgh School of Medicine	(1930) New York	
University of Texas School of Medicine	(1926) Texas	

Maryland Homeopathic Report

Dr John A Evans, secretary, Homeopathic Board of Medical Examiners, reports the written examination held in Baltimore Dec 13-14, 1933. The examination covered 9 subjects and included 70 questions. An average of 70 per cent was required to pass. Three candidates were examined, all of whom passed. One physician was licensed by reciprocity. The following school was represented:

School	PASSED	Year Grad	Per Cent
Hahnemann Med Coll and Hosp of Philadelphia	(1933) 82 83 87		

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Hahnemann Med Coll and Hosp of Philadelphia	(1907)	Wisconsin	

District of Columbia Reciprocity Report

Dr W C Fowler, secretary, Commission on Licensure, reports 6 candidates licensed by reciprocity from Sept 15 to Nov 23, 1933. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
State University of Iowa College of Medicine	(1918)	Iowa	
College of Physicians and Surgeons	(1926)	Maryland	
Long Island College Hospital	(1908)	New York	
Hahnemann Med College and Hosp of Philadelphia	(1930)	Delaware	
University of Virginia Department of Medicine	(1921) W Virginia		
Osteopaths *		Texas	

* Licensed to practice osteopathy and surgery

Book Notices

Diseases of the Chest and the Principles of Physical Diagnosis By George William Norris A.B. M.D. Chief of Medical Service, A. Pennsylvania Hospital and Henry R. M. Landis A.B. M.D. Sc.D. Professor of Clinical Medicine in the University of Pennsylvania. With a chapter on the Transmission of Sounds Through the Chest By Charles M. Montgomery M.D. and a chapter on the Electrocardiograph in Heart Disease By Edward B. Krumblhaar Ph.D. M.D. Professor of Pathology, University of Pennsylvania School of Medicine. Fifth edition. (Cloth) Price \$10. Pp. 997 with 478 illustrations. Philadelphia & London: W. B. Saunders Company, 1933.

This book, since its appearance in 1917 has merited wide use because it has been revised sufficiently often to keep abreast of the times. The present edition brings together not only all the well established facts concerning the principles of physical diagnosis, with special reference to diseases of the chest, but also most of the new material that is appropriate for such a book. Its authors not only are clinicians of renown but also have had long experience in teaching students of medicine. The book contains twelve chapters on the examination of the lungs, eight on the examination of the circulatory system, four on diseases of the bronchi, lungs, pleura and diaphragm and seven on diseases of the pericardium, heart and aorta. Each of the thirty-one chapters is carefully written and contains a vast store of information. Recent advances in medicine, such as those made on the vital capacity of the lungs, iodized oil in diagnosis, bronchoscopy, pneumoconiosis, massive collapse of the lungs, spirochetal infection, tuberculosis in childhood, fungus disease, primary carcinoma of the bronchi and lung and electrocardiography, are fully discussed. The illustrations are numerous and carefully worked out to supplement the text. The chief asset of the book is that all phases of diseases of the chest known today are discussed in a practical way. It contains enough detail to make it valuable to the specialist in diseases of the chest and at the same time is so written that the general practitioner, specialists in other phases of medicine, and even the medical student may profit greatly by its study. Therefore it should be brought to the attention of every practitioner of medicine and could well serve as a text and reference book in schools of medicine.

Nasal Accessory Sinuses Roentgenologically Considered By Frederick M. Law M.D. Roentgenologist Manhattan Eye, Ear and Throat Hospital, New York. Volume XX, Annals of Roentgenology. A Series of Monographic Atlases. Edited by James T. Case M.D. Professor of Roentgenology, Northwestern University Medical School, Chicago. Cloth. Price \$10. Pp. 215 with 228 illustrations. New York: Paul B. Hoeber, Inc., 1933.

This volume is printed on good quality paper and is bound like its companion volumes in the Annals of Roentgenology. The work is divided into five chapters, on anatomy, technique and general considerations, roentgenographic technique, interpretation and diagnosis. This division of the subject matter is practical and reasonable. The chapter on anatomy considers the anatomic relations of the sinuses and pays attention to structural variations, which are so important. While the text is clear and concise, this part of the work badly needs a number of drawings illustrating normal anatomic details. Under technique the author discusses general considerations and gives a historical review of the development of the different techniques in use today. The various angles at which the central ray must pass through certain anatomic structures in order to obtain satisfactory results and the position of the patient are considered. Apparatus and instruments are handled separately. This part could be possibly elaborated with benefit. The discussion of the Pfahler sphenoid technic seems rather brief, as does that concerning the Rhese position for disclosing the optic foramen and the Goalwin one for measuring the same structure. Here a number of line drawings would assist materially in aiding the reader to get a mental picture of the features discussed in the text. The third chapter is given over to the consideration of roentgenographic technique, and numerous well done illustrations help to make clear the author's methods and recommendations. The technic as outlined is easy to follow. The position of the patient, tube and film are well portrayed. It is not possible, however, from any of the illustrations to know the exact angle at which the central ray should enter a given anatomic portion

of the skull. In addition to the positions shown, the indications of the angles by dotted lines or otherwise on the original illustrations would allow one to determine these angles at a glance. This chapter is as profuse with illustrations as the previous chapters are lacking. A chapter or subchapter under the head of tubes might possibly have been included, taking up the various types from the gas tube used by Caldwell (whose original article is reproduced practically in toto) to the present type fine focus tubes, especially with the 10 milliamperage focal spot. Special consideration should be given to the use of the line focus tube, which permits of a finer focus being used on account of its special construction, which further permits of a smaller effective focal spot, which latter, while actually larger is smaller in the projected plane in which it is used. The fourth chapter on interpretation, covers the general appearance of pathologic changes in the accessory nasal sinuses and describes a simple method of reporting the observations by means of a clinic card sparing the need of an elaborate detailed report. The final chapter, under diagnosis covers a wide variety of conditions and is profuse in illustrations which are spread over a considerable number of pages. On careful measurement of these illustrations, it appears that it would be possible to put those now occupying two pages on one page, without any sacrifice in quality. This would permit reducing the number of pages to a considerable extent. The illustrations show the pathologic conditions described in an excellent manner and the author is to be complimented on the fine quality of his original work without which it would be impossible to make such fine reproductions. The publication as a whole is well worth while and deserves a place in the library of every radiologist. It is to be hoped however that with the publication of a new edition the author will enlarge on and include descriptions and illustrations of other equipment, such as the Ernst precision apparatus and its modifications as the latter type of equipment bids fair to become the standard apparatus for radiology of the nasal accessory sinuses.

Le cancer du colon droit Par Jean Gosset. Paper. Price 50 francs. Pp. 328 with 73 illustrations. Paris: Masson & Cie, 1933.

During a period of twenty years twenty-six cancers of the right side of the colon were resected by the author's father, Antonin and his collaborators. In France there has been a special tendency on the part of the surgical profession to treat the right half of the colon and the left half of the colon by widely different methods. In Germany, on the contrary little stress is laid on the differences in approach to the treatment of the right and left halves of the colon. Regardless of the site of the growth, the advantages of two methods are discussed "exteriorization" and one stage resection. In America although the rapid method is performed in highly favorable cases, the slow method is employed more as a precaution against local and general complications. The introductory chapter presents the anatomy of the colon in great detail with especial emphasis on the blood supply, which is strikingly demonstrated in the injected specimens. Statistical studies on the relative frequency of cancer in different parts of the colon are contradictory. Males and females are equally affected. The average age in the author's fifty cases was 56 years. Eight per cent occurred in patients under the age of 40 years. The section dealing with gross and microscopic anatomy is well presented and nicely illustrated. In an interesting discussion on the relation between benign polyps and carcinoma, the author quotes various observations. Dukes examined 127 intestines in patients dying of noncancerous diseases and found polyps in 94 per cent of the cases. The association of polyps and cancer is more common. Westhaus, 40 per cent, Dukes 75 per cent, Susman, 45 per cent. The frequency of malignant degeneration of benign polyps is quoted by various authors as between 23 and 50 per cent. The difficulties of estimating the percentage of carcinomas that arise on the basis of benign polyps is pointed out. The recognition of transition stages is difficult, because most lesions are too advanced to permit this study. The symptoms, signs, diagnosis and natural history of the disease are described, as well as the various complications. Of fifty patients operated on by Antonin Gosset, the following procedures were executed: two exploratory laparotomies, two cecostomies, five simple anastomoses between the ileum and

transverse colon, five anastomoses between the ileum and the transverse colon with unilateral exclusion, five simple ileosigmoidostomies, one ileosigmoidostomy with exclusion, ten one stage colectomies with immediate intestinal suture, and thirteen hemicolectomies after preliminary sidetracking. Two were performed with the hope of subsequent resection, which had to be abandoned. Five patients were operated on for acute obstruction. The advantages, disadvantages, indications and contraindications of various surgical procedures are discussed, with elaborate references to various authorities. The monograph, which ends with a series of case reports and an extensive bibliography, is well written and nicely illustrated. It is complete and authoritative in every detail and is welcomed as a valuable addition to the medical literature.

The Foundations of Nutrition By Mary Swartz Rose Ph.D., Professor of Nutrition Teachers College Columbia University. Second edition. Cloth. Price \$3. Pp 630 with 101 illustrations. New York Macmillan Company 1933.

This revised edition summarizes in an interesting manner the knowledge of nutrition. The fundamental subjects of nutrition—energy needs, basal metabolism, proteins, minerals, vitamins, dietetic values of the various classes of foods, the adequate diet, and the food needs of mothers, infants and children—are briefly but adequately handled. The appendix comprises nine practical tables. The author is a recognized authority on this subject. The book is an excellent source of information on the significance of foods to good nutrition and health, it is to be classed among the few leading general textbooks on the subject.

Enuresis or Bed Wetting By R. J. Batty M.D. B.Sc. D.P.H. Assistant Medical Officer to the Lancashire County Council. Cloth. Price 3/6. Pp 91 with illustrations. London John Bale Sons & Danielsson Ltd. 1933.

This small book purports to deal with the causes and cures of bed wetting but does not do so satisfactorily. The conclusions of the investigator, who generalizes from a limited number of cases, cannot always be accepted, particularly when many of the observations recorded are so obvious as not to merit the space given them. For example, the case is reported of a child with enuresis who had to go downstairs and out into the yard to urinate. The doctor recommended the use of a bed chamber, whereupon the bed wetting ceased. This material hardly seems worthy of inclusion in a scientific dissertation on enuresis. The only contribution made by the author is his opinion that threadworms are a frequent cause for bed wetting. Other observations are that bed wetting is a habit which can be corrected by education, any pathologic condition present must be corrected before enuresis can be cured, that mentally deficient children are more likely to be bed wetters than normal children—all observations made previously and of trifling value in solving the problem of enuresis.

Les fous satisfaits Par le Docteur Paul Mondain, médecin chef des asiles publics. Paper. Price 20 francs. Pp 193 with illustrations. Paris Les éditions Vêga 1933.

There is a tendency among French psychiatrists, when writing monographs, to treat of symptoms of mental diseases, in contradistinction to the American practice of having the monograph treat of specific diseases or groups of diseases. The present work is an example of this, in that it is a study of the more pleasing symptoms observed in psychotic cases, such as euphoria, expansiveness and heightened emotional tone. Dr. Mondain classifies happiness grossly into active and passive forms, linking them with various disorders. For two reasons the general tenor of this book is philosophical and interpretative rather than experimental: one is that the physiologic and psychologic factors which lie behind happiness and unhappiness are not yet fully known, the other is that mentally ill patients have as a rule, great difficulty in expressing their thought content, and objective interpretation may be erroneous. The discussions of the happy states—joy, satisfaction and elation—and the interpretations which Dr. Mondain makes, agree in the main with the beliefs of classic psychiatry rather than with those of dynamic psychiatry, and the work of the modern researchers with the Freudian and Adlerian slants has been ignored in favor of quotations from William James. The tech-

nics which he uses to make distinctions between the states of well being exhibited in the various psychoses are the appearance of patients and the patients' reports. Where he uses verbal reports, the author gives few direct productions, except in the last chapter, in which there are a few short case records. The space devoted to each disorder is brief, and it is interesting, in going over the list, to find such archaic entities as megalomania, toxicomania and the deliriums of imagination and reverie. Dr. Mondain's descriptions are clear cut and his style is simple, but it must be admitted that nothing but the author's interpretations and systematizations is new in this book, however, its clear-cut presentation of distinctions between symptoms of "pleasure" makes the book interesting to the psychiatrist. It is illustrated with thirteen full-page pencil drawings, made by the author and showing the expressions of patients suffering from various psychopathologic conditions.

Physiopathologie des syndromes endocriniens Par Noël Flessinger, professeur de pathologie expérimentale et comparée. Paper. Price 40 francs. Pp 317 with 42 illustrations. Paris Masson & Cie 1933.

This is an excellent presentation developed from a course of lectures to students and practitioners, of the fundamentals of physiologic and pathologic endocrinology, including therapy. Unfortunately there is no index and no bibliography, although authorities are freely cited. Pluriglandular syndromes, of which numerous varieties are described or mentioned, are divided into those of early infancy, the period of growth, and adult life. Particular attention is paid to the several forms of gigantism, dwarfism and obesity. A chapter is devoted to the milder forms of hyperfunction, hypofunction and dysfunction of endocrine glands. Several metabolic functions of the kidneys, treated here as endocrinal, would seem more familiar in a different setting. Different functions subserved by the various estrogenic substances are carefully distinguished, although exception may be taken to the author's division of the minor gonadal insufficiencies into physical and psychic types. That one may not yet certainly correlate the two does not seem adequate reason for making this dichotomy.

Medicolegal

Insurance, Accident Septicemia Following Administration of Pollen Extract—The plaintiff was the beneficiary under accident insurance policies, which promised indemnity if her husband died from bodily injuries suffered solely "through external, violent and accidental means." Following an injection of a pollen extract into the husband's arm for hay fever, the complaint alleged, the spores of an anaerobic gas producing organism entered his body, from the effect of which he died. The United States district court gave judgment against the wife in a suit to recover under the policies (1 Fed Supp 951), and she appealed to the United States circuit court of appeals, ninth circuit.

The testimony, said the court of appeals, established a complete and unbroken chain of causation between the injection and the death of the insured—a result that was unforeseen at the time the simple hypodermic treatment was administered. There can be no doubt that the gas-producing organisms entered over the trail blazed by the hypodermic needle. Their entry caused blood poisoning. Blood poisoning caused the death. The evidence discloses, continued the court, no cause of death other than the injection and the resulting infection. In the present advanced state of medical science, such a tragic result from a simple hay fever injection is "unforeseen, unexpected, unusual." It is not necessary to know at what precise instant, by what precise instrumentality, or through what precise avenue the organisms entered the insured's body for it is in the very nature of an accident that its exact causes should not be susceptible of mathematical demonstration.

The insurance carriers contended that, to make the insurance money payable, death must occur as a direct result of a bodily injury effected through external means, that it will not suffice if it appears only that it was accidental in the sense that it

could not reasonably have been anticipated. This contention, said the circuit court of appeals was well disposed of by Judge Sanborn, in *Western Commercial Travelers Assn v Smith* (C C A 8) 85 F 401, 40 L R A 653, in the following language

On the other hand an effect which is not the natural or probable consequence of the means which produced it an effect which does not ordinarily follow and cannot be reasonably anticipated from the use of those means an effect which the actor did not intend to produce and which he cannot be charged with the design of producing under the maxim to which we have adverted is produced by accidental means. It is produced by means which were neither designed nor calculated to cause it. Such an effect is not the result of design cannot be reasonably anticipated, is unexpected and is produced by an unusual combination of fortuitous circumstances.

The same principle was applied in *Mutual Life Insurance Co v Dodge* (C C A 4) 11 F (2d) 486, certiorari denied 271 U S 677, 46 S Ct 629, where the insured's death resulted from paralysis of the respiratory center, caused by the local administration of novocain, preliminary to a tonsillectomy. The death of the insured was held to be caused by accidental means.

The trial court seemed disturbed by the fact that the plaintiff failed to show "just how" the fatal infection occurred. The cogent answer to this objection, said the appellate court is to be found in *International Travelers' Assn v Francis* 119 Texas 1, 23 S W (2d) 282, in which the following language was used:

The cause of death was an infection which produced Ludwig's angina a result so extraordinary and rare and so unrelated to the surgical act performed that it must be regarded as accidental. The drawing of the tooth and treatment following were of course purposeful and not accidental but the infection was not the necessary or usual result of this purposeful act. It was extraordinary unusual and very rare. The proper surgical act therefore must have been accompanied by something unexpected unforeseen and improbable. This unforeseen unexpected and improbable thing was the injection of the pathogenic organisms into the tissues. Just how they were injected the evidence does not show with mathematical precision and in the nature of things this can never be done in any case. These organisms do not make their presence known by ordinary methods of detection.

The circuit court of appeals remanded the case with instruction to enter judgment for the plaintiff—*Jensma v Sun Life Assur Co of Canada*, 64 F (2d) 457.

Compensation of Physicians When Evidence of Patient's Wealth Is Admissible—The plaintiff-physician treated the defendant for uremic poisoning and removed his prostate. He attended him for a period of forty-one days never visiting him less than twice a day and often three or four times a day. He rendered a bill for \$1050. The defendant thought \$500 a sufficient fee and paid that amount and the plaintiff sued for the balance. There was a judgment for the defendant. This was reversed by the St. Louis court of appeals, which ordered a new trial. The court of appeals held that the trial court erred in refusing to permit the jury to consider the defendant's ability to pay the fee charged by the plaintiff, since the defendant himself had offered evidence to show that for services similar to those performed by the plaintiff lower fees were customarily charged. *Glenn v Thompson* (Mo), 45 S W (2d) 948 (J A M A 99 942 [Sept 10] 1932). At the second trial the defendant offered no evidence tending to show a custom of charging a lower fee. The trial court nevertheless instructed the jury that in determining the reasonable value of the services rendered by the plaintiff to the defendant they should take into account the defendant's ability to pay. Judgment was given for the plaintiff, and the patient appealed to the St. Louis (Mo) court of appeals.

The trial court erred, said the court of appeals, in instructing the jury that they should take into account the patient's wealth in determining the physician's fee. When this case was heard on the first appeal, the appellate court held on the record then before it that the defendant himself had raised the issue of a lower standard of charges for similar services and that under such circumstances the trial court erred in refusing to permit the plaintiff-physician to show in rebuttal the defendant's financial condition. At the second trial, however, the defendant presented no such evidence and, said the court of appeals, the rule laid down in *Morrell v Lawrence*, 203 Mo 363, 101 S W 571, applied. In that case the Supreme Court of Missouri held that only when the defendant introduces evidence to show that the plaintiff charges smaller fees for similar services to certain

patients is the plaintiff entitled to show by rebuttal evidence that the smaller fees are charged to poor men because of their poverty. The plaintiff then may show that such smaller fees are not the customary and usual charge made to those who are able to pay the reasonable value of the services, and in that connection he may show the patient's financial standing to prove that it "does not entitle him to such indulgence." To that extent only, and for rebuttal purposes only, is such evidence proper. Regardless of what the rule may be in some other state as to the admissibility of evidence and the propriety of instructions, relating to a patient's financial ability to pay for services rendered by a physician, the Supreme Court of Missouri has definitely held that in Missouri the jury in such a case "have no concern with the question of the defendant's ability to satisfy the judgment." The judgment of the trial court was reversed and the cause remanded for another trial—*Glen v Thompson* (Mo), 61 S W (2d) 210.

Evidence Lay Testimony as to Physical Condition, "Total Disability" Defined—A layman, says the Court of Appeals of Kentucky, may testify as to the outward physical condition of and the effect of an ailment on, a person whom he has had ample opportunity to observe. A layman, however, although he associated with the one about whom the testimony is to be given may not express an opinion concerning the existence of facts not open to his observation and which are obtainable only through scientific and expert knowledge. "Total disability" within the meaning of insurance policies does not mean absolute helplessness or complete physical disability. A disability is total and complete when the insured is unable to do and perform in a reasonable and practical way all material acts in the pursuit of his occupation or employment or, perhaps in some cases, any other occupation for gain—*Aetna Life Ins Co v Wiant* (Ky), 61 S W (2d) 50.

Malpractice Necessity for Expert Testimony—What does or does not constitute proper medical practice or the usual practice in treatment may be established only by expert testimony. If the question is one solely within the knowledge of experts their testimony is conclusive. If however, the question is one that may be ascertained by a lay witness expert testimony is not necessary, and a court is not bound by expert testimony with respect to such a question—*National Automobile Ins Co v Industrial Accident Commission of Calif* (Calif), 22 P (2d) 568.

Society Proceedings

COMING MEETINGS

- Alabama Medical Association of the State of Birmingham April 1-19
Dr D L Cannon 519 Dexter Avenue Montgomery Secretary
- American Association of Anatomists Philadelphia March 29-31
Dr George W Corner University of Rochester School of Medicine
Rochester N Y Secretary
- American Association of Pathologists and Bacteriologists Toronto
Canada March 29-30 Dr Howard T Karsner 2085 Adelbert Road
Cleveland Secretary
- American College of Physicians Chicago April 16-20 Mr E R Love
land 133 South 36th Street Philadelphia Executive Secretary
- American Laryngological Rhinological and Otolological Society Charleston
S C April 3-5 Dr Robert L Loughran Bridgewater Conn
Secretary
- American Otolological Society Atlantic City April 6-7 Dr Thomas J
Harris 104 East 40th Street New York Secretary
- American Physiological Society, New York March 28-31 Dr Frank C
Mann Mayo Clinic Rochester Minn Secretary
- American Society for Experimental Pathology New York March 28-31
Dr C Phillip Miller Jr 950 East 59th Street Chicago Secretary
- American Society of Biological Chemistry New York March 28-31
Dr H A Mattill Chemistry Building State University of Iowa
Iowa City Secretary
- Arkansas Medical Society Little Rock April 16-18 Dr W R
Brooks 602 Garrison Avenue Fort Smith Secretary
- Federation of American Societies for Experimental Biology New York
March 28-31 Dr Frank C Mann Mayo Clinic Rochester, Minn
Secretary
- Louisiana State Medical Society Shreveport April 9-12 Dr P T
Talbot 1430 Tulane Avenue New Orleans Secretary
- Maryland Medical and Chirurgical Faculty of Baltimore April 24-26
Dr Walter Dent Wise 1211 Cathedral Street Baltimore Secretary
- Southeastern Surgical Congress Nashville Tenn March 5-7 Dr B T
Beasley 1019 Doctors Building Atlanta Ga Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

3 161 192 (Nov.) 1933

- Traumatic Arteriovenous Aneurysms J M Mason Birmingham — p 161
- Consideration of Some of Anatomic Structures Dealt with in Treating Anorectal Diseases J H Dodson Mobile — p 165
- Endocervicitis J A Martin Montgomery — p 166
- Therapeutic Use of Sex Hormones in Gynecology Louise Branscomb, Birmingham — p 170
- Scope of Dermatology H R Cogburn Mobile — p 174
- Actinomycosis of Lung and Chest Wall Case G Walsh and O R Troje Fairfield — p 177

American Journal of Pathology, Boston

9 659 826 (Supplement) 1933

- Frank Burr Mallory and Pathologic Department of the Boston City Hospital T Leary, Boston — p 659
- The Mallory Institute of Pathology R N Nye Boston — p 673
- Controlled Formation of Collagen and Reticulum Study of Source of Intercellular Substance in Recovery from Experimental Scorbutus S B Wolbach Boston — p 689
- Cancer Cells of Serous Effusions G S Graham Birmingham Ala — p 701
- *Persistence of Tuberculous Infections H E Robertson Rochester Minn — p 711
- Rheumatic Peritonitis L J Rhea Montreal — p 719
- Nodular Lesions of Peritoneum S R Haythorn Pittsburgh — p 725
- Growth Inhibitor in Kidney Desiccates F A McJunkin and C D Hartman Chicago — p 739
- Reaction to Fine and Medium Sized Quartz and Aluminum Oxide Particles Silicotic Cirrhosis of the Liver L U Gardner and D E Cummings Saranac Lake N Y — p 751
- Group of Metaplastic and Neoplastic Bone Containing and Cartilage Containing Tumors of Soft Parts T B Mallory Boston — p 765
- Congenital Lymphoblastoma Case C F Branch Boston — p 777
- Angle of Mitotic Spindles in Malignant Cells S Warren Boston — p 781
- Effect of Cesium Chloride on Transplanted Tumors of Mice A W Wright and C F Graham Albany N Y — p 789
- *Diagnosis of Tumors by Aspiration F W Stewart New York — p 801
- Pathology of Bone Marrow in Sprue Anemia C P Rhoads New York and W B Castle, Boston — p 813

Persistence of Tuberculous Infections — Robertson reviewed the entire series of necropsies performed at the Mayo Clinic over a period of six years (1926-1931 inclusive) in order to determine the relative incidence of the various classes of tuberculous processes. During these six years approximately 3,306 postmortem examinations revealed an incidence of some form of tuberculous lesion in 2,064 (62.43 per cent). Of this group, in eighty-nine cases tuberculosis was either a principal or the contributing cause of death, and in 1,725 cases the tissues examined contained apparently entirely healed tuberculous processes. On the basis of his observations and studies reported by other investigators the author concludes that 1 Tuberculous infections may occur and pursue their entire course without demonstrable clinical phenomena, that is, without attracting the attention of the patient or the physician to their presence. 2 Recognized tuberculous infections may subside and be regarded throughout remaining life as healed and still remain continuously active. 3 Apparently healed tuberculous lesions may become clinically active after varying intervals. 4 No form of physical examination can give assurance that any person does not harbor the menace of active tuberculous infection. 5 The safest rule for physicians and patients alike is to regard tuberculosis as possessing an ever present potentiality for becoming active. One can almost say "Once infected always infected."

Diagnosis of Tumors by Aspiration — Needle aspiration in the experience of Stewart is an expeditious practical method

for the diagnosis of tumors. In approximately 2,500 cases he has observed no untoward result following its use. The interpretation of smears of aspirated material often requires competent clinical assistance. Diagnosis by aspiration is as reliable as the combined intelligence of the clinician and pathologist makes it. The pathologist who ventures to interpret the material obtained by aspiration will have to revise or relearn many criteria. The clinician must appreciate how far the pathologist can logically go in interpreting the smear. Both must maintain a sympathetic attitude toward a new procedure. It is safe to state that in the author's institution the method has so established its usefulness that it has acquired a permanent place as a means of diagnosis.

Annals of Surgery, Philadelphia

98 801 960 (Nov.) 1933

- Thoracic Lipomas G J Heuer New York — p 801
- Treatment of Intercostal Neuralgia of the Abdominal Wall J B Carnett and W Bates Philadelphia — p 820
- Wrinkles and Recipes in Intestinal Surgery C H Mayo Rochester Minn — p 830
- *Action of Morphine on Small Intestine and Its Clinical Application in Treatment of Peritonitis and Intestinal Obstruction T G Orr Kansas City Kan — p 835
- Benign Encapsulated Tumors in Lateral Ventricles of the Brain Diagnosis and Treatment W E Dandy Baltimore — p 841
- Origin and Course of Infection in Subphrenic Abscess P E Truesdale, Fall River Mass — p 846
- *Vestigial Mastitis Hutherto Unrecognized Syndrome A V Moschcowitz New York — p 855
- Skeletal Pathology of Endocrine Origin M Ballin Detroit — p 868
- Emergency Complications Occurring After Operations on Stomach and Duodenum and Their Treatment D C Balfour Rochester Minn — p 882
- Closure of Abdomen with Through and Through Silver Wire Sutures in Cases of Acute Abdominal Emergencies M R Reid, M V Zinninger and P Merrell Cincinnati — p 890
- Some Limitations of Enterostomy A McGlannan Baltimore — p 897
- *Rupture of the Liver Without Tear of the Capsule. D E Robertson and R R Graham Toronto — p 899
- Foreign Bodies in Biliary Tract C G Toland Los Angeles — p 904
- Acute Surgical Lesions of the Pancreas J Douglas, New York — p 909
- Blood Cyst of the Spleen (Intracapsular Rupture) F N G Starr, Toronto — p 919
- Surgical Judgment in Approach to the Acute Abdomen Le Grand Guerry Columbia, S C — p 922
- Choked Leg J E Jennings Brooklyn — p 928
- Preoperative Irradiation in Cases of Cancer of Breast With and Without Biopsy J C Bloodgood, Baltimore — p 933
- The On End or Vertical Mattress Suture J S Davis Baltimore — p 941
- Water Requirements of Surgical Patients F A Collier and W G Maddock Ann Arbor Mich — p 952

Action of Morphine on Small Intestine — Orr observed that morphine and related opium derivatives, when given hypodermically, stimulate the tone, the rhythmic contraction and, in some degree, the peristaltic waves of the small intestine for a period of at least six hours. To prevent overdistention of the small intestine, morphine is indicated in the treatment of acute peritonitis, intestinal obstruction and so-called paralytic ileus. The maximal clinical benefits can be obtained only by giving morphine in sufficient dosage to produce continuous narcosis. By maintaining the tone and rhythmic contractions of the small intestine with morphine, distention is controlled and disturbance of the intestinal circulation is prevented during the course of the disease until the cause of the intestinal distention is overcome by the natural defensive powers of the patient.

Vestigial Mastitis — From a study of six cases of vestigial mastitis, Moschcowitz arrives at the following conclusions: 1 There exists in certain persons an abnormal persistence of the milkridge in some part of its normal course. 2 Such a persisting milkridge is absolutely symptomless and is therefore not discoverable. 3 For some reason or other, this abnormally persisting line may become changed pathologically (the author presumes inflamed, judging from the one section that he has been able to study) and it then gives rise to the various symptoms and physical signs in consequence of which it becomes discoverable. 4 Finally, one must also arrive at the conclusion that if the lesion were discoverable or had actually been discovered, it has not been heretofore recognized. In the main, the principal complaint of these patients is pain or functional disability, or both, either below the breast extending for a variable distance on the abdomen, or above the breast extending toward the corresponding shoulder and axilla. The preeminent

physical observation is the presence of a cordlike structure in certain characteristic locations and only in these—namely, either on the abdomen or on the thorax and axilla or both. The cords are found only in the course of a narrowly circumscribed line, which begins in the lateral part of the axilla and runs toward the chest, on reaching the chest, the line curves downward to reach the upper border of the breast in the nipple line. The inframammary portion of the line begins at the inferior border of the breast in the nipple line and runs, slightly converging toward its fellow on the opposite side in the general direction of the symphysis pubis. The cords vary in length. The cord imparts the same sensation to the examining finger as an adult vas deferens. The lesion exists in both sexes.

Rupture of Liver Without Tear of Capsule—Robertson and Graham report two cases of subcapsular rupture of the liver with operation and recovery. In one case the seriousness of the injury was recognized early, the tumor appeared early and at operation the cavity was found to be filled only with blood. In the other case there was a long latent period of well being between the accident and the appearance of the tumor which at operation contained bile and blood and was accompanied by gross destruction of the tissue of the liver. If a patient suffers an abdominal injury with distress referred to the right side and accompanied by pain in the shoulder, early exploration is advisable, as there will be a shorter convalescence and it will avoid destruction of the tissue of the liver should the diagnosis prove to be a subcapsular rupture of the liver. If the tumor occurs soon after the injury the authors presume that its contents will be blood, and drainage with a tube appears to be the ideal method of handling it. If it is late in forming bile will constitute an important volume of the content of the cavity, and marsupialization is desirable.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

11 641 704 (Nov.) 1933

- Manipulation of Stiff Shoulders J. D. Ellis Chicago—p. 645
- Vitamin D and Calcium Metabolism in Tuberculosis B. Goldberg Chicago—p. 655
- Use of Roentgen Ray in Diagnosis and in Evaluating Therapeutic Measures in Pulmonary Tuberculosis G. D. Kettelkamp St. Louis—p. 661
- Physical Therapy in Tuberculosis in Childhood F. M. Meixner Peoria Ill.—p. 664
- Role of Electrode Compounds in Preventing Diathermy Burns H. F. Kimble and H. J. Holmquest Chicago—p. 669
- Physical Therapy in Urology Retrospective and Prospective V. C. Pedersen New York—p. 672
- Electrodiagnosis and Therapy in Stomatology A. T. Rasmussen La Crosse Wis.—p. 677
- Radium Treatment of Cancer of the Rectum C. J. Drucek Chicago—p. 681
- Progress of Physical Therapy A. F. Tyler Omaha—p. 684

Canadian Medical Association Journal, Montreal

29 461 584 (Nov.) 1933

- Early Diagnosis of Cancer of the Skin D. E. H. Cleveland Vancouver, B. C.—p. 465
- *Determination of Activity of Rheumatic Infection in Childhood R. R. Struthers and H. L. Bacal Montreal—p. 470
- Tortuosity of Internal Carotid Artery and Its Relation to Tonsillectomy J. L. Jackson Winnipeg Manit.—p. 475
- Skin Infection Due to *Alternaria Tenuis* Report of Case M. E. Borsook Toronto—p. 479
- *Active Pulmonary Tuberculosis and Diabetes Mellitus W. R. Kennedy Montreal—p. 482
- Dissimilar Metals in Mouth as Possible Cause of Otherwise Unexplainable Symptoms B. L. Hyams and H. C. Ballon Montreal—p. 488
- *Observations on Results of Operative Treatment of Trigeminal Neuralgia K. G. McKenzie, Toronto—p. 492
- Recent Advances in Diagnosis of Carcinoma of the Prostate R. S. Ferguson New York—p. 497
- Carcinoma of the Prostate B. S. Barringer New York—p. 502
- Status Lymphaticus Adrenal Thyroid Syndrome W. N. Kemp Vancouver, B. C.—p. 506
- Present Conceptions of Renal Tuberculosis J. C. McClelland Toronto—p. 514
- Observations on Fundus Oculi in Diabetes Mellitus Based on a Study of One Thousand Two Hundred and Seventy-Two Cases S. H. McKee Montreal—p. 520
- The Appendix Problem W. A. Lincoln Calgary Alta.—p. 523
- Spinal Anesthesia in Thoracic Surgery H. J. Shields Toronto—p. 528
- The Tuberculosis Clinic C. A. Ryan Vancouver B. C.—p. 530

Determination of Activity in Rheumatic Infection—Struthers and Bacal state that congenital heart disease shows no worthy alteration of the white blood cell count, the sedi-

mentation rate, the sleeping pulse and the weight of the body. Uncomplicated acute rheumatic fever shows a high sedimentation rate, usually a leukocytosis of from 12,000 to 15,000, fever, approximation of the sleeping and waking pulses during the period of fever, and loss of weight. All these evidences of activity tend to subside together with the clinical evidence of subsidence of the infection. Chorea without carditis shows no alteration in the total white blood cell count, sedimentation rate or fever, there is usually a marked difference between the sleeping and waking pulses, the former being normal. Under treatment there is usually a gain in weight. Rheumatic fever with carditis shows marked alteration of the sleeping pulse, the white blood cell count and the weight of the body, which tend to return to normal with the subsidence of the infection. The sedimentation rate, however, requires a period of months to return to normal and hence is probably the most delicate of these tests in the determination of activity of rheumatic infection, excepting in the presence of cardiac failure with edema, when it falls rapidly to levels below the normal and is of grave prognostic import. Chorea complicated by carditis, even in the absence of fever, shows the same changes in these criteria as does rheumatic fever with carditis, excepting the absence of leukocytosis.

Active Pulmonary Tuberculosis and Diabetes—Kennedy found only forty-one cases of active pulmonary tuberculosis among 2,500 patients who had active diabetes—an incidence of 1.6 per cent. The youngest patient was 20 years of age, and the average age for the group was 44.8 years. None of the juvenile diabetic patients have as yet had tuberculosis. Tuberculosis in diabetes may be acute, chronic or of a latent type detectable only by roentgenography, and the lesion may be of the nondiabetic adult apical type or of the hilus pneumonic variety. In either case it is usually a fresh process, and the hilus pneumonic type of lesion may be so situated that the ordinary clinical methods of examination may fail to detect it. This emphasizes the importance of periodic roentgen examination. The observation of increased root shadows in the diabetic patient should always be regarded as tuberculosis until proved otherwise. The apical type of lesion was less fatal than the hilus pneumonic type, but, regardless of the lesion, mortality was definitely related to the degree of control of the diabetes. Uncontrolled diabetes is an unfavorable prognostic sign. A sugar-free urine and normal blood sugar should be the aim in treatment. Treatment of diabetes with tuberculosis is identical with that of diabetes without tuberculosis, so far as diet and insulin are concerned. Overfeeding may be attempted, but it should be continued only when the excess food can be so counterbalanced by insulin that the urine is free of sugar and the blood sugar is normal. Otherwise it is best to keep the caloric value of the diet at a normal level.

Treatment of Trigeminal Neuralgia—McKenzie points out that partial section, by the temporal route, is a much more satisfactory procedure than complete section in trigeminal neuralgia. This includes the fairly common type of patient in whom the pain commences in the second and third divisions and spreads up through the eye and forehead. In these patients the main trigger spots are in the second and third division and partial section is usually indicated, even though a subsequent operation may occasionally be necessary. Complete section is condemned because of the number of severe eye complications. It is definitely indicated only in the comparatively few patients in whom the pain commences in the first division. Partial section by the temporal route is such a satisfactory, safe and simple procedure that the cerebellar approach advocated by Dandy has been adopted only occasionally. It is especially indicated when it is considered necessary to cut both the glossopharyngeal and the trigeminal nerves and in patients in whom the presence of a small angle tumor is suspected. In two patients, on whom partial section was performed after the manner described by Dandy, the sensory loss was identical with that usually found after partial section by the temporal route, these observations are at variance with the views of Dandy and Davis, the latter feeling that a partial section as described should cause the greatest sensory loss in the first division area, whereas Dandy states that there is no sensory loss.

Endocrinology, Los Angeles

17 621 754 (Nov Dec) 1933

- Hemochromatosis II Report of Three Cases with Endocrine Disturbances and Notes on a Previously Reported Case Discussion of Etiology T L Althausen and W J Kerr San Francisco—p 621
- Hypophyseal Dwarfism (Nanosoma Pituitaria) Probably Due to Cyst of Benign Neoplasm Originating in Residues of the Ductus Cranio-pharyngeus Discussion of Probable Functions of Different Types of Cells of Adenohypophysis Case L F Barker Baltimore—p 647
- Psychoses Psychoneuroses and Endocrine Dysfunction A W Rowe and H M Pollock Boston—p 658
- Osteous Development as an Index of Metabolic Speed with Especial Reference to the Mentally Subnormal and Emotionally Unstable Child E K Shelton Santa Barbara Calif—p 667
- *Further Studies on Glycerin Extract of Adrenal Cortex Potent by Mouth H Freeman Worcester Mass F E Linder and R G Hoskins Boston—p 677
- Concerning Anterior Pituitary Hormones O Riddle and R W Bates Cold Spring Harbor N Y—p 689
- *Inverted Sugar Tolerance Curves in a Case of Addison's Disease E L Turner Beirut Syria—p 699
- *Possible Cause of Uterine Fibroids J T Witherspoon New Orleans—p 703
- Clinical Evaluation of Combined Prolan and Anterior Pituitary Therapy C Mazer and B R Katz Philadelphia—p 709

Glycerin Extract of Suprarenal Cortex Potent by Mouth—Freeman and his associates treated nine schizophrenic patients during three periods, each with glycerin extract of suprarenal cortex. The dosage varied at different times from a fresh gland equivalent of 30 grains (2 Gm) to 450 grains (30 Gm) daily. The medication periods were thirteen, nine and five weeks, respectively. The systolic blood pressure was increased, on an average, 34, 24 and 22 mm of mercury, respectively, during the three medication periods. There was a slight residual pressor effect maintained during the intervals between medication periods. The diastolic pressure was increased 20, 11 and 20 mm of mercury, respectively, in each period. The cardiovascular reactivity of the patients to environmental excitement, to change of posture and to exercise was increased during the medication period. The effect became progressively greater from 7 a m to 9 p m. The body weight was slightly though significantly increased, as was the specific gravity of the urine. The pulse rate and the blood cholesterol level seemed to have been significantly lowered. Changes in several other functions were suggestive, but the data were not sufficiently numerous to permit accurate judgment. The evidence secured is to the effect that neither maximal effective dosage nor duration was employed. The authors conclude that glycerin extract of suprarenal cortex is a potent medicament for the elevation of blood pressure and for increasing cardiovascular reactivity.

Sugar Tolerance in a Case of Addison's Disease—Turner reports a case of Addison's disease in which there was a marked increase in carbohydrate tolerance. The initial sugar tolerance curves were inverted. The reaction to a combined epinephrine sugar injection suggested that the increased tolerance was associated with a relative hyperinsulinism resulting from degenerative processes interfering with the normal production of epinephrine. Clinical evidence indicated medullary as well as cortical involvement of the suprarenals. Although reports of blood sugar studies in Addison's disease are numerous the author has been unable to find any instances in which there has been an actual inversion of the sugar tolerance curve. He presents his case because of the unusual blood sugar reactions obtained in which there apparently was a sufficient preponderance of insulin activity actually to invert the sugar tolerance curves.

Possible Cause of Uterine Fibroids—Witherspoon offers a series of 275 cases of fibroids the analysis of which evidences a possible etiologic relationship between continuous estrin stimulation from the ovary and the formation of hyperplasia of the endometrium and of fibromyomatous growths of the myometrium. His assumption is that the unopposed action of estrin on the uterus results first in immediate endometrial changes characterized by hyperplasia and then in more latent myometrial disease in the nature of fibromyomatous growths. With this hypothesis as a basis twenty-six operative cases of hyperplasia of the endometrium diagnosed as such and in which a second operation for multiple fibroids was performed after an approximate interval of four years and four months

are analyzed. In addition, 124 cases of fibromyomas in white women and 125 in Negro women, diagnosed microscopically, are offered with the associated ovarian and endometrial observations, as presenting added evidence in support of a cause and effect relationship between hyperestrin stimulation, hyperplasia of the endometrium and fibromyomatous growths of the myometrium. The principal symptoms between the first and second operations were an increase of complaints. Both bleeding and pain increased after the first operation, while an abdominal mass appeared in five instances. In every case the microscopic diagnosis of the curettements from the first operation was hyperplasia of the endometrium. At the second operation, multiple fibroids were observed (100 per cent) even though no such tumors were noted clinically at the time of the first operation, which involved abdominal exploration in thirteen, or 50 per cent, of the cases. In addition to the fibroid growths, the endometrium was hyperplastic in twenty-four, or 92.3 per cent, of the cases, in two instances in which hyperplasia of the endometrium was not noted, a developing yellow body was found in one of the ovaries. Follicle cysts of the ovaries were present in all twenty-six cases, including those in which the yellow bodies were found. Salpingitis, or adhesions from previous operations, or endometrial transplants, were found in twenty-five. This tube ovarian infection is offered as a possible etiologic factor in follicle cyst formation, either through an inherent ovarian defect or because of a thickening of the ovarian capsule. In the 124 white patients having fibroids, follicle cysts were found in every instance, while no mature yellow body was noticed. Hyperplasia of the endometrium was diagnosed microscopically in every case. In the 125 cases of Negro women having fibroids, ovarian follicle cysts were observed in 96.8 per cent. The microscopic study of the endometrium was not available in a sufficient number of cases to justify its inclusion. A 100 per cent incidence of salpingitis associated with fibroids was present in the Negro women.

Georgia Medical Association Journal, Atlanta

22 403 442 (Nov) 1933

- Hypertension Etiology of Hypertension A W Calhoun Atlanta—p 403
- Id Pathology of Hypertension E R Pund Augusta—p 407
- Id Signs and Symptoms of Hypertension W W Chrisman Macon—p 410
- Id Complications of Hypertension V P Sydenstricker Augusta—p 413
- Id Treatment of Hypertension T J Charlton Savannah—p 415
- Atrophy of Liver in Children T B Gay Atlanta—p 421
- Office Treatment of Gonorrhea M F Fowler Atlanta—p 425
- Headache from Medical Aspect H Ainsworth Thomasville—p 430

Illinois Medical Journal, Chicago

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- Transurethral Resection of Bladder Neck Obstruction B C Corbus Chicago—p 442
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- Mental Health in the Home C F Read Elgin Ill—p 454
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- Laboratory Tests and Methods Useful and Necessary in Industrial Hygiene L Arnold Chicago—p 465
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- Significance of Blood Pressure Readings in Spinal Anesthesia Report of Forty Spinal Anesthetics with Neocaine from the Southern Illinois Prison Menard Illinois A F Barnett Menard Ill and E R May Chester Ill—p 471
- The Outlook for Public Health F Jirka Chicago—p 474
- Treatment of Acute Gonorrheal Epididymitis by Injection of Patient's Whole Blood L M Beilin Chicago—p 480
- The Insurance Aspect of Roentgenology in Cardiology M J Hubeny Chicago—p 482
- Causes of Obcure Fevers in Infancy and Childhood C Schott Chicago—p 485
- Mucin Therapy Report of Two Cases of Gastrojejunal Ulcer with Recurrent Hemorrhages J R Miller and W H Holmes Chicago—p 487

Electrosurgical Removal of Gallbladder—Thorek describes a method of electrosurgical removal of the gallbladder that may be used without resort to drainage. Nitrous

oxide and oxygen or ether are used for general anesthesia. The abdomen is opened with a scalpel or a diathermy knife. The field of operation is isolated with moist warm laparotomy sponges, the contents of the gallbladder are aspirated, the cystic duct is ligated between two catgut ligatures and divided, the gallbladder is incised from above downward, and the stones are removed. The redundant portion of the gallbladder is removed and the remaining part is electrocoagulated thoroughly. The field to be coagulated must be dry. The peritoneal edges are approximated over the coagulated area. A fine curved needle to which a number 0 catgut is swaged is used. To guard further against the possibility of biliary seepage from the cystic duct and to supply serous surfaces the falciform ligament may be mobilized and swung over onto the site of the bed of the liver and attached with a few sutures of fine catgut. Careful hemostasis and exact closure of the abdominal wound complete the operation.

Treatment of Acute Gonorrheal Epididymitis by Injection of Whole Blood—Berlin injected 1 cc of the patient's whole blood into the epididymis in sixty-two cases of acute gonorrheal epididymitis. All patients were ambulatory, receiving no other treatment besides the autohemotherapy, except some scrotal support by suspensory bandages and hot applications (when available). Local treatment for gonorrhea was resumed after the symptoms of acute epididymitis had subsided, when residual infection in the urethra or its accessory glands was present. Marked improvement to a total subsidence of pain and tenderness had usually occurred within two to twelve hours after the first injection. As a rule at the subsequent injections the testicles and epididymis could be handled without much discomfort or pain to the patient. Some resorption of inflammation and reduction of swelling was usually observed after the second injection. After the third injection the epididymis was normal on palpation in eighteen cases, after the fourth in thirty-two, after the fifth in forty, after the sixth in forty-three, and after the eighth in forty-five. In six cases resolution did not take place completely and there remained a small amount of swelling after eight injections were given. The maximal improvement was noted after the third injection. A scrotal abscess occurred in a Negro patient; this was incised and drained and it healed promptly. There were six recurrences of epididymitis, which were due to the discontinuance of treatment on the part of the patients of the infection of the posterior urethra, prostate or vesicles, which was still present. Contraindications of this treatment are (1) extreme nervousness and hypersusceptibility to pain on the part of some patients, (2) marked elevation of temperature, chills and so on at the time of treatment, (3) a severe or fulminating type of epididymitis and (4) the presence of gross suppuration of the epididymis, i. e. conditions in which surgical intervention is indicated. The blood (1 cc) is injected rapidly into the center of the involved area, the scrotal skin is disinfected previously with alcohol or mercurochrome. It is preferable to use a 5 cc Luer-Lock syringe with a fine needle, about 23 or 24 gage and 1¼ inches long. The injections are made at a depth of from 1 to 3 cm, depending on the degree of edema and infiltration of the surrounding tissues, and are repeated at intervals of twenty-four or forty-eight hours, depending on the tension of the inflamed tissues. If it requires from fifteen to twenty minutes or longer for the tension to subside, the next injection is not made until after forty-eight hours. If the tension yields in from two to five minutes, the injection is repeated on the following day. The first injection should be given as soon as possible after the onset of the epididymitis. The sooner the injection is given, the more rapid is the cure.

Iowa State Medical Society Journal, Des Moines

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- Medical Clinics Thyrotoxicosis and Parathyroid Tetany Pituitary Cachexia and Addison's Disease D. P. Barr St. Louis—p. 595
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Infections of Parotid Gland J. V. Treynor Council Bluffs—p. 607
Acute Benign Lymphadenitis or Acute Infectious Mononucleosis S. W. Barnett Cedar Falls—p. 610
Treatment of Pneumonia in Infants and Children J. B. Thornell Council Bluffs—p. 612
Use and Abuse of Cesarean Section H. W. Vinson Ottumwa—p. 615

Journal of Biological Chemistry, Baltimore

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Some Aspects of Citric Acid Metabolism A. C. Huyper and H. A. Matill Iowa City—p. 51
Dietary Production of Fatty Livers in Rats A. R. Blatherwick, E. M. Medlar, Phoebe J. Bradshaw, Anna L. Post and Susan D. Sharp New York—p. 93
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Rate of Change of Alkali Reserve After Ingestion of Salts of Organic Compounds I. Normal Variations in Acid Base Balance Under Basic Conditions Jane Cape and F. I. Sebringhaus Madison, Wis.—p. 257
Basic Amino Acids of Serum Proteins R. J. Block New Haven Conn.—p. 261
Sedimentation Constants Molecular Weights and Iso-Electric Points of Respiratory Proteins T. Svedberg Upsala Sweden—p. 311

Journal of Pediatrics, St. Louis

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Idiopathic Dilatation of Common Bile Duct in Children Review of Literature and Report of Two Cases R. E. Gross Boston—p. 731
Vulvovaginal Diptheria M. J. Wallfield and A. M. Litvak Brooklyn—p. 756
Purulent Parotitis in the New Born Case Report and Review of Literature T. O. Elterich Pittsburgh—p. 761
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Common Sense in Infant Feeding W. M. Happ Los Angeles—p. 771
Chorea in the Negro Race H. C. Lueth and D. C. Sutton Evanston, Ill.—p. 775

Idiopathic Dilatation of Common Bile Duct in Children—Gross reviews fifty-two cases of idiopathic choledochal cyst in childhood and reports two of his own. The more important symptoms and signs are usually characteristic and consist of abdominal pain, abdominal tumor and jaundice. The size and tenseness of the abdominal tumor in a given case may vary from time to time. Acholic stools may be present and there may be bile in the urine. The average duration of symptoms was about three years. In approximately half of the cases the symptoms had been intermittent and had occurred in attacks with intervening periods of remission. About three-fourths of the patients were females. The correct diagnosis was made only three times before operation, but the nature of the history and the physical observations should enable the diagnosis to be made more frequently. The important pathologic observation is a large cystic dilatation of the common duct. In half of the cases there was an angulation, stenosis, obliteration or valve formation at the cyst outlet, but many of these conditions were probably the result rather than the cause of the enlargement of the common duct. The liver was practically always enlarged, and biliary cirrhosis and cholangitis were common. The etiology of the condition has not been definitely determined, but many theories have been advanced. The dilatation of the common duct is most likely a result of congenital weakness of the wall of the duct, which is not productive of enlargement until there is obstruction to the flow of bile. Such an obstruction may be from congenital stenosis, valve formation, angulation or cholangitis of the lower part of the common duct. The accepted form of treatment is to anastomose

the biliary and the intestinal tracts at one operation, the most acceptable method of doing this being the production of a choledochoduodenostomy. The mortality in the entire group of fifty-two patients was 69 per cent, but in those treated by primary anastomosis of the biliary tract and the intestine the mortality was 9 per cent.

Kansas Medical Society Journal, Topeka

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Laryngoscope, St Louis

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Concerning the Reporting of Intensity and Pitch in the Hearing Tests D MacFarlan Philadelphia —p 867
Diffuse Labyrinthitis Complicating Acute Serous Otitis Media Two Cases R A Luongo, Philadelphia —p 872
Acute Mastoiditis with Unusual Symptoms of Meningeal Irritation Case Report A J Wagers Philadelphia —p 876
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Plastic Surgery of the Saddle Nose M M Wolfe Philadelphia —p 897
Value of Bone and Cartilage Grafts in Rhinoplasty W W Carter New York —p 905
Accident Lost End Sphenoid Probe Recovered from Nasal Meatus J I Dowling Albany N Y —p 911
Nasal Papilloma Report of Case with Enormous Nasopharyngeal Extension W A Wells Washington D C —p 918
Ligation of External Carotid Artery for Uncontrollable Hemorrhage in Case of Peritonsillar Infection S D Greenfield Brooklyn —p 929
Contact Ulcer of the Larynx Report of Case C J Imperatori New York —p 933
Fibrolipoma of the Larynx Report of Case C J Imperatori New York —p 940
*Rhabdomyoma of the Larynx Report of Case C J Imperatori New York —p 945
Quinine Urea as Anesthesia in Tonsillectomy W L Hogan Hartford Conn —p 949

Rhabdomyoma of the Larynx—Imperatori reports a case of rhabdomyoma of the larynx in a man, aged 23. Ten months previous to the first examination, he gradually became hoarse. Physical examination was negative except for a lobular sessile growth attached to the posterior third of the left cord on its superior surface. There was no appearance of infiltration. The growth was about the size of two green peas and was light red. There was considerable air wasting on phonation and the voice was hoarse. The right cord appeared to be normal. Under local anesthesia and with the use of a Jackson laryngostat the growth was removed with a cup type of forceps and the remaining tags with a biting forceps. Microscopic examination of the excised tissue disclosed a covering of stratified squamous epithelium that showed irregular thickening with irregular prolongations at the base. At one point the epithelium showed transition to the columnar type. Several ducts of mucous glands showed metaplasia of the epithelial lining from columnar to squamous in type. The stroma beneath the epithelium was formed chiefly of spindle cells, which seemed to represent muscle fibers. With special staining these spindle cells were further identified as striated muscle fibers. They varied in size and shape. Some of them were embryonal in type some of them were multinucleated and still others showed communicating branches with central nuclei as in heart muscle. Mitotic figures were not found. Intermingled with the muscle fibers there was a small amount of fibrous tissue especially beneath the epithelium. There was no recurrence of the growth four months later, and the patient's voice was of normal volume and quality.

Missouri State Medical Assn Journal, St. Louis

30 427 466 (Nov.) 1933

Arteriosclerosis of Lower Extremities with Especial Reference to Treatment in Diabetic Gangrene W H Olmsted and I Y Olch St. Louis —p 427
Clinical Pathology of Epidemic Encephalitis G Ives St. Louis —p 431
Congestive Heart Failure P T Bohan Kansas City —p 433
Mechanism of Heart Block L B Harrison St. Louis —p 436
Extrasystoles and Paroxysmal Tachycardia C R Ferris Kansas City —p 439
Treatment of Cardiac Episodes of Middle Life O P J Falk St. Louis —p 441
Renal Complications of Gallstone Disease W Bartlett Jr St. Louis —p 448

New England Journal of Medicine, Boston

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Thyroid Disorders in Childhood R B Cattell Boston —p 867
What the Pediatrician Can Do for Dental Cripples C P Bonn, Boston —p 875
Vitamin D Milk E T Wyman Boston —p 889
Preservation of Human Milk VII Feeding to Premature Babies of Human Milk Preserved by Freezing P W Emerson Boston —p 893
*Vitamin D Milk in Treatment of Infantile Rickets Clinical Essay B Kramer and I F Gittleman Brooklyn —p 906

209 931 978 (Nov. 9) 1933

Some Further Observations on Contamination of Operative Wounds by Air Borne Bacteria E L Hunt Worcester, Mass —p 931
Chronic Hereditary Edema (Milroy's Disease) Its Clinical Aspects and Nature of Its Production L B Ellis and F C Hall Boston —p 934
Edema of Legs Due to Local Causes J Homans Boston —p 939
The Dentists' Achievement in the Discovery and Development of Anesthesia L M S Miner Boston —p 945
Robert Brigham Hospital Survey of Chronic Disease H A Nissen Boston —p 951
Four Living Adults with Coarctation of Aorta B E Hamilton Boston and C C Stewart Jr Hanover, N H —p 958
Periosteal Elevator for the First Rib R H Sweet Boston —p 960

Vitamin D Milk in Treatment of Infantile Rickets—Kramer and Gittleman treated ten children suffering from rickets with vitamin D milk produced either by irradiating the milk directly with the carbon arc lamp or by feeding irradiated yeast to the lactating cattle. The ten infants were divided into four groups, making it possible to feed each of the milks at two levels of vitamin D, that is, 55 and 40 Steenbock units respectively per child daily. In each group healing began in from seven to thirty-one days, the average period being about two weeks. Healing was well advanced in from four to six weeks. The calcium and inorganic phosphorus concentrations of the serum followed the same course as during treatment with cod liver oil. Infants showing a low calcium or a low phosphorus or a decrease in the level of both elements in the serum responded equally well to the two types of vitamin D milk when these were fed at either a high or a low level. Aside from gastro-intestinal disturbances resulting from accidental infection, the milk was well tolerated by all the children. The authors believe that the controls used were sufficient to exclude the possibility of spontaneous healing due to chance irradiation or to foods inadvertently endowed with antirachitic properties. Because of seasonal effect, it would be desirable to repeat these observations during a season of the year when rickets is most likely to be active and when spontaneous healing is least likely to occur.

Southwestern Medicine, Phoenix, Ariz

17 359 398 (Nov.) 1933

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*Therapeutic Use of Bacteriophage with Especial Reference to Staphylococcus Septicemia L O Dutton El Paso Texas —p 374
Childhood Tuberculosis R B Homan Sr El Paso Texas —p 380
Foreign Body in the Bladder Report of Case A W Muthaif El Paso Texas —p 384

Therapeutic Use of Bacteriophage—Dutton used filtrates that contained not only bacteriophage but also growth products and a high concentration of a bacterial protein. For this reason he prefers to use the term "filtrates of bacteriophage lysed cultures" instead of only bacteriophage. The bacteriophage used must be highly potent to secure any results. A great many of the failures reported in the literature were undoubtedly due to the use of a weak bacteriophage. In the case of staphylococcal infections, both local and systemic, the bacteriophage has proved to be of inestimable value. In many other infections the results have been so encouraging that it is well worth the effort to secure the remarkable benefit possible, even in a limited number of cases. The author reports ten cases of staphylococcal septicemia in which 2 cc of staphylococcus bacteriophage was given of which five were extremely severe and presented a grave prognosis, four resulted in recovery. In the remaining five cases recovery was complete, although they were not severe and probably would not have been diagnosed as septicemia except under the stimulus of almost routine blood cultures in febrile cases and it cannot be said that they should

fall in the same category as those cases in which a fatal termination is expected. Systemic reactions seldom follow the subcutaneous or intravenous injections of staphylococcus bacteriophage, nor does any considerable local reaction develop. No evidence of anaphylaxis has ever been observed with intravenous or subcutaneous injections. All the bacteriophage used was prepared in the usual manner originally described by d'Herelle. All filtrates were adequately controlled for sterility. The stock bacteriophage used was incubated for at least two weeks. Autogenous bacteriophages were not considered practicable, owing to the length of time necessary to prepare and control them. The author insists on doses not over 2 cc subcutaneously and 1 cc intravenously. In his experience no reactions attributable to peptone have ever occurred.

Surgery, Gynecology and Obstetrics, Chicago

57 581 710 (Nov.) 1933

- Histologic Grading in Carcinoma of Uterine Cervix: Its Relation to Clinical Grouping and Prognosis. I. H. Jorstad and F. S. Auer. St. Louis—p. 583.
- Cerebral Hemiatrophy with Homolateral Hypertrophy of Skull and Sinuses. C. G. Dyke, L. M. Davidoff and C. B. Masson. New York—p. 588.
- Necessity for Constant Suction to Inducing Nasal Tubes for Effectual Decompression or Drainage of Upper Gastrointestinal Tract with Comments on Drainage of Other Body Cavities. J. R. Lunde and O. H. Wangensteen. Minneapolis—p. 601.
- Lymphatic Pathology in Relation to Toxin of Burns. F. A. Fender. Rochester, N. Y.—p. 612.
- Cesarean Section at the Boston City Hospital: Incidence, Indications, Maternal and Fetal Mortality—1894 to 1931. J. A. Smith. Boston—p. 621.
- *Gynecologic Aspects of Etiology and Treatment of Chronic Mastitis. H. C. Taylor, Jr. New York—p. 627.
- *Chronic Cicatrizing Enteritis, Regional Ileitis (Crohn). A New Surgical Entity. F. I. Harris, G. H. Bell and H. Brunn. San Francisco—p. 637.
- Correction of Scrotal Hypospadias and of Epispadias. V. P. Blair, J. B. Brown and W. G. Hamm. St. Louis—p. 646.
- Transurethral Resection of Obstructions at Vesical Orifice. H. I. Kretschmer. Chicago—p. 654.
- Nonoperative Treatment of Fractures of Tibia and Femur Involving the Knee Joint. E. I. Eliason and W. W. Fehling. Philadelphia—p. 658.
- Patency of Biliary Ducts Determined by Radiopaque Oil Injected Through a T Tube Previously Placed in Common Bile Duct for Purpose of Prolonged Drainage. E. S. Judd and J. R. Phillips. Rochester, Minn.—p. 668.
- Carcinoma of Cervix Uteri: Five Year Results of Radium Treatment. L. A. Pomeroy. Cleveland—p. 671.
- Early Recognition of Iliopsoas Bursitis. D. S. O'Connor. New Haven, Conn.—p. 674.
- Fracture of Neck of Femur: Sight for Accurately Directing the Dowel Peg. S. Bunnell. San Francisco—p. 685.
- *Varicography. M. M. Pomeranz and I. S. Tunick. New York—p. 689.
- *Evaluation of Sodium Morrhuate Therapy in Varicose Veins: Critical Study. H. Biegeleisen. New York—p. 696.

Chronic Mastitis.—Taylor states that chronic mastitis of the type characterized by pain, ill defined nodules and diffuse swelling has a marked tendency to spontaneous improvement. Following the physiologic changes of pregnancy or the menopause, improvement may be especially marked. The elimination of pelvic lesions by either surgical or nonsurgical treatment is followed by a somewhat greater proportion of cures than is observation alone. When important pelvic lesions exist, their correction should be the first step in the treatment of diffuse mastitis. Irradiation of the ovaries either with the production of an artificial menopause or by a smaller dose is effective although applicable only to certain cases. The administration by mouth of the older forms of ovarian extract or residue is useless. The trial of a more potent modern preparation of follicular and anterior pituitary hormones is indicated in the cases in which breast symptoms are associated with disturbed menstruation.

Chronic Cicatrizing Enteritis, Regional Ileitis (Crohn).—Harris and his associates point out that Crohn, Oppenheimer and Ginzburg have described a surgical disease which they call 'regional ileitis'. This disease has well defined clinical and pathologic characteristics and its description will be found to cover many of the heretofore unclassified inflammatory tumors and lesions of the small intestine. The authors report three cases of the disease in one of which the jejunum was found to be involved. They suggest the name 'chronic cicatrizing enteritis' as a more descriptive and inclusive term for this new surgical entity. Medical treatment is symptomatic

and supportive. A complete cure must depend on the surgical resection of the diseased intestine. In cases in which this has been done successfully, the patient has been restored to complete health. Such a case may require multiple stage operations. In the authors' experience a preliminary short circuiting operation such as ileocolostomy, with a later resection of the diseased intestine when the patient has been built up would seem to be the better surgical judgment. Simple ileocolostomy without the removal, either at the original operation or later of the diseased obstructed intestine carries with it the added danger of the obstructed intestine becoming dilated and ulcerated. The recent work of Holm has definitely shown both experimentally and clinically that the sidetracked intestine in short circuiting operations is a constant menace to the health of the patient. Berg advocates resection with ileocolostomy as the operation of choice.

Varicography.—Pomeranz and Tunick observed that the injection of skiodon into varicose veins offers a safe method of visualizing roentgenologically the venous system. By the use of this chemical during fluoroscopy they were enabled to observe the circulation of the blood in diseased veins and its variations during changing mechanical conditions. The statistical implications of the Trendelenburg test observed by this method by McPheters have been confirmed by the authors. By the use of stereoscopic plates the physical conditions of the vein at the time of injection can be recorded. The use of the chemical results in sclerosis of the affected vein which is painless and unaccompanied by phlebitis. The authors have demonstrated the presence of venous pools and feeder veins in the vicinity of varicose ulcers. They state that any syringe and needle used in the injection treatment of varicose veins may be employed and from 5 to 20 cc of a 40 per cent solution of skiodon is sufficient. The patient is prepared as for intravenous medication. The use of the tourniquet is optional as venous dilatation is so great that satisfactory plates may be taken without its use. To test the mechanics of the Trendelenburg test the tourniquet must be employed. The patient is placed on or in front of the fluoroscope and the needle inserted into the vein. When the needle is within the vessel, the material is injected slowly and without undue pressure during fluoroscopy and the veins are studied under varying conditions of pressure and posture. For record purposes, stereoscopic plates are taken. The limb is placed on a plate changing device and the vein injected while the plates are being taken. The needle should not be removed between exposures, since it serves as a guide to the site of injection and prevents back flow of the skiodon on the skin as its superimposed density often masks finer vascular changes.

Sodium Morrhuate Therapy in Varicose Veins.—Biegeleisen presents an evaluation of the merits of sodium morrhuate therapy in varicose veins based on a detailed study of 561 injections. He studied four preparations. Their composition was as follows: Product A was a 5 per cent solution of sodium morrhuate with 0.5 per cent phenol, product B was a 5 per cent solution of sodium morrhuate with 5 per cent benzyl alcohol added, product C was a 5 per cent solution of sodium morrhuate without any adulterant, and product D was also a 5 per cent solution of sodium morrhuate with 0.5 per cent phenol. Product A was made by an American firm that imported powdered sodium morrhuate from England and subsequently dissolved it in water with the addition of 0.5 per cent phenol. Products B and C represented American preparations manufactured in one operation at the same plant, and product D was made in England and the finished product distributed in America. The technic employed was uniform throughout. The injections were made with the patient in the standing position. No tourniquets were used. The majority of injections were in 2 cc quantities. Product A was used in ninety-six injections. Only 43 per cent of the injections made were efficient from a clinical standpoint. These poor results were particularly significant since the ampules secured were fresh and used almost immediately. Product B was studied in two parts because two different batches of sodium morrhuate from the same source were tested against each other. The first batch consisted of a shipment of ampules that were used for 180 injections. The second batch was used in seventy-five injections. The first

shipment of ampules produced thirty very good results fifteen of these reactions were attributed to high dosage, 5 cc., and the fifteen others could not be accounted for by massive dosage, since no more than 2 cc. was used. Of the treatments, 18 per cent were failures. Altogether, 81 per cent of the injections in this group gave definite thromboses and did not need repetition. There were no severe reactions produced from the second shipment of ampules of product B. 56 per cent were clinical successes and 44 per cent failures. It is evident that there is a definite variability as to the potency of the different shipments from the same source. With product C, 150 injections were made and it was noted that there was no difference between this preparation and the one with benzyl alcohol. Successful results were obtained in 62 per cent. No loss of efficiency was evident when local anesthetics were excluded from the mixture. Product D did not differ from the similar American preparation. On the basis of these observations the author concludes that 1 Sodium morrhuate is an unknown, relatively unstable mixture of sodium salts of the unsaturated fatty acids found in cod liver oil. 2 Its potency diminishes with age and is not uniform. 3 It is occasionally capable of slough formation. 4 No local anesthetic should be added to the mixture. 5 The advisability of incorporating an antiseptic in the solution is open to question. 6 The irritating effect of sodium morrhuate is due to its soapy characteristics and has been duplicated experimentally by a solution of commercial liquid soap. 7 Sodium oleate, which is one of the fatty acid salts present in sodium morrhuate, has been tested and found to possess sclerotic power. 8 The continued testing of the other fatty acid salts present in the mixture is necessary if a standardized pure product is to be developed.

Wisconsin Medical Journal, Madison

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- Foundation and Early History of St Bartholomew's—the First Hospital in London R E Scammon Minneapolis—p 737
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Bone Lesions in Fungus Infections of Lungs Report of Two Cases R H Stuehm Madison—p 764
Retropharyngeal Abscess F C Christensen Racine—p 766
Radiation Therapy in Medical Practice E A Pohle Madison—p 769
Pain in Prostatic Gland Infections Syllabus W K Gray Milwaukee—p 772
*Effect on Lungs of Fungus Spores Found in Maple Bark J W Towey Powers Mich—p 773
Rupture of the Heart Clinical and Pathologic Reports of Cases N A Hill and E L Prien, Madison—p 774

Effect of Fungus Spores in Maple Bark on the Lungs
—Towey observed that maple logs that have been cut for a period exceeding one year show evidence of fungus infection. In the affected maple logs a black dust of the consistency of lampblack is found beneath the cork layer of the bark, and this dust on examination has proved to be the pure spores of fungi (*Coniosporium corticale*). A number of men whose working operations brought them into contact with this spore dust have developed definite asthmatic attacks. A clinical, roentgen and laboratory examination has been made on a group of thirty-five patients. The symptoms presented were acute and typically asthmatic in character. The predominating symptom was shortness of breath, associated with loss of weight, cough varying amounts of expectoration, substernal pain and temperatures ranging to 103 F in certain instances. Physical signs were those commonly associated with acute asthmatic attacks with coarse rales predominating over the lower half of the chest. Roentgenograms show definite mottling throughout the lower half of the lungs in the most severe cases with a definite increase in the basal trunk and peribronchial shadows. The symptoms began to improve as soon as the patient was removed from the environment and the roentgenograms showed a relatively rapid clearing. The abrupt onset with the fairly prompt recovery from symptoms on removal of the patients from the environment suggested the problem of a protein sensitization. Reactions to intradermal injections of the spore extract and a suspension of spore dust as compared to controls were indefinite and more work is being done to establish the mechanism of the disease.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

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- Erasmus Wilson His Predecessors and His Contemporaries H G Adamson—p 437
British Dermatology in the Early Eighties A Whitfield—p 449
Development of Dermatology in Scotland N Walker and G H Percival—p 457

British Medical Journal, London

2 853 904 (Nov. 11) 1933

- Diuretics and Their Uses D M Lyon—p 853
*Artificial Menopause with Especial Reference to End Results Obtained by Various Methods of Induction Clinical Review of Six Hundred and Twenty Cases Louisa Martindale—p 857
Late Results of Injection Treatment of Varicose Veins D Patey and R C Tatham—p 861
Incidence of Pulmonary Disease Following Exposure to Vesicant and Asphyxiating Gases W N Abbott—p 862
The Clover Leaf Sling in Paralysis of the Serratus Magnus H O Foucar—p 865

Artificial Menopause—Martindale presents the end results, nature and duration of the artificial menopause, the way in which it differs from the normal menopause, the best and safest ways to induce an artificial menopause and the indications and contraindications for the various methods based on a study of 620 cases. Her conclusions are that 1 Each method of induction has its definite function. Surgical operation is the correct method for all cases in which a malignant condition or degeneration of a nonmalignant fibroid is suspected, for all young patients in whom myomectomy may be possible and for those in whom the fibroid uterus is of a certain size and causes pressure symptoms. Irradiation is the treatment of choice in all cases of climacteric hemorrhage, with fibrosis of the uterus or small interstitial fibroids, in which there is no suspicion of carcinomatous or sarcomatous degeneration. 2 The menopausal symptoms in irradiated patients are no more severe than, in fact, not as severe as, in those of the normal climacteric. 3 The temporary amenorrhea caused by irradiation is a valuable method of treatment in certain cases of psychosis and tuberculosis. 4 The risk of malignant disease occurring in an irradiated uterus is no greater than, if as great as, the risk of carcinoma occurring in it or in any other organ of the body in an untreated case. 5 Accuracy in diagnosis is one of the essential factors in successful treatment. To ensure success the patient must remain under the care and supervision of the gynecologist, who, if he does not himself undertake the radiologic part of the treatment, will at any rate work in close cooperation with the radiologist—an easier ideal to attain now that so many gynecologic departments have their own intensive x-ray plant and an adequate supply of radium.

Edinburgh Medical Journal

40 497 568 (Nov.) 1933

- Neanderthaloid Skull Presenting Features of Cleidocranial Dysostosis and Other Peculiarities D M Greig—p 497

Journal of Hygiene, London

33 435 582 (Nov.) 1933

- Study of Asthmatic and Rheumatic Children with Especial Reference to Physical Type M Young—p 435
Selection of Noncarcinogenic from Carcinogenic Oils C C Twort and R Lyth—p 464
Measurement of Equivalent Temperature A F Dufton—p 474
Nose-Opening Rays A F Dufton and T Bedford—p 476
Determination of Phenol Coefficient of Disinfectants by Cover Slip Method V Jensen and Elsa Jensen—p 485
Interpretation of Bacterial Growth Rate Curves C G Lemon—p 495
Measurement of Opacity of Bacterial Cultures with Photo-Electric Cell T Alper and M Sterne—p 497
Type of Coliform Bacilli Prevalent in Urine and Their Significance with Especial Reference to Sanitary Aspects H J O D Burke Gaffney—p 510
*Classification of Brucella Group Systematic Study G S Wilson—p 516
*Analysis of Five Hundred and Ten Strains of *Corynebacterium Diphtheriae* H S Carter—p 542
Enquiry into Relative Toxicity of Benzene and Toluene T Ferguson W F Harvey and T D Hamilton—p 547

Classification of Brucella Group—Wilson assesses the value of the various methods available for the differentiation of members of the *Alcaligenes* group and points out that,

though it is possible to distinguish broadly between three main types within the group, there is no hard and fast line of demarcation between them, and the existence of transitional forms is sufficiently frequent to suggest that specific characters are subject to change with environmental conditions. His conclusions are based on a study by a number of different methods of more than 300 strains collected from different parts of the world. He found that besides the existence of three main groups—bovine abortus, porcine abortus and melitensis—with their subsidiary rough para-abortus and paramelitensis derivatives, there exist within each group a number of subgroups containing transitional strains, which frequently are associated with some particular geographic location. The author suggests that members of the Alcaligenes group are relatively labile and respond readily to environmental changes. How far this peculiar lability is responsible for their power to adapt themselves to a number of different hosts and for their varying pathogenicity is for the future to decide. In view of the existence of numerous subgroups, it is unjustifiable, in the classification of individual Alcaligenes strains, to rely on any single method of examination. Every strain should if possible be examined for carbon dioxide sensitivity, for hydrogen sulphide formation, for growth in the presence of thionine basic fuchsin, methyl violet and pyronine, and for antigenic structure. If reliance is placed on but one or two methods, some strains are bound to be classified wrongly and erroneous conclusions drawn as to the pathogenicity of the group to which they are allocated.

Five Hundred and Ten Strains of Corynebacterium Diphtheriae.—In a study of 510 strains of *Corynebacterium diphtheriae*, Carter has found it possible to divide 99 per cent in three types by colony appearance, the fermentation of starch and the appearance in broth, as described by the Leeds workers. In an area in which diphtheria is mild a grave form of *C. diphtheriae* is rare and its place is largely taken by the intermediate type, which however is less virulent but causes paralytic and albuminuria to about the same extent as the grave type when the latter is the chief infecting type. The different types of *C. diphtheriae* have defined characteristics and are stable in these characteristics. Diphtheria due to the intermediate type responds to antitoxic serum in an average way, as with a large preponderance of cases due to this type the case mortality rate is much below the rate in areas in which the grave type predominates.

Journal of Physiology, London

80 1112 (Nov. 9) 1933

Carbohydrate Metabolism and Effect of Decapitation and Decerebration Under Nitrous Oxide Anesthesia J. S. L. Browne and C. I. Evans —p. 1

Utilization of Blood Sugar and Lactate by Heart Lung Preparation C. L. Evans, A. C. de Graff, T. Kosaka, K. Mackenzie, G. E. Murphy, T. Vacek, D. H. Williams and F. G. Young —p. 21

Formation of Liver Glycogen in the Cat Under Various Conditions Following Infusion of Ammonium Lactate Rhoda Grant —p. 41

Influence of Autonomic Nerves on Alimentary Hyperglycemia and on Absorption of Glucose E. A. Horne, E. J. McDougall and H. E. Magee —p. 48

Examination of Pulmonary Circulation with the Microscope R. G. MacGregor —p. 65

Induction of Ovulation in Unmated Estrous Ferret M. K. McPhail —p. 78

*Relationship of Azo Dyes to Coagulation of Blood A. St. G. Huggett and F. M. Rowe —p. 82

Effect of Parathyroid Hormone and of Irradiated Ergosterol on Calcium Content of Parotid Saliva of the Dog L. Andreyev and I. I. Fuglesley —p. 96

Nerves and Nerve Endings in Visceral Pleura of the Cat A. I. G. McLaughlin —p. 101

Effect on Reproductive Organs of the Rat of Prolonged Treatment with Ovary Stimulating Substances M. K. McPhail —p. 105

Azo Dyes and Coagulation of Blood.—Huggett and Rowe examined some azo direct dyes for their effect on the coagulation time of blood. Inhibition of blood clotting is a property shared by a number of these dyes. The best are all disazo direct dyes prepared from tetrazotized diamines coupled with ammonaphthol sulphonic acids. The most efficient anticoagulants obtained were chlorazol fast pink BKS, its isomer S. D. 2 and an exceptional specimen of Color Index No. 518, marketed as Chicago blue 6B. Chemical impurities in the dye influence the action, so that purification is essential in any dye which is being used for this purpose.

Journal of Tropical Medicine and Hygiene, London

36 329 344 (Nov. 1) 1933

Health of New Zealand S. M. Lambert —p. 329

Control of Respiratory Disease in the Tropics F. G. Cawston —p. 331

*Toxicity of Carbon Tetrachloride and Its Allied Halogen Compounds J. W. Tomb and M. M. Helmy —p. 334

Toxicity of Carbon Tetrachloride.—Tomb and Helmy state that carbon tetrachloride and its closely allied halogen derivatives of the aliphatic hydrocarbons are capable in therapeutic doses of causing fatal intoxication accompanied by acute degeneration of the liver. Fatalities from carbon tetrachloride intoxication occur much more frequently among children and adolescents than among adults, probably owing to an inefficiency of calcium reserves in the young. Immediate poisoning by carbon tetrachloride in therapeutic doses is generally associated with disease of the liver or with other clinical contraindications. Delayed poisoning by carbon tetrachloride in therapeutic doses is generally due to nonelimination of the drug from the intestinal tract, in or without association with clinical contraindications. It can be obviated, when the liver is healthy, by rapid and free evacuation of the drug. Fatal intoxication by carbon tetrachloride in Egypt has been found to be closely associated with ascariasis. Ascariasis in such cases would appear to act in two ways: (1) by causing a mechanical obstruction to the action of the saline purgative and increased absorption of the drug when worms are numerous in the intestine, through 'clumping' of the worms, or (2) by diminishing the natural resistance to the drug in cases in which clinical contraindications already exist, either through toxins produced by the worms or owing to the unsatisfactory economic conditions and consequent low state of general nutrition which ascariasis implies. When intoxication by carbon tetrachloride has manifested itself, intensive treatment by intravenous injections of calcium gluconate (Sandoz) is capable of saving life, provided the drug has been thoroughly evacuated from the intestinal canal. The traces of carbon disulphide found in medicinal carbon tetrachloride are of no toxicologic significance.

Medical Journal of Australia, Sydney

2 611 642 (Nov. 4) 1933

Myopathic Uterus C. L. Chapman —p. 611

*Series of Myopathic and Myomatous Uterine Conditions Treated with Radium H. K. Porter —p. 614

Uteral Ectopia R. Bridge and W. Perry —p. 620

Biochemistry in Relation to Anesthesia I. Maxwell —p. 626

2 643 676 (Nov. 11) 1933

Some Aspects of Modern Treatment by Radium J. Mayo —p. 643

Hospital Administration Abroad A. G. Stephenson —p. 653

Synovial Sheaths and Fascial Spaces of the Hand W. E. A. Hughes Jones —p. 658

Uterine Conditions Treated with Radium.—Porter treated thirty patients presenting myopathic and myomatous uterine disorders with radium. Of these only one was subsequently operated on and only one required a second dose. The remainder have all been cured of their principal complaint, menorrhagia, while those suffering from fibromyomas all show a decrease in the size of the tumor since treatment. As a routine from 30 to 40 mg. of radium element is used, generally two tubes of 20 mg. of radium each placed end to end. These tubes have a screening of 1 mm. of platinum and are placed in a rubber tube (2 mm. thick), this provides the secondary filtration for the radium. The applicator so formed is approximately from 4 to 5 cm. in length, has about the thickness of an ordinary lead pencil and has a silk thread secured to its distal end. In all cases the urine is tested, a full blood count is made and a Bordet test is performed. Under general anesthesia and after a particular vaginal cleansing a careful bimanual examination is carried out. Dilatation of the neck of the uterus follows (if a fibroid or cervical polyp is encountered it is removed at this stage). The uterus is curetted. The scrapings obtained are submitted to pathologic examination. The applicator containing the radium in tubes is then inserted into the uterine cavity and pushed right up to the fundus, so that no portion protrudes. The silk thread attached reaches to the vulva. The vagina is then firmly packed with iodoform gauze to prevent the applicator from slipping down into the vagina and to serve as an extra protection to the bladder and the rectum. The labia are drawn together with a single

superficial catgut suture to retain the gauze. At the end of the time determined on, the radium contained in its rubber sheath is easily removed (without an anesthetic) by gentle traction on the attached silk thread. The dosage to be employed is determined by a multiplication of the number of milligrams of radium element used and the number of hours during which it is applied, the dose being given in milligram-hours of radium element; for example, 40 mg of radium used for fifty hours equals 2,000 milligram hours of radium element.

Chinese Medical Journal, Shanghai

47 851 952 (Sept.) 1933

- Development of Clinical Pictures of Typhus and Typhoid Fever F R Dieuaide—p 851
Epidemiologic Survey of Hospital Patients Interim Report H S Gear with introduction by H G Earle—p 864
Bacillus Welchii Infection in Cases of Abortion A Wong and Dorothy Hine Wong—p 877
Collapse Therapy in Treatment of Pulmonary Tuberculosis Study of One Hundred Korean Cases S H Martin—p 888
Use of Tear Gas in Fumigation with Hydrocyanic Acid Gas E Landauer—p 896
Hospital Laboratory Its Scope Functions and Organization S M Tao—p 907

Japanese Journal of Experimental Medicine, Tokyo

11 397 514 (Oct 20) 1933

- Study on Mitochondria and Metachondria of Intestinal Epithelial Cells R Saito—p 397
Influence of Parenterally Injected Mucous Membrane Cells of Digestive Tract on Organ and Tissue (Second Report) Histologic Study on Change Due to Injection of Heated Gastric Mucous Membrane Cell Constituents H Murai—p 407
Studies on Mitochondria and Metachondria of Gastric Gland Cells I Mitochondria and Metachondria of Fundus Gland Cells J Okanishi—p 419
Id II Mitochondria and Metachondria of Pyloric Gland Cells J Okanishi—p 439
Id III Influence of Cell Constituents of Gastric Gland Introduced Parenterally on Mitochondria and Metachondria of Gastric Gland Cells J Okanishi—p 447
*Study on Production of Diphtheria Toxin (First Report) Especially on Significance of Cysteine and Cystine and the Production of a Fairly Potent Toxin in the Biuret Free Medium S Hosoya E Ozawa and T Tanaka—p 463
Anemia Causing Action of Various Hydrazine Derivatives Their Influence on Oxygen in Blood and Their Relation to Their Chemical Structure II Influence of Various Hydrazine Derivatives on Oxygen in Blood and Their Relation to Their Chemical Structure S Minami—p 475
The Problem of Sanitary Oyster Control in Japan Y Tohyama—p 503

Production of Diphtheria Toxin—Hosoya and his associates state that the toxin produced in the medium containing Chapoteaut peptone, Difco-proteose-peptone, Witte peptone and Teruuchi peptone, respectively, as the source of nitrogen, and adjusted to pH 7.8 by the addition of dextrose and salts, is strongly toxic in the first two peptones and is extremely weak in the last two. The formation of strong toxin was found in the basic medium containing the element of Chapoteaut peptone, which is soluble in pure methyl alcohol as the source of nitrogen. Examination of the strength of the toxin in the liquid medium prepared by adjusting it to pH 7.8 by the addition of various amino acids and other nitrogenous substance to the foregoing basic medium showed that glycine, phenylalanine, tyrosine, sodium aspartate, histidine, arginine, lysine, tryptophan, glycylglycine, creatine, creatinine and carnosine have respectively no favorable influence on the production of toxin. The addition of cystine or cysteine to the basic medium remarkably promotes the proliferation of the bacillus. In case the basic medium is adjusted to pH 7.8 by the addition of cysteine hydrochloric acid in the proportion of 0.05 per cent, a strongly potent toxin is produced at the early period of cultivation. Cystine also has a favorable influence on the production of toxin. Methionine and adenylthio-methyl peptone have no influence on the production of toxin in the experiment in the basic medium. Although the addition of cysteine to the medium containing Witte peptone as the source of nitrogen causes the production of a fairly strong toxin yet in the medium obtained by adding cysteine to Teruuchi peptone the bacillus proliferates abundantly but almost no toxin is produced and the reaction of Ramon does not appear. Although no toxin was produced in the medium containing as the source of nitrogen the decomposition product resulting negative in the biuret reaction and lead sulphide reaction by hydrolyzing two hours at two atmospheric pressures the methyl alcohol soluble fraction of Chapoteaut peptone

saturated with solution of baryt, yet in the medium supplemented with cysteine or cystine fairly strong toxin is produced, showing the highest record of the strength of the toxin produced in the biuret reaction negative medium.

Revue de Chirurgie, Paris

52 733 824 (Dec.) 1933

- Delay in Consolidation and Pseudo-Arthroses of Diaphysary Fractures Frequency and Treatment L Delrez, G Lambert and L Blavier—p 733
*Gangrene of Fingers Following Local Regional Anesthesia G Lambert and J Snyers—p 741
Rhizomelic Spondylitis Treated According to Leriche's Method Four Cases G Jasienski—p 761
Treatment of Subcutaneous Paronychias of Proximal Phalanges M Vassitch—p 775
Late Results of Resections of Wrist for Tuberculosis R Denis and R Jean—p 791

Gangrene of Fingers Following Local Regional Anesthesia—Lambert and Snyers state that local regional anesthesia appears contraindicated in infections of the fingers. It is best to substitute for it as frequently as possible anesthesia by freezing. Nevertheless, when administered for ingrown nails without local infection or for subungual foreign bodies without apparent infection, only a less concentrated solution without epinephrine is injected in exceedingly small amounts so as to reduce the factor of blood stasis. In certain cases it is advantageous to practice a strictly local anesthetic infiltration. After operation, active and immediate mobilization of the finger that has been operated on should be promoted in order to avoid circulatory stasis. If return of sensation is delayed it is wise to administer alternating baths and massage. Coarse manipulations should be avoided. The authors state in concluding that gangrene of the fingers after local regional anesthesia is the result of thrombophlebitis and not of epinephrine vasoconstriction. Arterial obliteration is not primary but secondary to retrograde thrombosis. Two conditions are indispensable for the production of the thrombotic process: mitigated infection and blood stasis. The injected anesthetic solution acts as a factor in the circulatory stasis which increases with the concentration of the solution and the presence of epinephrine.

Rivista di Patologia e Clinica d Tuberculosis, Bologna

7 1057 1148 (Dec 31) 1933

- Regional Cutaneous Reactions to Tuberculin G Ferri—p 1057
Unusual Morphologic and Pathogenic Aspect of Tuberculosis of Early Infancy A Culotta—p 1064
Clinical Contribution to Knowledge of Various Forms of Tuberculosis T Tamburri—p 1070
Spontaneous Tuberculous Pneumothorax R Paolini—p 1096
*Contribution to Study of Gold Therapy in Pulmonary Tuberculosis C Soglia and G Tosi—p 1109
Two New Cases of Thoracic Pulmonary Shock in Patients Having Pneumothorax of Left Inferior Lobe and of Right Superior Lobe G Guizzardi—p 1123

Gold Therapy in Pulmonary Tuberculosis—Soglia and Tosi treated twenty-four patients with gold therapy, twelve of whom were given intravenous injections of gold sodium thio-sulphate (sanocrysin) in a 5 per cent double distilled aqueous solution. To avoid secondary disturbances the authors began with small doses, which were gradually increased according to the tolerance of the patients. The first dose was 0.05 Gm, the second, seven days later, 0.1 Gm, and the doses were increased gradually to 0.5 Gm. Never more than 5.6 Gm of the substance was administered in the course of treatment to a patient. Six patients were given intragluteal injections of sodium gold thiopropanol sulphonate (allochrysin) in doses of 0.05 Gm. After from four to five administrations the dosage was raised to 0.1 Gm and eventually to 0.2 Gm. The other six patients received intramuscular injections of a colloidal gold salt (collaurum) in doses of 2 cc on alternating days. A rest of from ten to fifteen days between the series of treatments was allowed to all patients. Immediately after the first injections the patients evinced a feeling of general well being and a temporary and slight decrease in weight. While many patients showed a modest rise in temperature, the thermic curve of a few was not affected. The sputum was reduced in quantity and contained less bacilli. Certain secondary disturbances originated from the rapid diffusion in the organism of microbial poisons deriving from the destruction of the tubercle bacilli. These are principally albuminuria, dermatitis and pruritus, nausea, vomiting and diarrhea, stomatitis and conjunctivitis.

are occasionally observed after administration of strong doses. Of the twenty-four patients, five were cured, eight improved, four declined and seven remained unaffected. The authors maintain that gold therapy, if carefully administered, may show good results, but they believe that in advanced and serious cases it is useless to stimulate an organism that cannot protect itself. Generally in these cases toxic factors exist which are only accentuated by the introduction of gold. The authors state in conclusion that gold therapy is complementary to institutional cure and collapse therapy and is definitely not a specific cure for tuberculosis.

Archiv fur Gynakologie, Berlin

155 1310 (Dec 21) 1933

- Circulatory Apparatus in Myoma R T von Jaschke—p 6
 *Further Experimental Investigations on Action of Thyrotropic Hormone of Anterior Lobe of Hypophysis G Doderlein—p 22
 Experimental Modification of Suprarenal Cortex of Guinea Pigs by Hormones of Anterior Lobe of Hypophysis F Schenk—p 36
 Action of Gonadotropic Substances on Ovary S Aschheim—p 44
 *Aspects of Brenner Tumors R Freund—p 67
 Malignancy of Recto Uterine Endometriosis Radical Operation or Irradiation? On Basis of Therapeutic Results of Three Hundred and Fifty Nine Cases of World Literature H Albrecht—p 74
 Histologic Structure and Ray Sensitivity of Cancer of Cervix Uteri H O Klein—p 96
 *Eclampsia a Hypophyseal Disorder E Fauvet—p 100
 Castration Obesity K W Schultze—p 157
 Morphologic and Functional Peculiarity of Granulosa Blastoma Hormonal Actions of Ovarian Blastomas H O Klein—p 168
 Carcinoma Problem Behavior of Potassium and Calcium in Tumor and Serum of Patients with Tumor H Guthmann H Winkler and N Grzimek—p 185
 Role of Decidua in Fetal Metabolism B Szendi—p 197
 *Artificial Endometriosis H H Schmid—p 217
 Influence of Gonadal Hormones on Egg Production of Hens W Schoeller and M Gehrke—p 234
 Pathologic Anatomic Studies on Placenta Praevia and Their Clinical Significance H O Neumann—p 241
 Hydatiform Mole and Hormone Economy Hormone Analysis in Case of Severe Dropsical Degeneration of Placenta with Living Child Biology of Hydatiform Mole E W Winter—p 264
 Experimental Studies on Endometriosis O Brakemann—p 276

Action of Thyrotropic Hormone of Anterior Hypophysis—Doderlein reviews the literature on the subject and relates studies on the thyrotropic action of anterior hypophyseal preparations extracted from the urine. He found their action on the thyroid extremely variable and thinks that, although they occasionally have a thyrotropic action, they are unsuitable for exact studies investigating the influence exerted by the anterior hypophysis on the thyroid. He points out that there is general agreement among investigators that anterior hypophyseal extracts not of urinary origin but prepared from hypophyseal tissue influence the thyroid. He describes the thyroidal changes produced with an anterior hypophyseal extract and those produced with the purified "thyrotropic hormone." He found that the latter exerts a more intense action. He points out that, since the discovery of the thyrotropic action of the hypophysis, experiments have been made to utilize this action for therapeutic purposes by using it in the place of thyroxine. In patients having myxedema and congenital cretinism the thyrotropic hormone produced a considerable increase in the iodine content of the blood and, in obese persons, a reduction in weight, but in the latter condition it was less effective than thyroxine. The author relates experiments that he conducted in order to determine whether the thyrotropic hormone of the anterior hypophysis passes the placenta. He administered the thyrotropic hormone to pregnant guinea-pigs and later examined the thyroids of the young. He noted signs of activation in the thyroids of the new-born animals, and from this he concludes that the placenta is permeable for the thyrotropic substance of the hypophysis.

Brenner Tumors—In the Charite women's clinic, examinations led to the discovery of Brenner's tumors coincidental with other disorders, twice within one year. Freund relates the clinical history of these patients and describes the histologic aspects of the tumors. In the first patient, a voluminous pseudomucinous tumor was found, which belonged to group 2 of Meyer's classification. The second patient, whose uterus had been extirpated on account of an adenocarcinoma, had in the ovary an isolated solid nodule about the size of a pea. This nodule was found to belong to group 1 of Meyer's classifica-

tion. The diagnosis was based on the characteristic foci of epithelial cells with and without central clefts, which may be lined with mucous epithelium, and on the surrounding fibrous tissue. Former studies on these tumors have revealed that they have neither clinical nor biologic significance on account of their generally small size and benign character and because hormonal functions are absent. Scientific interest has therefore been concentrated on the histogenesis. According to Meyer, the Brenner tumors belong to the structures that develop from the derivatives of the coelom epithelium, just as do the solid cell nodules underneath the serosa of the tubes or the Walthard cell foci in the infantile ovarian cortex. These entirely indifferent cell complexes have, as all coelom derivatives, the capacity to develop in the one or other direction, depending on local or general influences (hormones, nutrition, circulation), and form abnormal structures in the region of the adnexa. If the Walthard cell foci retain their indifferent character in the course of their blastomatous development, the solid Brenner tumor develops in which nests of epithelium are embedded in the fibrous connective tissue. In the center of the nests there may be hollow spaces and cysts with indifferent cylindric or mucous epithelium. These formations, the macroscopic aspects of which resemble those of fibromatous nodules, belong to the first group of Brenner tumors (solid tumors with or without cysts). If the differentiation of the cell foci tends primarily in the direction of cyst formation, the second type of Brenner tumor develops in which the cyst formation reaches such an extent that a cystoma appears with an intramural Brenner nodule with or without pseudomucinous epithelium. Since Orthmann was the first to call attention to this type of tumor and not Brenner, the author agrees with Plaut who suggested abandoning the eponymic term and applying the anatomic term of benign mucinous fibro-epithelioma.

Eclampsia, a Hypophyseal Disorder—Fauvet presents a comprehensive study on this problem. He shows that in the edematous nephrotic and eclamptic syndrome which develops in pregnant, parturient and lactating women disturbances in the water exchange and in the vascular system predominate. He demonstrates that it is possible to explain these manifestations by experiments with the hormones of the posterior lobe of the hypophysis. By administering extracts to animals, he was able to produce all the symptoms, except the eclamptic attacks. Even the pathologic-anatomic changes became manifest. He points out that the pregnant organism even if healthy, undergoes changes which indicate an increased function of the hypophyseal system. In comparing these manifestations with disease processes of hypophyseal origin in nonpregnant persons a considerable degree of identity could be ascertained. It is possible that labor pains are induced by a hypophyseal hormone but definite proof is still lacking. Experiments demonstrated that the hormones of the anterior hypophysis are essential in the development of lactation and apparently also for the first development of the new-born. Other authors (Hoffmann and Anselmino) furnished evidence that the hypophyseal substances controlling the water exchange and the blood pressure are present in increased quantities in the blood of women suffering from eclampsia. This led to a causal and apparently successful therapy, and the author thinks that medical science is justified in considering the edematous, nephrotic and vasopressor components of the eclamptic syndrome a disturbance that is produced by a pathologic hyperfunctioning of the hypophysis.

Artificial Endometriosis—Schmid shows that by the production of an artificial endometriosis, namely, the transplantation of the uterine mucosa into the vagina, a regular menstruation with external discharge can be produced. Observations on nineteen patients proved that the procedure is simple and without danger. The method makes it possible for younger women in whom the uterus is absent but who still have functioning ovarian tissue to continue to menstruate. The author points out that this may prevent psychic depressions in women of the child-bearing age who have to undergo extirpation of the uterus. Moreover the artificial endometriosis also has the detoxicating effect of menstruation stressed by Aschner. Several objections that could be raised against this method are discussed and largely refuted.

Archiv für klinische Chirurgie, Berlin

178 1206 (Nov 29) 1933

- Twenty Years Experience with Intravenous Continuous Drop Infusion M Friedemann—p 1
- *Concerning Lipophagic Granuloma Formations Especially in Female Mammary Gland G H Bartsch—p 62
- Appearance of Sympathetic Bone Disease B Martin—p 81
- Influence of Intercurrent Diseases During Course of Thrombosis on Termination of Thrombosis M Matyas—p 91
- Heus Cases A W Sussewski—p 101
- Clinical Significance of Zones of Transformation of Bone H Walter—p 116
- Diaphragmatic Relaxation and Its Treatment K Lohmann—p 124
- Origin of Gastric Ulcers Through Foreign Bodies F Jaeger—p 134
- Diagnosis and Therapy of Perirenal Apoplexy F Prochnow—p 138
- Effect of Cervical Ganglion of Sympathetic Nerve on Autoplastic and Homoplastic A A Wassileff and A M Scholondz—p 148
- *Effect of Carbon Dioxide Inspiration on Blood Coagulability J Marx—p 170
- *Question of Serum Administration in Gas Edema H Angerer—p 179
- Inflammatory Tumors Diagnosed as Malignant Esau—p 192
- Albuminous Stone of Gallbladder N S Timofejew—p 203

Lipophagic Granuloma Formations in Mammary Gland—Bartsch states that lipophagic granulomas are granulation tissue formations which develop in connection with localized necroses of the subcutaneous fat tissue. The fat, which is freed and saponified by the granulomas, acts as a foreign body, inducing a reactive transformation in the sense of a foreign body granuloma. Lipophagic granulomas are caused mainly by trauma, in this matter, however, not only mechanical but chemical and physical factors come into consideration. Because of clinical appearances, lipophagic granulomas are often diagnosed and treated as true malignant tumor formations. The possibility of mistaking them for cancer is due mainly to the alterations in the mammary glands. To treat lipophagic granulomas correctly, it is necessary to consider them from a differential diagnostic point of view and do a biopsy before performing a mutilating operation.

Effect of Inhalation of Carbon Dioxide on Blood Coagulability—Marx investigated the effect of carbon dioxide inhalation on the blood coagulability and bleeding time in man and animals. He found that, if guinea-pigs were kept from three to five minutes in an air mixture containing 5 per cent by volume of carbon dioxide, the blood coagulation time is diminished by 33.6 per cent and the bleeding time by 29 per cent. In healthy people after from four to five minutes of continuous inhalation of this air mixture there was a 45.3 per cent diminution in the blood coagulation time and a 68.2 per cent diminution in the bleeding time. Five minutes later these values showed a diminution of 53 and 70 per cent, respectively, and after a quarter of an hour still showed 26.5 and 25 per cent, respectively. In comparison with this, the number of thrombocytes fifteen minutes after inhalation showed a rise of 22.7 per cent. The blood coagulation time in a cholemic dog after ten minutes of continued inhalation was reduced about 52.8 per cent, after five minutes about 44.5 per cent and after fifteen minutes about 29 per cent. The bleeding time correspondingly showed a diminution of 29.6, 16 and 28 per cent, respectively. After repeated inhalations, the coagulation time sank to 39.5 per cent and the bleeding time to 30.8 per cent. In patients suffering from icterus with retarded blood coagulability and bleeding time, a diminution of the former to 44.7 per cent may be observed after fifteen minutes, while that of the latter may be found to be 39.8 per cent. On the basis of his experiments, the author recommends from four to five minute inhalations in already existing parenchymatous hemorrhages or as an effective prophylactic. As such it should be administered before the operation, which presumably is accompanied by abnormal parenchymatous hemorrhages.

Serum Administration in Gas Edema—Angerer states that gas edema serum is generally administered as an aid to surgical treatment. The author cites the difficulties encountered in the clinical evaluation of the serum, among them the difference in virulence of the bacilli, in the general condition of patients and in the infected tissues. In animal experimentation the gas edema serum has been both prophylactically and therapeutically effective. In man these successful results have not yet been obtained. According to some writers, the most frequent cause of gas edema in man is Fraenkel's bacillus. The author experimented on 119 guinea pigs with pure and mixed

cultures of Fraenkel's bacillus. To each guinea-pig of average weight he gave 2 cc of serum against an average lethal dose of Fraenkel's bacilli. A local gas edema appeared in the course of infection in all animals, and the effect of the serum became evident in the further course of the disease. On the second or third day after infection the animals successfully treated with the serum gradually recovered from their severe general malaise. In connection with the improvement in the general condition, alterations in the local lesion were observed. In most of the surviving animals, especially in those treated locally, breaking down occurred at the site of inoculation. After several days the abscess pierced the skin and later resulted in widespread necrosis, which was cast off and was quickly replaced by abundant granulation tissue. The author found that in animal experimentation a specific effect of the gas edema serum can be demonstrated in contrast to gas gangrene serum. The development of a local gas edema could not be prevented in any experimental animal through the administration of serum. The serum effect manifests itself so far as the animals withstand the serious general malaise. Besides this, spreading of the gas edema could be hindered in many ways through local administration of serum. Several favorable results have been obtained in the application of nonspecific serum in animal experimentation against infection with Fraenkel's bacillus. The earlier large quantities of serum are administered locally in man, the sooner favorable results are to be expected. The brief time of incubation and the difficulty of proving when the disease begins make it difficult to judge whether in the individual case the serum was given prophylactically or therapeutically. The author states in conclusion that gas edema serum in animals has a specific effect against infections with Fraenkel's bacillus in simultaneously prophylactic and therapeutic administration and that when the serum is locally administered at the focus of infection it produces a more favorable effect than when administered elsewhere.

Beiträge zur Klinik der Tuberkulose, Berlin

83 645 764 (Nov 28) 1933

- Race Hygiene and Campaign Against Tuberculosis F Ickert—p 650
- Tuberculosis and Labor Camps H Denker—p 667
- Indications for Various Methods of Collapse Therapy W Kremer—p 675
- Dangers of Unsevered Pneumothorax Adhesions C R Schonbeck—p 729
- *Symptomatology and Diagnosis of Primary Pulmonary Cancer A Sattler—p 730
- Studies on Number of Living Organisms in Tubercle Bacillus Culture Chin kuk Choun—p 746
- Estimation of Pulmonary Volume in Bilateral Pneumothorax A J Anthony and C Mumme—p 755
- Protective Vaccination Against Tuberculosis in Guinea Pigs K Rupilius—p 758
- Simple Method for Detection of Catarrhal Changes or of Bubbling Rates in Lungs V Kairiukschis—p 764

Primary Pulmonary Cancer—Sattler stresses the polymorphism of pulmonary cancer, which becomes manifest not only in the pathologic-anatomic but also in the symptomatologic aspects. Occasionally the cancer presents the symptoms of an attack of pneumonia, in other cases those of a chronic, lobular infiltration, particularly of the upper lobe, and in still others it appears under the aspects of a pulmonary abscess or simulates pulmonary gangrene. There are also cases in which the cancer presents itself with the symptoms of a pleural exudate, in which case one may speak of a pleural form of pulmonary cancer. The hemorrhagic character of the exudate is particularly suggestive of cancer, especially in the absence of a tuberculous etiology, and a high degree of coagulability is also indicative of cancer. Pulmonary cancer may present the symptoms of a mediastinal tumor, if the primary tumor remains small and the mediastinal metastases present an intensive growth. Finally, it may manifest itself with the symptoms of a fibrous ulcerous phthisis. In addition to these symptomatologies, pulmonary cancer may appear with slight or indefinite symptoms on the part of the respiratory organs. In the diagnostic methods it is advisable to differentiate between those that definitely establish cancer and those that have only a character of probability. A definite proof of the presence of cancer is the demonstration of tumor cells in the pleural exudate in the sputum or in the material obtained by exploratory excision. Bronchial cancer may be detected by bronchos-

copy. The author discusses the significance of bronchostenosis and of intrathoracic compressions. After discussing bronchography, he gives a statistical report of the symptomatology of fifty-seven cases. He points out that the condition is much more frequent in men than in women and that it occurs most often during the fifth, sixth and seventh decades of life. He gives the frequency of the various locations of pulmonary cancer.

Dermatologische Wochenschrift, Leipzig

97 1807 1891 (Dec 30) 1933

Leukocyte Formula and Comparative Data in Psoriasis in Estonia. A Paldrock and A. Pooman—p 1807

*Investigations on Primary Manifestation of Gonococci. Preparation of Correct Picture and Simple Culture Method. J. Szilvasi—p 1811

Treatment of Gonorrhea in Posterior Urethra with Swelling Suppositories Containing Silver. C. Carrié—p 1817

Demonstration of Gonococci and Simple Culture Method.—Szilvasi shows that the examination of a fluid secretion that is obtained after the urethra has been flushed with the urine is more satisfactory and reliable than the examination of the thick pus. To obtain the material for microscopic examination, the author lets the patient urinate and then inserts a platinum loop into the anterior portion of the urethra and obtains a secretion that is readily spread out. After staining according to Gram's method, a striking picture is seen. Between monocytes and isolated threads of mucus, the gonococci are found in peculiar arrangements, in the form of coils, of clusters or of wreaths or caps. The fact that an intensely stained zone surrounds the individual gonococcus enhances the peculiarity of the picture. Illustrations show that, if the specimen is obtained as the author described it, the gonococci always occur in large quantities and in the characteristic groups and the author thinks that it cannot be doubted that this is the primary manifestation of the gonococcus for the microscopic picture obtained from the pus drop cannot be compared with it. He lists the advantages of the one and the disadvantages of the other method. He shows that this method of obtaining the specimen of the urethral secretion is advantageous also for the culture of the gonococcus, which used to be rather difficult when the thick pus was used. He applies the secretion to the culture medium not in streaks but in dots and then finds the gonococci on the margin of the dots. The fact that in the pus the majority of gonococci are either destroyed or impaired and that the phagocytic leukocytes contain other microorganisms is probably the reason why the demonstration and culture are less successful when thick pus is used than when the secretion is used as the author obtains it.

Deutsche medizinische Wochenschrift, Leipzig

59 1915 1942 (Dec 29) 1933

Choroiditis. Visual Disturbance and Duration of Life. L. Heine—p 1915

*Acroangrene in Malaria. E. Zimmermann—p 1916

*Postdiphtheric Facial Paralysis with Facialis Phenomenon. H. Seckel—p 1918

Actinomycosis of Neck. H. Barth—p 1920

*Treatment of Anemias with Own Blood After It Has Been Irradiated with Ultraviolet Rays. C. Fervers—p 1922

Adams Stokes Syndrome as Result of Severe Toxic Myocardial Weakness. Tellgmann—p 1923

Intracardial Injection. W. Nipperdey—p 1924

Family Care for Patients with Mental Disturbances. Adam—p 1924

Establishment of Photographic Studio with Simple Means. W. Thomsen—p 1927

How to Use Roentgen Film Frames for Development of Roll Films. W. Thomsen—p 1929

Objectivation in Examinations for Medical Insurance. W. Rink—p 1930

Acroangrene in Malaria.—After reviewing a case from the literature, in which gangrene of the toes set in after a malarial infection, Zimmermann relates a case of his own observation. Because of mental aberrations and the positivity of all syphilitic seroreactions in the blood and the cerebrospinal fluid, the patient was inoculated with tertian malaria. The course of fever was of a mixed tertian type. After the sixth attack of chills a decrease in the blood pressure became noticeable, the maximal pressure going under the 100 mark. The pulse became soft and the patient's condition declined noticeably. The skin and mucous membranes became pale, and after the tenth attack of chills the lower portions of the nose and the outer margins of the ears became cyanotic. The tip of the

nose and a portion of the cartilaginous nasal septum became necrotic and fell off. The left helix recovered, while on the right helix a suppurative development on the basis of the tissue impairment, and small portions of the tissues were cast off. The gangrenous process was accompanied by a severe anemia, the erythrocytes going below the two million mark. On the basis of tests and of the earlier history of the patient, the author thinks that the gangrene was of the vasoneurotic type. He points out that patients may become greatly weakened by malaria treatment. This may be due to a greater virulence of the malarial strain or to the lack of resistance in the patient. Patients with low resistance and those who have aged prematurely are particularly in danger. A labile sympathetic nervous system, by way of the vasomotors, may impair the vessels and may lead to trophic disturbances, particularly of the extremities. The reduction in the blood pressure may have been a contributory factor in the development of the gangrene, and for this reason the author recommends that it should be carefully controlled in the course of malaria therapy. Disregarding the cosmetic impairment, the patient has considerably improved.

Postdiphtheric Facial Paralysis.—On the basis of observations on 330 cases, Seckel was able to corroborate the frequent appearance and disappearance of the facial phenomenon in all forms, but particularly in the severest forms of diphtheria. The incidence was about like that reported by Borrino (16 per cent). Unilateral facial paresis, however, is much rarer after the generally bilateral pharyngeal diphtheria. The author observed it only four times (once without preceding facial phenomenon) in 330 cases (1.2 per cent), but this percentage is high in view of the fact that other authors observed not a single case in still larger materials, and another one only fifteen in more than 6,000 cases. Three of the cases of postdiphtheric facial paresis with the facial phenomenon, which were observed by the author are reported. In the first two cases the facial phenomenon was at first negative, and in the third case it was positive on the third day. The severity of the phenomenon varied in the three cases from a slight twitching of the corner of the mouth to a twitching of the entire half of the face. The facial paresis was of course absent in all three cases during the first stage and a complete facial paralysis did not develop in any of them. The mild form of facial paresis became manifest only in the course of emotional excitements (laughing, crying and so on), but in the severe forms it could be perceived by a lay person even when the face was calm. The author differentiates three stages in the course of postdiphtheric facial neuritis. 1 The initial or irritative stage, during which the facial phenomenon is positive on both sides. Pains may develop on the side that later develops a paresis. 2 The preparietic stage, during which the facial phenomenon that during the first stage had become positive becomes weakened or negative on the side that later becomes paretic. On the contralateral side, the Chvostek sign remains unchanged or increases. The first two stages last from sixteen to twenty-six days. 3 The paretic stage. On the side on which the facial phenomenon has become weakened or negative, the paresis develops. The Chvostek sign of this side occasionally is positive, irrespective of the paresis. The facial phenomenon of the other side may become weaker or entirely negative. This signifies a return to normality. If, after from two to six weeks, the facial paresis disappears, the Chvostek sign is negative on both sides.

Treatment of Anemias with Irradiated Own Blood.—Fervers studied the effect of ultraviolet irradiation of the blood on animals and human subjects. His first experiments were made with a quartz tube that was inserted into the vascular system and irradiated while the blood passed through it. When this procedure was followed, the blood was hardly at all influenced and another method was adopted. The blood (20 cc.) is withdrawn from the vein of the arm and is mixed with a 5 per cent solution of sodium citrate in a ratio of 1:4. In a sterile petri dish it is exposed for from five to ten minutes to the light of a quartz lamp at a distance of from 20 to 30 cm. This irradiated blood is then injected intramuscularly. The result is that the erythrocyte values increase considerably, much more than is the case after simple autohemotherapy. Intravenous reinjections have the same effects as the intramuscular ones. In persons with normal erythrocyte values the increase

produced with the injection of irradiated blood was 0.7 million. In patients with subnormal erythrocyte values (secondary anemia) the increase was greater, averaging 1.2 millions. The increase was unusually rapid. It was noticeable after half an hour and reached a maximum in from three to four hours. This maximum persisted for from one to two days, after which time there was a decrease. However, repeated injections always drove the values up again, so that in a patient in whom great loss of blood had reduced the erythrocytes to 1.4 millions a normal status of 4.8 millions was reached after three injections in the course of two weeks. The general condition of the patient improves together with the blood status. In the action mechanism of the injections of irradiated blood the spleen seems to play an important part, for in the absence of the spleen there was practically no increase in the erythrocytes. Animal experiments seemed to indicate that the injection of irradiated blood not only increases the number of erythrocytes but also prolongs their life. The author had only limited experience with primary anemias, but he noted a favorable effect on lymphatic leukemia and on pernicious anemia in the few cases he observed. Other diseases in which he observed favorable effects from injections of irradiated blood were exophthalmic goiter and asthma.

Wiener klinische Wochenschrift, Vienna

46 1569 1600 (Dec 29) 1933

- Review and Outlook on Development of Pathologic Chemistry E Freund—p 1569
Biochemical Urinary Analysis E Freund—p 1574
Influence of Radium on Intestinal Carcinoma Acid E Freund and G Kammer—p 1576
*Utilization of Freund-Kammer's Vaccination Reaction for Diagnosis of Carcinoma G Kammer—p 1576
Chemistry of Fertilization E Freund—p 1578
*Simple Method for Demonstration of Photodynamic Substances in Urine A Perutz and B Lustig—p 1579
Influence of Various Diets on Tar Carcinoma of Mice E. Freund and B Lustig—p 1580
Determination of Dissolving and Protective Capacities of Cerebrospinal Fluid Toward Carcinoma Cells (Freund-Kammer's Reaction) B Lustig—p 1581
Deficiency of Ereptic Ferments and Agglutinins in Urine in Septic Conditions and Their Prognostic Significance E Freund and R Radna—p 1582
Therapeutic Use of Normal Agglutinin and Erypsin in Septic Disturbances E Freund and R Radna—p 1584
Simple Instrument for Determination of Turbidity E Freund—p 1586
Use of Freund-Kammer's Intracutaneous Test in Carcinoma of Skin A E Klein—p 1586
Characterization of Bacterium *Coli* Strains Occurring in Intestine of Carcinoma Patients A E Klein—p 1587
Oxidoreduction of Cancer Tissues A F Ladeck—p 1589

Freund-Kammer's Cutaneous Reaction for Diagnosis of Carcinoma—Kammer calls attention to this method, which is essentially an intracutaneous vaccination with the carcinoma fatty acid that is extracted from the intestinal contents. It was first described in 1931 and since then has been corroborated by several other investigators. This paper reports the result of the test on 261 patients in whom the presence of carcinoma had been established histologically, and on 176 persons without carcinoma. Of the first group 252 gave a positive reaction, that is, the result of the test was correct in 96.5 per cent of the cases. Of the 176 persons without carcinoma, 150 gave a negative reaction, that is, in this group the reaction was 84.8 per cent correct. Denk, who is one of those who have tested the reaction, thinks that the positive reactions in persons without carcinoma (15.2 per cent) may indicate a predisposition to carcinoma.

Demonstration of Photodynamic Substances in Urine—Perutz and Lustig point out that the demonstration of photodynamic substances in animals and plants made it appear probable that certain disorders in animals and in human subjects are of photodynamic origin. To this group of diseases, in which the action of light could be demonstrated, belong the buckwheat exanthem of white cattle and of sheep and the clover disease in human beings, hydroa aestivale, Hutchinson's summer prurigo, several other photodermatoses and perhaps pellagra. In hydroa aestivale porphyrin could be demonstrated as the photodynamic sensibilizer, while in the other disorders the nature of the photodynamic sensibilizer is not yet known. The elimination of the photodynamic sensibilizers takes place largely through the urine. In hydroa aestivale the porphyrin

or porphyrinogen can be demonstrated by means of the spectro-scope. It was the authors' aim to find a simple method for the demonstration of photodynamic sensibilizers in the urine, irrespective of their nature. They consider the direct demonstration of a photodynamic action as the simplest means. For this purpose they utilized the influence of light on photographic, glossy, daylight paper saturated with the urine that is to be tested. Two strips of this paper, which are identical in size (26 cm.), are half immersed into the urine to be examined and into the control urine. The control urine should have the same color as that which is to be tested, and a similar specific gravity. After one minute, both strips are taken out and exposed to light (sun or quartz lamp). As soon as the non-immersed portion of the paper has become browned, the light exposure is interrupted and the colors of the papers are compared. It was found that the urine which contains a photodynamic sensibilizer always produces a darker coloration. In order to avoid mistakes, it is essential that the patients do not receive medicaments (acriflavine hydrochloride, for instance) that would cause the passage of fluorescent substances into the urine.

Zeitschrift für klinische Medizin, Berlin

126 197 372 (Dec 21) 1933

- Problem of Bismuth Diuresis F Kisch—p 197
*Influence of Natural Saline Baths Containing Carbon Dioxide on Subpapillary Venous Plexus of Skin Clinical Observations on Acrocyanoses A Benatt and L Honighaus—p 202
Behavior of Rest Carbon in Blood in Malignant Tumors K Vost—p 230
*Causes and Symptoms in Hemolysis and Hemoglobinuria K Bingold—p 233
*Gastrointestinal Flora in Pernicious Anemia H Otto—p 265
Circulation and Respiration in Pulmonary Tuberculosis Clinical Remarks Preliminary Remark R Cobet and G von der Weth—p 292
Id Electrocardiogram in Patients with Pulmonary Tuberculosis G von der Weth—p 296
Id Irregularities of Heart Beats in Patients with Pulmonary Tuberculosis R Cobet and G von der Weth—p 318
Id Skin Condenser and Acetonitrile Test in Patients with Toxic Forms of Pulmonary Tuberculosis R Cobet and Marie Loeffler—p 330
Id Valsalva's Tests in Patients with Pulmonary Tuberculosis G Apitz—p 336
Id Work Tests in Patients with Pulmonary Tuberculosis H von Pein—p 341
Id Blood Gases in Patients with Pulmonary Tuberculosis R Cobet and G Apitz—p 361

Acrocyanoses—Benatt and Honighaus show that the dilated subpapillary plexus, in which there exists stasis and which is present in mottling of the skin and other forms of acrocyanosis, has a functional relation to the circulation. They studied the action on acrocyanosis of saline baths containing carbon dioxide, for it is known that carbon dioxide saline baths produce a circumscribed hyperemia, increase the velocity of the circulation, counteract the stasis and empty the aneurysmatically dilated plexus. This means that the blood in the conditioned depots becomes mobilized and that there is an increased discharge into the veins. And it is a fact that during carbon dioxide baths the venous pressure is greater and that the blood supply of the right heart is increased. In a patient who had an extended naevus flammeus, natural, cool, carbon dioxide saline baths effected paling and even a temporary disappearance of the nevus. In a number of patients with acrocyanosis a temporary cure of the local disturbances was obtained. This improvement persisted in some instances for two years. The authors do not mention these therapeutic results of carbon dioxide saline baths in order to recommend them as the only therapeutic measure but hope that they will be the starting point for further studies. In order to find the effect that is actually produced by the carbon dioxide saline baths, the authors made tests to exclude temperature and other factors.

Causes and Symptoms of Hemolysis and Hemoglobinuria—Bingold points out that the causes of hemolysis and of hemoglobinuria have not been completely explained as yet. He detected a new cause for hemolysis, namely, severe contusions of the muscles and the soft parts. The question whether in these cases the hemolysis is due to toxins that are formed in the course of resorption of the destroyed tissues could not be definitely answered. Myogenic influences most likely play a part. Observations on a case of blackwater fever, on horses

with hemoglobinuria and on cases of paralytic hemoglobinuria seem to indicate this. Even in puerperal gas bacillus sepsis, it could be assumed that the lesion of the uterine musculature is the cause of the severe toxic effect on the blood, but absence of hemolysis in the severest muscular destruction, in gas gangrene, militates against this theory. The author points out that hemoglobinuria may lead to an obliteration of the renal filter, to anuria and to complete renal insufficiency. Investigations revealed repeatedly that there are two toxic actions that attack the blood pigments, one separating the hemoglobin from the erythrocytes and the other attacking the blood pigment itself. A methemoglobin formation may set in, but more frequently a hematin formation. The author thinks that many reports about chemical intoxications, which relate only a methemoglobin formation, are erroneous and probably due to the fact that the methemoglobin band and the hematin band are close together. But if the blood or serum is reduced with ammonium sulphide, the characteristic hemochromogen band will appear which shows that it must have been hematin. A pure methemoglobinemia was hardly ever observed, but if hematin is present this is a sure indication of a pathologic process. Thus there are conditions of hemolysis that are accompanied by disintegration of the blood pigments but there are also conditions in which only a hematinemia indicates a pathologic process in the blood. The latter is the case in pernicious anemia in which hematinemia aids in the differentiation from other anemias. If, in case of hemoglobinuria, hemolysis and hematinemia concur the presence of hematin often persists for several days after hemolysis has subsided, which indicates that either the action of the toxin has not yet ceased or that the hematin has not yet been eliminated. This could be proved in two cases of gas bacillus sepsis and in some patients with contusions of the muscles and the soft parts. Hemolysis alone was often observed in hemoglobinuria that developed in intoxication following infusion of heterologous blood. All factors of intoxication (hemolysis, hemoglobinuria, hematuria, methemoglobinemia) were observed in the patients with gas bacillus sepsis, but also in cases of tissue destruction. Perhaps the most significant symptom detected by the author in hemolytic processes with subsequent hemoglobinuria was that the blood pigment which has passed the kidney and is eliminated in the urine has lost its catalase. Since however, catalase provides the protection for the blood pigment against peroxides the unprotected hemoglobin is decomposed into an iron free substrate.

Gastroduodenal Flora in Pernicious Anemia—Otto studied the bacterial flora of specimens of the gastric and duodenal contents of patients with pernicious anemia. He found mainly strains of *Bacillus coli* particularly the serogenic strains, and various types of streptococci. He describes the different strains, their appearance and their behavior toward solutions of dextrose, lactose, mannitol and maltose, also in trypsin bouillon, milk and various culture mediums and their hemolytic or anhemolytic character. By repeating the tests in the course of the treatment, it was determined what influence the therapy exerts on the gastroduodenal flora. The author thinks that pernicious anemia is caused by an insidious, chronic gastroenteritis and its sequels. This gastroenteritis may originate in the stomach and spread to the small intestine, or it may commence in the small intestine and then involve the stomach. If such an inflammation is not stopped, it leads to achylia with atrophy of the gastric mucosa, and all forms of achylia, irrespective of their origin, finally lead to pernicious anemia. The author discusses the action mechanism of the various therapeutic methods recommended for pernicious anemia such as liver, liver preparations, stomach extracts, intestinal extracts, gastric juice and meat, gastric juice and vitamin B and others. He discusses the nervous disturbances and their pathogenesis. He concludes that pernicious anemia is a deficiency disease of bacterial (*coli*) origin with lack of synergism between the gastroduodenal hormone and vitamin B. For the diagnosis it is important that besides the usual symptoms of pernicious anemia a pathologic coliflora be demonstrated in the upper intestinal tract. In the treatment care should be taken that in addition to the hormone-vitamin therapy, a modification of the coliflora be effected, for here lies the danger of relapse.

Svenska Lakaresällskapets Handlingar, Stockholm

50 233 267 (No. 4) 1933

*Investigations on Sugar Content of Cerebrospinal Fluid W. Mascher —p. 233

Considerations on Curability of Hereditary Psychoses H. von Simon-Himmelstjerna —p. 266

Sugar Content of Cerebrospinal Fluid—Mascher examined 289 punctures made in 133 cases. He says that a constant reduction in the sugar content of the cerebrospinal fluid supports but does not establish the presence of a meningitic process. Increased sugar content does not allow diagnostic conclusion. Increased values are infrequent in encephalitis, are occasionally seen in cases of increased brain pressure, and were found in six out of seven cases of thrombosis and cerebral embolism. There is no 'normal' sugar value in the cerebrospinal fluid while most well persons have a sugar content of from 45 to 75 mg per hundred cubic centimeters, similar values are often found in definitely pathologic cases. The sugar content in the cerebrospinal fluid rises and falls with the blood sugar but lags behind it both in the rising and in the falling curve. The degree of rise or fall of the sugar in the cerebrospinal fluid depends on the duration of the hyperglycemic or hypoglycemic condition respectively. The cause of the lagging is not known. The fall in the sugar values of the cerebrospinal fluid usually depends on glycolysis through bacteria or leukocytes but other still unknown causes must be present in some cases. Cerebrospinal fluids without bacteria and leukocytes show no glycolysis. In purulent meningitis the height of the sugar depends directly on the number of cells. Variations in the sugar content of the cerebrospinal fluid afford no indications as to prognosis.

Ugeskrift for Læger, Copenhagen

95 1329 1350 (Dec. 14) 1933

Treatment of Narcotic Intoxications with Twenty Five Per Cent Solution of Pyridine Betacarboxylic Acid Diethylamine C. Clemmesen.—p. 1329

*Pernicious Anemia Disappearing After Removal of Adenoma of Stomach N. R. Christoffersen —p. 1331

Treatment of Narcotic Intoxications—Of sixty seven cases of intoxication and two of collapse in which massive injections of a 25 per cent solution of pyridine betacarboxylic acid diethylamine were given fifty-six mainly grave intoxications through narcotics were treated intravenously, and thirteen milder cases, intramuscularly. Clemmesen reports six cases in which favorable and lasting effects were obtained from the treatment. Sixteen patients died at once from the poisoning. The treatment was without effect in seven cases. In the majority of the cases the action was favorable but sometimes only temporary. No unfavorable by effects were seen.

Pernicious Anemia Disappearing After Removal of Adenoma of Stomach—In Christoffersen's case the disorder appeared as a pernicious anemia and reacted favorably to liver treatment. Roentgen examination on the occurrence of hematemesis one and a half years after onset of the disorder showed a gastric tumor on removal found to be a broad based tumor with polypous surface and pronounced vascularization. The microscopic structure was that of adenoma. Two years after operation the patient continues well.

95 1351 1372 (Dec. 21) 1933

Allergic Eczemas H. Haxthausen —p. 1351

Chemistry of Estrin H. Nielsen —p. 1357

Clinical Investigations on Ether Soluble Acids in Blood with Especial Regard to Relations in Disturbances of Heart O. Bang —p. 1360

*Aorta Insufficiency with Peculiar Complications Case F. Schönheyder —p. 1365

Aorta Insufficiency and Complications—In Schönheyder's patient, a man aged 38, with transitory hemiplegia of the left side and syphilitic aortitis, the pulse was comparatively strong in the right carotid artery and small and soft in the left carotid. Marked abuse of tobacco is regarded as the probable cause of the hemiplegia. A syphilitic endarteritis with pronounced narrowing of the lumen in at least the right subclavian artery is thought likely with stricture either at the place of origin of the left carotid and left subclavian artery or in the further course of the artery.

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PYLORIC OCCLUSION FOLLOWING THE INGESTION OF CORROSIVE LIQUIDS

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BALTIMORE

The drinking of corrosive liquids whether acids or alkalis is not an infrequent occurrence. Usually done accidentally, it is, however, an occasional method of attempted suicide. The results of this violent insult to the walls of the upper digestive tract vary tremendously. Between the minor ulcerations in the mouth and pharynx of the individual who realized his mistake or lost his nerve and the major lesions in the esophagus and stomach are seen many examples of what injury the irritating fluids can inflict. Probably the earliest report of a gastric lesion from such a cause is that of Robert¹ in 1828, whose patient had swallowed sulphuric acid and died after nine weeks. Postmortem examination revealed no pathologic changes in the esophagus, but there were ulcerated areas in the cardiac end of the stomach and the pylorus was markedly contracted. By 1902 Quenu and Petit² were able to collect eighty-four references for their comprehensive article on the subject, these references consisting for the most part of case reports from the early French literature. Additional reports have been published at intervals coming from many parts of the world. In America however, the subject has received comparatively little attention. The report of Boikan and Singer³ indicates, nevertheless, the frequency of the condition, for in less than a year and a half they encountered at the Cook County Hospital five instances of late gastric stenosis following the ingestion of corrosives.

The commercial acids—hydrochloric, sulphuric and nitric—are among the agents most commonly reported as being used. Lye so often swallowed by Negro children, and to lime are less common. The parts of the upper digestive tract show a varying susceptibility to the corrosives and it has further been demonstrated that the various chemicals have a selective action, some differing from others in the regions which they are prone to attack. From an examination of museum specimens and a review of the records, Moynihan⁴ concluded that the parts most affected are the lips and mouth, the pharynx and the first inch or more of the esophagus, the lower end of the esophagus immediately above the cardiac orifice and the pylorus and pyloric

antrum.

So far as the stomach is concerned, the worst injury is inflicted on the pylorus but in severe cases the whole mucous membrane may be affected. Elscher⁵ states that the hydrochloric acid tends to concentrate its effect on the pylorus. A strong solution of sulphuric acid on the other hand, has in several instances caused early death by perforation as soon as it reaches the stomach. Although the lye has been reported as giving gastric lesions and leaving the esophagus unscathed, there seems little question that in the majority of instances it has a distinct predilection for the esophagus and finally produces dense scarring in that region. Many instances of concomitant stenosis of the esophagus and stomach are on record and these have recently been classified into several types by Rochet and Barbier⁶. To conceive of a corrosive liquid traversing the esophagus without apparent injury only to inflict a severe lesion on the stomach, demands a call however slight on the imagination. But such a condition frequently exists as illustrated by the case of Vinson and Harrington⁷ with multiple gastric strictures from formaldehyde. Samaja⁸ in his comprehensive article contributes an explanation on the basis of the tetanic contractions set up in the gastric wall. These serve to concentrate the corrosive liquid at the pylorus and to retain it there. The result is an ulceration of varying depth at that point. Frequently, a more generalized gastritis occurs. The extent of the gastric lesion may well be influenced by the degree of fulness of the stomach, an empty stomach being more apt to suffer a diffuse irritation.⁵ The resulting slough of the mucous membrane continuing for days or weeks accounts for the foul quality of the gastric contents in these patients.

If only the mucosa is ulcerated healing will swiftly follow and the individual will again be well. But this is the exception rather than the rule. Most often the submucosa and the muscular layers are involved also, and these in the pyloric region. The final and characteristic pathologic change occurring weeks or months later is the formation of a dense cicatricial mass at the pylorus. With the development of this mass, obstruction comes *pari passu*. Descriptions of this tumor by various authors are interesting and quite typical. Moynihan has likened the antrum and pylorus to a normal uterus and cervix, "the walls are thick and unyielding the cavity small." He quotes Mr. Keetley as comparing it with 'a small sausage' and in another case stating that there was 'thickening and very tight

From the Surgical Service of the Union Memorial Hospital.
1 Robert. Bull. Soc. med. de Paris 1828, p. 6.
2 Quenu, E. and Petit, J. Des ténos cicatricielles du pylore consécutives à l'ingestion de liquides caustiques. Rev. de chir. 27, 51-67, 1902.
3 Boikan, W. C. and Singer, H. A. Gastric Sequelae of Corrosive Ingestion. Arch. Int. Med. 46, 147-157 (Aug.) 1930.
4 Moynihan. Berkeley. Abdominal Operations, ed. 4 Philadelphia W. B. Saunders Company, 1, 342-344, 1928.

5 Elscher, E. Pylorusstenose hervorgerufen durch Aetzsauren und Aetzlaugen. Zentralblatt f. Chir. 50, 165-169 (Feb. 3) 1923.
6 Rochet, L. and Barbier, J. Sténose cicatricielle oesophagienne et pylorique à la suite d'une ingestion de liquide caustique. Lyon chir. 24, 405-408 (July-Aug.) 1927.
7 Vinson, I. P. and Harrington, S. W. Cicatricial Stricture of the Stomach Without Involvement of the Esophagus Following Ingestion of Formaldehyde. J. A. M. A. 97, 917-918 (Sept. 21) 1929.
8 Samaja, M. Le sténose cicatricielle del piloro secondarie ad ingestione di caustici. Riforma med. 16, 202-206 (Feb. 10) 1930.

structure of the pylorus" Samaja⁹ has termed the swelling "cartilaginous" and Oeding⁹ described it as a "tumefaction" of the thickness of two thumbs." In all these instances, pyloric obstruction was present. Halstead¹⁰ has reported a case in which the lower two thirds of the stomach was "a mass of firm tissue without any cavity," and Nikolas' case¹¹ presented the typical "hour-glass" deformity. Histologically, this mass represents a replacement of the normal layers by fibrous tissue. This fibrous tissue the result of chemical injury, hypertrophies into a thick, dense scar. Quenu¹² described a section in his case as showing the mucosa entirely replaced by a thick layer of fibrous tissue that was intimately mixed with the muscle bundles, especially the internal ones. As the region of the serosa was approached, the musculature became more normal and there was a proportionate reduction in the fibrous tissue.

The early symptoms after taking the poison are necessarily acute. An intense burning, often most marked in the mouth and pharynx is present. A reflex vomiting is shortly set up and may persist for days, and a varying degree of shock is to be observed. Death may ensue in a few hours, as in the case of Chavigny and Laborde,¹³ but not from pyloric obstruction. Blood is often to be found in the vomitus and stools arising from any point along the path of the caustic. For some days food is poorly tolerated and the appetite fails. But after a short period improvement sets in and as in the case of Bruce,¹⁴ the patient may return to his work. Not entirely well, he hopes for daily improvement, which, in milder cases, comes. But in the patient destined for obstruction, symptoms shortly supervene. Quite striking is the observation that the interval between the ingestion of the corrosive substance and the onset of acute obstructive symptoms in the large majority of instances is in the neighborhood of four weeks. This indicates that the mass of scar tissue in

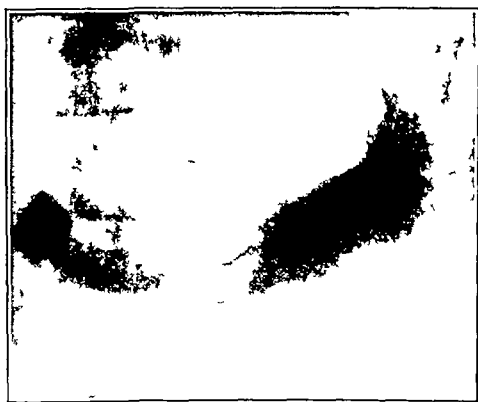


Fig. 1—Appearance interpreted as showing a mild gastritis five days after acid was taken.

the stomach wall previously described must form and enlarge quite rapidly. Some of the early reports are striking exceptions. Obstruction overtook Ortman's

patient¹⁵ five years later, and the patient of Dujardin-Beaumetz¹⁶ succumbed six years after taking the poison.

Loss of appetite and a sense of epigastric fulness usher in his second stage. As the obstruction progresses, intractable vomiting ensues and the patient may not even retain water. When the obstruction has been present for some days the signs of extreme gastrectasis may be elicited. The acid values of the gastric



Fig. 2—Marked narrowing of pyloric antrum twelve days after acid was taken.

contents decline, and the roentgenographic evidence of pyloric obstruction becomes indisputable. If relief of the obstruction is not shortly obtained, extreme emaciation, acidosis and death may follow.

The only effective treatment for such an obstruction is surgical. Historically² there have been four methods of attack used in this condition, namely, dilation of the pylorus, resection of the involved area, pyloroplasty and gastro-enterostomy. Little can be said in favor of the manual dilation of the pylorus (Loreta's¹⁷ method), and although it was tried in England by White and Lane¹⁸ it soon fell into disrepute because of the poor results and has been abandoned in modern times. Resection of the pyloric mass was done early in Germany by Czerny¹⁹ and by Mikulicz²⁰ and has been reported more recently by Routier²¹ and by Putnam²² in this country. Schmieden²³ advises against it because of the difficulty he has experienced in suturing the damaged layers of the stomach wall. In the light of present knowledge such a radical procedure seems unjustifiable unless there is difficulty in differentiating the lesion from a malignant one. Pyloroplasty was likewise practiced in Germany. Mikulicz²⁴ in 1887 performed such an operation on a young woman who

9 Oeding H. Ein Fall von Pylorusstenose nach Salzsäureverätzung. Zentralblatt f. Chir. 53: 397-398 (Feb. 13) 1926.

10 Halstead A. E. Pyloric Obstruction Following Sulphuric Acid Poisoning. Surg. Gynec. & Obst. 26: 360-361 1919. Surg. Clin. Chicago 1: 495-498 (June) 1917.

11 Nikolas. Zentralblatt f. Chir. 52: 2075 (Sept. 12) 1925.

12 Quenu E. Sténose du pylore par ingestion d'acide chlorhydrique. Bull. et mem. Soc. de chir. de Paris 32: 632-634 1906.

13 Chavigny and Laborde. Empoisonnement par l'acide sulfurique. Ann. de med. leg. Paris 3: 111-116 (Jan. 15) 1923.

14 Bruce H. A. Pyloric Occlusion from Sulphuric Acid. Ann. Surg. 92: 897-899 (Nov.) 1930.

15 Ortman. Casuistischer Beitrag zur operativen Behandlung der narbigen Pylorusstenose. Deutsche med. Wchnschr. 15: 172-174 1889.

16 Dujardin-Beaumetz. Sur un cas de retrecissement fibreux du pylore. Bull. et mem. Soc. med. d. hop. de Paris 19: 10-14 1887.

17 Loreta. La divisione digitale del piloro etc. Memorie dell'Accademia dell' Scienze dell' Instituto di Bologna 4: Feb. 11 1884.

18 White W. H. and Lane W. A. Stricture of the Pylorus Following upon Hydrochloric Acid Poisoning. Brit. M. J. 1: 409 (Feb. 21) 1891.

19 Czerny V. Beitr. z. klin. Chir. 9: 661 1892.

20 Mikulicz J. Bericht über 103 Operationen am Magen. Arch. f. klin. Chir. 51: 9 1896.

21 Routier. Sténose cicatricielle du pylore suite de brûlures. Presse med. 21: 184 1913.

22 Putnam C. R. J. Excision of the Pylorus for a Stricture Due to the Ingestion of an Acid. M. Rec. New York 87: 332 1915.

23 Schmieden. Zentralblatt f. Chir. 52: 2075 (Sept. 12) 1925.

24 Mikulicz J. Zur operativen Behandlung des stenosierenden Magengeschwüres. Arch. f. klin. Chir. 37: 79-90 1888.

had swallowed a large quantity of vinegar, and Bardeleben²⁵ a few years later did a successful pyloroplasty of the Hemeke-Mikulicz type on a young girl who had had a stenosis of long standing. But Schmieden's objection has held good and no reports of pyloroplasty in recent years have been discovered. This leaves gastro-enterostomy as the most satisfactory method of relieving the obstruction. Credit for the first operation of this type has been given to Monastyrski²⁶. Since that time it has been performed many times and has proved to be the simplest and safest operation. Among many others, the cases of Halstead¹⁰ and Walther²⁷ were treated by gastro-enterostomy.

Frequently however, the patient is too ill for such a major procedure and the minimum is the most that can be done. In such a case, jejunostomy for feeding must be resorted to. This method proved to be a life-saving measure in the first case reported by Kanno and Seian²⁸ and in the case reported by Bruce¹⁴. Noetzel²⁹ has advised it, particularly for hydrochloric acid poisoning. When a complicating obstruction is present in

to a delay on the part of the patient in presenting himself for treatment or to a tardiness on the part of the physician in recognizing the true state of his condition and in giving him prompt surgical attention.

REPORT OF CASE

A. E. G., a man, aged 55, was brought to the accident room of the Union Memorial Hospital, Feb 17, 1932. A few minutes previously he had swallowed, with suicidal intent,



Fig 4—Marked gastric retention six hours after figure 3 was taken

approximately 2 ounces (60 cc) of commercial hydrochloric acid, obtained in a paint shop. He had also been drinking. The acid had nauseated him violently and he was vomiting when he reached the hospital. Occasionally the vomitus was

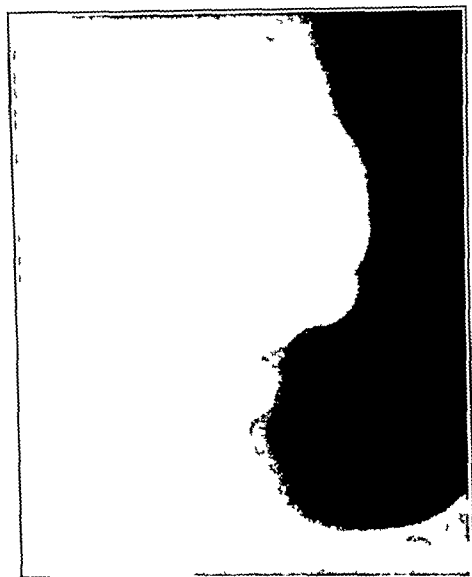


Fig 3—Almost complete obstruction with similarity to carcinoma twenty three days after acid was taken

the esophagus, jejunostomy feedings must be continued until the esophagus has been sufficiently dilated to admit the necessary nourishment. Gastro-enterostomy may then be performed. The case of Vinson and Hartman³⁰ emphasized the difficulties in recognizing a pyloric obstruction when attention is being directed toward the treatment of dense esophageal strictures.

The prognosis after swallowing caustic liquids is good in the individual who has survived the immediate shock, provided he gets prompt surgical treatment when needed. As in any other benign obstruction relief must be had promptly. The high mortality rate that has existed in past years can be largely attributed either

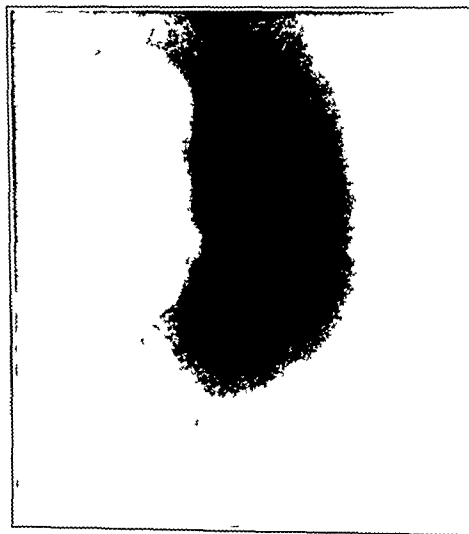


Fig 5—Pyloric obstruction unchanged two months after gastro-enterostomy. Anastomosis functioning satisfactorily

²⁵ Bardeleben cited by Koehler A. Zur chirurgischen Behandlung der malignen Pylorusstenose. Berl klin Wchnchr 38: 876 1890.
²⁶ Monastyrski N. D. Jeschenedel'naja klinicheskaja Gazeta 1911 1884 abstr Zentralbl f Chir 11: 352 1884.
²⁷ Walther C. Stenose aigue complete du pylore. Bull et mem Soc de chir de Paris 40: 736 738 1914.
²⁸ Kanno H and Seian L. Two Cases of Pyloric Stenosis Caused by Strong Acids. Taiwan Ikaaku Zasshi 30: 28 (March) 1931.
²⁹ Noetzel Zentralbl f Chir 32: 2073 2075 (Sept 12) 1925.
³⁰ Vinson I P and Hartman H R. Pyloric Obstruction Due to Swallowing Solution of Concentrated Lye. M Clin North America 8: 1037 1040 (Jan) 1925.

blood. His mouth and pharynx were quite irritated and he was having cramplike abdominal pains. A large tube was passed and his stomach was lavaged with milk and a solution of sodium bicarbonate. He was then admitted to the hospital under the care of the resident physician, Dr H W Primakoff. On admission the temperature, pulse and respirations were normal. The blood pressure was 116 systolic, 68 diastolic. Apart from the irritation of the mouth and pharynx, the gen-

eral physical examination was negative. The laboratory data revealed that the urine was dark red, was acid in reaction, and showed a specific gravity of 1.012, albumin two plus, and a trace of sugar. There was no acetone, but an occasional granular cast was seen microscopically. The red blood cells numbered 4,550,000 and the white blood cells 9,400, with a normal differential count. The concentration of hemoglobin was 84 per cent (Sahli).

Improvement was steady, although his throat remained quite sore. February 26, he vomited about 250 cc of old blood. There was no further vomiting. As the formation particularly of a stenosing lesion in the esophagus was feared fluoroscopic and roentgen examinations were made. February 22. Reports by Dr C. A. Waters and Dr W. B. Frior were to the effect that (fig 1) there was no esophageal obstruction, the gastric rugae were only moderately hypertrophied and the appearance would indicate a mild gastritis, but there was no evidence of an ulcerated lesion. A week later, February 29, the report

the patient had taken acid. At six hours there was marked gastric retention.

In view of the patient's symptoms, which were gradually becoming aggravated and in view of the startlingly progressive changes noted in the roentgen studies exploration was decided on. He was prepared for operation with a sterilized liquid diet and daily sterile gastric lavages. I performed laparotomy, March 15.

There was found at the pylorus a definite mass measuring approximately 4 cm in diameter, which was causing almost complete obstruction and involved a portion of the antrum. The mass was covered with many small dilated blood vessels and was firm but not fixed. I concluded that the lesion was of an inflammatory nature rather than neoplastic. The regional mesenteric glands were enlarged and one was removed for sectioning. Dr W. C. Merkel, the pathologist, reported it as hyperplastic, inflammatory lymphoid tissue, without evidence of malignancy. A posterior, retrocolic gastro-enterostomy was performed. Care was exercised to suture the transverse mesocolon high on the stomach. The abdomen was closed in layers without drainage. The postoperative course was uneventful except for some delayed healing of the wound. April 11, four weeks after operation fluoroscopic and roentgen examination (fig. 4) disclosed the continued presence of a large filling defect in the pylorus. All of the barium was passing through the gastro-enterostomy opening. At six hours the stomach was still about three-fourths full, indicating that the gastro-enterostomy was not functioning as well as it should. Free and rinses given the following night to determine further the degree of retention were not present in the stomach in the morning. The patient was feeling well and eating abundantly and on April 15 was discharged from the hospital. A month later May 17, roentgen studies were repeated (fig. 5) with the satisfactory observation that all the barium was passing through the gastro-enterostomy opening, the same filling defect was noted. At six hours the stomach was empty and the meal had advanced to the lower descending colon, indicating that the gastro-enterostomy was now functioning perfectly. For eighteen months after discharge he was eating at intervals continuing apparently well and free from symptoms. Late on the night of Oct. 12, 1933, while crossing the street he was run down by a truck and critically injured, sustaining an extensive fracture of the skull with concussion of the brain, a fracture of every rib on the left side and a fracture of the pelvis. He was brought again unconscious to the Union Memorial Hospital where despite every effort at prolonging his life he succumbed two days later, October 15.

Permission was obtained for an autopsy, which was performed shortly after death by Dr W. C. Merkel. Apart from the evidences of the recent acute trauma attention was directed especially to the stomach and its pyloric end (fig. 6). Grossly the stomach was markedly dilated, having almost twice the capacity of the normal stomach. After separation of the adhesions an anastomosis was seen between the greater curvature of the stomach and the proximal portion of the jejunum. The opening through the anastomosis was about 1½ inches in diameter. The pylorus was small, considerably constricted and quite firm to palpation. In order to test patency of the pylorus, the stomach was filled with water. None could be forced through the pyloric ring into the duodenum, indicating complete obliteration. On gross inspection there was no evidence of the presence of ulceration or new growth. The pylorus was markedly atrophic and there was a complete obliteration of the lumen. On microscopic examination of the tissue at the pylorus (fig. 7) the section at the point where the lumen was completely obliterated showed mucosa on both the duodenal and the gastric side which was atrophic. The tissue between these mucosa layers was composed of dense scar and occasional bundles of muscle. The serous surface was normal. The muscularis was considerably distorted by the fibrosis except for the outer circular layer, which was fairly well defined and regular. There was no evidence of any neoplasia.

COMMENT

The case reported is of particular interest for several reasons. In the first place, the roentgenograms illus-

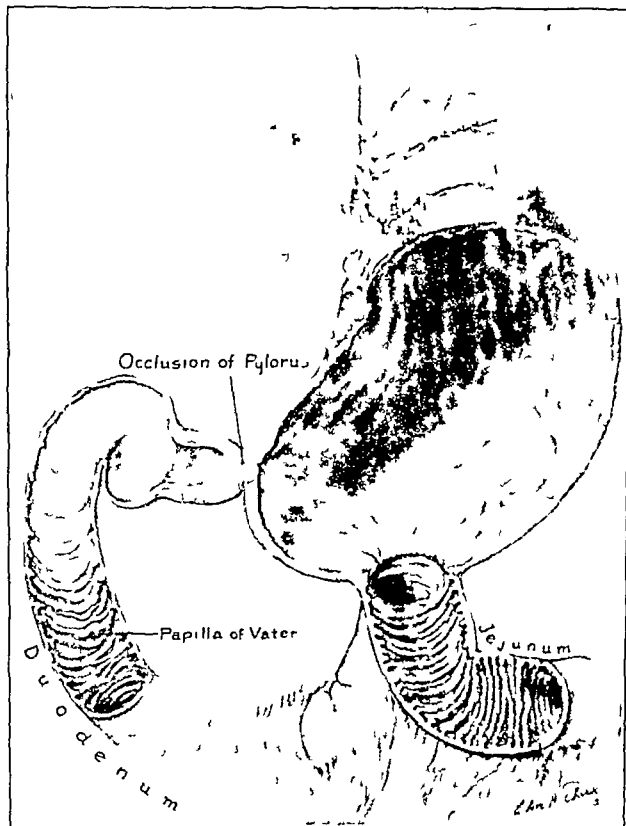


Fig. 6—Specimen removed at autopsy showing pyloric occlusion and the gastrojejunostomy. Relief from symptoms was obtained for eighteen months until death from automobile accident.

was that (fig. 2) there was no evidence of stricture formation in the esophagus. The pyloric antrum was narrowed considerably and presented a type of filling defect which, if the patient had not imbibed hydrochloric acid recently, would suggest a scirrhus carcinoma. Occult blood had been found repeatedly in the stools until March 3, on this and the following day there was no blood. The patient was allowed to go home, much improved, March 5.

At home he experienced more abdominal pain but had no difficulty in swallowing. There was some nausea but no obstructive vomiting. Fluoroscopy was carried out again on March 8 with results similar to those at the previous examination and interpreted as being even more suggestive of a malignant condition. The patient was then readmitted to the hospital. Gastric analysis March 10, revealed no free hydrochloric acid and a total acidity of 10. A roentgenogram (fig. 3) taken the following day showed the filling defect previously noted, still present and somewhat more accentuated. It seemed to be most likely due to a carcinoma in spite of the fact that

trate in a striking fashion the stages in the development of the pyloric occlusion and the relief therefrom as it was actually observed in this patient. The similarity of the roentgen observations to those in carcinoma of the stomach has already been noted by Putnam.²² Even at the operating table he was unable to distinguish the mass from a malignant one and consequently resected it. It appears that only the history of taking poison and the rapid change in the shadow (if it be consecutively followed) and not any inherent quality in the shadow itself will enable the roentgenologist to distinguish the two. No evidence has been found to show that there exists any tendency toward subsequent malignant change in stomachs thus affected. There is emphasized here the value of following carefully, over a period of months, any individual who has swallowed a corrosive substance. Particularly important are the roentgen observations, for by means of them one may anticipate the obstructive symptoms. In the case reported, operation was decided on largely on the basis of accompanying pictures before the man-

ture of the stomach and the pylorus, combined lesions may occur.

3 The typical pathologic change is the formation of a mass of fibrous tissue in the stomach wall at the pylorus, which eventually leads to obstruction.

4 The early symptoms are acute but usually subside. After an interval of four weeks or longer, obstructive symptoms may occur. When pyloric obstruction is diagnosed, surgical treatment should be prompt.

5 Operative methods employed have been dilation of the pylorus, resection, pyloroplasty, gastro-enterostomy or, when required, jejunostomy. Gastro-enterostomy is the method of choice.

6 In the case reported, hydrochloric acid was swallowed, with a resulting pyloric obstruction. Gastro-enterostomy was performed with good result. Particularly interesting were the roentgenograms depicting the development of the lesion and its relief by surgery.

7 The roentgen studies are the most important single aid in determining the nature of the lesion and in anticipating the symptoms.

8 Careful observation of such a patient, and early diagnosis of obstruction, will lead to prompt treatment and a good result.

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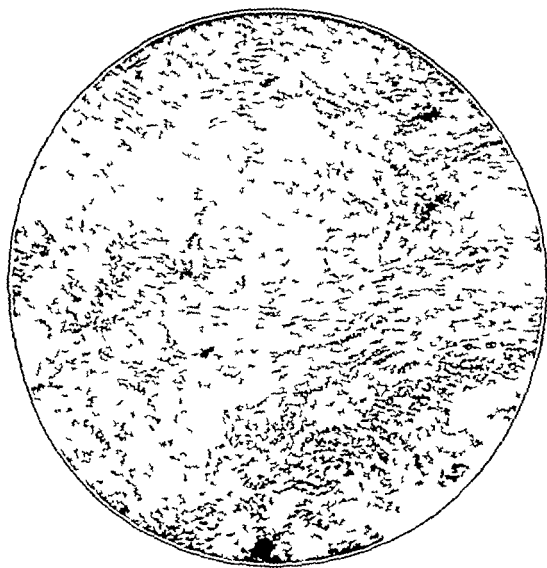


Fig 7.—Section from pyloric region showing normal musculature replaced by extensive fibrosis. $\times 30$

started vomiting. The consequence of the careful observation and early diagnosis is that the treatment will be infinitely more satisfactory. The physician in charge can know accurately the patient's status, proper preparation for operation can be carried out and the most appropriate operation can be performed. Truly difficult in diagnosis and treatment is the group of cases in which there exists obstruction simultaneously in the esophagus and in the stomach.

The examination of the postmortem specimen in this case eighteen months after the successful relief of the obstruction by surgery illustrates the fact that the cicatricial mass at the pylorus may decrease markedly in size but that the stenosis shows no evidence of alteration. Indeed the lumen would appear to be more firmly and completely obliterated with the passage of time.

SUMMARY AND CONCLUSIONS

1 The commercial acids and lye are the agents which when swallowed, most commonly cause obstructive lesions of the upper digestive tract.

2 The areas most likely to be affected are the upper and lower portions of the esophagus, the lesser curva-

MALIGNANT MELANOMAS ARISING IN MOLES

REPORT OF FIFTY CASES

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READING, PA

AND

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The term "melanoma" is given to any abnormal collection of melanin-pigmented cells whether in the skin, in the eye or elsewhere. Malignant melanomas embrace tumors of widely diversified histologic structure.

Malignant melanomas may occur in many situations, the skin, the mucous membrane and the eyes are the most common sites. Rarely the meninges, ovary, epididymis and gallbladder may be involved. As a rule, malignant melanomas arising on the skin originate in pigmented moles or nevi, although there are many authentic cases on record in which melanomas have started at the sites of puncture wounds and in the absence of any apparent congenital abnormality.

Rare origins of malignant melanomas are the blue nevus of Jadassohn and the Mongolian spot. The Mongolian spot is a bluish lesion found in the sacral region. These lesions contain melanin and are devoid of nevus cells. When malignancy develops it is of a sarcomatous nature. Another source of malignant melanoma, nevocarcinoma, is the so-called malignant freckle (lentigo maligna, melanose circumscribed precancerous-Dubreuilh, infective melanotic freckles-Hutchinson). These are pigmented spots appearing usually on the face, mostly in old people.

Clinically, pigmented nevi are classified as hard and soft. Hard nevi are acanthotic and keratotic non-nevus cell tumors, essentially pigmented papillomas, are clinically irregular, warty masses, with a pedicle or a broad

base, or are flat lesions with a rough, papillary surface. They are of a hard consistency and never contain hair. When this type of nevus becomes malignant, it gives rise to squamous epitheliomas.

It is the soft nevi (benign melanomas) that are concerned in the development of malignant melanomas. Histologically, they are characterized by the presence of the "nevus" cells. They are represented clinically as pigmented spots of variable size or as nodular warts, pedunculated, papillary lesions that are soft and often wrinkled, like raisins, or linear or diffuse. They frequently contain hair.

The origin of the "nevus" cell has been the subject of much controversy, which concerns whether this cell is of epithelial origin or stands in genetic relation to the corium.

Masson¹ and Foot² believe that pigmented nevi are nervous, not dermal, tumors, arising from the cells of

histologic structure (1) the melanocarcinoma, (2) the melanosarcoma, (3) the melano-endothelioma and perithelioma. A fourth type is often classified as melanofibrosarcoma. Many tumors fail to come within this classification, presenting in various parts features suggesting each of the several types, and are classified as transitions.

TRANSITION FROM BENIGN TO MALIGNANT MELANOMA

Malignant change in moles may occur at any age of life. While cases in the literature have been reported in patients as young as 6 months⁴ and in others as old as 84 years, still melanoma is essentially a disease of middle life. In our series of fifty cases herein reported, the ages ranged from 17 to 75 years, with an average age of 49 years. This compares with an average of 47 years in 646 cases that we have compiled from the literature, notably including series reported by Boulay,⁵ Gleave,⁶ Cooke,⁷ Amndon,⁸ Coley and Hoguet,⁹ Broders and MacCarty,¹⁰ Hazen,¹¹ and Farrell.¹²

Malignant melanomas occur more frequently in males. In our series there were twenty-nine males and twenty-one females. In 582 cases gathered from the foregoing authors, 52.75 per cent were males and 47.25 per cent were females.

The malignant melanoma is essentially a disease of the white race. Comparatively few cases have been reported in the Negro, and of these the majority have occurred on the unpigmented sole. Mention may be made of the cases reported by Gilchrist,¹³ Wieting and Hamdi,¹⁴ Sutton and Mallia,¹⁵ and Dickson and Jarman.¹⁶

In our series, malignant melanoma occurred in the white race forty-four times and in the colored race six times, one patient being a mulatto. This incidence of melanoma in the Negro may be explained by the prevalence of Negroes treated at the Philadelphia General Hospital.

Malignant melanomas are more likely to develop in moles situated in certain portions of the body. Areas of predilection are the head and lower extremities, particularly the feet. In our fifty cases, the melanomas were distributed as follows: on the face, seven cases; neck, four; trunk, thirteen, of which eight were on the back and shoulders; upper extremities, six; but tocks, thigh and leg, ten; feet, eight; penis, one; and perineum, one. In 598 cases that we analyzed from the literature (Gleave,⁶ Cooke,⁷ Coley and Hoguet,⁹



Fig. 1.—Malignant melanoma in a man aged 50 of two months duration. After one month it started to bleed. The first symptom was elevation of a dark brown lesion which existed for two years. Prior to its increase in size the patient applied daily for two months a tar (?) ointment which burnt the lesion.

the sheath of Schwann. According to these authors, the new growths lie directly in the course of the terminal branches of the cutaneous nerves and are therefore closely related to neurofibromas.

According to Becker,³ the nevus cell question per se is not so important in a consideration of malignant melanoma, since the neoplasms probably do not arise in nevus cell nests but always from melanoblasts at the epidermodermal junction, or from dermal melanoblasts of the blue nevus.

In line with the several theories of the origin of the nevus cell, malignant melanomas arising from moles fall into three general types according to his-

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Stevenson,¹⁷ Broders and MacCarty,¹⁰ Hazen,¹¹ Dawson,¹⁹ Matras,¹⁸ Horwitz²⁰ and Farrell,¹²) malignant melanomas developed from moles located as follows on the head, 16.5 per cent, neck, 7.7 per cent, trunk, 15.5 per cent, genital and anal regions, 2.7 per cent, and foot, 52.3 per cent.

A comparatively rare localization is in the nail bed or nail fold, so-called melanotic whitlow (Hutchinson). It is characterized by its rapid metastasis, intense pigmentation and breaking down of the regional lymph glands. It resembles the ordinary inflammatory whitlow, excepting that the region of inflammation is surrounded by a very fine black border. A fungating lesion soon develops with loss of the nail and involvement of the regional lymph nodes.

Malignant melanomas may arise in either flat or elevated moles. In our series the moles were recorded in the histories as macular, eleven cases, nodular, six cases, warty, two cases, pedunculated, two cases. In twenty-nine cases the type of mole was not mentioned.

It is generally considered that the black or bluish black mole is dangerous. However, it is evident that melanomas may develop in less deeply pigmented nevi. In twenty-seven of our cases, distinct mention was made of the color of the antecedent mole as follows: black, five cases, black and hairy, one case, brown-black, one case, dark brown, five cases, brown, fourteen cases, flesh colored, one case. In the remaining twenty-three cases the color of the antecedent mole was not recorded.

THE RÔLE OF TRAUMA

The relation of trauma to malignant change in moles has been stressed by many writers. Gleave⁶ reported a history of trauma in four out of twenty-two cases, Amadon,⁸ in eleven out of twenty-seven cases, Coley and Hoguet,⁹ seventeen out of thirty-six cases, of which fourteen were attempts at removal, Stevenson,¹⁷ all of fifteen cases on the feet of Hindus, Hazen,¹¹ six out of seven cases, and Farrell,¹² in thirty-two cases in a total of 159 malignant melanomas arising in moles. Dawson¹⁹ likewise stressed the frequency of slight trauma or mechanical irritation as etiologic factors.

Correlation of trauma with the onset of malignancy has been too remote in many of the reported cases to ascribe to trauma an etiologic role.

In our series of fifty cases there was a history of trauma in thirteen cases. In two of these thirteen cases the history suggested onset of malignancy prior to removal of what was regarded as a benign melanoma. In ten cases, or 20 per cent of the series, it was reasonable to ascribe to trauma an etiologic role in the occurrence of malignant melanoma.

Change in the appearance of the mole, which may be the first symptom of malignancy, frequently motivates its removal. Malignant melanoma appearing subsequently may be a local recurrence rather than a primary malignant growth.

It is not possible to prove that a malignant condition appearing after trauma is not a coincidence. It is reasonable to ascribe, however, an etiologic role to trauma in such reported cases and in our series, as, for example,

a nail in a shoe irritates a mole, the top of a mole is cut off with a razor, attempts are made to strangle a mole with a thread, or an injury causes ulceration that fails to heal. In these cases an isolated or repeated injury was followed in orderly sequence by ulceration and growth of the mole without a long interval of quiescence during which trauma was not applied.

SYMPTOMS OF MALIGNANT MELANOMA

Increase in size is perhaps the first evidence of change from benign to malignant melanoma. Increase in pigmentation usually appears at the same time or soon thereafter. Bleeding is a frequent symptom but may not occur until some months after increase in size and increased pigmentation. Bleeding is accompanied by superficial ulceration, the floor of which is covered with a hemorrhagic crust.

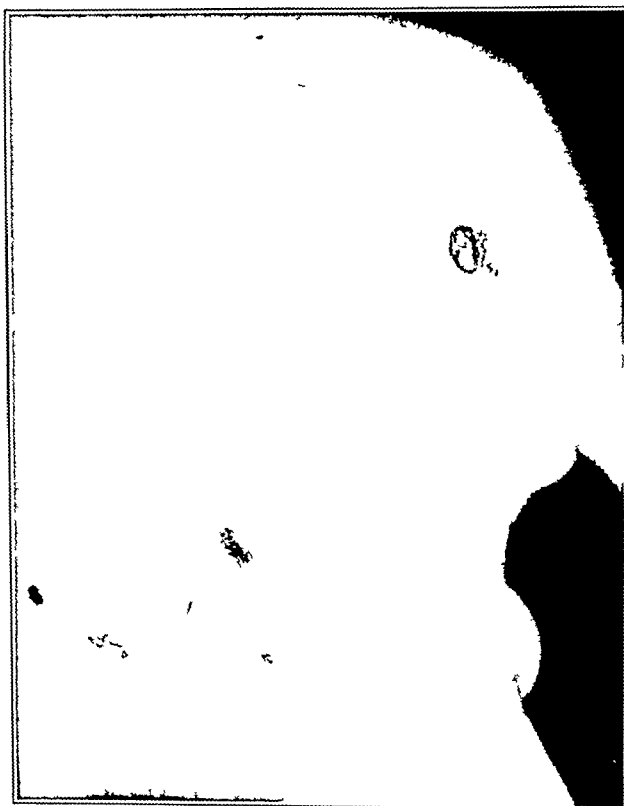


Fig 2.—Benign and malignant melanomas in woman aged 63. For about twenty-five years she had scattered dark brown flat macules (moles) on the back. Five months before the picture was taken the upper right one which the patient said was always blacker than those on the lower part of the back became elevated and more pigmented; bleeding first occurred three weeks before. The adjacent axillary lymph nodes were enlarged. Treatment consisted of wide excision with the endotherm knife and intensive treatment with high voltage to the operative site adjacent regions and right axilla.

Increase in size is manifested as an elevation of the entire patch (fig 1) or one portion of it (fig 2). This elevation soon assumes the appearance of an infiltrated plaque or nodule (fig 3). The formation of a solitary nodule in one portion of the benign lesion, or in its entirety (fig 4), may be the first evidence of increase in size. In this event other nodules soon appear, so that a lesion is formed composed of varying numbers of grouped nodules (fig 5). Frequently satellite nodules develop a short distance from the periphery of the main patch or lesion (fig 6). Excessive enlargement of the primary lesion, invariably presented as a fungating mass, is not the rule. In such an event,

17. Stevenson W. H. D. Malignant Melanomata Especially Those Occurring on the Heel and Sole of the Foot. *Indian J. M. Research* 3: 166, 1915.

18. Matras A. Ein Beitrag zur Klinik und Therapie der Melanome. *Wien. klin. Wchnschr.* 45: 1038 (Aug. 19) 1932.

19. Dawson J. W. The Melanomata Their Morphology and Histogenesis. *Edinburgh M. J.* 32: 501 (Oct.) 1925.

20. Horwitz A. Melanotic Tumors Nonmelanotic Melanomas and Their Relation to the Melano Epitheliomas. *Ann. Surg.* 91: 7 (June) 1930.

metastasis is usually delayed. Conversely, in primary lesions that remain the same size or show slight growth, metastasis usually occurs early. It appears that a malignant growth is expended outward as excessive growth, or inward as metastasis.

Increase of pigmentation is not uniform, portions of the original lesion may vary in color from sepia to slate color or coal black (fig 6). Considerable of the primary lesion may retain its original color (fig 3). Increased pigmentation, presenting a coal black appearance (fig 7), is the rule and is a striking symptom of malignant melanoma.

Satellite spots of pigmentation (fig 7), sepia or coal black, may appear, or they may occur in sprallike fashion. The latter is more commonly seen as a local recurrence after removal of the primary lesion. Occasionally one is able to see fine pigmented radiating

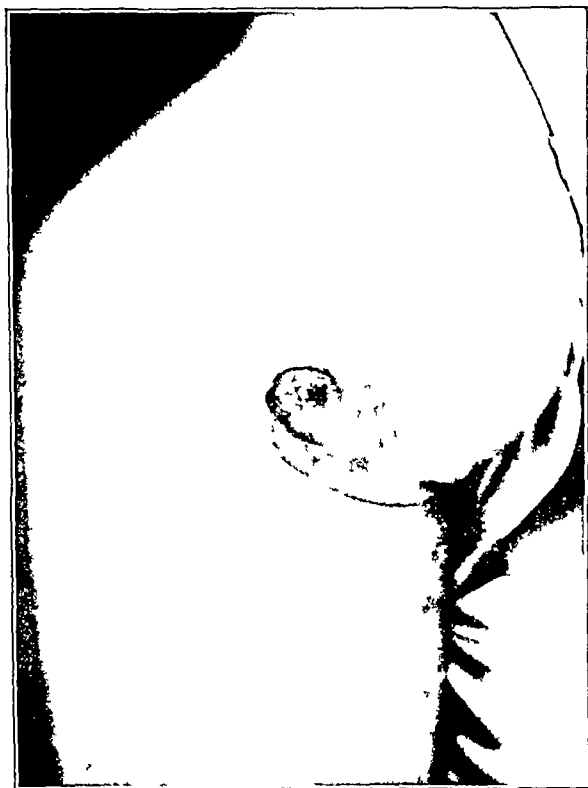


Fig 3.—Malignant melanoma in a man aged 56. It appeared at the site of a pigmented patch that existed for years. Six months before it had reached the stage shown here, at one portion of the patch a firm dark brown nodule appeared which superficially ulcerated and oozed blood.

projections extending into the adjacent normal skin. At times, areas of pigmentation may develop at places remote from the primary lesions. In patients with melanoma, the skin may assume a bronze appearance or a slate blue simulating argyria.

Exceptionally, increase of pigmentation precedes enlargement of the mole. This is more characteristic as a first symptom of malignancy in the so-called malignant freckle. In one of our cases, increase of pigmentation preceded increase in size of the mole by nine months.

Bleeding usually occurs as oozing. Staining of the linen first attracts the patient's attention to this symptom.

Ulceration, other than that accompanying bleeding, has not been conspicuous in our series. Ulceration is

more common after injury, in this event it heals only temporarily.

The history of a pigmented lesion or "birthmark" is not essential. The presence of such a lesion is extremely probable, although many patients state that they were unaware of its presence. When the history of such a lesion is given, its duration varies from birth to different periods thereafter.

The first symptoms may be remote from the primary lesion. Ewing and other writers have emphasized the apparently innocent histologic and clinical characters of certain moles that have given rise to metastasis. The primary lesion may be only slightly pigmented with no increase in size. Indeed enlarged glands may be the first conspicuous symptom, the primary lesion being so small that it is overlooked. In Horwitz's⁹ patient the presenting symptoms were generalized cutaneous nodules and enlarged inguinal nodes that appeared three years after a surgical excision of a small mole on the leg. There was no recurrence at the healed scar. In our series there were a few cases in which the initial symptoms were systemic caused by generalized metastasis, the primary lesion being so insignificant that it was overlooked. In one case the primary lesion was first discovered at postmortem examination.

Melanuria, or the occurrence of melanogen or melanin in the urine, has been regarded as pathognomonic of melanoma. Its occurrence has been reported however, in the absence of malignant melanoma, as in hepatic cirrhosis or subacute hepatitis.

As a summary of early diagnosis it may be stated that increase in size with increase of pigmentation and bleeding is a grave syndrome that justifies clinical diagnosis of malignant melanoma. Late additional evidence is enlargement of the regional lymph nodes. Histologic examination is, of course, conclusive. It should be emphasized that cutting into a suspected malignant melanoma to obtain a section for histologic examination is a dangerous procedure, unless at the same time the entire lesion is destroyed or removed in the manner discussed under treatment. When any pigmented lesion enlarges, becomes inflamed or irritated or changes appearance or, as Hutchinson stated, "becomes aggressive," beginning malignancy should always be considered. With these symptoms however, histologic examination is necessary to make the diagnosis with certitude.

We can appropriately quote the admonition of Hutchinson,²¹ written in 1894:

It is surely quite needless to point out that the only proper treatment of an inflamed or irritated mole is immediate and free excision. On no account should any temporizing measures be permitted. The patient's only chance of safety consists in excision of the whole thickness of skin with a very wide margin. It is much to be desired that all members of the profession should have their minds fully alive to the features presented by these cases and the terrible results of loss of time. It is in the hope of impressing this lesson that I have thought it worth while to publish this portrait.

METASTASIS

The spread of the malignant cells of a melanoma may occur (1) locally by direct extension, (2) by the lymphatics to the regional lymph glands or (3) by invasion of the blood stream with generalization of the disease. The histologic features of the secondary growth vary greatly and they may be nonpigmented.

21 Hutchinson J. Melanosis from Moles. Arch Surg 5: 125, 1894.

nonmelanotic malignant melanomas. Metastatic growths may involve any organ but more especially the liver and lungs.

TREATMENT

Many of the older writers, notably Dupuytren, Velpeau, Cruveilhier and Virchow, taught that treatment of any kind was of little or no value and advised no

operation for removal of the regional lymph nodes. The average interval between the time of excision and recurrence was two years, the longest, ten years, and the shortest, two months.

Our experience has substantiated the observations of Farrell that the expectancy of life is shorter after surgical excision of the lymph nodes than after intensive roentgen therapy.

We believe that the choice of treatment of malignant melanoma is not roentgen or radium therapy or surgery alone but a combination of such treatment. Early diagnosis and treatment are of vital importance. Unfortunately there is considerable delay before the patient reports or is referred for proper treatment. Since microscopic examination of a primary malignant melanoma reveals invasion of the lymphatic structure for about 3 cm. beyond the border of the lesion, excision should include a margin of at least this dimension of apparently normal tissue. We believe excision is best accomplished by means of electrosurgery and should be carried deep enough to include the fascial covering of the muscles.

Following excision, heavily filtered high voltage roentgen therapy should be applied without delay to the operative site as well as to the lymphatics draining this area and the regional lymph nodes. Such treatment should be repeated. The amount of treatment should, of course, be within skin tolerance. With such

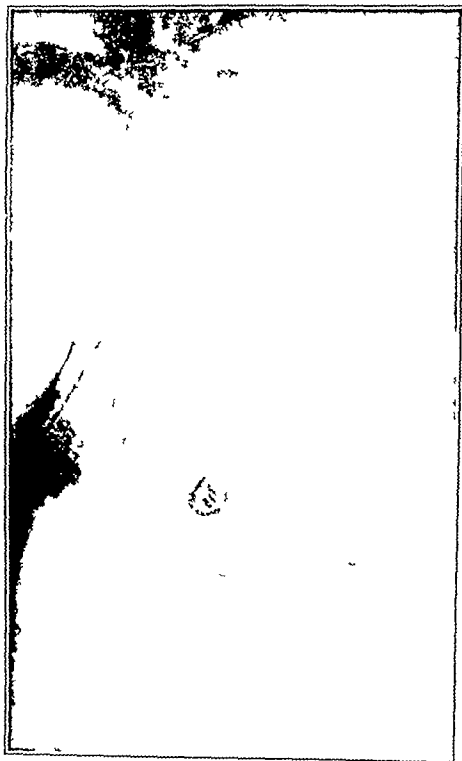


Fig. 4—Melanosarcoma in a Negro aged 50. The lesion was light brown and firm to touch. Its duration was two months. The patient was not cognizant of any previous mole.

treatment. It is well known that surgical removal is sometimes followed by rapid generalization and early death. On the other hand, Czerny, Dietrich and Wagner long ago advocated wide extirpation of the melanoma. Later, surgeons advised in addition to such removal a careful dissection of the nearest lymph nodes, whether palpably enlarged or not. More recently, X-rays and radium have been employed. It should be noted that at times rapid generalization of the melanoma occurs after roentgen therapy, also the initial appearance of melanin in the urine.

Operative removal of the malignant melanoma is frequently followed by recurrence at the site of excision. Amadon⁸ reported local recurrence in 33 1/3 per cent of twenty-seven malignant melanomas arising in moles. Farrell¹² reported local recurrence in 30 per cent of 265 cases of cutaneous melanomas. In these cases the average interval between the time of excision and the appearance of new lesions in and around the scar was two years, the longest interval was fifteen years, the shortest, three weeks. In our series there was a local recurrence in 20 per cent of the forty cases we were able to trace. In each instance the primary lesion had been removed by means of the scalpel.

It is important to note that in Farrell's series there was local recurrence in the regional lymph nodes in 18 per cent of the cases in which the patient had an



Fig. 5—Malignant melanoma in a woman aged 42. It first appeared as a black spot eighteen months before the pigmented nodules shown here which disappeared following the application of radium. Cutaneous metastasis without local recurrence occurred eighteen months after radium treatment. The patient died three years after the radium treatment and fifty-five months after the first symptoms. (Courtesy of Dr. Bernard Widmann.)

roentgen therapy, whether the regional lymph nodes are enlarged or not, we are not convinced of the wisdom of surgically removing them. If such an operation is performed we believe it should be done only after preliminary roentgen treatment.

In malignant melanoma situated on a portion of the body that can be amputated and if seen early, certainly before enlargement of the regional lymph nodes, amputation should be given serious consideration. If amputation is performed, roentgen therapy should be applied to the areas and in the manner stated in the foregoing.

In our series we were able to trace forty cases. Of these, death occurred in twenty-six in an average of two years and seven months after the first appearance of malignancy in the mole. In our two most rapidly progressive cases, death occurred in seven and nine months, respectively. Fourteen patients are still living, in eight of whom the duration of malignancy has been less than three years. In the remaining six patients the duration has been more than three years ranging from 41 months to 101 months. The eight patients still living less than three years will not be considered in the analysis of the result of treatment of the remaining thirty-two patients.



Fig 6—Malignant melanoma in a woman aged 57, as it appeared two years after the first symptoms of malignancy which were elevation of the patch, increase of pigmentation, appearance of nodules and bleeding. The melanoma was deeply pigmented and elevated. Its surface was studded with black nodules, some of which extended beyond the margins of the main patch. It appeared at the site of a dark brown patch which existed at birth. Generalized metastasis and death occurred thirty-two months after the first symptom of malignancy.

Excision of the inguinal lymph nodes in one case and the application of radium to the original growth in another case were shortly followed by widespread metastasis. In two cases in which excision of the melanoma was done with roentgen therapy to the site of excision and over the regional glands such roentgen treatment was delayed for a number of months after excision.

PROGNOSIS

Generalized metastasis is usually stated to occur in an average of three years from the first symptoms of malignancy in the primary growth. In Dawson's series it took place earlier than this in most cases. Our records show that generalized metastasis occurred in an average of twenty-five months. However, there is great variation in the rapidity of development of visceral metastasis. In two of our cases there was gen-

eral metastasis after four months, and in a third case after nine months. On the other hand, some patients show marked resistance to the extension of the disease, as in two fatal cases in which generalization did not occur until after fifty-four months.

The duration of life after the onset of a malignant condition is variable. In Hazen's patient, generalized metastasis and death took place within six months of onset of the malignant condition. A malignant growth in this case followed injury to a mole, whereas in Watson's patient generalized metastasis and death occurred twelve years after onset of the malignant condition.

The majority of patients succumb within three years after the onset of the malignant condition, the minority, within three to five years. Relatively few live longer than five years. Of twenty patients with malignant cutaneous melanoma, only two were living five and seven years, respectively, after the onset of the malignant condition. In one patient, generalized metastasis and death occurred ten years after onset. Dittich's²² series embraced thirty-nine patients, of whom 92 per cent died within five years. One patient was still living nine years after the onset of the malignant condition. Coley and Hogue⁹ reported an average duration of life in twenty-eight patients to be two years and eight months, with extremes of nine months and six years.

Analysis of Thirty-Two Cases of Malignant Melanoma

No. of Cases	Survived 3 Years	Comment
10	7	Excision of melanoma & rays to site of excision & regional glands
6	3	Excision of melanoma alone
3	0	Excision of melanoma and lymph nodes
1	0	Excision of melanoma and lymph nodes with roentgen follow up
1	0	Excision of melanoma & radium to nodes
2	1	Radium to melanoma alone
1	0	Rays to melanoma alone
8	1	No treatment at all

It becomes apparent that the prognosis of malignant melanoma is grave. Do all patients with malignant melanoma eventually succumb as a result of their disease? One finds in the literature reports of patients who are living and are without evidence of metastasis at variable periods after removal of the malignant melanoma. Such reports have a limited interpretation as to cure, since metastasis to the regional lymph nodes occurred eight years (Müller's²³ case) and twenty years (Eve's²⁴ case) after the onset of the malignant condition, and general metastasis and death after twelve years (Watson's²⁵ case). This remarkable latency in the development of visceral metastasis is more characteristic of intra-ocular melanoma. The prognosis of intra-ocular melanoma is better than that of malignant cutaneous melanoma.

The nearest approach to cures that we have been able to find in the literature embraces the following reports. The patient whose case was reported by Chauvin²⁶ and later by Mourgue-Molines²⁷ was 28 years of age when

22 Dittich quoted from Frankenthal. I. Unsere jetzige Auffassung von den melanotischen Tumoren der Haut und ihrer zweckmässigsten Behandlung. Arch. f. Klin. Chir. 166: 678-693, 1931.

23 Müller, A. Zur Kasuistik des Melanosarkoms, Wien. Klin. Wchnschr. 42: 1019 (Aug. 1) 1929.

24 Eve, F. A Lecture on Melanoma. Practitioner 70: 165-174, 1903.

25 Watson, A. P. Melanotic Carcinoma of the Great Toe Nail. Tr. M. Chir. Soc. Edinburgh 39: 46, 1925.

26 Chauvin, E. Cancer melanique repere 14 quatrieme fois vingt deux ans apres le debut clinique. Bull. et mem. Soc. anat. de Paris 91: 30, 1921.

27 Mourgue-Molines, E. M. Cinquieme recidive d'une tumeur melanique opere pour la premiere fois vingt six ans auparavant. Gaz. d. hop. 98: 970 (July 25) 1925.

a malignant melanoma on the face was first excised. During the subsequent twenty-six years, operations were performed six times for local recurrences. Metastasis did not occur. Cumming²⁸ reported the case of a man, aged 66, who had had a malignant melanoma removed from the heel. Despite local recurrence there was no metastasis after fourteen years.

In view of the long period of latency in the development of visceral metastasis, it appears that criterion of cure necessitates negative postmortem and histologic examination for evidence of malignancy. We are unacquainted with any such reports. The following case record in our series approaches fulfillment of this criterion.

A man, aged 72, had had a malignant melanoma on the lobe of the ear, which had been present for thirty-seven months before it was destroyed by electrodesiccation. Histologic examination confirmed the diagnosis. Following its destruction, intensive roentgen therapy was repeatedly applied to the side of the face and neck. Seven months after such treatment,

the patient died of cardiorenal disease. Postmortem examination showed no gross or histologic evidence of metastasis. There was no local recurrence. The regional lymph nodes were not enlarged. These nodes, however, were not removed for histologic examination.

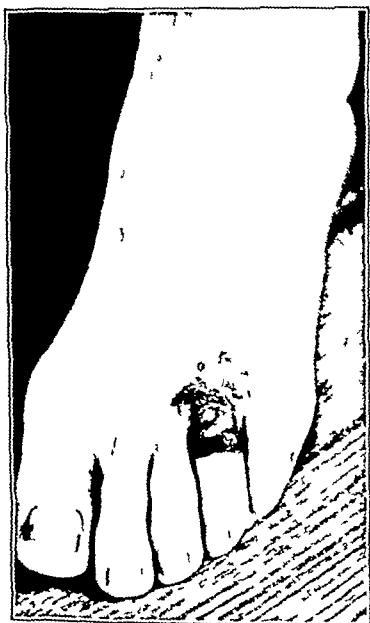


Fig 7—Malignant melanoma appearing at site of brown patch present since birth, showing coal black lesion, one portion of which is elevated, superficially ulcerated and crusted with satellite pigmented papules. It became darker one year before increased in size three months before and was first noticed to bleed about one month before it reached the stage shown here. Death occurred nineteen months after the onset of the first symptom.

moles at sites subjected to continuous irritation, others advise removal of all pigmented cutaneous lesions in order to prevent malignant melanoma. In discussion, the following considerations are pertinent. Pigmented lesions on the skin of divers appearance are extremely common, whereas the incidence of malignant melanomas is uncommon. In Folger's³⁰ study of 2,274 malignant tumors in 18,113 cadavers, twenty, or 0.89 per cent, were melanotic. Not all pigmented lesions are potentially malignant melanomas. In a histologic study by

Klauder and Saleeby of 100 pigmented lesions removed consecutively from 100 patients, 60 per cent were nevus cell tumors (soft moles).

The routine removal of all pigmented lesions in order to prevent malignant melanoma is not practical. However, it appears advisable to remove such lesions when situated on the head and feet, the most frequent sites of malignant melanomas, and to remove pigmented lesions subjected to irritation incident to such objects as razors, corsets, braces or trusses or from scratching.

The color of a mole is not a criterion of potential malignant melanoma, since unpigmented moles may become malignant melanomas, although the occurrence is exceptional.

"Thorough destruction, including healthy tissue surrounding the lesion and beneath it, by means of the electrocautery, electrodesiccation or surgical excision, affords the safest means of removing pigmented nevi. The nevus should be entirely destroyed in one operation. To treat these lesions by painting with acids, by applying carbon dioxide snow, by electrolysis, strangulation by tying a string around a pedunculated lesion, or any treatment given at short intervals, are dangerous procedures which constitute irritation and afford opportunity for malignant change. In propaganda for the control of cancer, this principle cannot too strongly be emphasized."³¹

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FATALITIES IN EXFOLIATIVE DERMATITIS

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This paper is an attempt to explain the actual mechanism of death in cases of exfoliative dermatitis. The few references in the literature explain the death as due either to septicemia or to bronchopneumonia. Although clinically the changes are compatible with a diagnosis of bronchopneumonia, it was felt that this might not be the case. This idea was strengthened in 1931, when one of us¹ reported a fatality resulting from phenobarbital. The autopsy in this case showed that the exfoliative process involved the trachea, the bronchi, the alveoli and, to a less extent, the urinary tract. Although clinically the patient presented a fairly typical picture of bronchopneumonia, the autopsy failed completely to show pneumonia. It seems obvious from the autopsy that death was actually due, in part at least, to suffocation or to anoxemia. In view of this, a survey of the literature and a review of our own autopsies have been undertaken in an attempt to study the problem further. Our chief interest lay in the cases due to arsenic but we have not limited the study to this particular group.

LITERATURE

The literature on drug idiosyncrasies is quite extensive and we prefer to limit the references to those dealing more or less specifically with exfoliative der-

²⁸ Cumming, Alexander. Melanoma of Low Grade Malignancy. Case Edinburgh M J 35 7678 (Feb.) 1928.

²⁹ Nicholson, G. W. Studies on Tumor Formation. Guy's Hosp Rep. series of paper vol. 1 to 73. 1921-1923.

³⁰ Folger, quoted from Lohrarch, D. Zur vergleichenden Pathologie der melanotischen Gewebe. Med. Klin. 16 195-199 (Feb. 22) 1920.

³¹ Klauder, J. V. Treatment of Nevi. The Hazard of Insufficient Destruction of Pigmented Nevi. Pennsylvania M J 33 472 (April) 1930.

From the Departments of Internal Medicine and of Pathology, Yale University School of Medicine and the New Haven Hospital.
1. Poole, A. K. Drug Reactions from Barbitals and Phenobarbital. Yale J Biol & Med 1 345 (July) 1929.

matitis Klauder² in 1924 summarized the various types of skin reactions following the use of intravenous arsenicals. The incidence of toxic reactions to the various arsenicals has been reported by the British Research Council Phelps³ and Cole.⁴ Toxic manifestations from the barbituric acid derivatives have been recorded by Menninger,⁵ Poole¹ and Lundy.⁶

A survey of the literature reveals the fact that the number of fatal cases reported is not large. It is reasonable to suppose, however, that there are many other cases that have not been reported. The number of cases that have come to autopsy and have been fully reported are extremely few. Only seventeen have been found. These are summarized in table I.

At autopsy case 1 (table I) showed bronchopneumonia in the right lower lobe with some pus in the bronchioles. Elsewhere the lungs were edematous. The kidneys were large and pale, the liver was pale and fatty. In case 2 (table I) the conditions found at autopsy were edema of the lungs without consolidation, a large spleen and a large pale liver. In case 3 (table I) the lungs showed several infarcts surrounded by an area of bronchopneumonia. The spleen was "inflamed" over these areas and elsewhere showed subpleural petechiae. There were numerous petechiae in the gastro-intestinal tract. Unfortunately there is no detailed description of the histologic examination.

TABLE I—Autopsies Reported in Literature

Case	Clinical Diagnosis	Lungs	Kidneys	Liver	Gastro-Intestinal Tract	Author
1	Arsenical dermatitis	Bronchopneumonia	Large and pale	Fatty degeneration		French ⁸
2	Arsenical dermatitis	Edema		Large, pale		French ⁸
	Arsenical dermatitis	Infarcts, bronchopneumonia, pleurisy, subpleural petechiae			Petechiae	French ⁸
4	Arsenical dermatitis hepatitis	Edema, emphysema		Congestion, periportal round cell infiltration		Williams and Pfluke ⁹
5	Bronchopneumonia or cardiac failure, arsenical dermatitis				Intestinal ulceration	Stoke and Cathcart ¹¹
6	Hemorrhagic enteritis, arsenical dermatitis		Pyelitis, glomerular nephritis, cystitis	Fatty degeneration	Hemorrhagic enteritis	Stämpke ¹²
7	Innephritis, arsenical dermatitis	Bronchopneumonia	Degeneration	Fatty degeneration		Riehl ¹³
8	Septicemia, arsenical dermatitis	Bronchopneumonia, desquamation of bronchial mucosa	Multiple hemorrhages		Multiple hemorrhages	Moore and Hewel ¹⁴
9	Septicemia, arsenical dermatitis	Bronchopneumonia, desquamation of bronchial mucosa	Multiple hemorrhages		Multiple hemorrhages	Moore and Hewel ¹⁴
10	Aplastic anemia, arsenical dermatitis	Bronchopneumonia, desquamation of bronchial mucosa	Multiple hemorrhages		Multiple hemorrhages	Moore and Hewel ¹⁴
11	Multiple abscesses, bronchopneumonia	Bronchopneumonia, mediastinitis, pleurisy			Peritonitis	Hays ¹⁵
12	Syphilis of the central nervous system, arsenical dermatitis, nephritis (?)	Edema, desquamation of alveolar wall	Multiple hemorrhages, tubular desquamation		Denuded gastric mucosa	Moore and Foley ¹⁴
13	Bronchopneumonia, multiple abscesses	Multiple abscesses				Helps and Washburn ¹⁶
14	Purpura hemorrhagica, exfoliative dermatitis	Bronchitis, multiple abscesses				Bowen ¹⁷
15	Mercury dermatitis, anemia, hemolytic streptococcus infection					Bowen ¹⁷
16	Bronchopneumonia, exfoliative dermatitis	Bronchopneumonia		Fatty degeneration		Bowen ¹⁷
17	Acute nephritis, exfoliative dermatitis	Bronchopneumonia, desquamation of bronchial mucosa	Acute nephritis, multiple petechiae in kidney pelvis		Multiple hemorrhages	Lundy ¹⁸

French⁸ reported three cases showing extensive dermatitis in which the exfoliative process also involved the mucous membranes of the mouth and throat. The terminal event in each case was thought to be broncho-

Williams and Pfluke⁹ reported a case (4, table I) in which death occurred one week after the fifth dose of sulpharsphenamine. A dermatitis and jaundice developed in this case. The pulmonary signs were not described. Autopsy revealed markedly congested edematous and emphysematous lungs. The spleen and liver showed chronic passive congestion and there was a periportal round cell infiltration in the liver.

Robinson¹⁰ reported thirty-three cases of arsenical dermatitis with eight deaths. No autopsies were reported.

² Klauder J. V. Clinical Aspects of Cutaneous Reactions After Arspenamine. J. A. M. A. 82: 933 (March 22) 1924.

³ Medical Research Council Report of Sulpharsan Committee 1922.

⁴ Phelps J. R. and Washburn W. A. Toxic Effects of Arsenical Compounds Employed in the Treatment of Syphilis in the United States Navy. U. S. Nav. M. Bull. 28: 659 (July) 1930.

⁵ Cole H. N., De Wolf Henry, McCuskey J. M., Miskjian H. G., Williamson G. S., Rauschkolb J. R., Ruch R. O. and Clark Tahirferro. Toxic Effects Following Use of the Arspenamines. J. A. M. A. 97: 897 (Sept. 26) 1931.

⁶ Menninger W. C. Skin Eruptions with Phenobarbital (Luminal). J. A. M. A. 91: 14 (July 7) 1928.

⁷ Lundy J. S. and Osterberg R. E. Review of the Literature on the Derivatives of Barbituric Acid. Proc. Staff Meet. Mayo Clin. 4: 386 (Dec. 18) 1929.

⁸ French E. G. Exfoliative Dermatitis Occurring During Arsenical Treatment. Lancet 1: 1262 (June 12) 1920.

⁹ Williams J. R. and Pfluke H. E. Report of a Case in Which Death Followed the Administration of Sulpharsphenamine. New York State J. Med. 29: 1071 (Sept. 1) 1929.

¹⁰ Robinson H. M. Postarsphenamine Dermatitis. South. M. J. 23: 711 (Aug.) 1930.

Stokes and Cathcart¹¹ reported a fatality (case 5, table 1) apparently due to bronchopneumonia or cardiac failure. Autopsy failed to reveal any pulmonary conditions. The colon and rectum showed extensive ulceration. In the case reported by Stumpke¹² (case 6, table 1) the patient received neoarsphenamine and mercuric salicylate simultaneously. At the end of the course of treatment, a rash appeared, then stomatitis, diarrhea and death. Autopsy showed mitral stenosis



Fig 1 (case 1)—Desquamation of alveolar lining epithelium and organizing focal pneumonia reduced from a photomicrograph with a magnification of 125 diameters

and insufficiency, hemorrhagic enteritis, pyelitis, glomerular nephritis, cystitis and a fatty liver.

In Riehl's¹³ patient (case 7, table 1) a dermatitis developed two weeks after the completion of a course of treatment consisting of a total of 27 Gm of neoarsphenamine and 10 Gm of a bismuth compound. With the dermatitis, the mucous membranes of the mouth and conjunctivae were involved, and multiple subcutaneous abscesses developed. Death occurred six weeks after the onset. The autopsy diagnosis was bronchopneumonia of the right lower lobe, fatty degeneration of the liver, degeneration of the kidney parenchyma, and degeneration of the cord.

Moore and Keidel¹⁴ reported three cases with autopsy (cases 8, 9 and 10 table 1). One of these showed aplastic bone marrow and in all the lungs showed areas of bacterial invasion without cellular exudate. In all three cases there were innumerable hemorrhages in all the organs most marked in the lungs, gastro-intestinal tract and kidneys. There was also desquamation of the mucous membranes of the bronchial tree.

A case of dermatitis complicated by abscesses (case 11 table 1) was reported by Heyn¹⁵. The autopsy revealed bronchopneumonia, pleuritis, peritonitis and mediastinitis.

Moore and Foley¹⁶ reported in detail four cases with one death (case 12, table 1). In the fatal case the

patient received seven intravenous treatments with arsphenamine and three intrathecal injections of serum. After each intravenous treatment there was malaise and usually a temperature of from 101 to 103 F. The day after the seventh treatment, the temperature rose to 103.8, chills occurred and an itching, maculopapular rash was noted. Four days later the rash had become hemorrhagic and edema of the lower extremities and genitalia appeared. The next day the liver was palpable, and the edema and desquamation were quite marked. Polyuria was present for the first ten days, then decreased to a complete anuria. A few white blood cells were present in the urine but no red cells. Kidney function tests showed a steadily increasing impairment. Death occurred on the sixteenth day. At autopsy the lungs were voluminous and showed areas of hemorrhage and granular spots. The kidneys were large and showed scattered hemorrhages on the surface and engorgement along the pyramids. In the stomach there were numerous small areas that were denuded. Microscopically, the lungs showed edema, the alveoli contained frothy, pink-staining material, desquamated epithelial cells, a varying amount of red blood cells and an occasional white blood cell. In many areas, the alveolar walls were destroyed. There was marked congestion of the kidneys, with multiple small hemorrhages. Tubular desquamation was marked and the lumens of the tubules were filled with a granular precipitate.

Phelps and Washburn¹⁷ reported four cases, only one of which (case 13, table 1) came to autopsy. On the nineteenth day, multiple subcutaneous abscesses developed. Three days later chills, a cough and signs of bronchopneumonia were noted. Autopsy showed multiple lung abscesses, but the kidneys were normal.

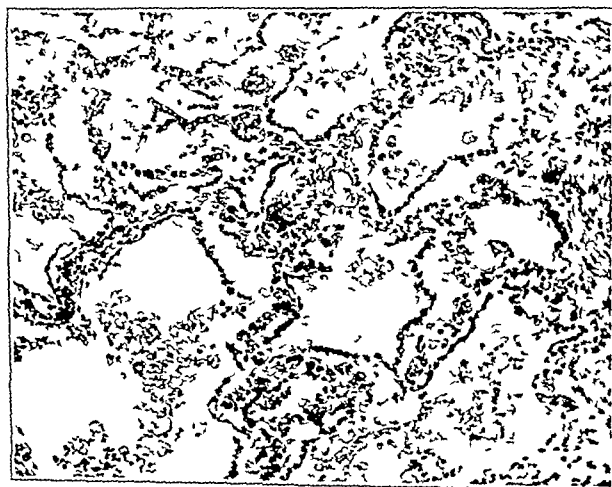


Fig 2 (case 1)—Desquamation of alveolar lining epithelium reduced from a photomicrograph with a magnification of 125 diameters

The next four are fatal cases of exfoliative dermatitis but were not due to arsenic. The first three were reported by Bowen¹⁷. His first patient (14, table 1) had had generalized pruritus for nine months and desquamation for two months. The physical changes were those of exfoliative dermatitis with involvement of the mucous membranes of the mouth. The condition remained stationary for three months, at which

¹⁷ Bowen J T. Seven Cases of Dermatitis Exfoliativa with a Fatal Ending in Five. *J Cutan Dis*, 28, 1, 1910.

¹¹ Stokes I H and Cathcart E P. Contributory Factors in Post-arsphenamine Dermatitis. *Arch Dermat & Syph* 7, 14 (Jan) 1923.

¹² Stumpke G. Ueber Myoskler an Dermatitis. *Med Klin* 22, 124 (Jan 22) 1926.

¹³ Riehl C Jr. Leber Myoskler an Dermatitis und Encephalopathie. *Arch f Dermat u Syph* 158, 582 1929.

¹⁴ Moore J E and Keidel Albert. Dermatitis and Allied Reactions Following the Arsenical Treatment of Syphilis. *Arch Int Med* 27, 716 (June) 1921.

¹⁵ Heyn W. Zur Frage der Salvarsan Dermatitis. *Deutsche med Wchnchr* 48, 46 (June 9) 1922.

¹⁶ Moore J E and Foley T E. B. Serious Reactions from the Salvarsan and Diarsenol Brands of Arsphenamine. *Arch Dermat & Syph* 2, 25 (Jan) 1920.

time the liver and spleen became palpable, bloody sputum was noted, there was bleeding from the mucous membranes, and purpuric spots appeared on the lower extremities. No blood was found in the urine. Death occurred one month later. At autopsy the bronchi were found to be filled with yellow pus and there was marked injection of the mucosa. The liver and spleen were enlarged and there was myocardial degeneration.

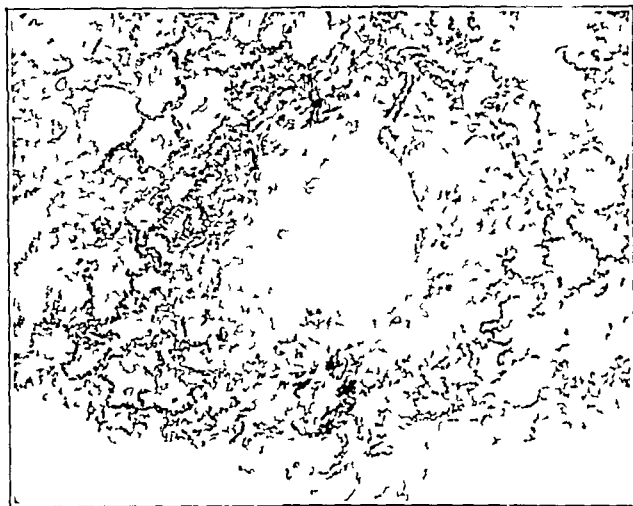


Fig. 3 (case 2)—Congestion and desquamation in the bronchiole reduced from a photomicrograph with a magnification of 75 diameters.

Bowen's next case (15, table 1) was thought to be due to mercury. The course was steadily downhill and was characterized by a severe anemia and a streptococcal infection. The autopsy revealed only hyperplasia of the spleen and evidence of a streptococcal infection.

His third case (16, table 1) had a scaling dermatitis which had been present fifteen months and appeared to be improving until pneumonia developed and the patient died within forty-eight hours. The right lung showed indurated red areas, which faded into the surrounding leathery lung tissue. The bronchi were reddened and exuded a red mucopurulent material. Microscopically these areas were called bronchopneumonia. There was also some fatty degeneration of the liver.

The last case (17, table 1) was that of a Negro reported by Ludy and his associates,¹⁸ and was apparently due to the use of laundry soap. On the tenth day there was a generalized exfoliative dermatitis with marked involvement of the oral mucous membranes. On the thirteenth day there was marked anasarca, followed the next day by pulmonary edema and anuria. Death occurred on the fifteenth day. Autopsy revealed a marked subcutaneous edema, bilateral hydrothorax, ascites, and edema of all the viscera. The trachea and bronchi were injected. The mucosa of the gastrointestinal tract was blotchy. There were petechiae in the kidney pelvis. The medullary portion of the suprarenals was thinner than usual. Examination microscopically showed the alveoli of the lungs to be filled with a basophilic staining coagulum containing many red blood cells, lymphocytes and polymorphonuclear cells. There was also peribronchial infiltration with lymphocytes and leukocytes, and the epithelium was stripped from the walls of the bronchioles and was

lying free in the lumens. Acute diffuse nephritis, lymphoid hyperplasia, hyperemia of the small intestine, parenchymatous degeneration of the liver and spleen, and "cell exhaustion" of the suprarenals were also noted.

SUMMARY OF CASES IN LITERATURE

Although deaths from exfoliative dermatitis are not infrequent, it was difficult to find reports of cases that had come to autopsy. There are many cases, both fatal and nonfatal, which are described as showing bronchopneumonia and often anuria occurring at the same time that the skin lesions were most severe. Only seventeen reports with autopsies were found and in many of these the reports were meager, so that a critical analysis is impossible. There are, however, a few features that are suggestive. Out of seventeen cases, thirteen of which were due to arsenic, bronchopneumonia was apparently present in ten. At autopsy, however, fourteen were found to show pulmonary pathologic changes of some type. Although the description is meager in many cases in five of them it is definitely stated that desquamation of the epithelium of the air passages was present. Edema was noted in two of these cases, two showed abscesses, and one is reported as showing infarcts and pneumonia. The remaining nine of the fourteen cases showed at autopsy what might be called bronchopneumonia. However it is not possible that a restudy of these preparations might result in a revision of the diagnoses. Without this it is apparent that at least five of the fourteen cases in which pulmonary pathologic changes were present showed lesions that were either directly or indirectly due to damage of the epithelial layer of the respiratory tract.

Although nephritis was a clinical diagnosis in only two cases renal lesions were found in eight. The kidney lesions noted are acute nephritis and glomerulo-



Fig. 4 (case 2)—Pelvis of kidney showing loss of epithelium and congestion of mucosa reduced from a photomicrograph with a magnification of 60 diameters.

nephritis, three cases hemorrhages present in the pelvic mucosa, three cases, degeneration, one case, cloudy swelling, one case.

REPORT OF CASES

A review of our own cases of exfoliative dermatitis reveals four fatal cases that have come to autopsy. We believe that the observations warrant a detailed report

18 Ludy, J. B., Cogswell, L., and Hunt, E. L. Dermatitis Exfoliativa. Report of a Fatal Case. *J. Cutan. Dis.* 37: 524 (Aug.) 1919.

CASE 1—History—F J, a white woman, aged 47, admitted to the dispensary, Oct 2, 1925, was found to have mild diabetes, syphilis of the central nervous system, and a scar of a healed gumma on the roof of the mouth, with a perforation through to the antrum. Treatment consisted of three doses of 0.4 Gm of sulpharsphenamine intramuscularly, the last being given on November 2. November 14, a rash appeared and on November 19 she returned to the dispensary with a severe exfoliative dermatitis. She was immediately admitted to the ward for treatment. Sodium thiosulphate was given intravenously, and an attempt was made to eradicate the severe focal infection in the antrum. Both of these procedures failed to yield results. The white blood cell count on admission was 13,400, and there was marked eosinophilia, 31 per cent. November 24, rales were noted at the bases of both lungs and there was slight suppression of breath sounds but no percussion note changes were present. A friction rub was audible in the left axilla. By December 1 there was marked involvement of all the visible mucous membranes, and the nares became plugged. The dry hacking cough and the lung signs persisted, but a roentgenogram of the chest, December 9 did not reveal pneumonia. The temperature continued to fluctuate between 101 and 102 F. December 15, it was noted that the output of urine was decreasing. There was edema of the lower extremities, erythrocytes and casts were present in the urine, and the nonprotein nitrogen of the blood was 42 mg. From this point the course was slowly downhill. Jan 10 1926 the temperature began to rise, remaining at about 105 for the last five days. Death occurred, January 21.

Autopsy—There was marked desquamation of the skin. Mucous membranes were pale and edematous. The lungs were voluminous. The pleura was thickened and adherent over the apex and lateral surface of the left upper lobe. Beginning in the trachea and increasing in the bronchial tree the mucosa was swollen, dark red and covered with mucopurulent material. This was also true of the smaller bronchioles and, as the lung was cut, purulent material exuded from them. Throughout the lungs but more marked posteriorly, were dense nodules, from 1 to 4 cm in diameter. When cut these nodules appeared as zones of grayish white, friable, granular tissue, surrounded by apparently normal lung tissue.

In every portion of the lung studied microscopically there was evidence of an exudative and reparative process. There was an acute exudate, an early organizing process, some resolution, and everywhere regeneration of the alveolar epithelium. The exudate consisted of loose fibrin in small amounts, polymorphonuclear leukocytes, and large mononuclear cells filled with nuclei or red blood cells. The bronchi and bronchioles were filled with polymorphonuclear leukocytes and desquamated epithelium. The regenerated epithelium was of the low cuboidal type and was detached from the wall.

The liver was large and light brown, with an indistinct lobulation. Diffusely scattered throughout the liver were small dark red islands, 1 mm in diameter. The tissue was friable and had a greasy appearance.

Vacuolization was so extensive that the tissue was scarcely recognizable microscopically. Each liver cell contained a large vacuole pressing the nucleus to the periphery and leaving very little cytoplasm. About many of the central veins some normal liver cells were found. The sinusoids were congested.

The capsules of the kidneys stripped readily leaving a congested cortical surface in which the cortical vessels were distinct.

Fresh blood cells formed casts in many of the tubules and filled many distended glomerular spaces. All the glomerular vessels were congested. Cloudy swelling of the convoluted tubules was noted.

CASE 2—History—S T, a white woman, aged 41, admitted to the hospital Feb 14 1927, complained of a severe chronic nephritis and hypertension. Because of insomnia she was given phenobarbital, 1½ grains (0.01 Gm.) February 15 17 and 19. February 24 an itching and generalized maculopapular eruption developed, covering the whole body. That evening the rash became more prominent, papular lesions appeared on the hard palate and the temperature rose to 102.6. The next day there was a marked conjunctivitis, and the

entire buccal mucosa was red and studded with petechiae. By February 28 the rash had become copper colored and appeared to be urticarial in type, and desquamation began. The throat became so sore that deglutition was impossible. March 1, it was noted that the papules on the hard palate were ulcerated. The next day, because of a stiff neck and a bilateral Kernig sign, a lumbar puncture was done. Forty-one cells were found, all lymphocytes. March 3, the temperature rose to 104 and the pulse to 170. Coarse rales were heard over the entire chest, the patient became comatose and died that afternoon.

Autopsy—There was an extensive desquamating rash of the entire body, most marked on the forearms and back and involving the mucous membranes.

Posteriorly, the lungs were red and heavy. When they were cut, edema and congestion were seen in these areas. The bronchi were congested and the mucosal surfaces were granular.

The greatest alteration was in the bronchi. In many, the epithelium was desquamated. The capillaries of the mucosa were engorged, and there was edema and infiltration of leukocytes, mostly of the mononuclear variety. In the alveoli there was edema, emphysema and congestion.

The liver was brownish red, the capsule was smooth and the lobular architecture was accentuated. The histologic sections appeared normal.

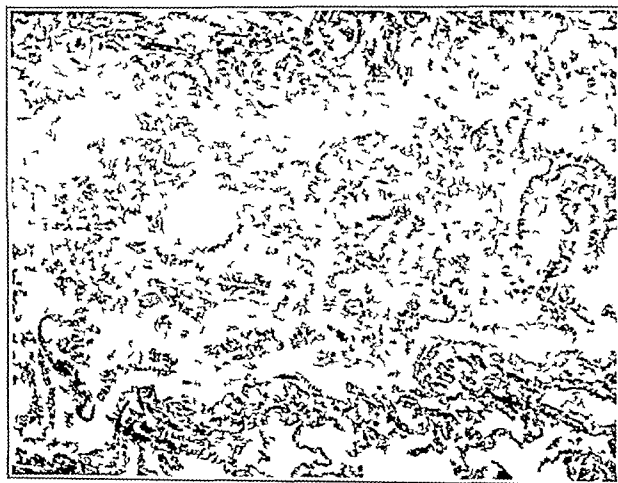


Fig 5 (case 3)—Desquamated epithelium completely occluding the air passage reduced from a photomicrograph with a magnification of 100 diameters.

Both kidneys were small and scarred, and the capsule was thick and adherent. The cortex and medulla were indistinguishable and were a dark red gray.

Microscopically, there was a diffuse increase in connective tissue. There was thickening of both media and intima of the arteries. The capillaries were congested, and practically all the glomeruli were altered in some way—hyalinization, fibrosis or necrosis. In some glomeruli the epithelium had regenerated between the adhesions. Some of the tubules had blood in them, others had epithelial cell casts. In numerous areas the epithelium of the tubules was lifted from the basement membrane and was lying detached in the lumens. The renal pelvis showed great congestion and edema, with desquamation of the lining epithelium and organization along the surface. A similar condition was found in the ureters.

CASE 3—History—J F, a white man, aged 42, admitted to the dispensary March 17 1928 was found to have a gumma of the hip and aortic insufficiency. After a preparatory period of mercury inunctions and potassium iodide by mouth he was started on small doses of neoarsphenamine 0.45 Gm at weekly intervals receiving the eighth treatment on June 7. June 11 he noticed an extensive itching rash over the body. Two days later edema of the ankles developed. He returned to the dispensary on this date and was immediately admitted to the hospital. At this time June 13, there was an extensive

erythematous rash and edema of the skin over the entire body. Below the knees there were numerous purpuric spots. The liver was enlarged 2 cm below the right costal margin and there was jaundice of the sclerae. The white blood cells numbered 11,500, with 66 per cent polymorphonuclear neutrophils and 1 per cent eosinophils. Treatment with thiosinamine (intravenously) was begun and there appeared to be some improvement. By June 24 there was marked exfoliation and it was evident that thiosinamine was having no effect. The temperature rose to 103 on June 26 and remained elevated.

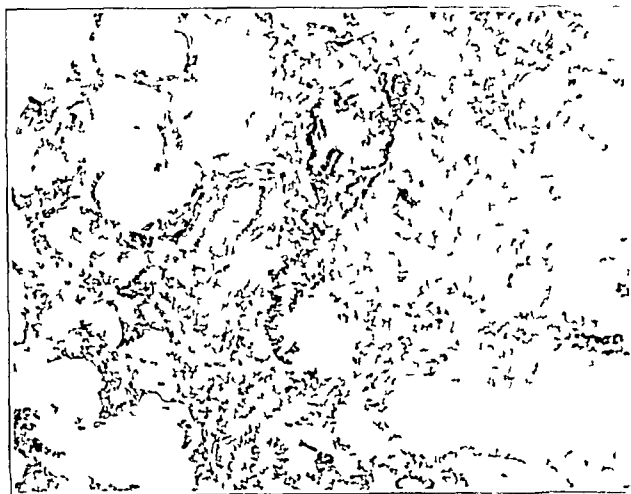


Fig. 6 (case 4)—Desquamation of epithelium of bronchiole reduced from a photomicrograph with a magnification of 100 diameters.

Although there were no signs of renal impairment the blood pressure rose from 120 systolic 40 diastolic to 190 systolic 40 diastolic. July 4 there was marked dyspnea, orthopnea and cyanosis, and the patient died a few hours later.

Autopsy.—There was a generalized exfoliative dermatitis, the exfoliative process involving also the mucous membranes of the eyes and the upper air passages.

In the lungs there was approximately 600 cc of straw colored fluid in each pleural cavity and there were numerous easily broken pleural adhesions. The lungs were crepitant. On section a red tinged fluid exuded from the alveoli and from some of the bronchi. A few zones seemed to be elevated above the rest of the tissue; these were somewhat lighter in color than the rest of the surface. The mucosa of the bronchioles in these places was reddened and contained thick mucus.

There was congestion of the vessels microscopically, particularly in the left lung. In both lungs, but more marked in the left, there was an increase in the size of some alveoli and a decrease of others in the same field. The alveoli contained a varying amount of exudate consisting of a few polymorphonuclear leukocytes, large mononuclear cells with a small amount of cytoplasm and larger mononuclear cells of the "heart failure" type. The epithelium of the bronchioles was sloughed off practically everywhere, lying in the lumens along with a polymorphonuclear and fibrinous exudate. Polymorphonuclear and mononuclear cells were seen in the walls of the bronchioles and some fibroblastic proliferation was present.

The heart and aorta showed definite changes due to syphilis and there was also a healed mitral lesion.

The liver was enlarged, weighing 2200 Gm and extending 3 cm below the costal margin. The lobulations appeared light in color.

Microscopically the cells had a swollen cloudy appearance, and the central sinusoids were engorged with blood. The portal spaces showed small round cell infiltration.

There was no evidence of destruction of the renal epithelium.

There were areas of congestion in the mucosa and some submucosal hemorrhages in the large intestine.

It was seen that the epithelium was almost entirely gone except for the glands of the mucosa. All layers showed congestion of the vessels, with some free hemorrhage.

There was generalized desquamation of the skin. There were many areas in which the desquamation had left raw surfaces, and these were covered with crusts.

The superficial keratinized layers were absent. The blood vessels were dilated and engorged with blood. Clumps of small round cells were seen below the epithelium by microscopic examination.

CASE 4—History.—B. G., a white girl infant, aged 4 weeks, was admitted to the hospital, Nov. 12, 1923, because of exfoliative dermatitis which appeared five days before admission. No cause for the dermatitis was determined. Because of its severity, satisfactory examination was impossible. The conjunctivae were involved in the process, and the mucous membranes of the mouth were covered with lesions of thrush. The condition became rapidly worse, septicemia (hemolytic streptococcus), developed, and the child died, November 15.

Autopsy.—Except for a few small areas on the chest and back the entire superficial layer of epidermis was denuded, leaving a dry smooth indurated surface. In a few places the surface was moist and finely papular. The conjunctivae were injected. The mouth and pharynx were covered with a mucosanguinous exudate.

The keratinized layer was missing. No cellular infiltrations were seen with the microscope.

The lungs were pink and crepitant except for a few small depressed reddish areas. The bronchi were slightly reddened.

The preparations showed many of the alveoli to be atelectatic, whole lobules being collapsed in some areas. The alveoli were filled with desquamated epithelium and the walls were thickened. The bronchi also contained desquamated epithelium. The process was quite marked in the trachea. The mucosa of the larynx below the vocal cords was missing.

No significant conditions were found in the other viscera.

COMMENT

Although the etiologic agent in these cases varied in that two cases were due to arsenic, one to phenobarbital and one to an unknown agent, there are a number of points of similarity. The literature, for the most part, states that death in such cases is due to bronchopneumonia. In our own series this was the



Fig. 7 (case 4)—Desquamated epithelium lying free in the lumen reduced from a photomicrograph with a magnification of 100 diameters.

diagnosis at death in all but the last case. The physical manifestations were essentially those of bronchopneumonia. The changes found at autopsy in our cases were not those of bronchopneumonia but merely the extension of the exfoliative process into the lungs. A survey of the sections immediately suggests that death in these four cases was in part suffocative, owing to the mechanical blocking of the air passage and not to a pulmonary infection.

From a survey of the autopsy reports found in the literature, it is striking that fourteen showed definite pulmonary pathologic changes. In five of these it was definitely noted that desquamation of the epithelium of the tracheobronchial wall had occurred. It seems possible that the fundamental process in all of them was the same as that in the cases we are reporting. Of course, a secondary infection may be superimposed on the underlying process, although it was found in only one of our own cases. It seems possible that some of the cases reported in the literature as "arsenical stomatitis" may be merely an exfoliative process limited to the air passages.

A second point of similarity is the finding of a similar exfoliative process in the urinary tract. The lesions

TABLE 2—Observations Made at Autopsy of Authors' Cases

Case	Clinical Diagnosis	Lungs	Kidneys	Liver	Gastro Intestinal Tract
1	Arsenical dermatitis diabetes tabes dorsalis broncho pneumonia	Desquamation inflammatory reaction	Congestion	Degeneration	
2	Phenobarbital dermatitis chronic nephritis broncho pneumonia	Desquamation edema	Desquamation in tubules and pelvis		
3	Arsenical dermatitis tertiary syphilis toxic hepatitis	Desquamation		Congestion	Multiple hemorrhages
4	Exfoliative dermatitis etiology unknown	Desquamation			

here were less extensive than in the lungs, involving only the renal pelvis in most cases. Seven cases reported in the literature noted renal involvement of some type.

SUMMARY

1 In seventeen cases of exfoliative dermatitis with observations at autopsy which have been collected from the literature, fourteen showed pulmonary pathologic changes.

2 All four of our cases showed epithelial exfoliation of the respiratory tract and no evidence of pneumonia.

3 A similar process may occur in the kidneys.

4 It seems that an important contributing cause of death in cases of exfoliative dermatitis is not pneumonia but obstruction of the air passages, due to exfoliation of the epithelium.

Elements in Animal Tissues—The following elements are present in the ash of animal tissues: iron, sodium, potassium, magnesium, calcium, phosphorus, sulphur, chlorine, iodine, fluorine, lithium, barium, manganese, aluminum, copper and silicon. Some of these are needed in such small quantities that a sufficient supply is assured by almost any diet; others are needed in such large amounts that the diet often fails to furnish a sufficiency, especially in the case with iron, calcium and phosphorus. Iron is needed for the hemoglobin of the red blood corpuscles. It is found in red, yellow and green foods—that is in red meats, fresh lean meat, especially in liver, which is valuable, perhaps because of the copper as well as the iron content, in yolk of egg and carrots, and in vegetables and fruits and the hull of cereal grains. Food materials with little chlorophyll have little iron content. Milk has a low iron content but in readily assimilable form. Fats, sugars and starches contain little iron.—Nixon J. A. *Food Values and Their Practical Application in Dietetics*, Brit. M. J. 11 (Jan. 6) 1934.

TREATMENT OF DECUBITUS WITH TANNIC ACID

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Decubitus, or pressure sore, is the result of local impaired nutrition, frequently in a person whose tissues have a lowered resistance because of age, disease, injury or nerve involvement. Such lesions are initiated by pressure and often aided by some slight injury or by irritation from urine, feces or perspiration. While the lesion often occurs in paralyzed parts, it is by no means limited to patients with nerve involvement. The soft tissues over bony prominences are the common location of these ulcers, but with the widespread use of casts, splints and skin traction few parts of the body surface are exempt. Pressure produces a local ischemia with subsequent thrombosis, death of tissue and ulcer formation.

Prophylaxis is the ideal procedure. Such measures as frequently changing the position of the patient, massage, dusting powders including lead tannate,¹

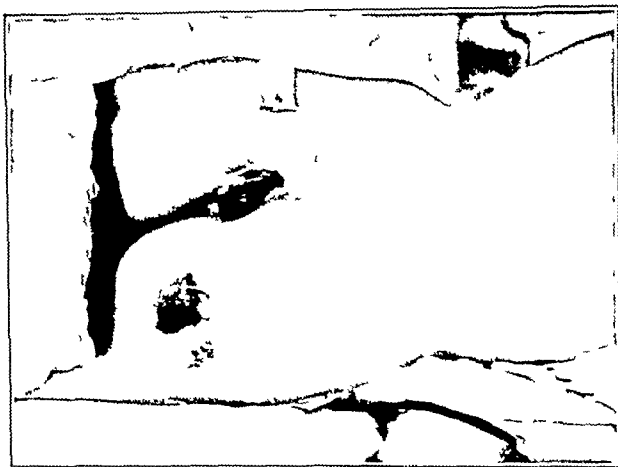


Fig. 1—Decubitus lesions of patient with transverse cord lesion being treated with tannic acid.

cleanliness and protection of susceptible parts are of the utmost importance. Air cushions, rubber rings and pads aid in relieving pressure on the skin overlying bony prominences. Too much emphasis cannot be placed on the proper fitting of casts and splints and the careful application of skin traction. The mere removal of pressure from an involved region does not necessarily prevent the continued development or extension of the lesion. Not infrequently decubitus develops in spite of prophylactic measures. This is especially true of patients with cord lesions and bedridden, aged, emaciated and diabetic patients.

Once the lesion has developed, the recommended local treatments are numerous. A few therapeutic measures advocated are ointment of zinc oxide, scarlet red ointment, silver nitrate solution, ultraviolet rays, sunlight, dry heat and excision of the slough. More recently, sulphosalicylic acid² and thiocresol³ have

Read before the Chicago Surgical Society, May 5, 1933.

From the Departments of Surgery of Northwestern University Medical School, Cook County Hospital and the Wesley Memorial Hospital.

1. Da Costa J. C. *Modern Surgery*. Philadelphia: W. B. Saunders Company, 1931, p. 112.

2. Drewitz. *Deutsche med. Wchnschr.* 54: 921 (June 1) 1928.

3. Reimann S. P. *Use and Reasons for the Use of Thiocresol to Stimulate Wound Healing*. J. A. M. A. 94: 1369 (May 3) 1930.

been recommended. The sulphur-containing radical is believed to stimulate epithelial growth. In severe cases and in extremely emaciated patients the continuous water bath⁴ has been used. Treatment to improve the general condition of the patient is important.

The gross similarity of decubitus to certain burns suggested the rationale of treating suitable lesions with tannic acid. Bligh⁵ treated an abrasion with tannic acid and Maddock⁶ used it to treat the surface from which Ollier-Thiersch grafts were removed.

A fresh 5 per cent aqueous solution of tannic acid is used.⁷ Seeger's⁸ method of neutralizing the solution to the pH of blood is worthy of trial. Treatment is begun at the first sign of tissue disturbance, preferably before the skin is broken. The wound and surrounding skin are cleansed and all crusts, debris and macerated skin, when present, are removed. If a blister is present, the elevated epithelium is removed aseptically. Lesions that may be kept exposed to the air are sprayed every hour with the tannic acid solution and between treatments the region is kept exposed to dry heat from electric lights or an electric hair drier. Wounds that must be dressed to be kept clean or to prevent direct

coagulum several times because of infection. Each time the crust is removed, the wound will be found to have decreased in size.

A virulent infection, profound necrosis of tissue and bone involvement are contraindications to the use of tannic acid in the treatment of decubitus. Should a virulent infection occur during the course of treatment, the crust should be removed and the lesion treated as any other similarly infected wound.

In a large series of cases, lesions of varying width and depth have been treated by this method. In some the skin was merely red when treatment was instituted, in others the tissues down to and including muscle were involved.

The method is simple and the results have been far more satisfactory than any other method used on control lesions. The results have been especially gratifying in lesions following cord injuries, bedridden diabetic patients and lesions under casts. Many of the arguments in favor of the use of tannic acid in the treatment of burns may be advanced in its use in the treatment of decubitus.

SUMMARY

The method of treating decubitus with a fresh 5 per cent aqueous solution of tannic acid is simple and efficient.

The presence of an infection is not necessarily a contraindication to its use.

Virulent infection, profound necrosis of tissue, and bone involvement are contraindications to the use of tannic acid in the treatment of decubitus.

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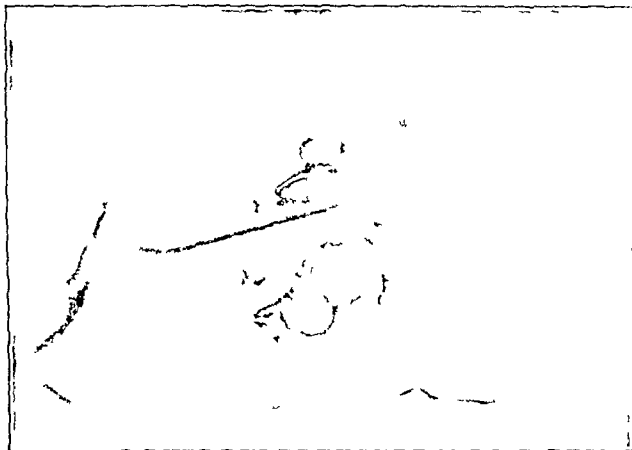


Fig. 2—Decubitus lesions of patient with diabetic gangrene of both legs being treated with tannic acid.

pressure are covered with sterile gauze, which is kept saturated with the tannic acid solution. Treatment is continued until a heavy protective coagulum is formed, which usually requires from twenty-four to forty-eight hours. Afterward no dressing is applied nor is sterile gauze used to keep the coagulum clean and dry. Healing occurs as in burns, and as the coagulum separates at the edge it is clipped away. Should it be necessary to remove the coagulum prematurely, it may be softened with sterile petrolatum.

The presence of an infection is not necessarily a contraindication to this method of treatment. In such cases the wound is treated with some suitable antiseptic solution until the infection is controlled, then the tannic acid is applied. If during treatment an infection occurs under the coagulum the crust should be removed, the wound treated as described and the tannic acid reapplied. Occasionally it is necessary to remove the

SECOND ATTACKS OF POLIOMYELITIS

REVIEW OF THE LITERATURE AND REPORT OF A CASE

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It is probable that no infectious or contagious disease confers a permanent immunity in all cases. Authentic second attacks of scarlatina have been reported by McCrae,¹ of rubella by Maiselis,² of rubella by Widowitz,³ of pertussis by LeGendre⁴ and of parotitis by Friedjung.⁵ Recurrences of variola and typhoid, while rare, are well known. Second attacks of varicella are occasionally encountered although Widowitz³ found no instance in 524 cases of the disease.

Fourteen cases of second attacks of acute poliomyelitis are recorded in the literature. These must be distinguished from the relapses, which occur relatively frequently in every epidemic. In view of the demonstration by Kling, Petterson and Weinstedt⁶ of active virus in the nasal washings of patients seven months after the acute attack, it seems reasonable to consider every apparent second attack occurring within that time a relapse or exacerbation rather than a recurrence. Invariably, however, as Still⁷ has observed, these relapses take place within three months. A typical case

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4. LeGendre, Rev. mens. d. med. de l'enf. 5: 496 1891.

5. Friedjung, J. k. Wien. med. Wchnschr. 71: 637 1921.

6. Kling, Petterson and Weinstedt. Investigations on Poliomyelitis. Report from the State Medical Institute of Sweden to the Fifteenth International Congress on Hygiene and Demography, Washington 1912.

7. Still, C. T. Second Attacks of Acute Poliomyelitis and the Minimal Duration of Immunity. *Arch. Dis. Childhood* 5: 295 (Oct.) 1930.

has been reported from this laboratory.⁶ An initial paralysis of both lower extremities in a youth, aged 18, was followed by apparent convalescence for five weeks. Respiratory difficulties then set in and death occurred on the forty-ninth day. At necropsy, lesions consistent with acute poliomyelitis were found in the medulla and lumbar cord. Apropos of such cases one of Flexner's⁹ early observations is of interest. Many of his monkeys remained comparatively healthy after a single intracerebral inoculation of virus, but after a second inoculation in the opposite hemisphere a few days later the full blown disease invariably developed. In these monkeys, as in human relapses, a sequence of events comparable to the Arthus phenomenon may have taken place. It is characteristic of most human relapses that the exacerbation is much more severe than the original attack.

Reported Second Attacks of Acute Poliomyelitis

Case	Author	Year Reported	Sex	Ages of Attacks	Interval of Attacks	Parts Affected
1	Caudouin Paris thesis 18:9 cited by Still ⁷	1879	♂	17 mos 16 yrs	14 yrs	1 Left leg 2 Right leg
2	Ballet C and Duttl A Rev méd 4 1 ^{re} 1884	1884	♀	3 yrs 12 yrs 14 yrs	9 yrs 2 yrs	1 Left arm 2 Both arms 3 Both legs
3	Eckert Deutsche med Wchnschr 17 113 1911	1911			5 yrs	1 Left leg 2 Right leg
4	Lucas W P and Osgood R B J A M A 60 1611 (May 4) 1913	1913	♂	2 yrs 5 yrs	2 yrs	1 Both feet and right leg 2 Right arm and both legs weak
5	Sanz F Siglo méd 1910	1910	♀	1 yr 20 yrs	14 yrs	1 Left leg 2 Right leg
6	Taylor T W I Nerv & Ment Dis 44 201 (Sept.) 1916	1916	♂	3 yrs 6 yrs	3 yrs	1 Right leg 2 Left leg
7	Francis F D and Moncreiff W F J Nerv & Ment Dis 49 2:3 (April) 1919	1919	♀	3 yrs 18 yrs	15 yrs	1 Right arm 2 Both legs
8	Poremans Scalpel 76 1319 1923	1923	♀	2½ yrs 4½ yrs	2 yrs	1 Left leg 2 One arm
9	Stiff G F Arch Dis Childhood 7 29, (Oct.) 1920	1920		1½ yrs 7½ yrs	5½ yrs	1 Left leg 2 Right shoulder
10	Neal Josephine B Poliomyelitis (Survey of International)	1920	♀	4 yrs 8 yrs	4 yrs	1 Right leg 2 Right leg
11	Committee for the Study of Infantile Paralysis Baltimore 1927 p 189	1932	♂	16 mos 21 yrs	20 yrs	1 Both lower legs 2 Left thigh

The interval between the longest reported relapse and the earliest true recurrence is two years. Interpretation of the significance of this period cannot now be decided but must await the accumulation of more true second attacks. It is very likely, as has been suggested,⁷ that it represents the minimum duration of immunity.

Of the fourteen reported cases of true second attacks, eleven appear to be reasonably definite. In the cases of Oulmont and Baudouin,¹⁰ Eshner,¹¹ and Shepard,¹² the diagnosis of one or both of the attacks is obscured by such factors as insufficient data, concomitant disease, or trauma. Still⁷ in 1930 reviewed the literature and listed the most authentic cases in the form of a table. This is reproduced and brought to date by the addition of Neal's two cases.

As an addition to this list the following case is presented, the first on record in which the second attack was fatal.

REPORT OF CASE

HISTORY—J F, a white girl, aged 7 years, was admitted to the Willard Parker Hospital for the first time, Aug 15, 1931, at the height of the poliomyelitis epidemic of that year. The onset of her illness, two weeks before admission, was marked by drowsiness, fever and occasional vomiting. Within four days a definite paralysis of the left shoulder had developed, and a diagnosis of poliomyelitis was made by the local physician. Convalescent serum was administered intrathecally and intramuscularly by a representative of the New York City Board of Health. At the time of admission, the patient appeared normally developed, well nourished, alert and cooperative. Examination disclosed no abnormality save paralysis of the left deltoid muscle. A vague and ill defined weakness of the lower extremities appeared on the day after admission but vanished within twenty-four hours. The temperature remained within normal limits during the patient's six days in the hospital save for one transitory excursion to 100 F. At discharge, August 21, her condition was the same as at the time of admission.

No complication or other illness occurred during the following two years. Readjustment of the left shoulder muscles was rapid and loss of the deltoid occasioned little inconvenience.

In June 1933 two months before her second admission the patient contracted a mild pertussis without a whoop, which was treated with vaccine by the local physician.

July 31 1933 she was again admitted to the hospital. Two weeks before a mild indefinite infection of the upper respiratory tract had developed. A sore throat and slight difficulty in speaking had been present for four days. Vomiting and occasional spells of breathlessness, accompanied by slight cyanosis, began about thirty-six hours before admission. Mucus collected in the throat from time to time and drooling was observed. On the day of admission, two severe attacks of dyspnea occurred. During the attacks, the patient became very cyanotic.

Examination—On physical examination the patient was normally developed and well nourished and was in evident respiratory distress. Respirations were shallow, and speech was characterized by a nasal twang. The pharynx was congested and contained a fairly large quantity of mucus. The lung fields were clear. The usual neurologic signs were negative and there was no evidence of paralysis in the extremities save in the left shoulder. The cerebrospinal fluid was clear and under slightly increased pressure. It contained 15 monocytes per cubic millimeter, slightly increased albumin and globulin and moderately increased sugar.

A laryngoscopic examination was done shortly after admission. The arytenoids were slightly congested and edematous. The vocal cords were normal in appearance. Twice during the examination the child had an attack of dyspnea. During these attacks the right aryepiglottic fold and the right arytenoid were seen to pull inward and close the glottis.

The eegrounds were normal in appearance. Culture of the larynx yielded *Streptococcus viridans* and of the throat a mixture of *Streptococcus viridans* and haemolyticus. No organisms were recovered from the blood. The blood counts were within normal limits. A roentgenogram of the chest was interpreted as indicating possible slight bronchopneumonic infiltration in the axillary half of the right upper lobe. The temperature ranged between 102 and 105 F, and the child died two hours after admission to the hospital.

All the clinical observations were consistent with poliomyelitis, but this seemed very unlikely in view of the definite history of a previous attack.

Necropsy—This was performed twenty-one hours post mortem. The subcutaneous fat over the thorax and abdomen was approximately 3 cm in thickness. The tonsillar ring, including the faucial tonsils was hyperplastic and moderately congested. The larynx, vocal cords and laryngeal nerves were normal in appearance. Slight congestion was present in the bases of both lungs and there was beginning consolidation in the hilar portion of the right upper lobe. The heart was normal in appearance. The lymph nodes of the mediastinum were moderately

⁹ Smith L W. Proceedings of the Pediatric Section of the New York Academy of Medicine May 1932.
¹⁰ Flexner Simon. Poliomyelitis. Science 74 2:21 (Sept. 11) 1931.
¹¹ Oulmont and Baudouin. Rev. neurol. 19 333 (March) 1911.
¹² Eshner A. A Possible Second Attack of Acute Anterior Poliomyelitis in the Same Patient. N. Rec. 78 526 1910.
¹³ Shepard. Infantile Paralysis in Massachusetts in 1910. Massachusetts State Board of Health p 1:4.

enlarged and congested. The liver was rather flabby in consistency. Its cut surface was a uniform pale muddy brown in color and had the granular appearance of moderate cloudy swelling. The spleen was soft in consistency and moderately congested. The stomach was somewhat dilated. Along the lesser curvature and about the pylorus were a few scattered areas of submucous hemorrhage. The Peyer patches of the ileum were markedly hyperplastic and congested, as was the lymphoid tissue about the ileocecal valve. Throughout the mesentery were scattered firm congested lymphatic nodes. These were most numerous in the region of the terminal ileum. The thyroid, pancreas, suprarenals, kidneys and genitalia were essentially normal in appearance.

The brain weighed 1,540 Gm. It was quite soft and markedly congested throughout. No points of hemorrhage, however, were seen. The substance of the medulla below the pons, "mushroomed" above its cut surface.

The dorsal blood vessels of the cord were intensely congested and rather tortuous, especially in the lumbar region. The cord itself seemed firm in consistency. On section the edematous somewhat mushy cord substance exerted or "mushroomed" above the cut surface. This occurred at all levels. The meninges were normal in appearance save for moderate congestion.

Microscopic Examination—Sections from various portions of the lungs included patchy areas of bronchopneumonia, atelectasis and emphysema. The blood vessels were intensely congested and in the sections from the right upper lobe the alveoli were nearly filled with serosanguinous exudate. The liver was moderately congested. Granular degeneration and fat infiltration were uniform and marked in the liver cells. The lymphoid tissue of the spleen was somewhat hypoplastic but various degrees of hyaline degeneration were present in the centers of most of the malpighian corpuscles. The splenic pulp was irregularly and intensely congested and the reticulo-endothelial element was hyperplastic. Extensive and uniform

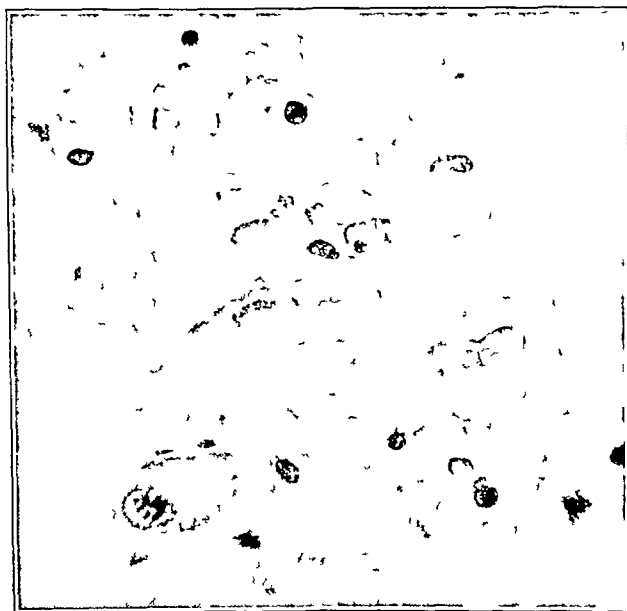


Fig. 1—Nerve cell degeneration and neuronophagia in the pons at the level of the facial colliculus. (Formaldehyde fixation, hematoxylin and phloxin stain.)

granular degeneration was present in the tubular epithelium of the kidneys. The renal blood vessels were irregularly engorged and, in a few areas, hemorrhagic. The lymph nodes and Peyer's patches of the ileum were hyperplastic and congested. Their germinal centers exhibited various stages of necrosis and hyaline degeneration. The lymphoid element of the thymus was markedly hyperplastic and the thymic corpuscles were small and scattered. The thyroid was essentially normal save for moderate desquamation of the acinous epithelium. Sections of the heart, pancreas, suprarenals and pituitary were not remarkable.

In the right recurrent laryngeal nerve there was beginning axonal degeneration and phagocytosis in a very few places. A few of the ganglion cells were in various stages of degeneration and phagocytosis by microglia. Edema and congestion were roughly parallel at all levels of the brain stem and cord and most severe in the lumbar enlargement. A few small areas of hemorrhage were present in the sections through the lower portion of the pons, the medulla and the lumbar enlargement. Perivascular "cuffing" or infiltration of the Virchow-Robin spaces with lymphocytes was very prominent below the mid-portion of the pons. Nerve cell degeneration and neuro-



Fig. 2—The anterior horns in the upper cervical region of the cord. The number of motor cells is symmetrically reduced but microglial infiltration is most prominent on the left. (Formaldehyde fixation, hematoxylin and phloxin stain.)

phagia extended somewhat higher. About a third of the cells in a section through the midpons showed definite evidence of damage (fig. 1). There were irregularly distributed areas of softening and necrosis in both the white and the gray matter at all levels. Degeneration and neuronophagia of the cells of the anterior horn of Clarke's column and to some extent, of the posterior horn were very marked throughout the cord, but curiously asymmetrical (fig. 2). Degeneration of the fasciculi proprii and peripheral fiber tracts in the dorsal region was most prominent on the side of least anterior horn damage.

A residuum of the first attack was seen in the definite and symmetrical reduction in the number of cells in the anterior horns of the upper cervical region (fig. 2). Also sections stained by the methods of Hortega and Penfield revealed slight irregular gliosis in the lower medulla.

Sections of the meninges were not remarkable save for edema somewhat out of proportion to the degree of congestion.

The anatomic diagnoses were primary acute anterior poliomyelitis, secondary generalized lymphoid hyperplasia, hemorrhagic gastritis and bronchopneumonia.

COMMENT

The changes found at necropsy in this case were typical of those observed in the eighty-one fatal cases of poliomyelitis of the 1931 epidemic previously studied in this laboratory.¹³ Seventy-five per cent showed a similar mild hemorrhagic gastritis and in 86.7 per cent there was definite hyperplasia and congestion of the lymphoid tissue. While the greater part of this hyperplasia is undoubtedly a manifestation of the disease, the fact that in more than 30 per cent of the series the

faucial tonsils had been removed suggests some degree of constitutional hyperplasia in certain cases, at least. Although microscopic examination disclosed definite lymphoid hyperplasia in the thymus, the organ was somewhat smaller than is usually found in poliomyelitis. The average weight in the disease is almost always from 10 to 15 per cent greater than the average normal weight.

The pale, muddy, granular appearance of the cut surface of the liver, which defies accurate description, is felt in this laboratory to be almost peculiar to the disease. It is quite distinct from the diffuse cloudy swelling encountered in most infectious diseases but has no specific microscopic characteristics. On several occasions, when clinical opinions were at variance, a diagnosis has been ventured on the appearance of the liver alone and later confirmed by examination of the central nervous system.

The changes in the central nervous system in this case illustrate the oft observed lack of correlation between clinical and pathologic observations in acute poliomyelitis. No involvement of the extremities was apparent in the second attack, yet marked nerve cell degeneration, neuronophagia, congestion and edema were found at every level of the cord examined post mortem.

Foot of East Fifteenth Street

THE ETIOLOGY OF PRIMARY GRANULOCYTOPENIA (AGRANULOCYTIC ANGINA)

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AND

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In 1922, when Schultz¹ described the syndrome which he called "agranulocytosis" and which later was called "agranulocytic angina,"² he suggested that it might be the result of a depressant effect on the bone marrow of an unknown micro-organism or possibly of an unknown chemical agent. Extensive search for an organism capable of producing such an effect has met little success. *Salmonella supestrifer*,³ *Bacillus pyocyaneus*⁴ and occasional organisms isolated from human cases have produced leukopenia with granulopenia in experimental animals but not in a manner entirely comparable to the syndrome seen in the human being. Nor has any organism thus far been found to occur constantly or even frequently in the clinical cases. Recently Dennis has attempted to incriminate focal infections by introducing various organisms in the experimental animal in a manner intended to simulate that type of infection in man and has found a tendency for granulocytopenia to develop. However, the results again are not entirely comparable to the clinical picture in man. Nor does it seem likely that focal infection, which presumably has existed throughout the human

era, can alone explain a clinical syndrome which is admittedly of very recent appearance.

Investigation of a possible chemical etiology has been somewhat more successful. Kracke⁵ has been able to reproduce the clinical picture accurately in the experimental animal by the use of benzene, ortho-oxybenzoic acid and hydroquinone. Turley and Shoemaker⁷ have shown that phenobarbital produces in dogs a marked reduction of the granulocytes. It has been shown that exposure to benzene in human beings causes in some marked depression of the bone marrow with especially marked effect on the granulocytic centers.⁸ It has also been established that a typical primary granulocytopenia occasionally may follow the administration of arsphenamine.⁹ Kracke⁶ observed that eight of nine patients with primary granulocytopenia seen by him had taken drugs of the coal tar series prior to the onset of their illness. He suggested that such drugs, because of the presence of the benzene ring, might be of etiologic importance and attempted unsuccessfully to produce the clinical picture in rabbits by the feeding of amidopyrine, acetphenetidin, peralga and dial.

Schilling¹⁰ has suggested that "since similar pictures may be obtained experimentally in anaphylaxis, an anaphylactic condition instead of an individual disease is possible." Pepper¹¹ in 1931 also stated that an allergic reaction might be involved in the disease.

CLINICAL OBSERVATIONS

In November 1931, while we were observing a patient with primary granulocytopenia,¹² we noted a sudden unfavorable change in the granulocyte level, which had been showing a satisfactory response. The granulocytes decreased abruptly, with a marked shift toward immaturity, and the patient became more toxic. Careful analysis disclosed the fact that he had been given a sedative dose of a barbituric acid derivative on the evening preceding the granulocyte decrease. We restricted the use of all drugs except opiates and after a rather stormy course he recovered. We later found that immediately preceding the onset of the illness he had taken allonal (allylisopropylbarbituric acid with amidopyrine) and that for some time previously had been in the habit of taking that drug frequently for restlessness and insomnia.

Shortly thereafter we saw a woman who likewise had a typical primary granulocytopenia. Two weeks previously she had had an acute cholecystitis, with a normal leukocyte response of 12,000 white cells, 10,000 of which were granulocytes. She had had no treatment except rest, restricted diet and two allonal tablets each night for two weeks. At the end of that period she was found to have a typical picture of primary granulocytopenia with 1,200 white blood cells and complete absence of granulocytes in spite of recovery from the cholecystitis.

6 Kracke R. R. Experimental Production of Agranulocytosis. *Am J Clin Pathol* 2: 11 (Jan.) 1932.

7 Turley L. A. and Shoemaker H. A. Report of Experiments as to the Effect of Some Drugs on the Blood Picture. *J Oklahoma M A* 23: 405 (Dec.) 1930.

8 Selling L. A. Preliminary Report of Some Cases of Purpura Hemorrhagica Due to Benzol Poisoning. *Bull Johns Hopkins Hosp* 21: 33 1910.

9 Farley D. I. Depressed Bone Marrow Function from the Arsphenamines. *Am J M Sc* 179: 214 (Feb.) 1930.

10 Schilling V. The Blood Picture. ed 7. St. Louis: C. V. Mosby Company, 1929. p. 197.

11 Pepper O. H. P. Leukopenia. A Review with Special Reference to Agranulocytic Angina. *California & West Med* 35: 173 (Sept.) 1931.

12 When we speak of the primary type of granulocytopenia we refer to those cases in which the fundamental pathologic changes lie in the granulocytic centers of the bone marrow and we exclude those cases in which suppression of granulopoiesis is secondary to or a part of other disease.

From the Department of Medicine, Marquette University School of Medicine.

1 Schultz Werner. Ueber eigenartige Halskrankungen. *Deutsche med Wchnschr* 48: 1495 (Nov.) 1922.

2 Friedmann U. Ueber Angina agranulocytotica. *Med Klin* 19: 357 1923.

3 Fried B. M. and Damehek William. Experimental Agranulocytosis. *Arch Int Med* 49: 94 (Jan.) 1932.

4 Lovett Beatrice K. Agranulocytic Angina. *J A M A* 83: 1498 (Nov 8) 1924.

5 Dennis E. W. Experimental Granulopenia Due to Bacterial Toxin. *Elaborated in Vivo J Exper Med* 57: 993 (June) 1933.

These two cases so emphasized in our minds the importance of drugs in this disease that we have studied this relationship in all cases seen subsequently. In the interval since that time we have had the opportunity of studying twelve additional cases of primary granulocytopenia, which together with the first two are summarized in table 1. In each of the fourteen cases there was a definite history of the taking of amidopyrine in combination with a barbiturate, amidopyrine alone or in one instance, in combination with other drugs immediately prior to the clinical discovery of the granulocytopenia. Amidopyrine with a barbiturate had been used in seven of the cases, amidopyrine alone in six and amidopyrine in combination with other drugs in one

Patient 9, a man, aged 74, had tic douloureux and had been advised to use amidopyrine to control the pain. He had had no other medication or treatment and at the end of ten months a typical granulocytopenia developed. Patient 14, a woman, aged 34, admitted to the hospital for treatment of a severe arthritis, had a normal white count on admission. She was given 10 grains of amytal compound (amytal 3 grains [0.2 Gm.] with amidopyrine 7 grains [0.45 Gm.]) daily for four days, no medication for four days, then 10 grains of amytal compound daily for four days, at the end of which time she was found to have granulocytopenia. Recently Costen¹³ has reported three cases, in two of which he noted a similar striking relation to medication.

TABLE 1—Summary of Fourteen Cases of Primary Granulocytopenia Showing the Relationship of Drugs Containing Amidopyrine to the Onset and Outcome of the Disease

Patient	Age and Sex	Occupation	Health Prior to Onset of Granulocytopenia	Medication Prior to Onset of Granulocytopenia	Treatment										Outcome	Comment
					Blood Count Prior to Onset		Blood Count at Onset						Barbiturates and Amidopyrine Continued			
					Total W B C	Granulo cytes	Total W B C	Granulo cyte	Trans fusion	Pent nucleotide	Yellow Bone Marrow					
1	40 ♂	Physician	Insomnia	Allonal	5 000 to 7 000	Normal	1 100	0	Yes	Yes	Yes	0	Recovered (2 mos.)	Two mild recurrences induced recurrence after 6 grains of amidopyrine		
2	60 ♀	House wife	Insomnia	Allonal			1 100	0	Yes	0	0	Yes	Died after 1½ months	Had chronic granulocytopenia with frequent acute recurrences		
3	80 ♀	House wife	Acute chole cystitis	Allonal	1. 000	10 000	1 000	0	0	Yes	0	0	Died in 36 hours	No bone marrow response		
4	48 ♀	House wife	Rectal abscess	Allonal	8 000 to 10 000	Normal	1 400	0	Yes	Yes	0	Yes	Died in second recurrence			
5	40 ♀	House wife	Rectal abscess chole cystitis	Allonal	8 000	5 860	1 000	0	Yes	Yes	0	Yes	Died in first recurrence	Phenobarbital allonal and amytal with amidopyrine after recovery from acute attack		
6	22 ♂	Chemist	Pharyngitis	Sodium amytal amidopyrine			1 000	0	Yes	Yes	0	Yes	Died in first recurrence			
7	65 ♂	None	Headaches following influenza	Amidopyrine	9 600	5 700	1 000	0	0	Yes	0	Yes	Died	Slight bone marrow response		
8	42 ♀	Clerk	Rectal fistula	Neonal amidopyrine	8 000	6 700	200	0	Yes	Yes	0	0	Died	No evidence of bone marrow response		
9	74 ♂	Laborer	Tic douloureux	Amidopyrine			0	120	0	Yes	0	0	Recovered (4 mos.)	No recurrence		
10	20 ♀	Nurse	Back strain	Amidopyrine			2 900	50	0	Yes	0	0	Recovered (10 mos.)	No recurrence		
11	48 ♀	House wife*	Pharyngitis	Amidophen + phenobarbital			1 100	0	0	Yes	Yes	0	Recovered (8 mos.)	No recurrence		
12	58 ♀	House wife	Pharyngitis tonsillitis	Amidopyrine	5 000 to 6 000	Normal	1 400	0	0	Yes	0	0	Recovered (7 mos.)	No recurrence		
13	61 ♀	House wife	Cerebral hemorrhage	Allonal	10 900	7 825	1 100	0	0	Yes	0	Yes	Died	No bone marrow response		
14	34 ♀	House wife	Arthritis	Amytal with amidopyrine	5 000	4 300	1 000	0	0	Yes	0	0	Recovered (3 mos.)	Amytal with amidopyrine and amidopyrine alone induced recurrences (chart)		

* Physician's wife

† Amidopyrine acetphenetidin caffeine hyoscine

The relation between the use of these drugs and the development of the typical blood picture was quite striking in several patients. Patient 7, a man, aged 65, on admission to the hospital for treatment of severe headaches had a total white count of 9,600 with 5,700 granulocytes. He was given a normal diet and had no medication or treatment except 10 grains (0.6 Gm.) of amidopyrine daily. No additional symptoms were observed until at the end of eleven days he became acutely ill and was found to have a total white cell count of 1,600, with complete absence of granulocytes. Patient 8, a woman, aged 42, admitted to the hospital for surgical care of an anal fistula and abscess, had a normal white count on admission. She had received no medication except neonal (n-butylethylbarbituric acid) compound (neonal with amidopyrine) in varying doses for restlessness and at the end of three weeks no granulocytes were present in the peripheral blood.

Additional suggestive evidence of the etiologic relationship of these drugs to granulocytopenia was seen in the clinical course of the patients in our group. Although the methods used for stimulation of granulopoiesis were similar in all patients, consisting of transfusions, nucleotide or yellow bone marrow extract, amidopyrine was strictly prohibited in eight of the cases but its use was permitted in six others because its harmful effect was not fully appreciated. In the group of six cases in which amidopyrine alone or in combination with barbiturates was used for the relief of pain or restlessness during or after the acute illness, the mortality has been 100 per cent in spite of the fact that four recovered from the acute attack. In the other group of eight patients the use of these drugs was prohibited. Only two of these patients have died.

(mortality 25 per cent) and the granulocytopenia in each of the fatal cases was so extreme when the diagnosis was made that no bone marrow response to stimulation was obtained, and death occurred in thirty-six hours and four days, respectively. All others in the group recovered from the acute attack and are well after an interval varying from two years to three months. Five of these patients have had no recurrence. One patient has had three mild recurrences, at least two of which are known to have followed the taking of amidopyrine.

EXPERIMENTAL OBSERVATIONS

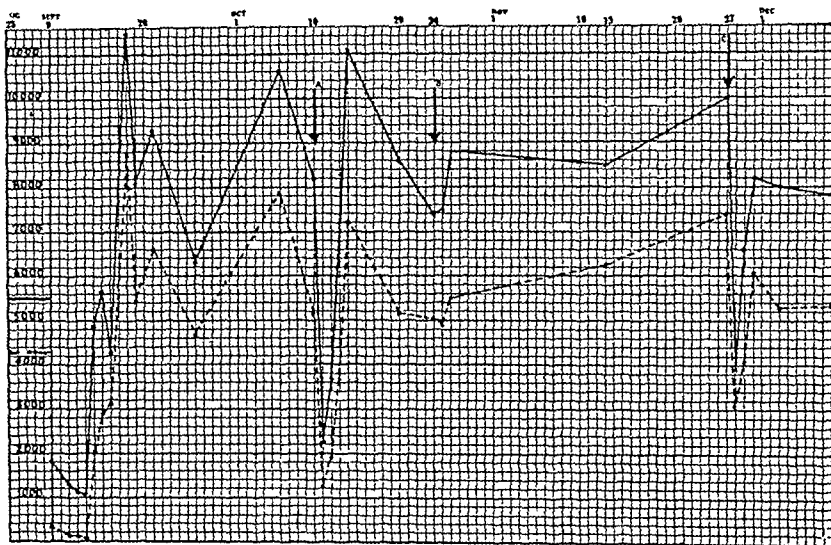
To obtain further evidence of the ability of these drugs to depress the granulocytes, drugs suspected of etiologic relationship were given to each of two patients who had clinically recovered from acute granulocytopenia. Patient 1, a man, aged 40, who eighteen months previously had had his initial attack following the use of allonal and who constantly had had a normal granulocyte count for ten months, was given 5 grains (0.3 Gm) of amidopyrine. In three hours he had a chill with return of symptoms of the acute illness and in twelve hours the granulocytes had almost completely disappeared from the peripheral blood.

Patient 14, a woman who had arthritis and developed granulocytopenia after the administration of amytal compound and who had had a normal granulocyte count for three weeks after the acute attack, was given two capsules (amytal 3 grains, amidopyrine 7 grains) of this drug. Two hours after administration the granulocyte count had fallen from 6,850 to 3,200 and after twelve hours to 1,200. Subsequently there was a gradual return to normal as shown in the accompanying chart. As a control, a patient with a similar type of arthritis, but who had not had granulocytopenia, was given the same dosage of amytal compound with no significant change in the granulocyte or total white count. Three weeks later the patient who had had granulocytopenia after amytal compound was given 3 grains of amytal alone and blood counts were made at corresponding intervals. No significant alteration in the total or granulocyte count was seen. After another three weeks interval, during which time the granulocytes remained at a normal level, she was given 5 grains of amidopyrine and again a severe depression of the total and granulocyte counts occurred. Before administration of the amidopyrine the granulocyte count was 7,400, sixteen hours later it was 3,100, after which it gradually returned to normal.

In these two patients amidopyrine or amidopyrine in combination with amytal (amytal with amidopyrine) produced a temporary marked depression of the granulocytes. In the second patient amytal alone failed to produce this effect. It seems to us reasonably certain that continued administration of drugs containing amidopyrine to these two patients would have resulted in a recurrence of the typical primary granulocytopenic state.

Following our clinical observations in 1931, and before we were aware of the work done by Kracke,⁶

we attempted to produce the clinical picture of granulocytopenia in rabbits by the administration of suspected drugs. Eleven rabbits were given allylisopropylbarbituric acid with amidopyrine (allonal) by mouth in doses of from $2\frac{2}{3}$ grains (0.16 Gm) to 24 grains (1.55 Gm) daily, four rabbits were given the same drug intraperitoneally and four rabbits were given from 1 to 2 grains (0.065 to 0.13 Gm) of amidopyrine alone intravenously and intraperitoneally. One rabbit that had been given an average of 20 grains (1.3 Gm) of allonal daily by mouth showed a rather abrupt drop in both the total and the granulocyte count on the twenty-fifth day, following which there was a progressive fall until death occurred on the thirtieth day (table 2). Preceding death there was complete absence of granulocytes in the peripheral blood and the blood picture was characteristic of primary granulocytopenia except for a moderate anemia. At necropsy there were no grossly abnormal conditions found save that the bone marrow was absolutely lacking in cells of the granular series. None of the other rabbits showed the blood picture of granulocytopenia.



Total white blood count (solid line) and granulocyte count (broken line) in case 14, showing onset of granulocytopenia following administration of amytal with amidopyrine (amytal compound), and the subsequent effect of a single small dose of A amytal with amidopyrine B amytal alone, and C amidopyrine alone.

COMMENT

It is generally recognized that primary granulocytopenia is a relatively new clinical syndrome. Although a few apparently authentic cases preceded Schultz's description in 1922, it is only since that time that the disease has attracted wide attention. We do not believe that the small number of cases reported prior to that time was due to diagnostic error, for the blood picture is so characteristic that it could scarcely be overlooked. Even in the five years subsequent to Schultz's report, Kastlin¹⁴ was able to find only forty-three cases in the literature. In the six years since Kastlin's report, however, the incidence has increased rapidly, so that now there are more than 500 cases on record. That period of rapid increase coincides almost exactly with the increase in the use of drugs containing a combination of amidopyrine with a barbiturate. Furthermore, in our cases, as in cases recorded in the literature, the syndrome has appeared in those people who are most apt to be taking drugs—physicians, physicians' wives,

¹⁴ Kastlin G J. Agranulocytic Angina. *Am J M Sc* 173: 799 (June) 1927.

nurses and patients of physicians. In most instances it has occurred in individuals who have had some type of illness, usually associated with pain, and were under medical care prior to the onset of the granulocytopenia. In every patient in our series the onset of the granulocytopenia was preceded by the taking of amidopyrine or amidopyrine combined with a barbiturate. In a group of eight cases in which the further use of these drugs was prohibited, the mortality was 25 per cent. In a group of six cases in which the use of these drugs was continued, the mortality was 100 per cent. We have been able to induce a marked decrease in granulocytes by the administration of a single small dose of these drugs to patients who had recovered from an acute granulocytopenia. It is interesting but of

festations of drug hypersensitivity. The widespread use of arsphenamine and amidopyrine as compared with the small incidence of primary granulocytopenia suggests that drug hypersensitivity is responsible for the bone marrow reaction seen in those cases. The rapidity of the decrease of the granulocytes and the tendency to spontaneous return to normal after the administration of a single small dose of amidopyrine to individuals known to be susceptible further suggests the same type of reaction. A similar profound temporary leukopenia has been demonstrated in anaphylactic shock. It is our conception therefore that the bone marrow and blood changes in primary granulocytopenia are the result of the repeated administration of certain drugs (amidopyrine with a barbiturate,

TABLE 2—Blood Counts of Rabbit Showing Response to Administration of Allylisopropylbarbituric Acid with Amidopyrine (Allonal) by Mouth

Date 1932	Weight Gm	Tablets Allonal by Mouth	Red Blood Cells	White Blood Cells	Granulocytes	Poly morpho-nuclears	Leucocytes	Hemoglobin	Lymphocytes	Mono-nuclears	Transfusions
Jan 4	2 900		4 920 000	8 400	7 2 6	2 0	2 0	1 0	61 0		
Jan 6			4 890 000	7 400	2 000	0 0			65 0	1 0	1 0
Jan 8			5 180 000	8 000	2 000	0 0	1 0	2 0	74 0	0 0	
Jan 11		1	4 930 000	6 900	1 510	2 0	2 0	0	7 0	0 0	
Jan 12		2	4 740 000	6 100	1 800	2 0	2 0	0	71 0		
Jan 13		4	4 920 000	6 600	409	2 0		0	60 0		
Jan 14		1	6 430 000	7 600	2 0	0	1 0	0	65 0	0 0	
Jan 15	3 000	4	4 610 000	8 100	1 14	0 0		0	69 0	0 0	
Jan 16		4	5 000 000	7 400	2 30	0 0	1 0	0	69 0	0 0	0 0
Jan 18		6	5 510 000	9 000	990	10 0		1 0	80 0	3 0	
Jan 19		6	5 090 000	7 100	1 401	18 0	1 0		7 0	4 0	
Jan 20		6	5 540 000	6 100	1 100	20 0		2 0	70 0	1 0	
Jan 21		8									
Jan 22	3 080	8	5 430 000	6 700	2 918	40 0	1 0	0	74 0	2 0	
Jan 23		4									
Jan 25		8	5 330 000	7 400	1 900	6 0	1 0	5 0	70 0		
Jan 26	3 080	7									
Jan 27		7	5 160 000	3 600	684	17 0	1 0	1 0	61 0		
Jan 28		8	5 400	5 400	2 11	4 0	1 0	1 0	70 0		
Jan 29		7	4 100 000	4 500	1 82	6 0	2 0	2 0	60 0		1 0
Jan 30	3 070	5	4 000	4 000	1 14	2 0	0 0	0 0	70 0		0 0
Feb 1		8	4 410 000	3 400	799	20 0	0 0	2 0	70 0	0 0	
Feb 2		8	4 000	4 000	972	21 0	0 0	2 0	70 0	0 0	
Feb 3		7	4 370 000	7 800	1 700	0 0	1 0	4 0	69 0	0 0	
Feb 4		8	3 600	3 600	872	10 0		4 0	73 0		
Feb 5		8	4 150 000	3 800	82	10 0		2 0	74 0	1 0	
Feb 6		8	4 400	4 400	94	10 0		1 0	70 0	1 0	
Feb 8	3 110	9	3 000 000	2 500	687	0 0	1 0	0 0	70 0	0 0	
Feb 8 (p m)			2 000	2 000	800	0 0		1 0	60 0		
Feb 9		8	3 000 000	2 600	922	26 0	1 0		60 0	0 0	
Feb 10		6	3 000 000	2 400	600	26 0	1 0		72 0	0 0	
Feb 11		8	2 750	2 750	467	17 0			61 0	2 0	
Feb 12 (10 a m)		7	2 590 000	1 600	48	3 0			97 0		
Feb 12 (1 30 p m)				1 600	48	3 0			97 0		
Feb 13		0	2 760 000	700	7	1 0			99 0		
Feb 14			2 040 000	1 000	0	0 0			100 0		
Feb 15	Died early morning Weight, 2 830 Gm										

much less significance, that we have produced fatal granulocytopenia in one rabbit by the long continued oral administration of allylisopropylbarbituric acid with amidopyrine.

We believe that this evidence indicates that these drugs are etiologic factors in primary granulocytopenia in man. Such a relationship already has been demonstrated for arsphenamine and less typically for benzene. We feel that amidopyrine, especially in combination with a barbiturate, must be added to that group and is probably of more importance than either of the others. Whether the presence of the barbiturate results in a synergistic action or otherwise influences the effect of the amidopyrine remains to be determined. Amidopyrine contains a benzene ring as do arsphenamine and benzene. Whether the presence of the benzene ring is of primary importance, as suggested by Kracke, likewise remains to be determined. If such is the case, a number of similar drugs may be incriminated later.

Drugs of the type represented by amidopyrine are recognized as frequently responsible for various mani-

festations of drug hypersensitivity. The widespread use of arsphenamine and amidopyrine as compared with the small incidence of primary granulocytopenia suggests that drug hypersensitivity is responsible for the bone marrow reaction seen in those cases. The rapidity of the decrease of the granulocytes and the tendency to spontaneous return to normal after the administration of a single small dose of amidopyrine to individuals known to be susceptible further suggests the same type of reaction. A similar profound temporary leukopenia has been demonstrated in anaphylactic shock. It is our conception therefore that the bone marrow and blood changes in primary granulocytopenia are the result of the repeated administration of certain drugs (amidopyrine with a barbiturate,

SUMMARY

1 The increase in incidence of primary granulocytopenia (granulocytic angina) has paralleled the increase in the use of drugs containing amidopyrine and especially those containing amidopyrine with a barbiturate.

2 The disease has appeared most frequently in persons apt to be taking drugs—physicians, nurses, and those directly under the care of a physician.

3 In each of fourteen patients the onset of primary granulocytopenia was directly preceded by the use of amidopyrine alone or in combination with a barbiturate.

4 The mortality in a group of six patients who continued the use of drugs containing amidopyrine was

100 per cent In a group of eight patients who did not continue the use of these drugs, only two died, and both of these died in the initial attack

5 The administration of a single dose of amidopyrine to each of two patients who had recovered from the acute disease was followed by a rapid profound fall in granulocytes

6 One rabbit given allylisopropylbarbituric acid with amidopyrine (allonal) by mouth in relatively large doses showed an abrupt drop in granulocytes and died on the thirtieth day Preceding death there was complete absence of granulocytes in the peripheral blood Seventeen other rabbits given allonal or amidopyrine showed no significant change in the blood picture

7 We believe that amidopyrine alone or in combination with a barbiturate is capable of producing primary granulocytopenia in certain individuals who have developed sensitivity to the drug

8 We believe that the appearance of primary granulocytopenia following the use of such drugs may be the result of an allergic or anaphylactoid drug reaction¹⁵

425 East Wisconsin Avenue

SPONTANEOUS LATE DESCENT OF THE TESTIS

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While making yearly examinations during the past six years of the boys at a country day school in St Paul I was early impressed by the relative frequency of cases of undescended testis The boys ranged in age from 9 to 19 and out of some 260 boys examined in all (the school enrolment averaging about 140) eleven boys showed this developmental defect at some time during this period of observation

The usual method of palpation with invagination of the scrotum, the examining finger reaching the external inguinal ring, failed to locate the missing testis in any of these eleven boys These were in my opinion cases of undescended testis The condition was left sided in six cases, right sided in four cases and bilateral in one case

The question was raised whether the parents should be notified of a developmental defect about the existence of which most of the parents presumably were ignorant At the suggestion of the headmaster of the school, to whom the frequency of the condition was nothing new, I decided simply to observe developments

This policy of observation has been enlightening Ten of these twelve missing testes have spontaneously and rather miraculously descended to the scrotal position This late spontaneous descent occurred, roughly, once in the tenth year, twice in the eleventh, twelfth, thirteenth and fourteenth years and once in the sixteenth year The two persisting cases are in boys now 14 years of age

Special attention was paid in the examination of these eleven to determine (1) the position of the late descended testis (2) lack of testicular development as evidenced by its size, (3) the association of hernia

and (4) evidence of an associated physical or mental inferiority

All except one of the late descended testes have reached the normal position low in the scrotal sac and are normal in size In the boy with a bilateral late descent, the right testis appeared in the scrotum in his fourteenth year and the left in his sixteenth year While the right testis is normal in size and position, the left is slightly smaller than the right and at present is midscrotal in position The presence of a hernia associated with a late descent of a testis was not determined in a single case, although it is said to be always present There was no evidence of any lack of physical development in any of these eleven boys I am assured by the headmaster that none of them show any evidence of being below the average in their studies

OBSERVATIONS ELSEWHERE

I have been unable to find any published record of observations extending over a period of several years as to spontaneous late descent of the testis The question arose whether my experience in this small group of boys had been unusual In an effort to answer this question I wrote to the medical examiners of eleven boys' schools that enroll boys before the age of puberty, making inquiry as to their experiences I received six replies One reported that three boys with undescended testes had been operated on, among 238 boys examined in 1929, and three cases of unoperated undescended testicle in 243 boys examined in 1931 Another examiner stated that he found "relatively few" cases but that the "vast majority" seen before puberty descend spontaneously Another reported seeing very few cases and that very few boys had been operated on Another found one case in a school of 100 boys during a four year period

As a result of the examination in the fall of 1932, of 268 boys ranging in age from 8 to 18 in a boys' school in Boston, Dr Donald S King made the following observations, which I have his kind permission to report Of these 268 boys, sixteen had or had had at one time an undescended testis Of the sixteen cases, eight were bilateral cases, seven right sided and one left sided Spontaneous descent had occurred in three of the eight bilateral cases, both testes having descended This occurred once in the twelfth, once in the thirteenth and once in the fourteenth year Four of the eight one sided cases had shown a spontaneous descent, one each in the tenth, eleventh, thirteenth and fourteenth years An orchidopexy had been performed in two unilateral cases, one in the fourteenth and one in the fifteenth year, the testis in each case being smaller on the side operated on Of the persisting cases, five were bilateral (two boys aged 10, one boy aged 11 and two boys aged 12) and two were unilateral (one boy aged 10 and one aged 12)

This report shows an experience quite similar to mine, except as to the distribution of right sided, left sided and bilateral cases It is rather striking that there is no boy in this series over the age of 14 and that only two of the sixteen boys had been operated on Attention might be called to the fact that spontaneous descent occurred relatively late in childhood in this series also

Through the courtesy of Dr Henry Wireman Cook I was permitted to examine the records of some 532

¹⁵ We wish to express our appreciation to Drs F D Murphy, H J Birk and others of our colleagues for permission to include their cases in this series
Read before the Ramsey County Medical Society, St Paul May 29 1932

boys ranging in age from 9 to 19, enrolled during the past fifteen years at a private boys' school in Minneapolis. I found ten cases of undescended testicle recorded. Of these, seven had spontaneously descended, one in the eleventh, three in the twelfth, one in the thirteenth and two in the fourteenth year. Two of the remaining three boys had been observed just once, and the third had a persistence of the defect at the age of 16.

INCIDENCE

The incidence¹ of undescended testis in army recruits has been reported as 5 in 1,000 in Scotland (1916-1917), 2 in 1,000 in Austria (1870-1882) and 3 in 1,000 in the United States at the time of the World War. Failure in descent is said to occur more frequently on the right side possibly owing to the fact that normally the left testis is the first to descend. In about 20 per cent of cases the condition is said to be bilateral.

TREATMENT

To judge from the literature on the subject surgical treatment for undescended testis is almost universally advised. Bevan,² who first operated for the condition in 1898, is the exponent of early operation, preferring the first or second year of life. As recently as 1929 he said that the legend of spontaneous descent between birth and puberty is entirely erroneous and that in a large experience he has never seen a definite example of this kind. He does not recommend operation before puberty when the testis can be pressed into the scrotum, and he leaves alone certain individuals after puberty but recommends operation for practically all under puberty and the majority of those from puberty to the age of 20.

Hugh Cabot,³ writing in 1931 recommended operation before the age of 9 years but stated that even after puberty operation may save the gland. He thinks it fortunate that these patients see the surgeon early.

Most writers recommend orchidopexy before puberty. Wangenstein⁴ mentions the almost universal practice of orchidopexy and thinks the age from 8 to 11 best. He⁵ also stated as recently as 1932 that instances in which descent may occur between birth and puberty are so few that operation need not be postponed to the hope that the testis may spontaneously descend.

Higgins⁶ believes that, when the testis cannot be found, operation is indicated.

Complications such as accompanying hernia, torsion of the cord, malignancy of the testis and inflammation of the appendix testis are generally admitted indications for operation. The possibility of such rare complications arising is scarcely an indication for operation. A malignant condition of the testis occurs more frequently in the undescended testis. It is comparatively rare, however, and has developed following orchidopexy and even in normally descended testes. The surgeons apparently do not consider the possibility of malignancy a reason for operation.

1 Goetsch, Arthur. Undescended Testis. *Am J Surg* 12: 61 (April) 1931.

2 Bevan, A. D. The Operation for Undescended Testis. *Ann Surg* 90: 847 (Nov.) 1929.

3 Cabot, Hugh and Nesbit, R. M. Undescended Testis. *Arch Surg* 22: 850 (May) 1931.

4 Wangenstein, O. H. The Undescended Testis. *Arch Surg* 14: 663 (March) 1927.

5 Wangenstein, O. H. The Surgery of the Undescended Testis. *Surg Gynec & Obst* 54: 219 (Feb.) 1932.

6 Higgins, C. C. and Welti, H. Surgical Treatment of Undescended Testicle. *Surg Gynec & Obst* 48: 536 (April) 1929.

RESULTS FROM OPERATION

Goetsch,¹ reporting in 1931 on the position of the testis at the end of the operation in thirty-six cases, described six in a low scrotal position, sixteen in a midscrotal, seven in a high scrotal and seven in the lower inguinal position. A follow up of fifteen cases examined from four months to seven and a half years after operation showed six low scrotal, two midscrotal, five high scrotal, one in a low inguinal position and one missing. The operated testis had developed normally in one case.

In 1926, Burdick and Coley⁷ reported on 537 orchidopexies in 482 patients under the age of 17 performed at the Hospital for the Ruptured and Crippled from 1891 to 1924. Accurate estimations of end results were impossible because of incomplete data as to the location and size of the testis. From the figures given, only 114 of the 537 testes were classed as scrotal in position, with an additional 64 upper scrotal and 77 outside the inguinal ring. The authors think it fair to assume that 50 per cent of operations prove satisfactory as to position of the testis and that about 15 per cent are normal in size after operation.

Turner⁸ reports 70 per cent of fifty-three cases with the testis well down after operation.

Pasten⁹ reports 32 per cent of good results in thirty-one cases.

Coley,⁹ reporting in 1919 with special reference to end-results following operation, stated that in only a small percentage was the testis in the lower scrotum several years later.

If Wangenstein's opinion that only a low-lying scrotal testis will develop normally after puberty is correct, operative results must be judged on this basis.

The Torek operation of fixation of the undescended testis through the scrotum to the thigh has been devised to hold the testis well down in the scrotum more effectively and has been favorably reported on. I have been unable to find a report of final results obtained from this operation in any series of cases.

Certainly, surgical procedures have not been very successful.

COMMENT

What, if any, problem is presented by the undescended testicle? Cosmetic considerations may be summarily dismissed.

Psychic effect from failure of a testis to descend scarcely merits serious consideration.

It is established that even bilateral nondescent of the testis has no deleterious effect on the physical or mental development.

Functionally, one normal testis is as efficient as two.

A malignant condition occurs more often in an undescended than in a descended testis but at that is of rare occurrence.

In contradiction to Blund Sutton's statement that a testis fails to descend because it is abnormal, Wangenstein⁵ states that the undescended testis before puberty is indistinguishable macroscopically and microscopically from the normal.

CONCLUSION

Although my personal observations of the spontaneous late descent of undescended testes in boys under

7 Burdick, C. G. and Coley, B. L. Abnormal Descent of the Testicle. *Ann Surg* 81: 867 (Dec.) 1926.

8 Cited by Higgins and Welti.

9 Coley, W. B. Operative Treatment of Undescended Testis with Reference to End Result. *Surg Gynec & Obst* 28: 452 (May) 1919.

puberty is admittedly limited, my experience, taken in conjunction with the observations of the school physicians previously referred to, justifies certain conclusions

The unilateral uncomplicated undescended testis does not present any surgical problem in spite of considerable medical literature to the contrary. The great majority descend spontaneously by the age of 14 (many in the twelfth, thirteenth and fourteenth years), become normal in size and eventually lie low in the scrotal sac. The only case that should be considered a surgical problem is the bilateral one persisting to the fourteenth year or the unilateral case presenting complications.

I have been led to call attention to the spontaneous late descent of the great majority of undescended testes by the persistence of the urge to operate on these boys, evidenced in recent surgical articles. An article by Newell¹⁰ refers to a legend prevalent in the South that operation for undescended testis should be delayed until after puberty, as the testis will probably descend at or just after puberty. He says "When we consider what little foundation such a legend has in fact and what perfect opportunity there has always been for accurate observation and refutation, it is profoundly depressing that this legend should continue to exist among medical men." On the contrary, it seems remarkable to me that the truth of this legend has not been generally appreciated by the medical profession.

1235 Lowry Medical Arts Building

THE TREATMENT OF ERYSIPELAS IN CHILDREN

A COMPARATIVE STUDY SHOWING THAT BEST RESULTS ARE OBTAINED WITH THE USE OF ULTRAVIOLET RADIATION

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AND

SAUL STARR, M.D.

BROOKLYN

Erysipelas in infants still remains a dread disease, with a mortality rate usually well over 50 per cent. Serum therapy is the only treatment that has been repeatedly productive of results in infants, as shown by reports of consecutive series of cases. Despite reports of good results with ultraviolet therapy in adults, no study of this method of treatment in infants and children has yet been published. We hope by this preliminary report to make up for this deficit.

From the literature on the subject we may state the following approximations. When treated by only local applications, from 60 to 90 per cent of infants with erysipelas die. When serum is used, the mortality rate is brought down to from 40 to 60 per cent. Of sixteen cases reported by Foote,¹ there were three deaths of thirteen infants under 1 year of age—a low mortality rate of 23 per cent, while at Kings County Hospital in the last five years there have been thirty-four deaths of fifty-nine infants—a rate of 59.3 per cent. Elev's² recent study of thirty-three serum-treated cases reported

eleven deaths of twenty-five infants, a mortality rate of 44 per cent.

In recent years, scattered reports have been published concerning ultraviolet therapy for erysipelas. In the United States, Ude³ particularly has been advocating this method and in 1930 presented the first large series of such cases. Stimulated by his report we began similar work on all the children with erysipelas admitted to the pediatric service at Kings County Hospital. Every child under 12 years of age admitted for erysipelas since November 1932 was given ultraviolet therapy alone. Frankly, we were rather skeptical at the outset. However, our results soon were so gratifying—especially in comparison with serum-treated cases over the past five years—that we decided to analyze our figures and present our results to date.

HISTORICAL SUMMARY

Since the American writers on the subject have omitted doing so, a brief summary of the development of ultraviolet therapy for erysipelas may not be amiss.

Petenyi⁴ in 1921 treated fourteen infants under 10 months of age, with only two deaths. He irradiated with less than an erythema dose.

Of 100 cases, Czepa⁵ in 1922 reported good results with ultraviolet therapy in "almost every case."

In 1927, Becker⁶ reported that two infants, and later⁷ eight infants under 1 year of age, received ultraviolet therapy for erysipelas, three of these were under 1 month of age and the only death in his series occurred in this group. He advised one and a half erythema doses to an area extending to 4 cm beyond the erysipelatous border.

Ude and Platou³ first reported their results with ultraviolet therapy of erysipelas in 1930. Ude's⁸ latest report includes 147 cases, in which ultraviolet therapy was used in both adults and children. His mortality rate for this group was about 7 per cent, as compared with a 71 per cent mortality rate for serum-treated cases as reported by Symmers.⁹ Ude and Platou's results with serum therapy and roentgen therapy were not as good as in their ultraviolet-treated series, in either adults or infants. Only five infants were treated with ultraviolet rays alone, with a mortality rate of 40 per cent. We shall refer again to their statistics. The dosage employed was twice a mild erythema dose, with the burner at 8 inches, so as to concentrate the shorter wave lengths on the erysipelatous area.

Davidson¹⁰ in 1932 reported a smaller series of cases treated by ultraviolet irradiation with good results.

Various authors have studied the infancy cases with the idea of giving mortality statistics for various age groups of infants. In general, infants under 6 months of age have a mortality rate of 60 per cent with only local treatment.

Based on a series of cases in forty-eight infants under 1 year, Schaffer and Rothman¹¹ give the following figures for untreated cases: 80 per cent mortality rate for infants under 1 month, 53 per cent for infants from 1 to 6 months, and 47.6 per cent for infants from 6 to

- 3 Ude W. H. and Platou E. S. Erysipelas J. A. M. A. 95: 1 (July 5), 1930.
- 4 Petenyi G. Monatschr. f. Kinderh. 21: 269 (June) 1921.
- 5 Czepa A. Wien. klin. Wchnschr. 75: 564 (June 22) 1922.
- abstr. J. A. M. A. 79: 1088 (Sept. 23) 1922.
- 6 Becker J. München med. Wchnschr. 74: 497 (March 25) 1927.
- 7 Becker J. Strahlentherapie 3: 4: 205 1929.
- 8 Ude W. H. Arch. Physical Therapy 12: 16 (Jan.) 1931.
- 9 Symmers Douglas and Lewis K. M. The Antitoxin Treatment of Erysipelas J. A. M. A. 99: 1082 (Sept. 24) 1932.
- 10 Davidson J. M. Brit. M. J. 1: 929 (May 21) 1932.
- 11 Schaffer, A. J. and Rothman P. E. The Treatment of Erysipelas with Blood Transfusion. Am. J. Dis. Child. 33: 116 (Jan.) 1927.

10 Newell E. D. Ideal Operation for Undescended Testicle and the Necessity for the Operation. Am. J. Surg. 20: 223 (May) 1933.
From the Pediatric Service of Kings County Hospital. Paul L. Parrih, M.D., director.

1 Foote J. A. South. M. J. 23: 2934 (Jan.) 1930.
2 Elev R. C. The Treatment of Erysipelas in Infants. Am. J. Dis. Child. 30: 529-535 (March) 1930.

12 months Based on fourteen serum-treated cases, there was 100 per cent mortality (one case) for infants under 1 month, 25 per cent for infants from 1 to 6 months, and 20 per cent for infants from 6 to 12 months. Our larger series of fifty-nine serum-treated infants give results (table 1) that are no better than Schaffer and Rothman's untreated series.

TABLE 1—Study of Deaths in Infants by Age Groups

Age	Serum Treated			Ultraviolet Treated		
	Cases	Number	Per Cent	Cases	Number	Per Cent
0-1 month	6	5	83.3	7	1	14.3
1-4 months	23	14	60.8	5	0	0.0
5-8 months	14	10	71.4	7	3	42.8
9-12 months	16	5	31.2	4	0	0.0
13-24 months	12	2	16.6	5	1	20.0

METHOD OF STUDY

Since November 1932 we have treated with ultraviolet rays fifty-one children under 12 years of age with erysipelas, of these, twenty-three were infants under 1 year of age. Four infants and one older child also received serum therapy, of these five, three died. These patients were treated early in our work when we had less confidence in ultraviolet irradiation rather than make a separate classification of these five cases we have added them to both the ultraviolet and the serum treated series.

For comparison we have reviewed all the pediatric admissions since January 1929. In all there were 130 patients with erysipelas, of these, 101 received serum treatment alone and 16 received local treatment the remainder receiving various forms of treatment.

Such a division of cases as in table 2 makes the groups too small for a comparative study of all the methods of treatment. We have therefore compared our ultraviolet group with the results in the 101 serum-treated cases. Considering the fact that serum treatment has given perhaps better results than all previous forms of therapy, and certainly better than simply local applications, results that are as good as or better than with serum treatment will establish the efficacy of ultraviolet therapy.

TABLE 2—Summary of Cases

Treatment	Over 1 Year		Under 1 Year	
	Cases	Deaths	Cases	Deaths
Ultraviolet	27	1	19	7
Ultraviolet and serum	1	1	4	2
Serum	46	2	5	32
Local treatment	5	0	11	6
Mixed treatment	7	0	6	4
Total	86	4	35	51
Mortality		4.6%		53.6%

TECHNIC OF THERAPY

The serum-treated patients received various commercial antisera in dosage as suggested by Simmons. On admission, each patient received 10 cc of serum intramuscularly, this dose was repeated every twelve to twenty-four hours until the disease was under control. An average of four ampules of serum per patient was used. Most of the group were also given wet magnesium sulphate dressings locally over the erysipelatous area.

Early in our study the ultraviolet therapy was much as that suggested by Ude and Platou. As soon as admitted, the child received a single dose of ultraviolet radiation—about one and a half erythema doses for the older children, slightly less for the infants. The ultraviolet rays were directed to an area extending from 1 to 2 inches beyond the spreading border, the burner being set 10 inches from the patient. If the area could be exposed only from two directions, the overlapping was permitted.

However, we soon noticed that, especially in the infants, the dose of ultraviolet radiation had to be repeated frequently for continued spread of the lesion and persistence of a high temperature. Our routine was then changed to three doses of one and a half erythema doses on successive days, regardless of the clinical course. Rarely did we have to repeat the ultraviolet irradiations. We saw no ill results from the treatment in our entire series.

In many of the infants treated with ultraviolet rays early in our series, transfusion was performed, especially if complications were present. However, seeing no particular benefit in these complicated cases and

TABLE 3—Analysis of Results*

	Total Cases	Total Mortality	Corrected Mortality	Before Treatment (All Cases)	Before Treatment (Recovered Cases)	Mortality (Recorded Cases)
Over 1 year						
Serum	47	3 cases 6.4%	2 cases 4.2%	2.5 days	2.5 days	2.9 days
Ultraviolet	25	2 cases 8.0%	1 case 4.0%	2.2 days	2.2 days	6.6 days
Under 1 year						
Serum	9	31 cases 77.8%	2 cases 22.2%	2.3 days	1.5 days	1.0 days
Ultraviolet	23	9 cases 39.1%	7 cases 30.4%	2.7 days	2.4 days	1.6 days

* Four infants and one older child who were treated with both serum and ultraviolet rays are considered as belonging to both series.

finding that in most of our uncomplicated cases recovery occurred without transfusion, we discontinued it as a routine procedure.

ANALYSIS OF CASES

We divided our patients into those over 1 year, "older children" and those under 1 year of age, "infants." Most writers on this subject use 2 years as the dividing line, but infants between 1 and 2 years of age have a mortality rate closer to those over 2 than those under 1 and should be classed with the older children. (This increases our mortality in the infants as compared to other authors but gives more accurate statistics.)

Mortality in Older Children—The rate in older children was close to that of adults, as reported by Simmons in 1932. He reports a series of 3,311 cases mostly adults, treated with serum with a mortality of 71 per cent. In our series of eighty-six older children our mortality is 46 per cent. Of the eighty-six cases, forty-seven treated by serum alone gave a mortality rate of 64 per cent, while twenty-eight were treated by ultraviolet rays alone with a death rate of 71 per cent. Of the deaths in this group the respective ages are 13 months, 17 months, 21 months and 3 years, the two older patients are mongolian idiots. In general, the older the child, the better the prognosis.

Mortality in Infants—In the group of ninety-five infants our total mortality was 53.7 per cent. This is somewhat better than that reported by Ude in January

1931 He had thirty cases with a mortality of 63.3 per cent. In our series serum therapy was used in fifty-nine cases with a mortality of 59.3 per cent, and in twenty-three cases ultraviolet therapy was employed with a death rate of only 39 per cent. In Ude's series ultraviolet therapy alone was employed in five cases with a 40 per cent mortality, roentgen therapy in seven with 85 per cent mortality, roentgen therapy and serum in two with a 50 per cent mortality, and ultraviolet and serum therapy in six, with a 50 per cent mortality. We have too few cases to discuss in which other methods of therapy were used, and the foregoing results may be compared with ours by reference to table 5.

We corrected our death rate by eliminating the cases in which death did not seem due to erysipelas per se but to a complicating feature, such as pneumonia or mastoiditis. An example of what we mean is shown by a case admitted with a diagnosis of pneumonia and erysipelas. Clinically the erysipelas cleared in five days but the child died four days later of the pneumonia. Our mortality rate, when corrected, becomes 30.4 per cent in ultraviolet and 47.4 in serum cases.

Morbidity in Older Children—As may be seen in table 3, there is considerable difference in the duration of disease. The average morbidity for the forty-seven older children treated with serum was 89 days and in the twenty-eight ultraviolet cases 66, a difference of 23 days. The average days before treatment in both groups was about 2.5 days.

Morbidity in Infants—In the infants under 1 year of age the figures are still more striking. The average number of days before treatment is coincidentally the same, 2.3. The serum cases had a fifteen day morbidity and the ultraviolet cases a 7.6 day morbidity, a 50 per cent decrease in the length of illness. As can be seen in table 1, by dividing the cases into smaller age groups, most of these groups show better results for ultraviolet rays.

TABLE 4—"Ideal Cases"

	Total Mortality	Corrected Mortality	Morbidity
Over 1 year (treated within 24 hours)			
Serum treatment	1 of 11 cases 9%	0	78 days
Ultraviolet treatment	0 of 8 cases 0%	0	44 days
Under 1 year (treated within 48 hours)			
Serum treatment	17 of 31 cases 54.8%	14 of 31 cases 45.1%	89 days
Ultraviolet treatment	4 of 11 cases 36.3%	2 of 11 cases 18.1%	63 days

Early Treated Cases—Since it has been shown that the earlier the treatment is instituted the shorter the course of the disease, we decided to study a group of early treated serum and ultraviolet cases, which we will term "ideal cases." In the older children given serum within twenty-four hours of onset, the mortality was 9 per cent and the morbidity was reduced from 89 to 78 days. In those in which ultraviolet rays were used the mortality was nil and the drop in morbidity was from 66 to 44 days. It can be seen that the average duration of the ultraviolet cases was three days less than the serum cases.

Among the infants we had too few treated within twenty-four hours and used those treated within forty-

eight hours as our ideal cases. In these, the mortality rate was 54.8 per cent for serum and the morbidity was 89 days whereas it was fifteen days for the entire group. The irradiated series had a mortality of 36.3 per cent with a morbidity of 63 days whereas it was 7.6 for the entire group. Again there is a difference of about three days' illness between ultraviolet and serum cases.

The number of complications that occurred in all groups was less in the cases treated earlier and in general was less in the irradiated cases than in those treated by serum.

TABLE 5—Miscellaneous Cases

Type of Treatment	X Rays		Magnesium Sulphate		X Rays and Serum	
	Under 1	Over 1	Under 1	Over 1	Under 1	Over 1
Number of cases	1	2	11	7	5	4
Number of deaths	0	0	0	2	4	0
Average days before treatment	5	3	2.3	2.5	2	1.5
Average morbidity in days	15	6	8	8	8	8

Of special interest is the youngest child in the series. This was a premature infant weighing 4 pounds 13 ounces (2,182 Gm.) and was 19 days old. The baby had a definite erysipelas of the face, which was treated with ultraviolet rays. The temperature came down to normal by crisis in three days and the child was discharged six days later weighing 5 pounds 2 ounces (2,325 Gm.).

SUMMARY

1 Ultraviolet therapy alone gives better results in both infants and older children than does serum therapy.

2 As with serum, the earlier ultraviolet therapy is given, the better will be the results.

3 There was no difference in severity observed between the facial and the body type of erysipelas, except that the genital type was usually severe.

4 Translating our figures into more graphic statements, we find:

A In older children,

(a) Death was almost nil in previously healthy children over 2 years of age, and when it occurred it was due to complicating features such as mongolism, pneumonia, and the like.

(b) The child is ill about six and a half days but if treated within twenty-four hours of onset is ill only four and a half days (three and a half days after treatment).

B In infants,

(a) One out of five die despite early treatment for an uncomplicated erysipelas, if not treated early, one out of three die.

(b) The presence or appearance of a complicating feature, such as pneumonia, mastoiditis, gastro-enteritis, jaundice, spells almost certain death. Local abscesses are much less important.

CONCLUSION

1 Ultraviolet therapy to date has been (a) most successful, (b) least dangerous, and (c) least expensive.

2 On this basis, ultraviolet irradiation should be put above serum therapy in the treatment of erysipelas.

221 Linden Boulevard—1554 Ocean Avenue

Clinical Notes, Suggestions and New Instruments

HEMOCHROMATOSIS IN A WOMAN

H. F. WECHSLER, M.D., NEW YORK

Hemochromatosis is not an uncommon disease. Its occurrence in women, however, is a rarity. My purpose in the present communication is to place on record another of these exceptional cases.

REPORT OF CASE

History—M. L., a white woman, aged 47, an American housewife, first seen, June 7, 1930, complained of polydipsia and loss of weight. In May, 1929, a trace of sugar had been discovered in the urine which, in spite of a restricted carbohydrate intake, had rapidly mounted. In July she entered a hospital in Portland, Maine, where she was finally rendered sugar free on a weighed diet of 150 Gm of carbohydrate, 60 Gm of protein, 90 Gm of fat and 4 units of insulin at bedtime. Since that time, although she adhered strictly to her diet, sugar had appeared irregularly in the urine and she had lost 7 pounds (3.2 Kg). Polydipsia had been present for several months. Her appetite was good and her bowels were regular. There were no cardiovascular or respiratory symptoms. She had not noticed any discoloration of the skin as she was accustomed to lead an outdoor life but her husband thought that she had become "deeply tanned" in the past year. On two occasions, two years and again six months previously, she had suffered from marked frequency and urgency of urination. These attacks lasted for several days and disappeared spontaneously.

Prior to her present illness she had always been in splendid health. She drank an occasional glass of beer. She had three children, aged 17, 14 and 11 years, respectively. There had been no miscarriages. Her menses were normal.

Her mother died at the age of 62 of diabetes mellitus; her father died at 40 of meningitis. One sister aged 50 was alive and suffering from essential hypertension.

Examination—The patient was undernourished and had the appearance of being chronically ill. She weighed 98 pounds (44.5 Kg). The skin was universally light brown with the exception of the face, neck, forearms and the back of the hands which were of a much deeper brown. Several small red papules were present in the flush area of the face.

The eyes and eye grounds were normal except for a definite subicteric tinge to the sclerae. The mucosa of the mouth showed no pigmentation. The tongue was clean and the pharynx normal. The teeth were in a good state of repair.

There was no glandular enlargement and the thyroid was not palpable.

The lungs were clear and the heart was normal. The blood pressure was 120 mm systolic and 80 mm diastolic.

The abdomen was protuberant with marked distasis of the rectus muscles and a moderate umbilical hernia. The liver extended a hand's breadth below the costal arch in the mid clavicular line. The surface was smooth, firm and not tender and the edge was rounded. The spleen was palpable three fingerbreadths below the costal arch. It was freely movable, firm and not tender. No other organs or masses were palpable. There was no ascites.

Pelvic examination was negative except for a moderate cystocele and rectocele. Rectal examination revealed the presence of internal hemorrhoids. The extremities were normal and the reflexes were normal.

Examination of the urine (a twenty-four hour specimen) showed a faint trace of albumin, sugar 0.5 per cent, the absence of acetone and a moderate number of white blood cells microscopically. Chemical examination of the blood plasma revealed sugar, 224 mg per hundred cubic centimeters, urea nitrogen, 12.5 mg, uric acid, 3.0 mg, creatinine 0.5 mg, carbon dioxide capacity, 49 volumes per cent. The blood count was red blood cells, 4,750,000; platelets, 250,000; hemoglobin (Sahli), 94 per cent; white blood cells 6,000; neutrophils

66 per cent, lymphocytes, 34 per cent. The bleeding and clotting times were normal. The Wassermann reaction of the blood was negative. The icteric index was 35, and the direct Van den Bergh test gave a delayed positive reaction. Fragility of the red blood cells was diminished. Hemolysis began at 0.33 per cent and was not complete at 0.25 per cent. The Ewald test meal showed free hydrochloric acid 8, total hydrochloric acid 20. Roentgenograms of the gastro intestinal tract were essentially negative. A biopsy of the skin (hematoxylin-eosin and iron stains) was done. A small amount of hemosiderin was present in the corium in the form of dustlike granules, both free and in the chromatophores. It was most abundant about the coil glands. Hemofuscin was found in much greater quantity in the corium.

Course—On a diet of 180 Gm of carbohydrate, 60 Gm of protein and 100 Gm of fat totaling 1,914 calories, and 10 units of insulin, she remained sugar free for two months. The blood sugar, which had been ranging between 110 and 160 mg per hundred cubic centimeters, then rose to 304 mg and the urine contained 1 per cent of sugar. The insulin was increased to 15 units. In spite of the fact that she adhered to the same carefully weighed diet her tolerance steadily diminished and with almost monotonous regularity the insulin had to be increased about every two months in order to desugarize her system. By November, 1931 she was taking 40 units of insulin, 25 before breakfast and 15 at bedtime. Her weight varied between 98 and 105 pounds (44.5 and 47.6 Kg).

From June to September 1930 she was given an intensive course of sodium thiosulphate intravenously with no appreciable influence on the size of the liver and spleen or on the diabetes. Although the Wassermann reaction was negative, a therapeutic test of bismuth and iodides was tried for several months with the same results.

In January 1931 she complained of abdominal distention and diarrhea. Pancreatic extract and the elimination of raw fruits, bran cereals and coarse vegetables from the diet controlled these symptoms. They were apt to return after even slight dietary indiscretions, however.

Complete urinary retention with overflow dribbling occurred in April 1931. Cystoscopy revealed a markedly hypertrophied and trabeculated bladder and a single diverticulum about the size of a plum arising from its posterior wall. Pyelograms showed a moderate bilateral hydronephrosis. Spinal fluid withdrawn by lumbar puncture was under normal pressure. The cell count, globulin, sugar, Wassermann and colloidal mastic tests were completely negative. It was the cystoscopist's opinion that the condition was congenital in nature. With frequent bladder irrigations and strychnine sulphate by mouth, the bladder paralysis was finally overcome only to recur six weeks later. The second attack was very refractory to treatment until a vaginal pessary was inserted. The symptoms were immediately and permanently relieved.

July 5, 1931 she had a severe hematemesis and a second one occurred on the 30th. Blood transfusions had to be resorted to in each instance. September 24, she complained of weakness and dyspnea on exertion. Examination revealed a moderate secondary anemia associated with melena.

Several months previously, a small, freely movable mass the size of a walnut had been palpated in the upper outer quadrant of the left breast. Because of the hopelessness of the underlying condition, it was ignored. However, about this time the mass began to grow rapidly with adherence to the skin and palpable axillary nodes. Pain and a bloody discharge from the nipple were also present. After various consultations an operation was decided on, because of the pain and suffering that would ensue should the condition be allowed to go unchecked. A radical mastectomy was performed, November 15, from which she made an uneventful recovery, only to succumb to a severe hematemesis, December 10. Examination of the breast tumor showed it to be a duct cell carcinoma with extensive metastases to the axillary glands.

COMMENT

Although it is unfortunate that an autopsy could not be obtained, the triad of progressive diabetes, cirrhosis of the liver (enlarged liver and spleen, subicterus and esophageal varices)

and pigmentation plus the demonstration of hemosiderin and hemofuscin in the skin, admit of no other diagnosis

The general frequency of hemochromatosis is not easily determined, as the disease is now so well known that few cases are reported, and practically every pathologist has one or more unpublished ones in his files. That Bork¹ in 1928 was able to gather only 111 cases is therefore misleading. Its extreme rarity in women is universally conceded. Modern textbooks, however, are either content with a vague statement in this regard or cite from two to four cases. In a rather complete survey of the literature I have been able to collect twelve cases,² three of which (Berg, Murri, and Moeller and Hutton) are doubtful. Excluding these three, it would appear that hemochromatosis in the male is about ten times as frequent as in the female. Since the female cases are probably all reported, the true ratio is undoubtedly much greater.

245 West Seventy-Fourth Street

A CASE OF ATTEMPTED SUICIDE WITH INSULIN

JOSEPH T. BEARDWOOD, JR., M.D., PHILADELPHIA

The average diabetic patient is a well behaved member of society seldom given to acts of violence or attempts to inflict injury on himself or others. Indeed, aside from the tendency to deceive his physician in regard to his cooperation, he is apt to be an exemplary citizen. A careful search of the literature for the past ten years has revealed no case in which such a massive dose of insulin was taken and only one case¹ in which insulin was taken with suicidal intent, and in this case only 20 units was taken. This was but 12 units more than the patient had taken as a daily dose to control his diabetes. He promptly repented of his deed and took sugar within fifteen or twenty minutes and did not suffer any reaction.

Hypoglycemia may produce death, and even mild degrees of depression of the level of the blood sugar may be followed by fatal complications, usually coronary occlusion, as has been shown by Parsonnet and Hyman.²

Extreme degrees of hypoglycemia with blood sugar values below 30 mg per hundred cubic centimeters of blood are usually incompatible with life. These facts show the need of caution in reducing the blood sugar of a patient with diabetes. "Insulin shock" is a condition not to be regarded lightly, and it should be part of the training of every diabetic patient to recognize the premonitory symptoms of hypoglycemia and to take steps to overcome it.

REPORT OF CASE

Mrs. A. B., aged 50, white, admitted to the receiving ward of the Presbyterian Hospital at 7 p. m., April 15, 1933, had been found by a park guard lying on the ground in pain and complaining of feeling sick. When first seen by the resident on duty in the receiving ward she was obviously weak and partially unconscious. Her face was flushed, the veins in the neck were prominent and the pulsations of the carotids were forceful. Her body was cold and bathed in a cold perspiration. The heart was slightly enlarged to the left and the rate was rapid. There were also slight tremors present in all the extremities. No evidence of paralysis could be elicited. The pulse rate was 100, the temperature 94 F.

The patient could be aroused by repeated questioning, and she hysterically related that she had taken 400 units of insulin.

about three quarters of an hour before admission. Blood was collected immediately for a blood sugar test and she was immediately given 30 Gm of dextrose by mouth, shortly following which she became slightly more rational and again reiterated that she had given herself 400 units of insulin with suicidal intent.

In her handbag were found one 10 cc bottle of U-20 insulin that contained about 1 cc of its original contents and one 5 cc bottle of U-40 insulin which was practically empty, together with a standard insulin syringe. There were also several letters addressed to friends expressing regret for her act and stating that she was sorry to have taken the money to purchase the insulin and one other letter, which she requested to be buried with her.

Examination at the time of admission showed no subcutaneous swelling or hemorrhagic points that might identify the sites of injection, although there were several spots of blood on the clothing, which lent credence to her report.

On admission the blood sugar was 64 mg per hundred cubic centimeters of blood.

At 7 15 she was given 90 Gm of dextrose by mouth and at this time she was still sweating profusely, depressed and somewhat hysterical.

At 7 30 she complained of pain in the small muscles of the feet, and she was given 20 Gm of dextrose by vein and 60 Gm by mouth. This feeding was repeated every hour.

At 10 o'clock the temperature was 94.3, the pulse rate 96. The sweating continued, and there was noticed for the first time some drooping of the right side of the face.

At midnight she complained of severe pains in the legs and of a dull headache. She was mentally clear. Her color was poor. The temperature was 96, the pulse rate 96, the blood sugar 55 mg per hundred cubic centimeters. (She had had up to this time 360 Gm of dextrose by mouth and 20 Gm by vein.) She was given 75 Gm of dextrose intravenously and 120 Gm by mouth.

At 2 a. m. she was still complaining of severe pain in the feet and legs, 60 Gm of dextrose was given every hour.

At 8 a. m. the patient felt well except for a slight headache. Sugar appeared in the urine for the first time, and the blood sugar was 278 mg per hundred cubic centimeters. She was then transferred to the metabolic service for standardization.

COMMENT

In a period of twelve hours the patient had received a total of 1025 Gm of carbohydrate. She must have required at least fifteen injections to administer the 390 units of insulin that she took.

When the patient was admitted to the metabolic service a more complete history of her past medical life was obtained, which may be briefly summed up. The patient had known for seventeen years that she had diabetes and remained on a qualitative diet until the advent of insulin, when she was standardized and placed on insulin. She had been carefully followed during this time and was last standardized on a diet of 60 Gm of carbohydrate, 60 Gm of protein and 80 Gm of fat and with this diet she required 52 units of insulin a day. In August 1925 the gallbladder was removed and following this she developed pneumonia, from which she recovered after a stormy convalescence. In 1927 she developed a gangrenous ulcer of the foot, which responded to conservative treatment. Lately she had been greatly depressed because of financial worries and finally decided to commit suicide by taking insulin. She borrowed money from a friend to secure a large enough supply to do the deed properly.

Laboratory examinations gave the following information. The Wassermann reaction was 4 plus, the Kahn reaction 3 plus. The red blood cells numbered 3,220,000, the white blood cells 9,000 and the hemoglobin was 64 per cent. The differential count was essentially normal.

The specific gravity of the urine was 1.018. There was a trace of albumin. Tests for sugar, acetone and diacetic acid were negative. Microscopic examination showed from 50 to 75 white blood cells per high-powered field, with many hyaline casts.

The transverse diameter of the heart measured 18.5 cm, the transverse diameter of the thorax 33 cm.

1 Bork, K. Zur Lehre von der allgemeinen Hemochromatose. *Virchows Arch. f. path. Anat.* 269: 178, 1928 (two cases).
2 Berg, H. W. Diabetes Bronze and the Pathogenesis of Diabetes Mellitus. Illustrated by a Case of Bronze Diabetes Preceded by Basedow's Disease. *M. Rec. New York* 56: 881, 1899. Abbott, Maude E. Pigmentation Cirrhosis of the Liver in a Case of Hemochromatosis. *J. Lab. & Clin. Med.* 7: 55, 1901. Murri, A. Ueber Bronzediabetes. *Wien klin. Rundschau* 15: 345, 1901. Labbe, M. and Buth, H. Un cas de diabète bronze. *Bull. et mem. Soc. med. d'hop. de Paris* 33: 119, 1912. Mills, L. S. Hemochromatosis with Special Reference to Its Frequency and to Its Occurrence in Women. *Arch. Int. Med.* 34: 292 (Sept.) 1924 (three cases). Moeller, F. W. and Hutton, J. H. Hemochromatosis in a Woman. *Illinois M. J.* 49: 146 (Feb.) 1926. Bork, Hodge, C. M. W. Bronze Diabetes in a Woman. *Brit. M. J.* 1: 369 (March 2) 1929. Kohe, Robert. *Handbuch der speziellen pathologischen Anatomie und Histologie*. Berlin: Julius Springer, 55: 422, 1933. Resid before the College of Physicians of Philadelphia. Nov. 1, 1933. 1 Secher, K. Ugeskr. f. Læger 18: 378 (May 5) 1927.
2 Parsonnet, A. E. and Hyman, A. S. *Ann. Int. Med.* 4: 1247 (April) 1911.

The patient was restandardized on a diet of 120 Gm of carbohydrate, 60 Gm of protein and 120 Gm of fat, yielding a total of 1,800 calories, and with this required 30 units of insulin a day. The cystitis improved by local treatments and antisyphilitic therapy was started. Because of an apparent underlying psychosis the patient was transferred to another institution for observation with the diabetes well controlled.

Doubling the carbohydrate allowance in the diet seems to have had the effect of decreasing the total insulin requirement.

There was another case of attempted suicide in Philadelphia in which a physician who did not have diabetes gave himself a large dose of insulin and lost consciousness during the reactions. He was given dextrose intravenously and recovered. I was unable to ascertain the amount of insulin taken. As there was no laboratory examination made, a complete report of this case is impossible.

2031 Locust Street

TREATMENT OF LYMPHOGRANULOMA INGUINALE WITH BOUILLON FILTRATE

WILLIAM A. THOMAS, M.D. AND EARL R. MCCARTHY, M.D.
CHICAGO

In view of the chronicity of course and the various forms of treatment advised in lymphogranuloma inguinale we feel justified in reporting a single case because of the unusual rapidity and completeness of healing that followed treatment with autogenous filtrate.

A man aged 31, seen at the office in October 1932, had a tender swelling in the right groin draining since an incision had been made seven weeks previously. This had begun nine weeks before, with a small firm lump in the right groin aching somewhat. During the subsequent two weeks it became larger and softer, turned red and was incised draining thick yellow pus. Fever persisted for ten days the patient feeling ill. It then improved for a time, but both local and general conditions became worse with increased activity. From five to six weeks preceding the onset, the patient noticed several small red pimples on the penis, which were cauterized. There had been gonococcal urethritis and prostaticitis three years before and a urethral discharge one year before. There was no history of syphilis, no infection or trauma of the right leg and the Wassermann reaction was negative. The Frei test taken later was positive.

The patient entered the Presbyterian Hospital October 28 for treatment.

In the right groin there was a pullet-egg sized mass with an incision about 1 inch long into it. The edges of the incision and the skin for a distance of half an inch were dusky red. A thin serosanguineous discharge drained from the incision. Medial and lateral to this mass several hazelnut-sized masses were felt. The involved area was about 2 inches long by 1 inch wide and extended laterally directly over and below Poupert's ligament. This entire area was very tender to palpation and very indurated. On the upper surface of the glans penis were several pinhead-sized brown spots which the patient stated followed the cauterization of some pimples three months previously. At the base of the glans on the right undersurface was a small weeping excoriation to which mercuriochrome had been applied. There were no palpable masses in the left groin and rectal examination was negative. General physical examination was negative. The temperature was 98.6 F.

After five days' application of hot saturated magnesium sulphate dressings to the right groin every two hours—no appreciable improvement having taken place—the affected area was widely opened under local anesthesia, November 4. At operation many long sinuses were found filled with dirty granulation tissue and extending laterally along Poupert's ligament to the enlarged inguinal nodes and downward to the enlarged femoral lymph glands.

Bacteriologic cultures were made and the sinuses carefully curetted and the wound was loosely packed with iodoform gauze but not sutured. For five days the treatment with hot dressings was resumed, with daily packing of the incision but the wound showing small disposition to heal the patient was

discharged from the hospital with dry dressings and a small iodoform wick under the edges.

Meanwhile, a bouillon filtrate was being prepared after the method of Besredka of the Pasteur Institute. Cultures of a hemolytic streptococcus and of a variety of anaerobic or partially anaerobic organisms were obtained from the wound. These were transplanted separately to flasks of dextrose broth and incubated for from eight to ten days after which time no further growth could be obtained by reinoculation of the filtered broth. The filtrates so obtained were pooled and on November 15 no appreciable improvement having been observed, the incision was packed with plain gauze and saturated with the filtrate. November 18, the wound was much cleaner, with healthy granulations and healing. The patient then resumed his occupation of traveling salesman and, following instructions, packed the wound twice daily and saturated the packing with the filtrate.

January 16 when he was next seen, the large indurated masses of glands had completely disappeared, drainage had ceased and there remained only a small area in which epithelialization had not occurred. Less than a week later the wound was completely healed.

Naturally one draws no extensive conclusions from a single case. However in view of the increasing interest in the action of filtrates and the rather astonishing results obtained in the filtrate treatment of *Trichomonas vaginalis* the result in this case justifies further trial of filtrate therapy in lymphogranuloma inguinale.

Presbyterian Hospital

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
H. A. CARTER, Secretary

ANNUAL MEETING OF THE COUNCIL ON PHYSICAL THERAPY

The Ninth Annual Meeting of the Council on Physical Therapy was held at the headquarters of the American Medical Association Friday and Saturday, January 12 and 13. Dr. Harry E. Moe of Chicago was reelected chairman and Dr. Frederick J. Gwenslen, vice chairman.

Some of the questions and problems considered at this meeting were the rental of radium and the rental and sale of radon; the status of ultraviolet therapy, the efficacy of high frequency currents and the undergraduate and postgraduate instruction in physical therapy. In the opinion of the Council, more stress might well be placed on postgraduate education of the profession. A tentative program was considered whereby committees within the interested local or state societies might be established whose duties would be to take charge of physical therapy educational activities in the local group. The Council believed that these committees cooperating with the Council might arrange for special speakers and seminars in physical therapy. It was considered vitally important for the Council to arouse greater interest in the state societies throughout the country as rapidly as might be possible.

After many critical reports and surveys had been reviewed the Council revised its "Regulations to Govern Advertising of Ultraviolet Generators to the Medical Profession Only" and released it for publication.

Through its representative, the Section on Ophthalmology of the American Medical Association asked the Council to consider favorably the investigation of spectacle lenses and ophthalmologic appliances. The Council agreed to go forward immediately with this work. To begin with, special articles relating to the investigation of devices and methods already completed will appear in the Council columns, and at a later date Council reports on the investigations of apparatus will also be prepared for publication.

The Council is planning to publish a report on its investigations regarding hyperpyrexia. Certain dangers in the fever

treatment of disease are recognized and it is contemplated that the article will contain information concerning the pathology and physiology of hyperpyrexia

Grants for the aid of research have been utilized to the utmost capacity. The Council was pleased to note that most of the recipients have published the results of their investigations

WITHDRAWAL OF ACCEPTANCE OF THE FILTERAIRE

The Filteraire, manufactured by the Davies Air Filter Company, New York City, is a small air filtering machine formerly known as the "Stoppollen." A report of acceptance appearing in THE JOURNAL, May 31, 1930, page 1760, described the makeup and operation of the Stoppollen. Since then, however, the manufacturer has not only changed the name of the device but has entirely altered its construction. The firm was asked to cooperate with the Council by furnishing a new model for examination and report. This it did and also supplied the Council with advertising matter for review and criticism.

The results of the investigation showed that certain claims appearing in the advertising matter must be regarded by the Council as unwarranted or misleading. A report adopted by the Council was sent to the manufacturer pointing out the objectionable statements and nonconformities to the Official Rules of the Council. In a reply the firm agreed to revise the advertising matter. It was changed and in a measure some of the objectionable statements were either revised or completely deleted. However, a careful examination of the matter showed that not all of the objectionable statements or claims had been deleted or otherwise made acceptable, hence this report.

In the aforementioned advertising matter, claims are made to the effect that the Filteraire can "shut out dirt and dust" and that the "street noises are excluded from the room." The Council investigation showed that the unit will filter out most of the dirt and dust, but since the unit itself is installed in a window, it could not be expected to shut out any more noise than is excluded by an ordinary closed window.

The following is recorded in the pamphlet:

Agar Petri dishes were exposed directly in the path of air forced through Filteraire. Similar dishes were exposed simultaneously to unfiltered air. Exposure was for periods of 30 and 60 minutes. Tests were made on 15 separate days. After 72 hours of incubation the dishes were examined. Those exposed to the filtered air showed no growth whatsoever. Those exposed to open unfiltered air showed innumerable colonies.

The firm was asked to submit data of bacteriologic tests supporting these claims. The evidence made available was not critical and the Council did not accept the aforementioned statement.

The claim that patients suffering from hay fever will obtain relief for the entire day of twenty-four hours by remaining in a room for eight hours, more or less, made free of pollen by means of the "Filteraire" ("Stoppollen") or any other air filtering device is not accepted by the Council. All clinical evidence coming to the attention of the Council demonstrates conclusively that patients are relieved only when they remain in a filtered atmosphere. The symptoms of hay fever return to the patient when again subjected to air polluted with pollen. If conclusive evidence substantiating the claim is available, it has not reached the Council. Promotional literature of this kind constitutes an appeal to the public with arguments that are unscientific and may harmfully enhance a feeling of false security on the part of the public.

Although the Filteraire may be a suitable air filter for a small office or bedroom, the Council on Physical Therapy voted to withdraw the apparatus from its list of accepted devices because (1) the results of the investigations by the Council do not agree with the claims advanced for the apparatus, (2) the Davies Air Filter Company violates the rules of the Council on Physical Therapy by including misleading claims in advertising matter. The company was informed of the conclusions of the Council and the action proposed but apparently the firm did not care to alter its present marketing policy.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH Secretary

ANTIMONY THIOGLYCOLLAMIDE (See New and Nonofficial Remedies, 1933, p 62)

The following dosage form has been accepted:

Ampules Solution Antimony Thioglycollamide 0.4 per cent 10 cc
Manufactured by Hynson Westcott and Dunning Baltimore

ANTIMONY SODIUM THIOGLYCOLLATE (See New and Nonofficial Remedies, 1933, p 63)

The following dosage form has been accepted:

Ampules Solution Antimony Sodium Thioglycollate 0.5 per cent 10 cc
Manufactured by Hynson Westcott and Dunning Baltimore

PRELIMINARY REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

PAUL NICHOLAS LEECH Secretary

GASTRIC MUCIN

The use of gastric mucin in the treatment of peptic ulcer was introduced by S. J. Fogelson¹ of Northwestern University, following the work of Ivy and Oyama² and of Lim³ on gastric secretion.

Gastric mucin has been presented for the consideration of the Council by Armour and Company, Frederick Stearns & Company, and the Wilson Laboratories. These firms manufacture this product under license from the Mucin Committee of Northwestern University.

Gastric mucin has been the subject of a number of investigations, both on animals and on patients. The approach to this problem was excellently planned by the group in Chicago. They obtained on experimental dogs good evidence of the value of mucin in preventing ulcer⁴. (Further evidence as to the role of mucin has been provided by others⁵). The Northwestern group prevailed on commercial houses to prepare a satisfactory product and established a method of controlling the purity and checking the physiologic activity⁶. They next arranged to have a number of competent gastro-enterologists⁷ try the effects on a large group of patients with peptic ulcer. The results of all these studies have been submitted to the Council. All these clinicians were enthusiastic about mucin but were fairly conservative, admitting a certain percentage of failures. They recognized the fact that the large majority of patients with peptic ulcer may improve on any one of several methods of treatment and that spontaneous remissions may occur. This probably

- 1 Fogelson, S. J. The Treatment of Peptic Ulcer with Gastric Mucin. J. A. M. A. 96: 673 (Feb. 28) 1931.
- 2 Ivy, A. C. and Oyama, J. Am. J. Physiol. 57: 51 (Aug.) 1921.
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- 4 Kim, M. S. and Ivy, A. C. The Prevention of Experimental Duodenal Ulcer by Feeding Neutral Gastric Mucin. J. A. M. A. 97: 1511 (Nov. 21) 1931. Alkalies and Mucin. Proc. Soc. Exper. Biol. & Med. 29: 686 (March) 1932.
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explains the fact that, for every form of ulcer treatment, claims of about 70 to 80 per cent of cures are made. Attention should perhaps be concentrated on those cases that have failed to improve after prolonged treatment with the older methods. The clinical reports of Drs. Brown, Atkinson, Fogelson and their associates contain a large number of such cases in which improvement occurred when mucin was taken in fairly large doses.

A number of protocols and letters have been submitted concerning physicians who suffered from peptic ulcer and agreed to test mucin. From a careful perusal of these reports it is evident that most of the physicians believed that they were helped by this preparation. A good many of them had difficulty in swallowing the viscous material but ultimately overcame this by developing an adequate technique.

When a new therapeutic method for peptic ulcer is introduced, numerous reports soon appear from practitioners who have failed to obtain satisfactory results. A review of the recent literature shows this to be the case with gastric mucin. Smithies⁸ believes that the favorable effect of mucin may be due to the fact that it limits pepsin production and has an antitryptic action. He suggests that it inhibits appetite through constant nausea and unattractive taste. Smithies emphasizes the fact that Fogelson, Anderson and Brown employed not only mucin but also liquid or soft smooth diets. His conclusions are: "In our experience, management by Fogelson's gastric mucin has proved unsatisfactory."

Bloch and Rosenberg⁹ of the Michael Reese Hospital came to the following conclusions:

1. Gastric mucin probably acts not through its acid combining power but by virtue of its demulcent effect.

2. Experience with thirty mucin-treated patients as compared with fifteen ulcer cases in which other forms of treatment were given, shows that some will not continue its use because of the disagreeable taste and certain untoward symptoms. In others, prolonged administration effects no relief whereas other forms of treatment are successful. In still others relief is temporary and followed by a relapse. In the remainder, relief occurs with mucin when other forms of therapy fail.

3. Further refinements in its manufacture may widen its scope of usefulness in the treatment of peptic ulcer.

Fantus,¹⁰ referring to an article by Fogelson makes the following editorial comment: "Experience of others is not nearly as favorable. Many patients object to the nastiness of the dose."

At a symposium on mucin therapy held before the Chicago Medical Society,¹¹ the difficulties inherent in a study of this sort and the necessity for thorough clinical trial were emphasized. The summarized data presented on a large number of patients, in whom doses of gastric mucin totaling from 90 to 100 Gm. a day were used, indicate considerable promise for this form of therapy despite an admitted certain percentage of failures.

Of a total of 223 intractable ulcer patients treated by clinicians throughout the United States, as summarized by the Mucin Committee, the majority were said to have been rendered symptom free or improved.

The Council's referee has tried gastric mucin in a limited number of ulcer cases in his clinic and has found it difficult to induce the patients to continue its use. It is very viscous and the taste is somewhat difficult to disguise but perhaps it is no worse than many of the liver preparations used in the treatment of pernicious anemia.

In summary, it appears that, although the early studies indicated beneficial results in a fairly large number of patients with peptic ulcer that had failed to respond to other methods of treatment, later publications have emphasized that there are limitations to this form of therapy. Gastric mucin is a viscous, unpalatable preparation and many patients refuse to continue

treatment, nevertheless, the product appears to be of value in a number of patients that have not done well on usual ulcer therapy.

The Council therefore decided to postpone further consideration of gastric mucin pending the accumulation of additional evidence as to the therapeutic usefulness of this substance.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING AN ECCESSARY CORRECTION OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR OFFICIAL FORMULATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION. RAYMOND HERTWIG, Secretary.



VAN CAMPS PURLED SPINACH (ADDED SALT)

Manufacturer—Van Camps, Inc., Indianapolis

Description—Sieved spinach, slightly seasoned with salt, largely retaining the natural minerals and vitamins.

Manufacture—Freshly cut spinach is carefully inspected and trimmed and any defective leaves are eliminated, it is washed in a cylinder equipped with high pressure sprays of water, blanched by immersion in boiling water for a minimum time necessary for softening withdrawn, dipped into cool water drained, sieved in a steam atmosphere through a screen with openings of a size to produce the desired fineness and texture, salted, heated, and filled into enamel lined cans, which are sealed and processed.

Analysis (submitted by manufacturer) —	per cent
Moisture	97.7
Total solids	7.3
Ash	1.6
Sodium chloride	0.8
Est. (ether extract)	0.3
Protein (N x 6.25)	2.3
Reducing sugars (as dextrose)	0.4
Sucrose (copper reduction method)	0.0
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	2.2
Alkalinity of ash (cc. of normal acid per gram ash)	5.4
pH	6.5

Calories—0.2 per gram, 6 per ounce

Statement—The method of preparation efficiently protects the natural vitamins.

Claims of Manufacturer—Is easily digestible, has a smooth consistency and supplies bulk without roughness. A good source of iron, calcium and of base forming minerals.

MCCORMICK'S BEE BRAND CURRY POWDER

Manufacturer—McCormick and Company, Inc., Baltimore.

Description—Spice mixture including turmeric, coriander seed black pepper, mustard flour, cumin, fenugreek seed, caraway seed, cassia, cayenne pepper, cloves, mace and ginger.

Manufacture—Definite proportions of the spice ingredients prepared as described for McCormick's Bee Brand Allspice (THE JOURNAL Oct. 28 1933 p. 1393), are mixed and automatically packed in tins.

Analysis (submitted by manufacturer) —	per cent
Moisture	9.5
Total ash	5.3
Acid insoluble ash	0.4
Volatile ether extract	2.7
Nonvolatile ether extract	7.0
Protein (N x 6.25)	11.8
Starch (diastase method)	14.7
Crude fiber	15.6
Carbohydrates other than crude fiber (by difference)	48.1

Claims of Manufacturer—All ingredients conform to the definitions and standards of the United States Department of Agriculture.

⁸ Smithies, Frank. The Nonsurgical Treatment of Peptic Ulcer. *Am. J. Surg.* 18: 232 (Nov.) 1932.

⁹ Bloch, Leon and Rosenberg, D. H. Some Limitations in the Treatment of Chronic Peptic Ulcer with Gastric Mucin. *Am. J. M. Sc.* 185: 260 (Feb.) 1933.

¹⁰ Fantus, Bernard. Year Book of General Therapeutics. Chicago Year Book Publishers, Inc., series 1932.

¹¹ Fogelson, S. J., Atkinson, A. J., Brown, C. F. G., Jr., A. C. Fauley, G. B. and Kim, M. S. *Bull. Chicago M. Soc.* 34: 538 (April) 1932.

**POST'S 40 PER CENT BRAN FLAKES WITH
OTHER PARTS OF WHEAT
(MALT SYRUP, SUGAR AND SALT)**

Manufacturer—Postum Company, Inc., Battle Creek, Mich.
Description—Toasted, flaked, cooked wheat bran (40 per cent bran) with adhering endosperm, flavored with malt syrup, sugar and salt

Manufacture—Whole wheat is cleaned and milled to remove the germ and a material portion of the endosperm or flour section. The bran material with adhering endosperm is admixed with malt syrup, sugar, salt and water in cooking drums and cooked under steam pressure. The cooked product is air cooled, flaked, toasted and automatically packed in cartons.

Analysis (submitted by manufacturer) —		per cent
Moisture		4.6
Ash		4.1
Sodium chloride		2.3
Fat (ether extraction method)		1.6
Protein (N \times 5.83)		11.5
Reducing sugars as maltose		8.5
Sucrose		4.3
Crude fiber		3.9
Carbohydrates other than crude fiber (by difference)		74.3
Iron (Fe)		0.0068

Calories—3.6 per gram, 102 per ounce

Vitamins—Contains 43 Sherman vitamin B units per ounce

Claims of Manufacturer—Contributes indigestible bulk to the diet for counteracting constipation due to insufficient bulk in the diet. A good source of vitamin B and of iron.

**HERSHEY'S BAKING AND DRINKING
CHOCOLATE
NOT SWEETENED**

Distributor—Chocolate Sales Corporation, Hershey, Pa.

Manufacturer—Hershey Chocolate Corporation, Hershey, Pa.

Description—Ground cacao nibs or "chocolate liquor" in cake form.

Manufacture—Selected cacao beans are freed of foreign material by sieving and air-blast, are roasted to develop flavor and aroma, and are quickly air-cooled, cracked and hulled. The nibs are separated from shells, germ and foreign material by screening and air-blast and are ground between burr stones by water cooled steel rolls and finally by corrugated granite rolls, the grinding lasting ninety-six hours. The resultant "chocolate liquor" is automatically deposited in molds, chilled and solidified. The cakes of chocolate are removed from the molds and automatically wrapped.

Analysis (submitted by manufacturer) —			per cent	moisture and fat free basis
Moisture			1.1	
Ash			2.8	6.41
Ash insoluble in water			1.5	
Ash insoluble in acid			0.08	0.18
Fat (cacao butter)			55.5	
Total nitrogen			1.8	
Protein (noncaffeine and nontheobromine N \times 6.25)			11.4	
Sucrose			none	
Crude fiber			2.7	6.09
Carbohydrates other than crude fiber (by difference)			25.2	
Theobromine			1.2	
Caffeine			0.1	

* By Prochnow's modification of the Beckurts-Fronme method. Arch. d. Pharmaz. 247: 698, 1910.

Calories—6.5 per gram, 183 per ounce

Claims of Manufacturer—Complies with the United States Department of Agriculture definition and standard.

**VAN CAMPS PURFED APRICOTS
CONTAINS SULPHUR DIOXIDE SWEETENED**

Manufacturer—Van Camps, Inc., Indianapolis

Description—Sieved dried 'sulphured' apricots, slightly sweetened with sugar, largely retaining the vitamins and all the minerals of 'sulphured' dried apricots.

Manufacture—Choice dried sulphured apricots are carefully inspected to eliminate unsuitable material, washed twice and soaked over night in cold water. The swelled apricots and juice are transferred to a steam jacketed closed kettle heated at approximately 91 C until soft and are drawn off and sieved in a steam atmosphere through a screen with openings of a size

to produce the desired fineness and texture. A definite amount of sugar and hot water are added for sweetening and adjusting the consistency. The batch is heated to filling temperature, immediately filled into enamel lined cans and processed.

Analysis (submitted by manufacturer) —		per cent
Moisture		75.8
Total solids		24.2
Ash		1.0
Fat (ether extract)		0.1
Protein (N \times 6.25)		1.3
Reducing sugars (as dextrose)		14.2
Sucrose		0.5
Crude fiber		0.8
Total acidity as malic acid		1.2
Carbohydrates other than crude fiber (by difference)		21.0
Sulphur dioxide		0.02
Alkalinity of ash (cc of normal acid per gram ash)		7.2

Calories—0.9 per gram, 26 per ounce

Vitamins—The method of preparation efficiently protects the vitamin content of dried "sulphured" apricots.

Claims of Manufacturer—Of smooth consistency, supplies bulk without roughness.

**LIGHT'S BEST OVEN PERFECT FLOUR
(PHOSPHATE ADDED—BLEACHED)**

Manufacturer—The Light Grain and Milling Company, Liberal, Kan.

Description—Hard winter wheat standard patent flour containing added calcium acid phosphate (0.5 per cent), bleached.

Manufacture—Selected hard winter wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended, bleached with nitrogen trichloride (one-seventh ounce per barrel), and finally mixed with 0.5 per cent calcium acid phosphate.

**DAVIDSON'S SPUN BREAD SLICED (WHEAT
BREAD A BLEND OF SELECT WHITE AND
WHOLE WHEAT FLOURS)**

Manufacturer—Davidson Baking Company, Portland, Ore.

Description—A white flour and whole wheat flour bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817), prepared from patent flour, water, whole wheat flour, sucrose, molasses, shortening, yeast, salt, a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, a yeast food containing buttermilk, calcium phosphate and ammonium tartrate and malt syrup. The dough is twisted, which accounts for the name "Spun".

**STEUART'S GOLDEN CROWN BRAND CANE
SUGAR AND MAPLE SYRUP**

Manufacturer—Steuart, Son and Company, Baltimore.

Description—A table syrup, sucrose syrup flavored with pure maple syrup.

Manufacture—Cane sugar and maple syrups are mixed in definite proportions, heated to 101 C, adjusted to the desired density, filtered, and automatically canned.

Analysis (submitted by manufacturer) —		per cent	Moisture free basis per cent
Moisture		32.1	
Ash		0.20	0.29
Soluble ash		0.11	0.16
Insoluble ash		0.08	0.12
Ratio soluble ash insoluble ash		1.4	
Alkalinity of soluble ash		20 cc	29 cc
Alkalinity of insoluble ash (cc N/10 acid to neutralize ash of 100 Gm sample)		22 cc	32 cc
Protein (N \times 6.25)		0.1	
Reducing sugars as invert sugar		3.5	
Sucrose (estimated from reducing sugars before and after inversion)		63.0	
Carbohydrates (by difference)		67.6	
Lead number (Canadian)		0.96	1.41
Lead number (Winton)		0.49	0.72
Malic acid number		0.10	0.15

Calories—2.7 per gram, 77 per ounce.

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SATURDAY, MARCH 10 1934

DERMAL MANIFESTATIONS OF VITAMIN A DEFICIENCY

For the most part the dietary regimen of the average American family in ordinary times has become so nearly adequate under modern conditions of living that little consideration has been given to the possible existence of dietary deficiencies. It is of course, well known that in certain localities the deficiency disorder described as pellagra at times becomes prevalent and that rickets has by no means become eradicated. Scurvy no longer is prominent in the conventional lists of diseases in this country, and characteristic beriberi is practically unknown. Accordingly, physicians have for the most part remained somewhat indifferent to the problems of avitaminosis except when these have been presented in an unmistakable, outspoken manifestation. McLester¹ has well remarked, however, that the interest which vitamins hold for the physician is not alone in their relation to certain well defined diseases, such as scurvy, beriberi and rickets, but rather in the fact that chronic vitamin deficiency produces numerous vague borderline states of ill health which often puzzle the physician and disable the patient. These last are of far greater importance to the physician of today than the more clearly defined deficiency diseases.

The inference that avitaminosis may occur in some subacute form more frequently than is suspected presents a challenge to the physician to attempt to discover diagnostic symptoms before they become herculean in character. Unfortunately, the precise pathogenesis underlying the deficiency disorders still remains relatively obscure in many instances. The ignorance or, rather, the lack of knowledge in this field hampers progress and precludes early attempts at prophylaxis. In the case of vitamin A there has been a tendency fostered far more by manufacturers than by the medical profession, to attribute to it remedial or prophylactic virtues that are far from proved. This is particularly true of the claims for "anti-infective" potency based on rather uncertain or even contradictory evidence.

The subject was recently discussed in some detail in *THE JOURNAL*.²

The circumstance that some of the enthusiasm about the role of vitamin A (and probably this applies to other dietary essentials) has not been fully warranted by the facts of experimental investigation should not act to discourage further research. The opportunity to make contributions to existing knowledge of symptoms of latent avitaminosis lies in the grasp of the bedside practitioner quite as well as of the laboratory worker. An interesting illustration of this is afforded by the recent report of Loewenthal³ from Kampala, East Africa. It involves a new manifestation in the syndrome of vitamin A deficiency—a "pure cutaneous avitaminosis." The story, which is of unusual interest, deserves repetition here.

The discovery of this dermatosis was made at the quarterly inspection of the Uganda Central Prisons during which every prisoner stripped in order that his skin might be examined. It was struck by the number of men, many of them of middle age who presented the clinical picture of acne vulgaris combined with a dermatosis which none of the medical officers present could define. When Dr. H. B. Owen, who was examining the prisoners' eyes, segregated those suffering from night blindness and xerophthalmia, it was apparent that these men formed the bulk of those affected by the peculiar dermatosis. At subsequent monthly inspections of prisoners all new cases of this dermatosis were recorded and it was found that the majority of these men suffered from night blindness and xerophthalmia, while almost every sufferer from xerophthalmia and night blindness showed these cutaneous changes. Up to the present I have seen over 130 cases of this dermatosis.

The occurrence of dermatoses involving dryness of the skin, itching folliculitis and acneiform eruptions is not unusual. In the present instances, however, there was no pus formation. The condition was that of a dyskeratosis, with changes consequent on this condition and without signs of sepsis or softening. The principal involvement was of the cutaneous epithelium, a characteristic pathologic manifestation for other types of epithelium when vitamin A is lacking. This diagnostic interpretation is supported by the evident shortcomings of the prison diet, which consisted of maize, bean, dried meat, nuts, salt and sweet potatoes. Loewenthal reports that in other prisons where there is a great abundance of sweet potatoes in the diet, dry skins were common and scabies and other parasitic diseases were almost universal but that the dermatosis described was not seen in a single case. Further, a careful inspection of the prisoners' eyes was carried out, and no cases of xerophthalmia were noted, nor was night blindness complained of. Thus he avers, on an almost fat free dietary which is rich in vitamin A content a dry skin may occur, but the papulofollicular dermatosis is not seen. Added proof of the correctness of the diagnosis is found in the circumstance that, with the ration and routine otherwise unchanged, daily administration of an ounce of cod liver oil promptly remedied the night

² Vitamin A, Carotene and Cough Drops editorial J. A. M. A. 1394 (Oct. 28) 1933.
³ Loewenthal, L. J. A. A New Cutaneous Manifestation in the Syndrome of Vitamin A Deficiency. Arch. Dermat. & Syph. 28: 700 (Nov.) 1934.

¹ McLester, J. S. Nutrition and Diet in Health and Disease ed. 2 Philadelphia: W. B. Saunders Company, 1931.

blindness, xerophthalmia and dermatosis. Even concentrates were effective, thereby excluding fat as an explanation of the therapeutic success. The demonstration of true dermal manifestations of vitamin A deficiency relatively uncomplicated by other results of general undernourishment is thus doubtless somewhat unique.

THE ACID-BASE EQUILIBRIUM IN HEALTH

The French physiologist Charles Richet once remarked "The living being is stable. It must be in order not to be destroyed, dissolved or disintegrated by the colossal forces, often adverse, which surround it. By an apparent contradiction it maintains its stability only if it is excitable and capable of modifying itself according to external stimuli and adjusting its response to the stimulation. In a sense it is stable because it is modifiable—the slight instability is the necessary condition for the true stability of the organism." It is well to bear such paradoxical generalizations in mind whenever supposed menaces are pointed out as a possible marked change in the environment or dietary regimen. No one will gainsay that serious upsets may attend pathologic conditions, particularly when the regulatory functions are seriously impaired, but the normal tendency is invariably toward the preservation of "steady states" in the body.

Cannon¹ has pointed out that the coordinated physiologic reactions that maintain most of the steady states in the body are so complex and are so peculiar to the living organism that it has been suggested that a specific designation for these states be employed—homeostasis. In an open system, Cannon states, such as the body represents, compounded of unstable material and subjected continually to disturbing conditions, constancy is in itself evidence that agencies are acting, or ready to act, to maintain this constancy.

An illuminating example of the preservation of the "steady state" in the organism has recently been furnished by experiments on man at the Santa Barbara Cottage Hospital in California.² They relate to the difficulties in producing sustained changes in the carbon dioxide content and p_H of the blood plasma, outside the so-called normal limits, by exceptional changes in the diet. Of course, changes can be produced by sufficiently drastic measures. An acidosis can be produced by ingesting from 15 to 20 Gm of ammonium chloride. This will reduce the blood p_H by 0.2. The Santa Barbara biochemists found that the daily administration of 45 Gm of sodium bicarbonate was necessary to change the reaction of the blood to a similar extent in the opposite direction. Smaller amounts of these substances on administration will at most produce transitory effects. It would require 18 pounds (more than 8000 Gm) of oranges to have an alkaline ash content

equivalent to 40 Gm of sodium bicarbonate, and 4½ pounds (about 2,000 Gm) of lean beef or 2 pounds (900 Gm) of oysters to have an acid ash content equivalent to 15 Gm of ammonium chloride.

In the experiments at Santa Barbara, the daily administration of 30 Gm of sodium citrate was the smallest amount of alkali that produced a shift in the acid-base equilibrium of the blood drawn before breakfast, outside the normal variation of the individual but inside the normal variation of a normal group. There was no significant difference in the acid-base picture of the blood of a normal individual drawn before breakfast whether the mixed diet consumed contained excessively acid or excessively alkaline ash foods. The diet regularly consumed by the individual contained potentially as much acid ash as a diet planned to be excessively acid. A diet containing 240, 204 and 93 Gm of protein on consecutive days and 200 cc of normal acid equivalent of ash daily produced a doubtfully significant shift in the blood picture to the acid side. The ingestion of 1 quart of milk, 1 quart of orange juice or 1 pound of bananas produced no temporary shift in the plasma p_H or alkali reserve. The ingestion of 1 pound of steak temporarily lowered the plasma bicarbonate significantly in only one of four individuals studied. The absolute values were well within the group range. These are enormous adjustments, yet they seem to be readily made during health. They should serve to dispel much of the popular fear of "acidosis," which has been so widely encouraged in recent times by purveyors of supposed "corrective" foods.

CIGARET SMOKING AND THE BLOOD SUGAR

Undoubtedly tobacco stands next to alcohol and alcoholic beverages in the list of substances that have at times aroused not only vigorous but even violent debate regarding their proper place in the daily regimen of man. It would be easy to quote both encomiums and condemnations for the widespread habit of smoking. There comes to mind, on the one hand, the oft repeated verse beginning "Hail! Social Pipe—thou foe to care" and, on the other hand, the statement that in the seventeenth century, in Russia, smokers' noses were cut off.¹ The qualitative facts about tobacco—and particularly its smoke—are fairly well known. The combustion of the leaf, like that of other plants, produces certain volatile products, which may be drawn into the mouth from a pipe, cigar or cigaret. Tobacco, however, is unusual in yielding measurable quantities of the powerful alkaloid nicotine. This is an important distinction characteristic of tobacco. It is stated that, on heating, pyridine as well as other bases are formed, together with phenol, ammonia, methane, hydrocyanic acid, furfural and carbon monoxide.

¹ Cannon W. D. Organization for Physiological Homeostasis. *Physiol. Rev.* 9:399 (July) 1929.

² B. cheff, Fritz, Sanum W. D. Long M. Louisa and Dewar Margaret M. The Effect of Acid Ash and Alkaline Ash Foodstuffs on the Acid Base Equilibrium of Man. *J. Nutrition* 7:51 (Jan) 1934.

¹ Fisher Irving and Fisk E. L. How to Live ed 19 New York. Funk & Wagnalls Company 1932.

This sounds like a formidable list of menaces to human welfare. Physiologists have learned, however, that many substances enter the organism in minute quantities without producing detectable harm. Chemists have suggested that the carbon monoxide in tobacco smoke may be the cause of the ill effects, if not the pleasure, of smoking. The writers² who point this out reply that in fact a heavy smoker accumulates less carbon monoxide than does the nonsmoker who takes a walk on Fifth Avenue, New York, during the hours of heavy automobile traffic. The same writers add that other products of combustion, notably pyridine, have likewise been suggested but occur not only in tobacco smoke but also in the smoke from other vegetable matter, such as corn silk, maple leaves and coffee beans. That these substances do not contribute appreciably to the gratification of smoking is conclusively demonstrated by the fact that few smokers adhere to juvenile substitutes for tobacco. Such substitutes are cheap, yet tobacco maintains its popularity. Why tobacco?

A chance observation made by Haggard and Greenberg² in the Laboratory of Applied Physiology at Yale University affords a new suggestion. It was found that smoking produces a definite, although temporary, increase in the concentration of blood sugar, and a corresponding increase in the rate of sugar combustion in the body. These effects certainly are due to nicotine and arise from its action on the suprarenals. Haggard and Greenberg believe there can be little doubt that this is the source of at least a considerable part of the gratification from smoking.

The fact that nicotine affects the suprarenals is by no means new. It was clearly described by Cannon, Aub and Binger³ at the Harvard Medical School and referred to in *THE JOURNAL*⁴ more than twenty years ago. The novelty of the Yale experiments lies in the demonstration of effects from tobacco smoke. The results showed that, when the respiratory quotient is above 0.85 and the blood sugar correspondingly above 0.13 per cent, the smoking of a cigaret has no appreciable influence on either. When, however, the respiratory quotient and blood sugar have fallen below these values, and especially when the fasting level has been reached, the smoking of a cigaret is followed by a rise in both. Values are attained within fifteen minutes as high as 0.85 or 0.90 for the respiratory quotient and 0.12 or 0.14 per cent for the sugar. During the next thirty minutes the values fall gradually to, or slightly below, those observed before the cigaret was smoked.

Further inferences may be drawn from the facts now available. Fatigue and irritability are sometimes associated with a low or fasting level of the blood sugar. Perhaps smoking, by inducing a secretion of suprarenal medullary hormone, induces a hyperglycemia that tem-

porarily relieves the distress. Smoking is also alleged to relieve the symptoms of hunger—a phenomenon that attends a lowered content of dextrose in the circulating medium. Haggard and Greenberg allege that other effects of smoking, the acceleration of the pulse and the temporary rise in arterial pressure, are presumably, like the increase in sugar concentration, dependent on discharge of epinephrine. It is doubtless true that "the poetic effusions of the lovers of the weed are no safer guide than the exaggerated and intemperate pronouncements of people who have idiosyncrasies against tobacco and simply hate it." But the observations from the Yale laboratory may help to explain why tobacco rather than any other substance is used for smoking, the smoker obtains from tobacco repeated minute doses of nicotine.

Current Comment

THE ETIOLOGY OF AGRANULOCYTOSIS

Agranulocytosis is a clinical syndrome that has been frequently reported only within the last few years. Several theories have been suggested as the cause of this highly fatal disease, but a satisfactory explanation has not yet been offered. It is important to consider carefully all the evidence presented. Madison and Squier¹ in this issue of *THE JOURNAL* report fourteen cases of agranulocytosis in which a definite history was obtained in each case of the use of amidopyrine (in combination with a barbitol preparation, amidopyrine alone, or in one case in combination with other drugs) immediately prior to the clinical discovery of the disease. In treating these cases of agranulocytosis, the Milwaukee investigators endeavored to stimulate granulopoiesis in all of them by means of transfusions, nucleotide or yellow bone marrow extract. In eight cases the further use of amidopyrine was strictly prohibited. In the other six cases the use of amidopyrine was permitted for the relief of pain and restlessness, because its harmful effect was not fully appreciated. Among these six cases the mortality was 100 per cent, in spite of the fact that four of the patients recovered from the acute attack. Among the eight cases in which the use of these drugs was prohibited, only two deaths occurred, and in each of them the granulocytopenia was extreme at the time the diagnosis was made. To obtain further evidence of the ability of these drugs to depress the granulocytes, two patients who had recovered from the acute attack were given 0.3 Gm. of amidopyrine and 0.45 Gm. of amidopyrine together with 0.2 Gm. of amytal, respectively. Within a few hours both of these patients showed a temporary marked depression of the granulocytes. To obtain still further evidence, the authors gave eleven rabbits either allylisopropylbarbituric acid (alurate) with amidopyrine or amidopyrine alone. On the twenty-fifth day, one rabbit receiving an average of 1.3 Gm. of amidopyrine duly showed an abrupt drop in the granulocytes, which progressed until its death on the thirtieth day. Preceding its death this

² Haggard H. W. and Greenberg L. A. The Effects of Cigaret Smoking on the Blood Sugar. *Science* 79: 165 (Feb. 16) 1934.

³ Cannon W. B., Aub J. C. and Binger C. A. L. The Effect of Nicotine Injection on Adrenal Secretion. *J. Pharmacol. & Exper. Therap.* 3: 381 (March) 1912.

⁴ Nicotine and the Adrenals editorial. *J. A. M. A.* 58: 1287 (April 27) 1912.

¹ Madison F. W. and Squier T. L. The Etiology of Primary Granulocytopenia (Agranulocytic Angina) this issue p. 755.

rabbit showed a complete absence of granulocytes in the peripheral blood, and at necropsy the bone marrow was found to be absolutely lacking in the cells of the granular series. None of the other rabbits showed the blood picture of granulocytopenia. It is an extremely interesting fact that the period of rapid increase in the number of cases of agranulocytosis reported in the literature coincides almost exactly with the increase in the use of drugs containing a combination of amidopyrine with a barbitol compound. In view of their study, Madison and Squier believe that amidopyrine, either alone or together with a barbitol preparation, is capable of producing primary granulocytopenia in certain persons who are sensitive to the drug. Although of a far different nature, Gillespie's² report in the *Lancet* of February 17 on the alleged dangers of the barbitals again emphasizes the fact that a considerable number of fatalities have in some way been associated with such drugs as barbitol, allonal, pernoston, phenobarbitol, dial, and other proprietary brands of barbitol preparations. Nevertheless Gillespie makes the broad conclusion that there is no case on record up to the end of 1932 in which the barbitals, in either a single dose or repeated doses of therapeutic size, have caused death in the absence of complicating factors. His one "possible reservation" is to the observations of Watkins at the Mayo Clinic of thirty-two cases of agranulocytosis, in twenty-four of which either amidopyrine or a barbituric acid derivative had been given before the onset of the granulocytopenia. In an experimental study, Kracke³ reports that subcutaneous injections of benzene and olive oil in sufficiently small doses would result in the development of clinical agranulocytosis in rabbits; he did not succeed, however, in producing the disease in animals by the injection or the oral administration of amidopyrine. Madison and Squier's observations should inspire others to study carefully their cases of agranulocytosis with particular reference to their relation to the use of these drugs. Moreover, their work again shows that clinical observation at the bedside of patients is a fruitful field for research.

THE ABSORPTION OF CAROTENE

With the importance of the recognized vitamins as food factors clearly established by nutrition experiments, it has become eminently desirable to learn the details of their function. First comes the question of alimentary absorption. Some of the vitamins are water soluble, for them no serious problem of transfer from the gastro-intestinal canal to the blood stream arises. Other vitamins do not have a comparable solubility. This is notably true of vitamin A and its yellow pigment precursor, carotene. Dispersed in colloidal form in aqueous fluids, carotene does not penetrate ordinary biologic membranes. Furthermore, it does not occur in colloidal form in the blood. The explanation of absorption seems to have been provided in studies of von Euler and Klusmann⁴ in the biochemical institute at the

University of Stockholm. Like numerous other compounds that are insoluble in water but dissolve in certain organic solvents, carotene and other carotinoid pigments pass into aqueous solutions of the bile salts. This procedure has long been known as a possible mode of absorption of the water-insoluble fatty acids, which must often be liberated in considerable quantities in the course of the lipolytic digestion of fat in the intestine. It is conjectured that after absorption, carotene is again displaced from its association with the bile salts. The details are still lacking. The salient facts are obviously of fundamental importance.

Association News

MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central standard time. The next three broadcasts will be as follows:

- March 15 The Health of the School Child W. W. Bauer, M.D.
- March 22 Progress of Surgery Morris Fishbein, M.D.
- March 29 Flowers That Bloom in the Spring, W. W. Bauer, M.D.

National Broadcasting System

The Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15, Central standard time (5 o'clock, Eastern standard time, 3 o'clock, Mountain standard time, and 2 o'clock, Pacific standard time). The next three broadcasts will be as follows:

- March 12 Low Blood Pressure R. G. Leland, M.D.
- March 19 Mechanization of Medicine Morris Fishbein, M.D.
- March 26 Why Pasteurize? W. W. Bauer, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal—Dr. William A. Stanley, acting health officer of Blount County, has been appointed in charge of the Bullock County Health Department; he will be succeeded in Blount County by Dr. Samuel D. Sturkie, Jr., Collinsville. Dr. Cline V. Hendrix, Oneonta, recently resigned the latter post to return to private practice.—Dr. Arthur M. Shelamer, Union Springs, has been named health officer for Colbert County.

CALIFORNIA

Society News—The Solano County Medical Society, Vallejo, was addressed, February 13, by Drs. Leo P. Bell and Donald McNeil, Sacramento, on "Lesions of Stomach and Duodenum" and "Gas Gangrene," respectively.—The Pacific Physical Therapy Association was addressed, February 21, by Drs. George K. Abbott, Glendale, and Walter A. Hodges, Pasadena, on "Surgical Aspects of Physical Medicine" and "Sanatorium Treatment of Tuberculosis," respectively.

Course for Health Officers—The University of California will offer a twelve weeks course of training for health officers, May 14 to August 3. The first six weeks study in Berkeley, under the direction of Dr. Frank L. Kelly, will consist of class instruction, group discussions and field demonstrations. The next four weeks will be spent in the San Joaquin County Health Unit, where students will receive field experience under the supervision of Dr. John J. Sippy. In the last two weeks each student will be required to make a survey of the health work in a community near enough to Berkeley so that frequent conferences can be held with faculty members. The course will

² Gillespie, R. D. On the Alleged Dangers of the Barbiturates. *Lancet* 1:11 (Feb. 17) 1934.

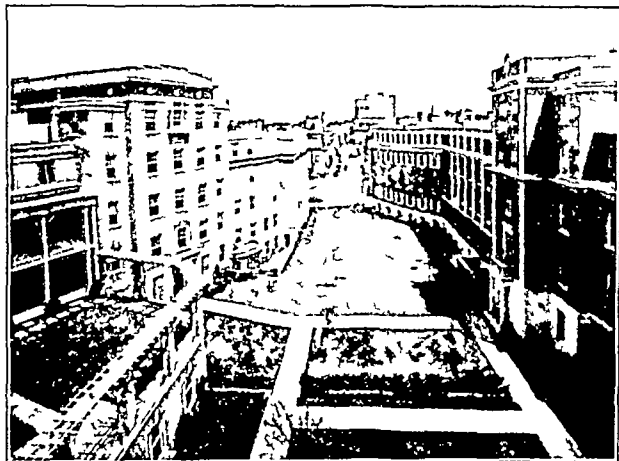
³ Kracke, R. K. The Experimental Production of Agranulocytosis. *Am. J. Clin. Path.* 2:11 (Jan.) 1932.

⁴ von Euler, H. and Klusmann, Erika. Zur Biochemie der Carotinoide und des Vitamins C (Ascorbinsäure). *Ztschr. f. physiol. Chem.* 219:215 (Aug.) 1933.

not carry university credit, but a certificate of attendance will be issued to those completing it satisfactorily. The regular fees of the intercession and summer session of \$35 will be charged, no laboratory fees will be charged. Applications should be sent to the chairman, department of hygiene, University of California, Berkeley, and should be accompanied by a statement of professional training and experience.

CONNECTICUT

Yale Building Program Completed—Construction work at Yale University School of Medicine, in progress almost continuously for the last five years, has been temporarily completed. In the Sterling Hall of Medicine are the laboratories of anatomy, physiology, physiologic chemistry, pharmacology and psychobiology. The Institute of Human Relations contains the laboratories and clinical facilities of the department of psychiatry and mental hygiene, the laboratories of psychology and physiologic psychology, the laboratories of the clinic of child development, and the quarters of the anthropology division and of research in the social sciences. The Sterling Hall of Medicine also contains the library, amphitheater, administrative offices and recreational facilities of the school of medicine. On the west side of Cedar Street are the buildings of the New Haven Hospital and the clinical divisions of the school of medicine. The Clinic Building constitutes the center of this group. Two new pavilions, Raleigh Pitkin Memorial for medicine and pediatrics, and the Sarah Wey Tompkins Memo-



Court between Institute of Human Relations and Sterling Hall of Medicine

rial for surgery and obstetrics, are both six story buildings, each with five ward floors. The Farnam Memorial Building and the Medicine and Pediatrics Laboratory building have amphitheatres for teaching purposes. The departments of bacteriology, pathology and public health occupy the Brady Memorial Laboratory and Lauder Hall. The buildings are all of simple design and construction, on a unit basis with all units interconnecting and with a minimum amount of fixed equipment. The total cost of the modern buildings in the school and hospital group was about \$12,000,000, including equipment. The building expansion program of the school was formulated in 1920. The Sterling Hall of Medicine and the Private Pavilion were erected in 1923, and the other units have been added since 1928. The total capacity of the hospital, including nursery beds, is about 550.

GEORGIA

District Meeting—The Fifth District Medical Society will convene at the Academy of Medicine in Atlanta, March 22. The program will be presented by the following, among others:

Dr. Edgar G. Billenger, Atlanta: Relationship of Health Preservation to Genito-Urinary Symptoms.
Dr. Louis C. Roughlin, Atlanta: Nasal Accessory Sinuses as Foci of Infection.

Dr. Clifford G. Grulee, Chicago: Breast Feeding and Infection—A Review of Twenty Thousand Cases.
Dr. Barney Brooks, Nashville, Tenn.: Influence of Simultaneous Ligation of the Veins on the Incidence of Gangrene Following Arterial Obstruction.

Dr. Marion C. Pruitt, president, Fulton County Medical Society, will give the address of welcome and Dr. Charles H. Richardson, Macon, president of the Medical Association of Georgia, the response. A luncheon will be given by the Academy of Pediatrics in honor of Dr. Grulee.

ILLINOIS

Research on Amebic Dysentery—With the objective of perfecting a blood test for the diagnosis of amebic dysentery, the state department of public health is asking physicians to submit blood specimens of patients with this disease. These analyses are being made in the Chicago branch of the state diagnostic laboratories at 1819 West Polk Street. Dr. Lloyd L. Arnold, head of the branch laboratory and professor of bacteriology and preventive medicine at the University of Illinois College of Medicine, is in charge of the work. He is assisted by Dr. Emil Weiss.

Society News—Dr. Charles A. Aldrich, Chicago, spoke before the Will-Grundy County Medical Society, February 21, on "Nephritis in Children."—At a meeting of the St. Bernard Research Society, February 13, Dr. Bernard Portis, Chicago, talked on "The Surgical Treatment of Duodenal Ileus."—Dr. Rollo K. Packard, Chicago, discussed medical economics before the Fulton County Medical Society, February 21.—Dr. Max Thorek, Chicago, spoke before the Kankakee County Medical Society, February 8, on "Treatment of Carcinoma of the Rectum by Electrosurgery."—The St. Clair County Medical Society was addressed, February 1, by Dr. William C. Stude, St. Louis, on obstetrics with special reference to pelvic measurements.—At a meeting of the Adams County Medical Society in Quincy, February 12, Dr. Rosco G. Lehn, Chicago, discussed "The Economics of Medical Practice."—Dr. Lewis J. Pollock, Chicago, spoke on "Organic Spinal Cord Diseases" before the Peoria City Medical Society, February 6. Dr. Max Cutler, Chicago, addressed the society, February 20, on "Medications, Limitations and Advances in the Radium Treatment of Cancer."—Dr. Scott J. Wilkinson, Decatur, addressed the Christian County Medical Society January 7, on "Emergencies in Pediatric Practice."

Chicago

Contagious Disease in Private Practice—The Chicago Medical Society will hear a discussion of "Contagious Disease in Private Practice," March 14, at the Medical and Dental Arts Building. Dr. John J. McShane of the state department of health, Springfield, will speak on "Seasonal Aspects and Modes of Transmission of Common Contagious Diseases in Illinois," and Dr. Archibald L. Hovne, medical superintendent, Municipal Contagious Disease Hospital, "The Important Considerations Regarding Contagious Disease in Chicago."

The Names of Medicines in Motion Pictures—The part that motion picture organizations take occasionally in presenting to the public the names of medical substances with indications for their use was viewed with disfavor in a resolution adopted by the Chicago Medical Society, February 13. Recognizing that such recommendations are unwise on the part of men untrained in pharmacy, impolitic on the part of the manufacturers and a potential source of public danger, and that to conserve the public health the prescription of remedies for illness should be restricted to the medical profession, the council of the society has requested Will H. Hays, director of the moving picture industry, to forbid the practice.

Society News—At a meeting of the Chicago Surgical Society, March 2, the speakers included Drs. James K. Stack on "Prognosis in Fractures of the Carpal Scaphoid," and John L. Yates and Silvanus A. Morton, Milwaukee, on "Operative Correction of Diaphragmatic Hernia, Postoperative Care of the Patient."—The Chicago Council of Medical Women was addressed, March 2, by Drs. Alice McNeal and Nora F. B. Brandenburg on "Pentobarbital Anesthesia" and "Bronchoscopy," respectively.—Speakers before the Chicago Laryngological and Otolological Society, March 5, were members of Northwestern University Medical School, among others, Drs. John F. Delph and Max T. Lampert spoke on "Endoscopic Experience" and "Combined Laryngofissure for Cancer of the Larynx," respectively.

KENTUCKY

Bills Passed—H. 662 has passed the house, proposing to repeal the laws regulating the possession and sale of narcotic drugs and to enact the uniform narcotic drug act. H. 318 has passed the house and the senate, proposing to discontinue the registration of assistant pharmacists. Assistant pharmacists who are now registered may be, until October 1938, examined for registration as pharmacists. S. 151 has passed the senate and the house, proposing to abolish the office of state supervisor of chiropractors. H. 388 has passed the house, proposing to forbid the possession or sale of marihuana except on the prescription of a licensed physician.

Bills Introduced—S 278 proposes to make the records of any public hospital admissible in evidence and prima facie proof of the statements made therein without the personal testimony of the persons making the records. S 303 proposes to repeal the laws relating to narcotics and to enact the uniform narcotic drug act. S 341 proposes to authorize the sexual sterilization of insane, feeble-minded or epileptic inmates of state institutions and of habitual criminals. S 352 proposes that in the distribution of the assets of an insolvent decedent's estate the hospital bills and the doctors' bills incurred in the last illness have an equal priority with burial expenses and costs of administration and that until these charges have been met no other claims may share in the assets. S 353 proposes to accord to hospitals treating persons injured through the negligence of other persons liens up to \$200 on any rights of action, claims, judgments or settlements accruing to such injured persons by reason of their injuries. This lien, however, is not to attach to any recoveries had under the workmen's compensation act.

MARYLAND

Thayer Lectures—Dr James B. Murphy of the Rockefeller Institute for Medical Research delivered the William Sydney Thayer and Susan Read Thayer Lectures in Clinical Medicine, March 8-9, in the Hurd Memorial Hall of Johns Hopkins Hospital. "Four Important Phases of Cancer Research" and "Avian Tumors in Relation to the General Problem of Malignancy" were the individual titles of Dr. Murphy's discussion of the "Experimental Approach to the Cancer Problem."

Health Conditions in 1933—Fewer deaths in the state from all causes (20,596) in proportion to the population than at any time since these records have been kept in the state were noted for Maryland in 1933. There were 27,633 births reported during the year in comparison with 28,740 in 1932, but there were fewer deaths among infants under 1 year old, in proportion to the number of births, than at any time since the state has been keeping records of births and deaths. Of the total deaths, 3,707 were of persons under 25 years of age, 2,872 between 25 and 44, and 14,017, or more than two thirds of the total, more than 45 years of age. Diseases of the heart were responsible for 4,324 deaths, diseases of the kidneys for 2,439, cancer for 2,005, cerebral hemorrhage for 1,607 and diabetes for 398.

MASSACHUSETTS

Dr Landsteiner Gives Cutter Lecture—Dr Karl Landsteiner of the Rockefeller Institute for Medical Research, New York, will deliver the Cutter Lecture on Preventive Medicine at Harvard Medical School March 16. He will speak on "Immunochemical Specificity."

Clinical Meeting—Dr E. Starr Judd, professor of surgery, University of Minnesota Graduate School of Medicine, will conduct a clinic at the Boston City Hospital, April 16, under the auspices of the department of surgery, Boston University School of Medicine. His subject will be "Surgical Diseases of the Biliary Tract." Taking part in the discussion will be Drs. Horace Binney, Arthur W. Allen and Elliott C. Cutler.

Society News—Richard K. Conant, commissioner of public welfare of Massachusetts discussed "The Doctor and the Departments of Public Welfare" before the Essex North District Medical Society, January 3, among others. Dr. John B. Hayes II has been elected president of the Boston Tuberculosis Association. Dr. Clarence O. Cheney, New York, addressed the Massachusetts Psychiatric Society, February 23, on "Some Activities of the New York Psychiatric Institute and Hospital."

MICHIGAN

Society News—Speakers participating in a program on recent advances in medicine and surgery before the West Side Medical Society, Detroit, March 1, were Drs. Clarence Baker, Louis J. Bailey, Clarence E. Uniphrey, John B. Rieger, David I. Sugar and Samuel A. Flaherty. Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, addressed the Wayne County Medical Society in Detroit, March 5, on "The Doctor and the State."

Bill Passed—S 8-XX has passed the Senate proposing to amend the pharmacy practice act by providing that the members of the board of pharmacy shall receive \$10 for every day actually engaged in the work of the board and their necessary traveling expenses. Under the present law the members of the board serve without compensation but their traveling and other necessary expenses incurred in the performance of their official duties are refunded.

MINNESOTA

Survey of Nutrition of Children—That malnutrition is not a factor in the health of school children of Minneapolis is evidenced in the report of a recent survey of 100 schools. Seventy-seven schools reported absence of noticeable malnutrition, with an occasional case of undernourishment peculiar to the home and family rather than to the economic situation. Fourteen schools reported a noticeable improvement in the nutrition status of the children as compared with the surveys of a year and two years ago. In these schools particular attention is called to the fact that a fair, if not large, percentage of the students come from homes receiving public relief and attribute the favorable conditions to the fact of better food selection.

MISSISSIPPI

Bill Enacted—H 95 has been approved by the governor, amending the law forbidding the sale, barter or giving away of cannabis indica or of commodities intended for smoking which contain cannabis indica, so as (1) to forbid also the keeping or possessing of such commodities, and (2) to permit sale and/or possession on the prescription of a physician.

Societies Merge—The consolidation of the Clarksdale and Six Counties Medical Society and the Delta Medical Society was approved at a meeting of representative committees in Rosedale, December 7, the new organization to be known as the Delta Medical Society. All counties in the delta are encompassed in the two societies, with the exception of Sharkey and Issaquena. It was agreed to hold three meetings a year, at Clarksdale, Greenville and Greenwood in rotation. The Clarksdale and Six Counties Medical Society has already voted for the union, and the Delta Medical Society is expected to act at its April meeting in Cleveland. The new society will probably seek a charter at the May meeting of the house of delegates of the state medical association.

MISSOURI

Mask of John Hunter—A replica of the death mask of John Hunter was presented to St. Louis University School of Medicine, St. Louis, January 11, by Dr. William W. Graves, director of the department of neuropsychiatry. Dr. Graves acquired the mask in 1924, while working in the Hunterian Museum of the Royal College of Surgeons in England. It will probably be placed in the library of the school.

Society News—Dr. Ralph S. Muckenfuss, St. Louis, addressed the Kansas City Academy of Medicine, February 16, on "Practical Clinical and Therapeutic Problems as Related to the Study of Virus Disease."—A symposium on pneumonia constituted the program before the St. Louis Medical Society, February 20, the speakers were Drs. Anthony B. Day, Harry L. Alexander and Edward Lawrence Keyes III. In addition, Henry T. Scott, Ph.D., director of biologic research, Wisconsin University Alumni Research Foundation, Madison, discussed "Irradiated Vitamin D Milk."—Dr. Sidney I. Schwab addressed the St. Louis Neuropsychiatric Society, February 26, on "The Utilization of Freudian Concepts in Neurology and Psychiatry—An Illustrative Case and Episodes."—A joint meeting of the St. Louis Pediatric Society and the Orthopedic Surgeons of St. Louis, February 23, was addressed by Drs. Hugh McCulloch on "Children's Feet and Shoes," James Archer O'Reilly "Posture," Charles A. Stone, "Early Treatment of Poliomyelitis," and Theodore C. Hempelmann, "What Can be Done for Cerebral Palsies."—At a meeting of the Jackson County Medical Society, February 20, speakers were Drs. Carl F. Nelson, Lawrence, Kan., and Charles J. Eldridge, Kansas City, on "Hemoglobin, Its Chemistry, Standard and Clinical Significance" and "Intussusception," respectively.

NEW HAMPSHIRE

Acting Secretary Designated—Dr. Carleton R. Metcalf, Concord, has been designated secretary pro tempore of the New Hampshire Medical Society to act until the next session of the society in May, to take the place of the late Dr. Dennis E. Sullivan.

NEW JERSEY

Bills Passed—The following bills have passed the assembly. A 4, proposing to require a thorough physical examination, including, if necessary, a "stereoscopic x-ray photograph" of the chest, of all students admitted to the state normal schools and teachers colleges, and of persons applying for certificates to teach in the public schools. and A 132, proposing that nothing in the state emergency relief act shall be

construed to prohibit or limit any licensed physician, occupying a position as a state, county, municipal or school physician from being compensated by the state for the care and treatment of emergency relief patients. S 94 has passed the senate, proposing to amend the law providing liens in certain cases for hospitals by raising to 50 cents the fee required to be paid on filing a claim of lien.

Bills Introduced—S 158 and A 314, to amend the workmen's compensation act, propose to make compensable pneumoconiosis contracted in any employment covered by the act. S 162 proposes to authorize the sexual sterilization of "a defective person likely, if not sexually sterilized, to procreate like defective persons," whether an inmate of a state institution or not. S 183, to supplement the medical practice act, proposes to make it a misdemeanor for any one other than a person licensed to practice medicine and surgery to "use in connection with his name the words or letters, 'doctor,' 'Dr,' 'physician,' 'surgeon,' 'M.D.,' 'M.B.,' 'specialist,' 'professor,'" S 184, to amend the workmen's compensation act, proposes to include silicosis as a compensable occupational disease, provided the disability commences within two years after the termination of such exposure. A 201 proposes to accord to physicians treating persons injured through the negligence of other persons liens on any causes of action, claims, judgments, settlements or compromises accruing to such injured persons because of their injuries. A 245, to amend the dental practice act, proposes, among other things, to add to the grounds on which a license to practice dentistry may be revoked a violation of any of the rules or regulations which the state board of registration and examination in dentistry may hereafter adopt with respect to the practice of dentistry. A 255 proposes to provide a fund whereby the state department of health may care for, treat or isolate human carriers of typhoid fever and other infectious and contagious diseases. A 262, to supplement the pharmacy practice act, proposes to require the annual registration of pharmacies and the payment of an annual fee of \$3. A 332, to amend the chiropody practice act, proposes to define chiropody as "the examination, diagnosis or treatment of any ailment of the human foot, by minor surgical local medical (including the use of local anesthetics), mechanical or physical means." "Physical means shall be interpreted to be the use of light, heat, air, water and exercise, but shall not include the use of electricity except as applied to ailments of the human foot." A 339, to amend the nursing practice act, proposes to stagger the terms of members of the board of nurses' examiners. A 303 proposes to create a State Board of Osteopathic, Chiropractic and Naturopathic Examiners to consist of three osteopaths, three chiropractors and one naturopath and to regulate the practice of osteopathy, osteopathy and surgery, chiropractic and naturopathy. Osteopaths licensed under the provisions of this bill would be entitled to practice osteopathy in all its branches as taught and practiced in the legally incorporated schools or colleges of osteopathy, including, apparently, physical therapy, but could not legally prescribe or administer drugs. After 1940, apparently, osteopathic licensees would also be entitled to practice surgery. The bill proposes to define chiropractic as the "diagnosis and treatment of disease by the adjusting by hand only of the vertebral column and tissues." Such a license would not permit a chiropractor to prescribe drugs, practice obstetrics or perform any surgery requiring cutting. The bill defines naturopathy as the "diagnosis and treatment of disease by the use and prescription of use of the following psychological, mechanical and material therapies: psychotherapy, mechanotherapy, physiotherapy, pneumotherapy, phytotherapy, electrotherapy, geo-therapy, hydrotherapy, corrective orthopedics and dietetics."

NEW YORK

Bill Passed—S 297 has passed the senate, proposing to permit any corporation organized under the membership corporations law of the state to establish, maintain and operate subject to the approval of the superintendent of insurance, a nonprofit plan to provide hospital care to its members.

Bill Enacted—S 155, permitting the board of regents to restore a license to practice medicine to a person whose license has been forfeited by conviction of any felony, if such person is pardoned by the governor of the state or by the President of the United States of the felony of which he was convicted, has been enacted as chapter 26, Laws, 1934.

Bills Introduced—S 690, to amend the nursing practice act, proposes to require applicants for licenses to practice nursing to be citizens of the United States. This provision, however, is not to apply to nurses who give their services free of charge through a charitable and/or religious agency. S 890

proposes that whenever expert evidence is necessary in any trial the court may, on its motion or on the motion of either party, appoint one or more experts to investigate and to testify at the trial. The court is to fix the compensation of such experts and may at any time before or during the trial limit the number of expert witnesses to be called by any party. S 926 proposes that no corporation shall hereafter be permitted to do business in the state if the word "Doctor" or "Dr" is a part of its corporate name.

New York City

Disease Among Mendicants—Among 370 mendicants arrested from January 2 to 24 in an effort to end street begging, 150 were found to be suffering from disease, according to a report of the Welfare Council, which sponsored the project in cooperation with the magistrates' courts. Forty of the men had acute venereal diseases, 110 were chronic alcoholics, 25 were chronic narcotic addicts and others were more recently addicted to drugs. Sentence was suspended in 200 cases, these men being directed to institutions where their needs could be cared for. Those suffering from active diseases and chronic alcoholism were given indeterminate sentences in order that they might receive treatment. The presence of these diseased persons on the streets was called a serious public health menace.

Spring Lectures—The spring series of Friday afternoon lectures sponsored by the Medical Society of the County of Kings in its auditorium in Brooklyn was opened by Dr. John B. D'Albora, February 23, speaking on "Colitis—Its Causes and Management." Dr. Edwin P. Maynard, Jr. delivered the second lecture, March 2, on "Management of the Medical Aspects of the Emergencies of Pregnancy," and Dr. Irwin E. Siris, the third, March 9, on "Common Fractures of Childhood." The remainder of the series includes the following:

March 16 Dr. Tasker Howard: Coronary Occlusion.
March 23, Dr. Fedor L. Senger: Endoscopic Resection of Bladder Neck Obstruction.
April 6 Dr. Robert F. Barber: Injection Treatment of Varicose Vein.
April 13 Dr. Harold R. Merwarth: Pain in the Head and Face.
April 20 Dr. Emil Goetsch: Medical and Surgical Aspects of the Gout Problem.
April 27 Dr. George I. Swetlow: Role of the Physician in the Court room in Problems of Exaggeration, Neurosis and Malingering.
May 4 Dr. Thurman B. Givan: Syphilis in Childhood.

Hospital News—Among special lecturers at the New York Polyclinic Medical School and Hospital recently were Drs. Frank H. Lehey, Boston, who gave an address, January 8, on "Esophageal Diverticulum: Its Diagnosis, Surgical Management and End Results," Irving W. Potter, Buffalo, January 20, "The Technique of Version," and Murray B. Gordon, clinical professor of pediatrics, Long Island College of Medicine, "Diagnosis and Treatment of Endocrine Conditions in Infants and Children."—The National Hospital for Speech Disorders has recently moved into new quarters at 126 East Thirtieth Street. The scope of its work, which has heretofore been confined mainly to pathologic conditions affecting speech, will now be broadened to include training in speech for normal persons, according to an announcement. In its sixteen years of existence the hospital has treated more than 30,000 persons. Dr. James Sonnett Greene is medical director.—For the first time in fifty years, St. Mary's Hospital was unable to meet its payroll February 1, covering the wages and salaries of about 300 employees, according to the United Hospital Fund. The hospital's difficulties are said to be further complicated by delay in payment by the city for public charges cared for in the institution. St. Mary's is a general hospital with about 330 beds. Last year 25 per cent of its ward services and 26 per cent of the outpatient services were given free to needy patients.

OHIO

Cleveland's Healthiest Year—The general death rate for Cleveland for 1933 was the lowest in the city's history, 9.7. The infant mortality rate, 45, was also the lowest ever recorded. For twenty-seven consecutive months the city has not had a case of smallpox, the health department reported. The tuberculosis mortality rate has been reduced 37 per cent in the past two years.

Resignation of Dr. Patten—Bradley M. Patten, Ph.D., associate professor of histology and embryology, Western Reserve University School of Medicine, Cleveland, has resigned to become assistant director for medical sciences of the Rockefeller Foundation, New York. Dr. Patten was educated at Dartmouth College and Harvard University and began his connection with Western Reserve in 1914. His research has dealt principally with the development of the heart and vascular system. He is the author of "Embryology of the Pig" and "Early Embryology of the Chick."

Personal—Dr Nathan Wallace Abbott, Cincinnati, observed his eightieth birthday January 31, he has occupied the same office for fifty-five years—Drs Gabriel B Kramer and David H Smeltzer, Youngstown, have recently been admitted to the bar—Dr Samuel E McMaster, Akron, was guest of honor at a dinner recently given by the staff of the People's Hospital on the occasion of his retirement from the consulting staff—Dr Louis Howard Schriver has recently been elected president of the Public Health Federation of Cincinnati—Dr Edgar L Vermilya, Fremont, was recently appointed health officer of the town for the twenty-fifth year—Dr John Dudley Dunham, Columbus, was elected chief of general staff of Grant Hospital, January 17—Dr Charles B Finebrock, Port Clinton, was recently elected president of the Northwestern Ohio Health Commissioners' Association

OREGON

University News—The alumni association of the University of Oregon Medical School will sponsor three days of clinics and lectures at the university in Portland, March 12-14. The guest speaker will be Dr Leo Eloesser, San Francisco, who will discuss surgical treatment in pulmonary tuberculosis and in certain forms of cancer

Society News—Dr Harry V Wurdemann, Seattle, addressed the Portland Academy of Ophthalmology and Otolaryngology, January 16 on "Traumatic Neurosis Following Accidents Affecting the Eyes and Vision"—Dr Winfred H Bueermann, Portland, addressed the Central Willamette Medical Society, Albany, January 5, on chronic appendicitis

PENNSYLVANIA

Graduate Courses in Pittsburgh—The Allegheny County Medical Society opened its seventh series of graduate courses for practitioners, March 1. They are being given at the University of Pittsburgh School of Medicine and at various hospitals. Duration of the courses varies from four to ten sessions. Subjects include cardiovascular and renal diseases, applied biochemistry, periodic health examination, elements of neurology, office gynecology, common ear, nose and throat conditions, and gross pathology

Physicians Address Social Welfare Conference—At a meeting of the Pennsylvania Conference on Social Welfare in Lancaster, February 21-24, speakers included Drs Harold A Miller, Pittsburgh, state director of medical relief, on "Supervision of the Sick", Donald Guthrie, Sayre, president, Medical Society of the State of Pennsylvania, "The Medical Profession Plans for Protection," and Samuel McC Hamill, Philadelphia, chairman, state emergency child health committee, "A Child Health Emergency Exists"

Philadelphia

Hospital News—Dr Edward W Beach has been appointed chief of the department of anesthesia at Wills Hospital. He is professor of anesthesia in the University of Pennsylvania School of Medicine and chief of the department at the Graduate Hospital

University News—Dr Chevalier Jackson has been appointed professor of bronchoscopy at the Woman's Medical College of Pennsylvania in charge of a new bronchoscopic clinic. Dr Emily Lois Van Loon, professor of otolaryngology, has been appointed clinical professor of bronchoscopy and will be associated with Dr Jackson in the conduct of the clinic. Dr Hans Ritter von Baeyer, formerly professor of orthopedic surgery at the University of Heidelberg, Germany, has accepted an appointment as lecturer at the college

RHODE ISLAND

Society News—Drs Herrmann L Blumgart and David D Berlin, Boston, addressed the Providence Medical Association February 5, on medical and surgical aspects, respectively, of "Treatment of Angina Pectoris and Congestive Heart Failure by Complete Ablation of the Thyroid." A symposium on tuberculosis was presented before the association, March 5, by Drs Ubaldio L Zambarrano and James Murray Beardsley, Providence and Robert Glen Urquhart of the Norwich (Conn) State Tuberculosis Sanatorium—Dr Lauretta Bender, New York, spoke on Alcoholic Encephalopathy at the State Hospital for Mental Diseases, Howard, February 26

SOUTH CAROLINA

Bill Passed—H 1309 has passed the house proposing to create a board of co-metic art examiners and to regulate the practice of hairdressing and cosmetology

TEXAS

Health at El Paso—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended February 24, indicate that the highest mortality rate (23.4) appears for El Paso, and for the group of cities as a whole, 12.7. The mortality rate for El Paso for the corresponding period last year was 15.3 and for the group of cities 12.3. The annual rate for eighty-six cities for the eight weeks of 1934 was 12.6, and the same rate appears for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate

VIRGINIA

Bill Passed—H 94 has passed both the house and the senate, proposing to repeal the laws relating to narcotic drugs and to enact the uniform narcotic drug act

Bills Introduced—S 325 proposes that the state commissioner of health shall be an ex officio member of the general board of directors of the state hospital for the insane and the state colony for epileptics and feebleminded at Madison Heights. A bill introduced in the House of Delegates by Mr Bandy February 16, and referred to the committee on general laws proposes to create in the state health department a division of barber examiners and to regulate the practice of barbering

Society News—Dr James Warren Sayre, Newport News, addressed the Warwick County Medical Society in Newport News, January 15, on acute appendicitis in childhood—Dr James Edwin Wood, Jr, University, addressed the Lynchburg Academy of Medicine, January 8, on "Emergencies and Pseudo-Emergencies in Heart Disease"—At a meeting of the Roanoke Academy of Medicine, January 8, speakers were Drs John H Neff and Harvey E Jordan, University, on "Renal Tumors" and "Extramedullary Blood Formation," respectively—Dr Everett C Drash, University, spoke on "Intrathoracic Neoplasms" before the Rockingham County Medical Society, Harrisonburg, January 8

WEST VIRGINIA

Bill Introduced—H 348-XX proposes to impose on every practitioner of medicine an annual occupational tax of \$25

Personal—Dr John F Cadden, formerly health officer of Boone County was appointed director of the division of vital statistics in the state department of health, February 1, succeeding Dr Carl F Raver—Dr Albert H Hoge Bluefield, was elected president of the West Virginia Public Health Council at a meeting, November 16

GENERAL

Neuropathologists Organize—The first meeting of the American Association of Neuropathologists was held in New York, Dec 28, 1933, and the following officers were elected: Drs George B Hassin, Chicago, president, Wilder G Penfield, Montreal, vice president, and Armando Ferraro, secretary. This society, which was organized in May, 1933, in Washington, D C, has for its object the advancement of the science of neuropathology, which is defined as including, first, investigation of the pathologic conditions spontaneously arising in the human or animal nervous system and experimental investigation of pathology, including pathologic anatomy involving the nervous system. Meetings will be held at the same time and place as the annual sessions of the American Neurological Association

Requests for Grants by Ella Sachs Plotz Foundation—Twenty-one grants were made by the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation during 1933, according to its tenth annual report. During the year 136 applications for grants were received, sixty-two of which came from thirteen different countries in Europe and Asia, the other seventy-four from the United States. Twelve of the new grants were made to scientists outside the United States. On account of economic conditions and the fact that many worthy scientists are without positions at present, about one third of the money appropriated was kept in reserve to aid these men. During the present great need of funds, the foundation has deviated from its policy of favoring researches on a single problem or closely allied problems and has given consideration to sciences closely related to medicine without

reference to special fields. Applications for grants to be held during the year 1934-1935 must be in the hands of the executive committee before May 1, 1934, and must state definitely the qualifications of the investigator, the character of the proposed research, the size of grant requested and the specific use of the money to be expended. These should be sent to Dr Joseph C Aub, Collis P Huntington Memorial Hospital, 695 Huntington Avenue, Boston.

News of Epidemics—Outbreaks of measles have recently been reported in newspapers from various parts of the country. In Philadelphia, the health department reported 3,079 cases for the first five weeks of 1934, compared with 144 cases for the same period of 1933. In Newburyport, Mass., 275 cases were reported during the week ended February 3, in Fargo, N. D., 495 cases between the early part of December and February 4, school attendance was seriously affected by a measles epidemic in Canadian County, Okla., centering in El Reno, Brookings, S. D., reported 50 cases in ten days preceding January 18, quarantine restrictions were applied in several sections of Norfolk County, Va., in January because of the prevalence of the infection. Forty-six states reported a total of 22,494 cases to the U. S. Public Health Service for the week ended, February 10, compared with 9,651 for the corresponding week of 1933.

—An outbreak of thirteen cases of typhoid in the Dunmore section of Scranton, Pa., in December was traced to impure raw milk sold by an unlicensed dealer. Another outbreak occurred in Bedford County, Pa., involving seven persons with one death, this was traced to an unguarded well in Riddlesburg. Schools were closed and serum was administered to all students. Forty-seven states reported 169 cases to the U. S. Public Health Service for the week ended February 10.

Society News—The Federation of American Societies for Experimental Biology will meet in New York, March 28-31. Sessions will be held in the Hotel Pennsylvania and demonstrations at Columbia University College of Physicians and Surgeons. The federation includes the American Physiological Society, American Society of Biological Chemists, American Society for Pharmacology and Experimental Therapeutics and American Society for Experimental Pathology. —Dr Paul V. Anderson, Richmond, was elected president of the Tri-State Medical Association of the Carolinas and Virginia at the annual meeting in Charlottesville, February 14 and Dr James M. Northington, Charlotte, N. C. reelected secretary. The 1935 session will be held in Charlotte. —The Catholic Hospital Association of the United States and Canada will hold its nineteenth annual convention in the Cleveland Public Auditorium, Cleveland, June 18-22. —Dr Francis E. Fronczak, Buffalo, was recently chosen president of the International Society of Medical Health Officers. —Dr George S. Stevenson, New York, was elected president of the American Orthopsychiatric Association at the annual convention in Chicago, February 24. Next year's meeting will be in New York, February 21-23. —The thirty-eighth annual convention of the National Congress of Parents and Teachers will be held in Des Moines, Iowa, May 13-19. The subject of discussion will be "The Future of the Forgotten Child."

Northwest Regional Conference—An informal discussion at breakfast opened the annual meeting of the Northwest Regional Conference at the Lowry Hotel, St. Paul, February 25, with Dr Benjamin F. Bailey, Lincoln, Neb., president in the chair. The following program was presented:

Interstate Radio Broadcasting Health Programs and State Office Organization Dr Edward A. Meyerding, secretary, Minnesota State Medical Association, St. Paul.
Public Health Education by the Doctor Dr William W. Bauer, director of the Bureau of Health and Public Instruction, American Medical Association, Chicago.
County Medical Societies Can Conduct Their Own Clinics Dr Philip H. Kreuscher, president, Illinois State Medical Society, Chicago.
Common Abuses in Committing Mental Cases to State Hospitals Dr William H. Hengstler, St. Paul.
Medical Care of the Indigent in Wisconsin Mr J. George Crownhart, executive secretary, Wisconsin State Medical Society, Madison.
Problems Connected with Compensation Insurance Dr Roy W. Fouts, Omaha.

Discussing these various subjects were Drs Robert L. Parker, secretary, Iowa State Medical Society, Des Moines, Harold M. Camp, secretary, Illinois State Medical Society, Monmouth, Rasmus V. Williams, Rushford, Minn., John F. D. Cook, secretary, South Dakota State Medical Association, Langford, and James M. Hayes, Minneapolis. The annual county officers meeting of the Minnesota State Medical Association was held the preceding day, February 24.

Medical Bills in Congress—*Hearings* The Senate Committee on Commerce held hearings beginning February 27, on S. 2800 the Copeland bill to prevent the manufacture, shipment

and sale of adulterated or misbranded food, drink, drugs and cosmetics. The Senate Committee on the Judiciary held a hearing, March 1, on S. 1842, proposing to authorize the dissemination of information relating to the prevention of conception, and articles, instruments, substances, drugs and medicines designated, adapted or intended for the prevention of conception. *Changes in Status* S. 2688 has been reported, without amendment, to the Senate (S. Rept. 356). It provides for the validation of payments for medical and hospital treatment of members of the Reserve Officers' Training Corps and of members of the Citizens' Military Training Camps who contracted disease in line of duty while en route to or from and while at camps of instruction. H. R. 6663, the Independent Offices' Appropriation bill, has passed the Senate, with amendments. As amended, the bill provides that any veteran, not dishonorably discharged, suffering from disability, who is in need of hospitalization or domiciliary care and is unable to defray the necessary expenses therefor shall be furnished such hospitalization or care in any Veterans' Administration facility, within the limitations existing in such facilities, irrespective of whether the disability was due to service. A statement under oath by the veteran on such form as may be prescribed by the Administrator of Veterans' Affairs shall be accepted as sufficient evidence of inability to defray necessary expenses. *Bills Introduced* S. 2892, introduced by Senator Wheeler, Montana, and H. R. 8308 introduced by Representative Ayers, Montana, propose to amend existing laws prohibiting the introduction of intoxicating liquor within the Indian country so as to permit its use as a medicine by practicing physicians for patients of Indian blood. S. 2923 introduced by Senator Hatch, New Mexico, proposes to prohibit the shipment and transportation in interstate or foreign commerce of cannabis and its derivatives and compounds. H. R. 8316, introduced by Representative Boland, Pennsylvania, proposes to prevent the manufacture, shipment and sale of adulterated or misbranded food, drugs and cosmetics, and to prevent the false labeling and the false advertisement of such commodities. H. R. 8341, introduced by Representative Tramm, Ohio, proposes to reenact all public laws granting medical or hospital treatment, domiciliary care, compensation and other allowances to veterans of the World War, and their widows and dependents that were repealed by an act approved March 20, 1933. H. R. 8344 introduced by Representative Tramm, Ohio, proposes to reenact all public laws granting medical or hospital treatment, domiciliary care, compensation and other allowances to veterans of the Spanish American War, their widows and dependents that were repealed by an act approved March 20, 1933. H. R. 8350, introduced by Representative Monaghan, Montana, proposes to authorize an appropriation of \$50,000,000 to provide pensions for the aged

Government Services

Number of Veterans Receiving Benefits

As a result of the changes in laws governing benefits to veterans the number of veterans of all wars receiving some form of pension had been reduced from 1,016,561 on March 31, 1933, to 517,171 on Jan. 31, 1934. The number of pensioned dependents decreased from 279,926 to 261,876. The number receiving hospitalization March 31 was 42,823 of whom 27,892 were non-service connected cases, January 31 these numbers had been reduced to 35,973 and 24,189, respectively. Domiciliary or institutional care was being given to 20,544 veterans in March and to 11,623 on January 31. Analyzed by type of benefit, the reduction in the number of veterans of the World War among the beneficiaries between March and November was as follows: service connected wartime, 338,580 to 307,117, non-service connected, 425,894 to 27,283, disabled emergency officers' retirement pay, 6,037 to 1,505, death pensions, 101,553 to 100,462. Disbursements from March 1933 to February 1934 were reduced from \$44,017,141.90 to \$24,110,324.

Four New Veterans' Hospitals to Be Opened

Four new veterans' hospitals with an aggregate capacity of 963 beds built at a cost of \$3,002,014 are to be placed in commission as a result of liberalization of the veterans' relief regulations promulgated under the Economy Act of 1933. The institutions are in Batavia, N. Y., Cheyenne, Wyo., Des Moines, Iowa, and Fayetteville, Ark. Two other hospitals are under construction, a general hospital at San Francisco, and one for nervous and mental diseases at Roanoke, Va.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb 10, 1934

Sir Arthur Keith's View of the Man of the Future

Sir Arthur Keith, who has devoted a large part of his life to a study of the evolution of man, which is largely embodied in his great work "The Antiquity of Man," has turned from the survey of man's prehistoric ancestors over hundreds of thousands of years to the man of the future. In a press interview he said "From many points of view, the world of the future is not going to be different if it is to be enjoyable. It used to be said that men of the future were going to have big heads and small bodies. They were to live on tabloid peptonized foods. But I don't believe that. I don't think that any purely intelligent form of humanity would survive long." As to the women, he cannot see the time when "Minervas—great gifted women—will be representative of womanhood." Those who will survive will be "the incalculable type, the emotionally unexpected. Those women who enjoy life will live longer than their bramy sisters. Emotions play a much bigger part in woman's life than reason. Women never have colossal brains, but great intuition. Purely rational women would never be able to exist for long. Men prefer the highly emotional woman, but a little intellect is better for her own sake as well as the man's." In regard to the growth of man's brain, Keith is in contradiction to the usual view. "Nature gave primitive man a big brain so that he could solve the great initial problems and have dominance over all the world. But because it has fewer fresh problems to tackle today our brain has dwindled. Nature evidently realized the dangers of the intellect and saw that if the animal in us should be suppressed the human race would soon cease to exist. Broadly speaking, life's pleasures come to us only through the animal that nature has left in us—sex attraction, senses to find pleasure in beauty, music and art, and the instinct of physical endeavor. The capacity to reason took away much of our animal power of intuition."

Regarding the future, Keith says "Although we do not seem to alter nothing which lives is really steadfast. No race can endure without change. Nor can it thrive without an abiding zest for life, sport, amusement and all outlets for human emotion and passion—save debauchery. From these aspects I see no sign of national decay. There is no limit to the progress man can yet make. Intellectually, he has scarcely scratched the surface of his capabilities. Most of us have ten times as much brain power as we are ever likely to need. One reason that man rarely uses his full brain capacity may be that mankind requires only a certain number of thinkers." Asked how he spiritually pictured tomorrow's world, Keith said "My dream is a warless world with an intermarriage of all races and with the English speaking peoples as the custodians of peace. I want democracy to thrive—with each man and woman to share in managing the community, each not to take more than his share of liberty and not to refuse others theirs."

The Villa System for Mental Hospitals

The last word in mental hospitals is the Mental Hospital of the London County Council, erected at Shenley, Hertfordshire at a cost of \$2,600,000 and containing accommodations for 2047 patients. The 'villa system' in contrast to the barrack-like structures in vogue has been followed. The site covers 500 acres and small villas furnished as closely as possible in accordance with home conditions have been erected. Provision has been made for the treatment of all forms of

mental illness, including patients who desire to enter the hospital voluntarily in consequence of temporary mental breakdown. Verandas are a feature of the architectural design and will be used by patients for rest both by day and by night. There are wooded parts of the extensive estate and a farm where men will be provided with congenial work. A large occupation therapy department will form part of the hospital treatment. There will also be occupation for men in workshops and for women in kitchens, laundry and sewing departments. A variety of handicrafts will be available to meet different interests of patients, such as weaving, rug making, embroidery, toy making, leather work and basket making. Men will also be employed at simple joinery, painting, polishing, printing, book binding and brush making.

The Minimum Diet for a Man

The controversy aroused by the publication of two different reports on the minimum diet necessary for a man—one by an advisory committee of the ministry of health, the other by a nutrition committee of the British Medical Association—has been described. The former estimated 3,000 calories and 50 Gm of first class protein and the latter 3,400 calories and 37 Gm of protein daily. The differences between the two reports are to be explored by a conference between representatives of the committees.

Production of Radium in Canada

The high commissioner for Canada in London states that a steady supply of radium is now being maintained from the refinery established at Port Hope, Ont. Although the output is limited the supplies will increase as ore is being made available from the rich deposits now being exploited in the Great Bear Region in the Northwest territories. It is believed that in time Canada will be able to supply the radium need of the empire. The supply so far produced amounts to several thousand milligrams. A portion has been purchased by Ontario for use in the cancer clinics of that province.

Bill to Restrict the Sale of Contraceptives

The open manner in which contraceptives are advertised and displayed for sale is something of a scandal. Lord Dawson, president of the Royal College of Physicians, has introduced a bill in the house of lords, which has received a first reading, to restrict the sale, display and advertisement of contraceptives. The bill is to make it unlawful (1) to sell in any street or public place any contraceptive, (2) to go to the premises of any person and there offer for sale any contraceptive, unless in pursuance of a previous request or the premises are used by a dealer in contraceptives, (3) to display in or outside any shop, so as to be visible outside, any contraceptive or any box or wrapper purporting to contain one, or (4) to send to any unmarried person who has not attained the age of 18 any circular or other document relating to any contraceptive. Contravention of any of these provisions will render a person liable to a fine not exceeding \$100 for a first offense.

The Black Rat in London

The old English black rat was the only species in England 150 years ago but was exterminated by the more powerful brown rat. From the sanitary standpoint it was a much more dangerous animal because it lived in much closer association with man and, by means of its flea, is regarded as responsible for the epidemics of plague that ravaged the country in former times. Another black rat of foreign origin, has made its appearance in England and is receiving the attention of the ministry of health, which has sent a circular letter to the local health authorities of London containing the following "It would appear that modern methods of construction have resulted to a great extent in exclusion from new buildings of the com-

mon brown rat, but that the black rat, by reason of his superior climbing powers, has found his way into the roofs of modern buildings by way of telephone cables and otherwise, and has thus gained access to the kitchens, which are often situated on upper floors. In view of the risk of the introduction and dissemination of diseases by the black rat, there can be no question of the vital necessity for exercising effective measures of control." So far the number of reported black rats is small, but the replies have been received only from boroughs on the outer edge of the area of inquiry. It is expected that the prevalence will be greater in the center, with its less modern buildings. A third species of rat the Egyptian *Mus alexandrinus*, has also arrived from overseas. It is a subspecies of the black rat. In the seaports of Hull and Liverpool the black rat and the Egyptian rat predominate.

The Use of Narcotics by Midwives

The majority of the labors in Great Britain are attended by midwives, a physician being summoned only in cases of difficulty. The question has arisen, How far can midwives be allowed with safety to use narcotic drugs for the relief of their patients? The difficulty that midwives could not be permitted to administer chloroform in the ordinary way has been overcome by supplying them with breakable capsules containing 20 minims. This method has been claimed by Mr. L. C. Rivett who introduced it, as completely safe and fool proof in relieving the intense pains of childbirth. Correspondence is now taking place between the Central Midwives Board and the General Medical Council as to the administration of drugs by midwives. The board drafted a rule. A midwife must not on her own responsibility use any drug unless in the course of her obstetric training she has been thoroughly instructed in its use and is familiar with the dosage and method of administration or application." The council has suggested that the words "save in great emergency" be inserted after the word "midwife."

A Baby with a Tail

The rare condition of a baby born with a tail has been observed at the Metropolitan Hospital. The tail is about 2 inches long, tapers to a point, and is curly and normally sensitive. Removal is proposed. Prof. Julian Huxley has remarked about the case, that different parts of the body develop at different rates during embryonic life. Usually the tail does not develop at all, but in this case apparently it has grown at almost the same rate as the other parts of the body.

Nonsense About Poison Gas

Addressing a branch of the League of Nations Union Dr. F. A. Freeth, F.R.S., said that more nonsense had been talked about chemical warfare than about any other subject in the world. The first gas used for attack in the late war was chlorine, which was fairly deadly, but its deadliness depended on perfect atmospheric conditions at the right moment—a quiet atmosphere and a gentle breeze in the right direction. The Germans let loose a blanket of gas on unsuspecting troops without any protection against it. Naturally, in such circumstances it was effective. But the value of chlorine was now at an end, for gas masks were completely effective against it. The really killing gases were light and consequently easily dispersed by the atmosphere. The heavy gases were more or less immobile and could not move quickly. The only really useful military gas was mustard gas. If a big railway junction was plastered with mustard gas it would be put out of action for three or four days while the experts dispersed the gas. Chemical warfare had got such a hold on the imagination of the civilian population that its main danger was psychologic. If in a gas raid a man could keep his head sufficiently close to the windows put out the fire and wait until the authorities dispersed the

gas, he would be reasonably safe. The scope of gas in warfare was extraordinarily limited and not to be compared with high explosives and machine guns. The percentage of deaths from mustard gas during the war was to casualties from it under 4. Dr. Freeth was confident that it would not be difficult to devise some simple form of apparatus that would completely protect civilians in time of war.

PARIS

(From Our Regular Correspondent)

Jan 24, 1934

The Brain in Great Musical Composers

Dr. Raoul Blondel delivered before the Academy of Fine Arts an address on the peculiar type of brain of musical composers, which is the foundation of a talent for music. He first reviewed the articles published by Retzius, Siegmund Averbach, Lutritzky and others. He brought out that the brains of many eminent composers present an unusual development of the superior temporal gyrus and of the middle portion of the inferior parietal lobule, or of the supramarginal gyrus and the angular gyrus. The same conditions have been found in the brain of eminent mathematicians. The two gyri are regarded as the centers of memory for graphic signs. He considered the defects produced in the musical faculty by pathologic lesions affecting the language center. Mental disorders influence only the value of the ideas of composers and do not affect the technique, which remains intact in the centers in which it is fixed by memory. The compositions of musicians who have developed mental disease are correct but have lost all originality, which has its origin in the superior psychic centers. Hypertrophies of the parietal and the temporal lobes are brought about by a congenital condition of the cranium, which explains why a talent for music manifests itself in childhood, long before the complete development of the intellectual qualities, as is attested by numerous examples derived from the biography of illustrious composers. One is born a composer—one does not develop the qualities of a composer unless this preliminary conformation exists. Blondel cited the example of two pupils enrolled at present at the Conservatory of Music. The pupils are twin brothers and have a remarkable and equal talent for music. This special conformation of the cranium of musicians may sometimes be observed externally, owing to the abnormal development of the left temporoparietal protuberance. The origin, like that of all cranial dystrophies, is probably associated with some pathologic heredity, the effects of which often are deplorable but in this instance are exceedingly fortunate. Beethoven was the son of an alcoholic addict, and Mozart's family was tuberculous. It would seem that these pathologic accidents occurring, from time to time, while they derange the normal plan of cranial and cerebral anatomy have been the occasion of anomalies that have given rise to exceptional beings, great inventors, great thinkers and great musicians, whose influence on the intellectual progress of humanity has been of signal importance.

Tubercle Bacilli in Sputum in the Absence of Tuberculous Lesions

At the last session of the Societe d'etudes scientifiques de la tuberculose the subject of "Expectoration of Tubercle Bacilli in the Absence of Tuberculous Lesions" was introduced through a communication of Professor Bezançon and Messieurs Paul Brun and Andre Mayer. Such cases are rare, but they have collected twenty-three typical examples in which tubercle bacilli existed manifestly in the sputum in spite of the fact that radiography did not reveal the existence of any pulmonary lesions. Numerous implantations of these sputums and cultures have been made to make sure that it was not a question of pseudo tuberculous bacilli. The persons observed were in good health.

and the phenomenon did not persist in them for a long time. The interesting point is the prophylactic problem in the presence of these germ carriers, who may prove infectious for others. Mr. Bidermann presented a roentgenogram of a person of absolutely normal appearance, although it was found that his sputum contained frankly genuine virulent tubercle bacilli. Mr. Stefani objected that it is possible for lesions to exist that are not revealed by the best roentgenogram. Mr. Weiller cited observations of excretors of tubercle bacilli who, though apparently healthy, developed pulmonary tuberculosis later on.

Military Service of Medical Students

The year of compulsory military service is performed under conditions that vary with the nature of the studies being pursued by the young men. For the students of medicine, who, once they are in possession of their doctor's degree, must be appointed as military physicians, military instruction is replaced by technical instruction. A new regulation provides that this instruction, instead of being given in the infirmaries and the military hospitals of the region in which the student resides, will henceforth be given at the Ecole de médecine militaire du Val-de-Grace, in Paris, where the new doctors of medicine will spend one year, in association with the physicians who have chosen military medicine as their permanent career and who enter this school on leaving the Ecole spéciale de Lyon.

The Death of Pierre Bazy

The death of Dr. Pierre Bazy, from pulmonary congestion, at the age of 80, is announced. He had served as a surgeon to the "hopitaux de Paris" and had become eminent as a urologist. He was a member of the Academy of Medicine and of the Academy of Sciences. A pupil of Guyon, he was the first, in France, to attack surgically tumors of the bladder and to apply preventive antitetanic serotherapy to the wounded.

BERLIN

(From Our Regular Correspondent)

Jan 22, 1934

The Government's Attempt to Abolish Quackery

The new government is planning to license certain *heilpraktiker*. The question of freedom of treatment is to be attacked vigorously and the present unrestrained situation is to be replaced by a regimentation that will deal justly with the whole situation. Following the first congress of lay practitioners in Munich, Nov. 26, 1933, under the auspices of the national-socialists, Dr. Wagner, the federal "leader" of the medical profession, made an announcement from which the following is taken: "I wish to make it perfectly plain that, inasmuch as I, as the leader of the medical profession, am alone responsible for the conduct of medical affairs, I cannot allow any interference or even criticism from persons who, by their attitude, clearly prove that they are not national socialists and that they, furthermore, did not consider it necessary to inform themselves, even superficially, concerning the question that was up for discussion. I wish to emphasize also that, in view of the disturbances that have occurred during the last few days, the affair is not a matter that concerns merely the medical profession but that such machinations disturb important new regulations affecting state medicine and government policies in general and that therefore I shall take vigorous action against any further disturbances in accordance with the principles and practices of governmental control. In particular, I wish to make this plain to certain university circles that consider it necessary to enlist the sympathies and the cooperation of the medical students in furtherance of their reactionary plans which are inimical to the objectives set by the state." Further statements of Dr. Wagner throw light on the situation as it exists today. He has stated that old school medicine par-

ticularly its representatives and instructors at the universities, has taught medical students to use the most complicated methods for establishing the most subtle diagnoses but that man as a whole has too often been neglected. On the other hand, "nature cure methods" had gained an increasing number of adherents since the war.

The question is regarded by the government as of paramount importance. The present legislation, which permits any person without educational qualifications to practice the art of healing, is to be changed, and in its place, in addition to physicians, a definite group of persons will be given the right to practice. This group, designated as *heilpraktiker*, must comply with certain requirements to obtain the right to practice, and their activity will be greatly limited as compared with that of physicians, since their educational preparation will be inferior. The *heilpraktiker* will be restricted to private practice, they will not participate in the field of health insurance or in governmental public health activities—nor in the treatment of venereal diseases. The practice of obstetrics and surgery, and the prescribing and use of certain potent medicines, will be reserved to licensed physicians.

In contrast with their previous status, the *heilpraktiker* will be subject to rigorous supervision by the federal health administration and will be grouped in a rigid league, which will be under the control of the reich. All *heilpraktiker* must be approved by the minister and must belong to the league, those who do not join will not be entitled to practice and, if a member is expelled, he must abandon all forms of practice. Only German citizens of Aryan extraction, and not married to a person of non-Aryan extraction, will be recognized as *heilpraktiker* provided they have completed at least the course in the *volksschule* (eight years) and have incurred no penalties for dishonorable acts. Furthermore, the applicant must have served for one year as an attendant on the sick in one of the hospitals to be designated for that purpose. There will follow an inquiry as to the applicant's general suitability and adaptability for the calling. The examining board will consist of a jurist and two *heilpraktiker*. Then will follow a three-year course in a professional school recognized by the federal minister of the interior the curriculum of which will be established in agreement with the Reichsärztekammer (federal chamber of physicians) and the Heilpraktikerbund. Following the completion of this three-year course, candidates will be examined, especially for their ability to recognize epidemic and infectious diseases. The examining board will be composed of two physicians, three *heilpraktiker* and a chairman. After passing this examination, the candidate must serve for a year as an intern in a hospital or under a physician or a *heilpraktiker*.

It is not the plan to recognize all lay practitioners as *heilpraktiker*. On the contrary, the requirements mentioned above for the training of *heilpraktiker* must be fulfilled, and examinations must be taken by those who have not practiced as *heilpraktiker* continuously since Jan. 1, 1930. The testing as to German citizenship, Aryan extraction, type of education and imposition of previous penalties must be applied in every case.

The further provisions apply important principles of professional medical service to the activities of the *heilpraktiker* and eliminate the disadvantages under which the physicians had to suffer because of their strict professional requirements as compared with those of lay practitioners. *Heilpraktiker* will not be permitted to act as itinerant practitioners or in the service of societies or firms (other than in hospitals and the like). All forms of solicitation or advertising in newspapers and journals and particularly through personal activity in public gatherings, are prohibited. *Heilpraktiker* may designate themselves by no other term.

After five years of uninterrupted activity as a *heilpraktiker*, a person may aspire to a university medical course, if a special

committee, on which the Reichsarztekammer must be represented, shall give its consent. The differentiation lies in the different training received preceding the premedical course. In the government examination, the same performances and the same knowledge must be demanded of the *heilpraktiker* as of the ordinary medical student.

The new regulations here discussed exist, as yet, only in the form of a bill. It is learned, however, from authoritative sources that the enactment of the bill into law is a question of the immediate future. According to the official organ of the Deutscher Aerztevereinsbund and the Verband der Aerzte Deutschlands the principles of the proposed law may be regarded "as acceptable also to the medical profession." Nevertheless, it is said that there is strong opposition to this law in medical circles.

The hopes based on this new and more favorable status of the *heilpraktiker* are shown in statements made at the Essen session of the national-socialist *heilpraktiker* to the effect that their endeavors would be directed toward the elimination of all unqualified elements and the establishment of better educational qualifications within their profession. The number of *heilpraktiker* in Germany does not exceed 4280 and they are ardent opponents of quackery. The regrettable conditions that have existed in the past is shown by an order just issued prohibiting popular health lectures in Prussia. In recent months the order states handbills and posters have been employed to urge attendance at public lectures that deal with attempts to enlighten the public on health problems. Following the lectures consultations on the health of individuals and even applications of treatment are resorted to. Also certain remedies for the healing or prevention of diseases are sold at prices entirely out of proportion to the value of the remedies. This form of solicitation has become a great evil. In order to prevent further damage to the health of the German people meetings of this nature are to be prohibited. Dr. Wagner has issued a further statement to the effect that "quackery will, in the future, be more vigorously combated than heretofore but with this difference that the physicians will no longer oppose the *heilpraktiker* but will make common cause with them against the charlatans." In any event, the proposed legislation offers to the large group that practices the art of healing outside the bounds of regular medicine a way in which to propagate their doctrines in the form of a recognized "school." In the course of time it will be revealed to what extent they are able to establish a worthy school and to create a uniform system. It is not impossible that in this manner valuable forces will be released that have been slumbering for ages in the minds of the common people. The whole undertaking is an experiment, and it is only to be hoped that it will not prove dangerous to the public health.

ITALY

(From Our Regular Correspondent)

Nov 30, 1933

Studies on Leishmaniasis

At a meeting of the Societa medico-chirurgica, in Catania papers were presented pertaining to leishmaniasis which investigations have shown to be fairly widespread in Sicily. Redaelli reported the results of his investigations on spontaneous visceral leishmaniasis in the dog, calling attention to the relation with similar types occurring in man. On the basis of ten personal observations, the speaker traced the clinical and the anatomohistopathologic aspects of this type defining the disease as a morbid disorder of the reticulo endothelial system.

Baserga discussed his research on the hematopoietic organs of dogs, which served Adler and Theodor in their research on the causative agent of Mediterranean leishmaniasis. He found in leishmaniasis a complete myeloid aplasia which

explains the leukopenia and the lack of pigmentation and is to be associated with the characteristic reticulo endothelial hyperplasia.

Sorge reviewed recent investigations that reveal that sand flies are carriers of Leishmania. *Phlebotomus papatasi* and *Phlebotomus sergenti* are the transmitting agents of Oriental boil, and *Phlebotomus argentipes*, *P. chinensis* and *P. mongolensis* are the transmitting agents of Asiatic kala azar. Mediterranean kala-azar is transmitted by *P. perniciosus* and *P. major*.

Baserga reported that, on a few occasions, he succeeded in finding Leishmania in a disintegrated form within megakaryocytes.

Paradiso and Fiorentino described a method of treatment for kala azar in children, which is more practical than intravenous injections of antimony and potassium tartrate. In twenty-two cases they used aminophenylstibiato diethylamine injected intramuscularly, which had already been successfully employed by Napier in the treatment of kala azar in India. They effected a recovery in 90.9 per cent of the cases in which this treatment was employed.

Zangri reported his use of Guadin in the treatment of leishmaniasis in children. The limited number of cases does not justify any definite conclusion, nevertheless, he states that Guadin is a preparation that has the advantage of being employed subcutaneously, and that in some cases it no doubt has an effective action. But its high toxicity appears to be a serious objection to its habitual use.

Prizzra observed that with intensive treatment of infantile leishmaniasis with antimony preparations, often the disappearance of the fever and of the other morbid symptoms is not observed until several days after the interruption of the treatment. He investigated therefore to discover whether, under such conditions, it is possible to find a deposit of antimony in the organism. He found that to be the case, particularly in children with lesions of the internal organs.

Lecture of Professor Kahn

Professor Kahn of the University of Michigan Medical School delivered a lecture in the great hall of the Clinica medica di Roma, on the serology of syphilis. The speaker demonstrated the technic of the Kahn test for syphilis applying it to eleven serums supplied by the Clinica dermosifilopatica, to which the Meinicke test had previously been applied. The results of the two tests were similar, except that two serums that were negative by the Meinicke test were positive with the Kahn test. Since the two serums were of syphilitic persons who had already been treated, proof was furnished that the Kahn test is more sensitive.

The speaker discussed the Kahn test in relation to the Wassermann test. It is not advisable to rely absolutely on a single method but rather to compare the results of at least two methods employing a different mechanism.

Professor Kahn did not deny the possibility of errors in the Kahn test arising from the preparation of the antigen but added that once in possession of an exact knowledge of the method of preparing the standard Kahn antigen, every analyst would be able to prepare it without great difficulty.

Research on the Etiology of Goiter

At the International Conference on Goiter, at Bern, Prof. G. Pighini of Reggio Emilia reported on research on the etiology of goiter. There are many substances that may modify the structure of the thyroid. Calcium, boron, fluorine and selenium exert on the thyroid a stimulus the effects of which depend on the duration the intensity and other factors. In the etiology of endemic goiter, many factors are involved among which are substances contained in certain plants (cab-

bage, fennel), and probably radioactive substances. Such substances give rise in the organism to a summons throughout the circulation for iodized hormones, and may, up to a certain point, be neutralized by iodine or by thyroidin introduced from without. Such treatment transforms the parenchymatous goiter into a colloidal goiter. According to the modern conception, the lack of iodine is not in itself the cause of goiter. The deficiency of iodine or of thyroid hormone is induced in the organism by a positive goitrogenic agent. A small quantity of iodine, such as is found in regions near the sea and in the plains, appears to favor the prevalence of the basedowian or colloidal types of goiter, whereas a conspicuous lack of iodine, such as is noted in mountain regions, seems to favor the adenomatous and the nodular types.

Professor Cerletti presented the results of his research on the etiology of goiter. He discovered that rats transported from Genoa to a mountain region where there are foci of goiter all became goitrous. But rats raised in a goiter zone do not present goiter if they are kept in boxes, or cages, supplied with filtered air. Rats propagated in Genoa and given regularly water from a goitrogenic zone and scraps from the homes of goitrous persons do not become goitrous. Hence there is no support for the assumption that an infectious factor is involved.

Ancylostomiasis Day

In celebration of the centenary of the birth of Barbardo Ramazzini, the creator of occupational medicine, special meetings were held at the universities of Milan, Pavia, Modena and Padua. Representatives of nine nations were present at Milan, and one feature was the so called ancylostomiasis day, which was under the chairmanship of Professor Perroncito. Quarelli referred to the discovery of *Ancylostoma duodenale*, the common hookworm, by Angelo Dubini (1843). Mazzitelli described the worldwide prevalence of ancylostomiasis. Infestation in Italy is no longer confined to laborers working in subsoils but is spreading to dry soils through the practice of flooding fields with sewage. Professor Devoto, director of the Clinica delle malattie professionali in Milan, spoke on the mode of entrance of *Ancylostoma* into the human body. The enormous number of parasites found at necropsy, and in the feces of patients, after the administration of anthelmintics awakens doubt as to whether so large a number of larvae might have penetrated the skin and followed the course described by Loos. Professor Cavagliano has applied the duodenal tube to many patients and found ova of *Ancylostoma* and young larvae. Penso recommended that these larvae be cultivated in order to determine whether they are truly *Ancylostoma* and to remove the suspicion that other parasitic infestations are involved, such as *Strongyloides* and *Oxuris*.

Verneti brought out that certain subjective symptoms involving the heart are always present. Anemia in such patients is characterized by a notable diminution of hemoglobin. Eosinophilia is present.

Preti studied the toxins produced by *Ancylostoma duodenale* and found that this parasite produces a substance that has a lytic action on red corpuscles.

Penso of Rome explained the means for the protection of the soil against *Ancylostoma*. While it is simple to protect a small workyard or to disinfect it by means of sodium chloride, iron sulphate, lime water and the like, it is more difficult to combat *Ancylostoma* in the open fields. The carriers must first be treated and larvicidal substances should be added to human excrement. One of the most effective larvicidal agents is calcium cyanamide to be sprinkled on the ground, and iron sulphate to be added to cesspools. These measures will prevent also the infestation of persons who eat green foods grown on contaminated fields.

Dr Andreatti's Scientific Challenge

Dr Andreatti has challenged Professors Valagussa and Mancini with respect to the treatment of tuberculous patients. The two professors publicly declared that, on treating tuberculous patients with a polyvalent vaccine proposed by Dr Andreatti, they had found it harmless but ineffective. The challenge suggests that Dr Andreatti treat by his method fifty tuberculous persons of the first degree and fifty persons of the second degree, while a like number shall be treated by Professors Valagussa and Mancini, by the most modern means of treatment, mutual control to be provided and the results of the treatment to be measured within six months. The challenge has been accepted, and the experiment has been begun in the Ospedale riuniti of Rome.

NETHERLANDS

(From Our Regular Correspondent)

Dec 27, 1933

Goiter in the Netherlands

In 1924 Pennink, director of the water supply system of Amsterdam, attempted to prove that the increasing number of companies engaged in the distribution of drinking water had brought about a reduction of the iodine content of the drinking waters by passing them through natural or artificial filters. As a result the central committee for the distribution of drinking water decided to appoint a commission of physicians, hygienists and chemists, to make an investigation of (1) the frequency of goiter in the Netherlands and the concomitant clinical signs and (2) the iodine content of the water and of food products. From the medical point of view, several investigations on goiter in the Netherlands had previously been made. In 1907 it was found that there were more goiters among the enlisted men from Utrecht than among the recruits from the rural districts. In 1916 Kappenberg reported that field rats present no goiters, whereas many semidomesticated rats, raised in Utrecht, are affected. A little later, Potter carried out an experiment on rats. Those fed drinking water from the city of Utrecht presented a goiter, others fed spring water remained exempt. In 1918 an inquiry instituted in different cities on the frequency of goiter yielded the following results: Utrecht 66 per cent, Leeuwarden 35 per cent, Middelburg 17 per cent, Breda 84 per cent.

The principal conclusions of the investigating commission are as follows. The goiter observed in the Netherlands is of the same nature as the goiter existing endemically in Switzerland, Tyrol and elsewhere, but it differs from the quantitative point of view. It appears chiefly in the localities in which the drinking water and the food products have a low iodine content. In many cases, waters near the earth's surface contain more iodine than the waters from the deeper strata. Waters from just under the surface of the earth collected by water distribution companies have a low iodine content. These two facts may serve to explain the greater frequency of goiter arising since the increase in the number of water distributing agencies.

The prophylaxis of goiter consists in the use of table salt containing iodine or in the iodization of the drinking water. Most persons with goiters are not aware of their disorder. Only a few persons with goiter present associated disturbances: nervousness, digestive disorders, and the like. From this last point of view, the commission's report has deficiencies that should be remedied by a more complete report, for it is of great importance to know whether the goiters observed in the Netherlands are of a simple nature or toxic.

The Netherlands Society of Tropical Medicine

The Netherlands Society of Tropical Medicine was founded twenty-five years ago, when tropical medicine began to reap

the fruits of the discoveries of Manson, Ross, Laveran, Koch, Schaudinn and others Sept 27, 1907, on the occasion of the fourteenth International Congress of Health and Demography, held in Berlin, the International Society of Tropical Medicine was founded as a result of the initiative of Manson, Celli, Ross, Nutall, De Vogel and others. The countries that had no society of tropical medicine were asked to establish one, and this task in the Netherlands fell to Dr Van Der Scheer, who called a first meeting of the Netherlands Society of Tropical Medicine for Dec 8, 1907, at The Hague. Since then, this society has amply fulfilled the tasks imposed by its constitution. It was this society that defended the interests of tropical medicine at the time of the creation of the Colonial Institute, demanding complete training in this branch of medicine for physicians chosen for the colonies. It furnished also the detailed government report on the epidemic of plague in Java. But its principal task consists in maintaining the relations between the physicians of the Netherlands and those of the Dutch East Indies, and one need only inspect the reports rendered to the society to become convinced of the diversity and high scientific content of the subjects treated.

Resolution Concerning Surgical Tuberculosis

The Netherlands Association of Phthisiologists has passed the following resolution:

The care of patients affected with surgical tuberculosis constitutes a branch of the crusade against tuberculosis. Hence it is desirable that the organizations aiding in the crusade against tuberculosis in general pay more attention to such patients than they have done heretofore. The present organization of the crusade against tuberculosis in the Netherlands is fully competent to take care of the interests of these patients.

The association decided to bring this resolution to the knowledge of the general commissioner of health and of certain associations named:

Mutual Aid Societies

Last year an inquiry was instituted concerning the status of the mutual societies furnishing medical aid in the Netherlands. Nearly all the societies gave the information requested. In general, they expressed a preference for mutual societies. They do not agree with the suggestion that possibly the introduction of uniform contributions would be desirable. The opinions of the societies are divided with respect to the minimum tariff to be applied and to the family contract, both as regards ordinary medical care and attendance by specialists, and the amount to be paid for hospitalization.

Marriages

FRANK F THWEATT, JR., A Surg, U S Public Health Service, to Miss Hallie Lee Farrar of Arrington, Va., in New York, Dec 22, 1933.

ELIZABETH MAPELSDEN RAMSEY, New Haven, Conn., to Mr Hans Alexander Klagsbrunn of Washington, D C, January 27.

EDWARD GORDON ABLE, Newberry, S C, to Miss Mary Elizabeth Dowling at Lancaster, Dec 16, 1933.

RICHARD A STREET, JR., Memphis, Tenn., to Miss Catherine Noble of Fayette, Miss., Nov 25, 1933.

WILLIAM A HART, Columbia, S C, to Miss Elizabeth Trice of Federalsburg, Md., January 1.

LEWIS G CRAWFORD to Miss Anna K McBride, both of Harrisburg, Pa., Dec 20, 1933.

JENNINGS CRAWFORD LITZENBERG to DR OLGA S HANSEN, both of Minneapolis, recently.

HOWARD E WILEY to Miss Edith Katherine Wahlbom, both of Rockford, Ill., January 10.

OSCAR L ZESCHIN, Seattle, to Miss Lorene Westby of Auburn, Wash., recently.

JOSEPH L DAMOND to Miss Alice Alpert, both of New York, February 25.

Deaths

George Bright Young ♂ Senior Surgeon, U S Public Health Service, Charlottesville, Va., University of Maryland School of Medicine, 1887, entered the U S Marine Hospital Service as assistant surgeon in 1890, in 1905 was promoted to surgeon, in 1920 to senior surgeon and in 1924 retired on account of age, during the prevalence of cholera in Europe in 1893 he was sent to take charge of the shipment of emigrants and cargoes from various ports, during the yellow fever outbreak in 1897 he had charge of interstate quarantine in portions of Tennessee, Mississippi, Alabama and Arkansas, at which time he established the first extensive system of train inspection, medical officer in charge of the U S Marine Hospital at Chicago, 1905-1908, member of the House of Delegates of the American Medical Association, 1908-1911, formerly associate professor of preventive medicine, University of Virginia Department of Medicine, health commissioner of Chicago, 1911-1915, health officer of Charlottesville, Albemarle and University, Va., aged 73, died, February 13, of hemiplegia.

Walter James Highman ♂ New York, Columbia University College of Physicians and Surgeons, 1905, secretary of the Section on Dermatology, American Medical Association, 1918-1920, and chairman, 1920-1921, member of the American Dermatological Association, formerly clinical professor of dermatology and syphilology, University and Bellevue Hospital Medical College and associate professor of dermatology, New York Post-Graduate Medical School of Columbia University, served during the World War, dermatologist to the Mount Sinai Hospital, associate dermatologist to the Lenox Hill Hospital and pathologist to the University and Bellevue Medical College Dispensary, author of "A Textbook on Dermatology", aged 54, died January 24 of cerebral hemorrhage.

John Elliott Boyd ♂ Jacksonville, Fla., Medical College of the State of South Carolina, Charleston, 1894, past president of the Duval County Medical Society, fellow of the American College of Surgeons, veteran of the Spanish American and World wars, aged 64, for many years on the staffs of Duval County Hospital, St Luke's Hospital and St Vincent's Hospital, where he died, January 26, of acute encephalitis.

Albert Vernon Phelps, Westerly, R I, Medical College of Ohio, Cincinnati 1885, formerly adjunct professor and demonstrator of anatomy at his alma mater, at one time professor of anatomy at the Laura Memorial Woman's Medical College, Cincinnati, Cincinnati College of Dental Surgery and the University of Cincinnati College of Medicine, aged 75, died, February 12 of carcinoma of the bladder and prostate.

Albert Martin Farrell ♂ Two Rivers, Wis., State University of Iowa College of Medicine, Iowa City, 1898, fellow of the American College of Surgeons, served during the World War, past president of the city council, surgeon to the Holy Family Hospital, Manitowoc and the Municipal Hospital, aged 57, died January 12, at Hongkong, China, of myocarditis.

Clyde Clement Bohannon, Daytona Beach, Fla., Homeopathic Medical College of Missouri, St Louis 1902, member of the Florida Medical Association, past president and secretary of the Volusia County Medical Society, on the staff of Halifax District Hospital, aged 58, died, January 29, of myocarditis.

Augustus Keefer Boom ♂ Adams, Mass., Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1888, past president of the Berkshire County Medical Society, on the staff of the W B Plunkett Memorial Hospital, aged 67, died, January 24, of lobar pneumonia.

Wilmer Brinton, Baltimore University of Maryland School of Medicine, Baltimore 1876, member of the Medical and Chirurgical Faculty of Maryland, formerly professor of obstetrics, Baltimore Medical College, aged 79, died, February 12, of chronic endocarditis, arteriosclerosis and diabetes mellitus.

Norton Eugene Winnard, Eugene, Ore., Chicago Homeopathic Medical College, 1890, Rush Medical College, Chicago, 1892, member of the Oregon State Medical Society, on the staff of the Pacific Hospital, aged 69, died, Nov 30, 1933 in Portland, of arteriosclerosis, myocarditis and chronic nephritis.

Joseph Bringham ♂ Felton, Del., University of Pennsylvania School of Medicine, Philadelphia, 1898, formerly secretary of the Kent County Medical Society, served during the World War on the staff of the Milford (Del.) Emergency Hospital, aged 62, died, February 6 of cerebral hemorrhage.

Robert Eugene Doern, Stockbridge, Wis., Milwaukee Medical College, 1909, veteran of the Spanish-American and World wars, aged 57, died, January 27, in the Edward Hines, Jr., Hospital, Hines, Ill., of angiosarcoma of the skin of the Abdomen with metastasis to the left axilla and lung

George Henry Humphrey Smith, Little Falls, N. Y., Albany (N. Y.) Medical College, 1903, member of the Medical Society of the State of New York, for many years county coroner, on the staff of the Little Falls Hospital, aged 54, died, January 7, of cerebral hemorrhage.

George Macdonald, Calgary, Alta., Canada, McGill University Faculty of Medicine, Montreal, Que., 1889, formerly registrar of the College of Physicians and Surgeons of Alberta, served during the World War, on the staff of Colonel Belcher Hospital, aged 70, died, Nov. 4, 1933

Charles Richard Reaves, Greensboro, N. C., University of the South Medical Department, Sewanee, Tenn., 1906, member of the American Academy of Ophthalmology and Otolaryngology, on the staff of St. Leo's Hospital, aged 49, died, February 6, of pneumonia

Charles Spurgeon Warwick, Santa Barbara, Calif., University of Oregon Medical School, Portland, 1929, member of the California Medical Association, on the staff of St. Francis Hospital, aged 39, died, January 27, as the result of an automobile accident

Augustus Adelbert Young, Newark, N. Y., Syracuse University College of Medicine, 1879, member of the Medical Society of the State of New York, formerly mayor and health officer, aged 84, died, January 21, in a local hospital, of pneumonia

George D. Butler, Pulaski, Tenn., University of Louisville (Ky.) School of Medicine, 1876, at one time member of the state board of medical examiners, formerly county health officer, aged 77, died, January 16, at Wales, of cerebral hemorrhage

James Alexander Albright, Somerville, Tenn., College of Physicians and Surgeons, Baltimore, 1882, formerly secretary of the state board of health and state senator, aged 73, died, February 2, in the Methodist Hospital, Memphis, of uremia

John Schafer Schneller, Catasauqua, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1910, fellow of the American College of Surgeons, on the staff of the Sacred Heart Hospital, Allentown, aged 48, died, February 6

Charles Walter Frink, Elkhart, Ind., Rush Medical College, Chicago, 1887, member of the Indiana State Medical Association, on the staff of the Elkhart General Hospital, aged 71, died, January 27, of carcinoma of the sigmoid

Samuel Cummings, Toronto, Ont., Canada, University of Toronto Faculty of Medicine, 1888, University of the City of New York Medical Department, 1888, member of the American Roentgen Ray Society, aged 67, died, Dec. 18, 1933

Thomas W. Brockbank, Philadelphia, College of Physicians and Surgeons, Baltimore, 1885, for many years on the staff of the Germantown Dispensary and Hospital, aged 73, died suddenly, February 8, of coronary thrombosis

George Arthur Ings, Fort McMurray, Alta., Canada, L.R.C.P., L.R.C.S., Edinburgh, 1890, and L.F.P.S., Glasgow, 1890, served with the Canadian Army during the World War, aged 73, died, Oct. 11, 1933, in Edmonton

Otto Frithiof Johnson, St. Paul, Minneapolis College of Physicians and Surgeons, 1902, formerly coroner of Sibley County and member of the school board of Winthrop, aged 59, died, January 8, of carcinoma of the liver

James Hugh McCort, Sag Harbor, N. Y., University of Buffalo School of Medicine, 1889, served during the World War, aged 69, died, January 14, of coronary occlusion, coronary sclerosis and diabetes mellitus

George Marshall Watson, Manchester, N. H., Baltimore Medical College, 1893, served during the World War, formerly member of the school board, aged 65, died, Dec. 13, 1933, of carcinoma of the larynx

Henry N. Hess, Fryburg, Pa., College of Physicians and Surgeons, Baltimore, 1882, member of the Medical Society of the State of Pennsylvania, bank president, aged 80, died, January 7, of diabetes mellitus

Medicus Emmett Ellis, Hampton, S. C., North Carolina Medical College, Charlotte, 1914, member of the South Carolina Medical Association, aged 44, died, January 31, in the Es Dorn Hospital, Walterboro

Elbin Jordan Johnson, Claysville, Pa., Western Pennsylvania Medical College, Pittsburgh, 1895, member of the Medi-

cal Society of the State of Pennsylvania, aged 65, died, Dec. 31, 1933, of heart disease

William James Baird, Boulder, Colo., University of Maryland School of Medicine, Baltimore, 1881, member of the Colorado State Medical Society, aged 72, died, February 2, of pernicious anemia

Mack Hickman, Indianola, Iowa, Keokuk Medical College, College of Physicians and Surgeons, 1906, member of the Iowa State Medical Society, aged 57, died, January 26, of osteomyelitis of the femur

David Lisle Conway, Syracuse, N. Y., Syracuse University College of Medicine, 1909, on the staff of St. Joseph's Hospital, aged 50, died, February 2, in St. Petersburg, Fla., of chronic nephritis

John Mabie Hasbrouck, Garnerville, N. Y., Bellevue Hospital Medical College, New York, 1884, aged 71, died, January 12, in the Vassar Brothers Hospital, Poughkeepsie, of chronic myocarditis

William Josiah Thomas, Charleston, W. Va., College of Physicians and Surgeons, Baltimore, 1892, member of the West Virginia State Medical Association, aged 61, died, Dec. 2, 1933, of angina pectoris

Jefferson Lee Atkinson, Campbellsville, Ky., University of Louisville School of Medicine, 1887, formerly secretary of the Grant County Medical Society, aged 70, died, January 29, of heart disease

Crittenden Augustus Hawley, New Paris, Ohio, Miami Medical College, Cincinnati, 1891, formerly county coroner, health officer and member of the school board, aged 78, died, February 4

Max Culbertson Barrett, Knightstown, Ind., Indiana University School of Medicine, Indianapolis, 1913, aged 44, died, February 5, in a sanatorium at Martinsville, of mesenteric thrombosis

William John Wilkinson, Sellersville, Pa., Jefferson Medical College of Philadelphia, 1891, formerly on the staff of the Grand View Hospital, aged 67, died, January 2, of uremia

John Harris Orbison, Hoshiarpur, Punjab, India, University of Pennsylvania School of Medicine, Philadelphia, 1886, formerly a medical missionary, aged 74, died suddenly, January 4

Robert Benjamin Chastain, Calhoun, Ga., Emory University School of Medicine, Atlanta, 1920, aged 39, died, Dec. 14, 1933, of chronic nephritis, heart disease and hypertension

Johannes George Arthur Weiss, San Antonio, Texas, University of Zurich Faculty of Medicine, Zurich, Switzerland, 1891, aged 71, died, January 25, of chronic myocarditis

Louis Dunster Becker, Colon, Mich., University of Michigan Medical School, Ann Arbor, 1925, member of the Michigan State Medical Society, aged 35, died, February 20, of tularemia

Anna Johnston, Pittsburgh, Cleveland Homeopathic Medical College, 1898, aged 72, died, January 21, of carcinoma of the mediastinum with metastasis to the right lung and abdomen

Carl Hempel Reed, Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1882, aged 73, died, February 6, of bronchopneumonia and prostatic obstruction

Emma M. Higginson, Nashville, Tenn., University of Nashville Medical Department, 1901, aged 66, died, January 25, of chronic valvular heart disease, and pulmonary embolism

John Carrol Etherton, Chicago, St. Louis College of Physicians and Surgeons, 1894, aged 77, died, January 29, of carcinoma of the prostate and chronic myocarditis

Nathan Hall Blakeley, Lincoln, Neb., John A. Creighton Medical College, Omaha, 1910, member of the Nebraska State Medical Association, aged 64, died, Dec. 29, 1933

Metius M. Eckelman, Elkhart, Ind., University of Pennsylvania School of Medicine, Philadelphia, 1894, aged 64, was found dead in bed, February 5, of heart disease

Walter Karl Hoover, Lovington, Ill., Rush Medical College, Chicago, 1888, aged 77, died, January 15, in the Peoria (Ill.) State Hospital, of pulmonary abscess

Samuel Binz Hays, Columbus, Ohio, Kentucky School of Medicine, Louisville, 1892, served during the World War, aged 68, died, January 19, of pneumonia

Mary Ozias Cromer, Union City, Ind., Miami Medical College, Cincinnati, 1904, aged 66, died, February 2, in a hospital at Greenville, Ohio, of pneumonia

Byron Stone, North Oxford, Mass., Jefferson Medical College of Philadelphia, 1877, member of the Massachusetts Medical Society, aged 83, died, Dec. 28, 1933

William Lemos Stone, Homer, La., Louisville (Ky.) Medical College, 1893, served during the World War, aged 64, died, Dec 27, 1933, of coronary thrombosis

Aaron E. Armstrong, Knoxville, Tenn., Hospital College of Medicine, Louisville, Ky., 1889, aged 80, died, February 11, of a fractured hip received in a fall

Samuel Franklin De Vore, Sioux City, Iowa, Chicago Homeopathic Medical College, 1895, aged 66, was found dead, January 26, of coronary thrombosis

Walter Harry Abbott ⊕ Warner N. H. Dartmouth Medical School, Hanover, 1892, aged 64, died January 10 of carcinoma of the lung and liver

Edwin Foster Wakefield, Pasadena, Calif. Rush Medical College, Chicago, 1900, formerly mayor of Chagrin Falls, Ohio, aged 60, died, January 23

Leonard J. Pharr, Conyers, Ga., University of Georgia Medical Department, Augusta, 1901, aged 52, died January 14, in a hospital at Atlanta

William Hughes Cole, Minor, Hill, Tenn. University of Nashville Medical Department, 1906, aged 54, died, February 6 of influenza and pneumonia

George Henry Heald, Takoma Park, Md. Cooper Medical College, San Francisco 1893, aged 72, died January 22 of cardiorenal vascular disease

Joseph P. E. Gamache, Pont Rouge, Que. Canada Laval University Faculty of Medicine, Quebec, 1913, aged 54, died, Dec 10, 1933, in Quebec

Solon William Cameron, Chicago, Rush Medical College Chicago, 1928, aged 39, died February 15 of angina pectoris and coronary occlusion

Alexander Joseph Riopelle, Lawrence, Mass. (licensed in Massachusetts by years of practice), aged 74, died January 25 of pernicious anemia

William E. H. Bondurant, Memphis, Mo. Missouri Medical College, St. Louis, 1885, aged 79, died January 30 of cerebral hemorrhage

Simeon Madison Wilhite, Decatur, Ala. Memphis (Tenn.) Hospital Medical College, 1891, aged 72, died, Dec 29, 1933, of bronchopneumonia

Ernest LaFayette English, West Asheville, N. C. University of Georgia Medical Department, Augusta 1916, aged 47, died, January 11

William J. Hunt, Lake George, N. Y. College of Physicians and Surgeons, Baltimore, 1891, aged 70, died, January 2, in Richmond, Va.

Jacob E. Longacre ⊕ Weaversville, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1894, aged 63, died January 15

Thomas Morgan Mitchell, Fort Smith, Ark. University of Tennessee Medical Department, Nashville, 1892, aged 76, died, January 23

Benjamin Franklin Tubergen ⊕ Chicago, Chicago College of Medicine and Surgery, 1916, aged 52, died, February 18 of myocarditis

John Peat Mackie, Toronto, Ont. Canada, Queen's University Faculty of Medicine, Kingston 1922, aged 53, died, Dec 15, 1933

William Wesley Baker, St. Paris, Ohio, Toledo Medical College, 1885, aged 72, died, February 3, of cerebral hemorrhage

William French Thurston, Santa Monica, Calif. L.R.C.S., England, and L.R.C.P., Edinburgh 1866, aged 91, died Dec 30, 1933

William Weaver Stewart, Columbus, Ga. Bellevue Hospital Medical College, New York, 1890, aged 68, died, Dec 24, 1933

William W. Wilkins, Eastville, Va. College of Physicians and Surgeons, Baltimore, 1874, aged 86, died Dec 16, 1933, of senility

Anton Biankini ⊕ Chicago, University of Vienna Faculty of Medicine, Wien, 1888, aged 73, died February 8 of gastric ulcer

Harry Loyd Emmett, Fonthill, Ont. Canada, University of Toronto Faculty of Medicine 1908, aged 52, died Dec 16, 1933

Ralph W. Strong, Denver, Hahnemann Medical College and Hospital, Chicago, 1890, aged 76, died Dec 27, 1933

Martin L. Foster, Los Angeles (licensed in Kansas in 1901), aged 88, died January 23 of pneumonia

Correspondence

EXAMINATION FOR AMEBIASIS

To the Editor—The special articles on the outbreak of amebiasis in Chicago are most commendable. In a recent one you suggest that the stools should be examined one month after cessation of treatment, the inference being that if the results are negative the patient is cured and parasite free. In my experience with this disorder I have found that one cannot be sure that the patient is parasite free (which condition should be accomplished if possible) without this being judged by examinations made four times in the year after the cessation of treatment. At one month after active treatment the stools usually are free from the vegetative forms and so few cysts are present that they are not found. For each of these three month examinations (in the absence of symptoms) the gravitation or sedimentation methods for cysts are the most important and these will often disclose the carrier. Such carriers should have courses of active treatment after every positive finding of cysts. Briefly, one cannot be sure of a parasite free cure by an examination carried out one month after treatment but at least three specimens of stool should be examined at each three months interval.

ANTHONY BASSLER, M.D., New York

NIGHT BLINDNESS

To the Editor—The case report of Drs. Wilbur and Eusterman on the subject of night blindness (THE JOURNAL, February 3, p. 364) is of more than ordinary interest.

I entered the navy when all the sailing ships had not yet disappeared from active commission. In fact, my first cruise was on such a ship and there I listened in the ward room to remarkable stories of night blindness and moon blindness alleged to have appeared among the crews of merchant ships. At the time I swallowed these stories with a grain of salt but later as I became more familiar with the writings of the ancients I was struck with the more or less common occurrence of descriptions of this disease among the earliest Greek, Arabic and Latin writers.

Hippocrates describes the disease in the second book of *Protrhetics*. He says:

It is most apt to attack the young of either sex and passes off spontaneously on the fourteenth day or in seven months and in some cases it lasts the full period of a year. Its duration may be estimated from the strength of the disease and the age of the patient. They are relieved by deposits that determine downward but these rarely occur in youth. Married women and virgins that have the menstrual discharge rarely are subject to the complaint. Persons having protracted defluxions of tears who are attacked by nyctalopia are to be questioned whether they had any previous complaint of the head.

Back of these observations of this earliest medical observer is the suggestion that it was a disease not uncommon. Such Byzantine physicians as Alexander of Tralles and Paul of Aegienta writing a thousand years later than Hippocrates devote a chapter to the disease. The latter says:

The disease called nyctalopia the patient sees during the day but at sunset his vision becomes dimmer and when night comes on he does not see at all. We must affect a cure by bleeding from the arm and the angle of the eye then purging or evacuating by a clyster and afterward ordering masticatories or sternutories. Before food we give hyssop to drink or rue but if the disease do not yield we must again administer the purgative medicine formed from scammony and castor anoint with clarified honey and make the patient close his eyelid so as to retain the fluid application. Or of burnt alum p. ii of fossil salt p. i triturate with honey and anoint. Another: Having roasted the liver of a goat collect the ichor during the roasting and anoint but give him the liver itself to eat or boil and direct the vapors to be received with open eyes.

If some of the foregoing seems silly on the surface there is at least a grain or so of ancient experience, in the observa-

tion alike of the antiquity of the disease and of the antiquity of a dietetic treatment

Among the Arabs, Rhazes (chapter $\lambda\lambda\lambda\lambda$, tract ν , De nictolopis, λ qui post solis occasum non vident) divides the disease into no less than three varieties

The introduction of lime juice in the British navy as a prophylactic against the scurvy came about in a curious way, and not entirely on medical recommendation. After its introduction, scurvy was regarded as a disgraceful disease, not lightly mentioned, and, although lessened, it appeared during the long voyages, particularly of the Australian prison ships. There was a tendency to write about the scurvy diseases under other names. Thus, another thousand years after the Byzantine physicians mentioned may be noted the appearance of nyctalopia in the British Black Fleet in 1854. The acting deputy inspector of the fleet John Rees, gives an account of an epidemic of twenty-five cases of nyctalopia and nineteen cases of scurvy. He had little faith in the efficiency of lime juice. The first case of scurvy appeared in May after fifty days on salt provisions, without fresh food. Twenty-five cases of nemeralopia (night blindness) were coincidentally reported from five ships.

His testimony on nyctalopia is summed up in the following

Symptoms of that disease [scorbutus] and indeed these conclusions are arrived at, notwithstanding that in many instances fresh provisions being issued the hemeralopia disappeared before any more palpable symptoms of scurvy developed. *This frequently happens in the Navy.* The ship arrives in port in the nick of time, fresh provisions are issued, the hemeralopia cases are cured and the presence of scurvy never suspected.

With regard to lime juice as a prophylactic I shall not enter into that question believing it would only be to add another instance to the many that already exist of the failure of an absolute preventive of scurvy. On May 21 fresh provisions were produced consisting at first of indifferent beef and onions but soon afterwards a good beef and a mixture of onions and fresh vegetables, causing the rapid disappearance of all traces of scurvy.

The symptom of nyctalopia has frequently appeared in Russia with the lenten fasts. For a long time it was attributed by seamen to sleeping on deck in the moonlight, and various works have attributed it to strong light and glare of the sun. I may simply add that during many years of service in the navy, much of it on board of hospital ships serving with large fleets, thousands of men in the glare of the sun all day, no case of night blindness has ever come to my attention. The modern supply of fresh food in the fleet is the condition that has changed for the sun and the moon continue to shed their beams as of yore.

R C HOLCOMB, M D, Upper Darby, Pa
Captain, Medical Corps, U S Navy, retired

ARGYRIA FROM USE OF SILVER PROTEIN PREPARATIONS

To the Editor—In view of the timely remarks emphasizing the lurking danger in the indiscriminate use of neosilvol, a colloidal silver preparation, in disorders of the upper respiratory tract, as recently reported in THE JOURNAL (January 20, p 202) by H K Berkley of Los Angeles, I am constrained to add my experience with another equally widely used and advertised silver salt, viz, argyrol.

My personal unfortunate experience with argyrol covers two cases and knowledge of a third. Briefly, the case of marked argyria is that of a spinster, aged 60, who has for years had argyrol in 10 per cent solution in her possession as a constant household remedy. This patient has been subject to frequent colds and at every such provocation has been in the habit of instilling a few drops of the silver solution in both nostrils. She now has the unmistakable and of course indelible facial stain of argyria. A similar case in this city is known to me both these women finding themselves under the necessity of wearing veils when appearing in public.

A second case of my own concerns a man who has long been instilling argyrol into the eyes because of ectropion and chronic

conjunctivitis. His bulbar conjunctivae now have a negroid stain, and his skin is just beginning to exhibit a faint dusky hue.

That neosilvol and argyrol are valuable therapeutic agents, when in proper hands, is not to be denied, but their indiscriminate and prolonged use by the lay public is here shown to be dangerous. One has but to be confronted with a single case of pigmented skin so characteristic of argyria to realize how great a disaster this really is. That these cases enjoy a comparative rarity is doubtless true, but I venture the assertion that the publicity here given will uncover many others thus far unreported (one such from the use of neosilvol has already come to my notice).

It is to be hoped that the manufacturers of these useful silver preparations will take steps to combat the danger that may follow their prolonged and indiscriminate use, and by publicizing this information safeguard the buying public without, at the same time, endangering unduly their financial interest in these drugs. And it is to be hoped too, that physicians will take cognizance of the harm that may result if they fail to give fair warning of danger lurking in the too free use of these silver salts.

A J PATEK, M D, Milwaukee

BOVINE TUBERCULOSIS

To the Editor—Referring to the editorial in THE JOURNAL, January 6, on bovine tuberculosis, I may be able to add something of interest as I was in the thick of it twenty-three years ago when health officer in this city. On my arrival here from Chicago in 1902 I was amazed to see the large number of children, estimated at about 15 per cent, from 1 to 15 years of age, afflicted with what is now known to be bovine adenitis. This condition continued to increase until 1911, as the etiology had not been definitely settled. I began the search at once on my appointment as health officer, and having seen many cattle with lumpy necks and recalling Dr Jenner's experience with smallpox, I had a veterinary surgeon give tuberculin tests to the cows and they proved to be positive. The crucial test solved the enigma and the milk was charged with carrying bovine bacilli, and the respiratory pathologic changes in the cows confirmed the diagnosis. This was before settlement from the laboratory abroad.

According to observations here, the bovine tuberculosis did not cause a high mortality. The morbidity was principally in the adenitis, in which the lymph glands in the neck were markedly involved. There were some bone and joint tuberculous cases as well as also a few cases of tuberculous meningitis. There were many cases of scrofuloderma, rickets and malnutrition, doubtless in latent cases of cachexia as sequelae.

The milk was ordered pasteurized and the cows slaughtered and pandemonium reigned supreme. There was a perceptible falling off in the number of enlarged lymphatic glands in three years, and in five years not a vestige of it remained and not one case has developed in the last sixteen years. New sanitary measures were instituted, the milk standardized and the testing of the cows continued until six years later, when the state of Michigan enacted laws governing it.

The testing of the cows and the pasteurizing of the milk are undoubtedly the greatest factors in the reduction of the mortality of pulmonary tuberculosis. We cannot, however, brag particularly in the state of Michigan as the number of cases of tuberculosis reported in 1933 was 7,094, just nine less than recorded in 1932. The evaluation of treatment in the preventorium under the present regimen is not meeting with the success anticipated. The fact of the latency of the disease is too largely overlooked and a false hope entertained that too many children can be reconditioned without observation when the disease is in the state of arrest. It certainly must be that

dietetics and hygienics have not met the approval of the close observer. I incline more toward medicine year by year.

The world has waited fifty years for the production of a vaccine, serum or something to immunize, and although the laboratorians have been working faithfully, none have materialized. However, physicians must keep on attacking the disease in its incipience and not wait until "the water has all gone over the dam" and a respiratory pathologic condition has developed.

S M JAMES, MD Marquette Mich

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

TREATMENT OF EARLY SYPHILIS

To the Editor—In the early part of October 1933 a man aged 30 unmarried appeared at my office with a chancere of the right thigh of three weeks duration. It was situated about 6 inches from the genital region and he was unable to explain its origin even after detailed questioning and careful survey of contacts. Darkfield illumination revealed the presence of spirochetes and both Wassermann and Kahn reactions were 4+. Treatment was instituted immediately—nearsphenamine weekly starting with 0.3 Gm and increasing to 0.6 Gm at each injection. Mercuric salicylate in oil 1 grain (0.065 Gm) in 1 cc, was also given weekly alternating with the nearsphenamine. In all fourteen injections of nearsphenamine totaling 6.8 Gm have been given twelve injections of mercuric salicylate and three injections of iodobismuthol. It is planned to give two intravenous injections of sodium thiosulphate (0.5 Gm) and no further nearsphenamine for the next ten weeks during which time bismuth will be given twice a week with iodide by mouth. Thereafter I plan to resume the first course—nearsphenamine and mercury—alternating again after twelve weeks with bismuth until at least a full year's treatment without any rest has been given. A spinal Wassermann test will be made after the present bismuth course as will also a blood Wassermann. As yet no secondary manifestations have appeared and the patient is in excellent health. At the first injection of nearsphenamine he reacted with a nitritoid crisis relieved by epinephrine which has never reappeared. The young man is engaged to be married. 1. Is this course of therapy adequate and would you recommend any modifications? 2. Are secondary manifestations likely to appear considering the early and intensive treatment given? 3. Is kissing to remain interdicted and for how long? 4. Apart from the question of transferring the infection (the chancre having healed completely) is protected coitus harmful to the patient? 5. When may he be permitted to marry? 6. Can a nitritoid crisis be expected with the resumption of arsphenamine? Please omit name and address.

MD New York

ANSWER—The system of treatment for seropositive primary syphilis suggested by the inquirer is a fair example of a combined nearsphenamine-mercury-bismuth technic of treating early syphilis. It might be criticized in that the least effective and worth while of all available mercurials is being used at the most critical period of the disease, namely, the first course of combined arsenic and heavy metal treatment. It would be preferable to give the bismuth compound with the nearsphenamine and to postpone the mercurial until the interval between courses of arsphenamine. Moreover, it is to be noted that the ten weeks interval between the two nearsphenamine courses is longer than necessary and subjects the patient to very definite risk of recurrence under the heavy metal. This would be even more true were mercury used between the arsphenamine courses instead of bismuth, an additional reason, in view of the suggestion just made, for shortening the interval between the nearsphenamine courses to something approximating six weeks.

Mention is made of a spinal Wassermann test, which of course is a totally inadequate procedure if literally taken; the examination of the spinal fluid, when done, should include a quantitative Wassermann test, an accurate cell count on a blood-free fluid, a colloidal test on the fresh fluid (preferably mastic or benzon), and a protein estimation. The total of nearsphenamine injections in a routine such as this should approximate thirty to thirty-five, and if a maximum dose of heavy metal is employed each time it will be necessary to watch the kidneys closely to guard against accumulative effect and to give the injections of the nearsphenamine with extreme slowness. The dosage of nearsphenamine should not exceed 0.6 Gm. If a mercurial salt is to be employed, mercuric succinimide corrosive mercuric chloride or red mercuric iodide is suggested in place of mercuric salicylate. The interval between injections of the soluble mercurial salt should be shortened to two days.

The risk of appearance of secondary manifestations as a recurrence is greater in seropositive primary syphilis than in the seronegative phase of the disease. For this reason it is doubly important that treatment should be continuous and without complete rest intervals for one year from the time of disappearance of all clinical and serologic signs.

With reference to the specific numbered items, kissing on the lips should be interdicted for an indefinite period, determined by the course of the case, and should be especially avoided after the course of treatment is completed and the patient is placed on probationary observation. Protected coitus while not harmful to the patient, should be restricted to the periods when he is under treatment control with an arsenical. The question of marriage cannot be determined without reference to the clinical course of the case, the tendency to relapse, the reactions of the prospective marital partner, who should be fully informed of the facts, and so on. In general, delay in marriage should be sought by every possible means for time is a vital element in reducing risk of infection in syphilis. Whether or not a nitritoid crisis will occur with the resumption of nearsphenamine treatment it is impossible to say. If the injections are given very slowly, the solution properly prepared, and the patient in a quiet and undisturbed frame of mind the risk of recurrence of nitritoid reactions will be greatly reduced.

RHEUMATIC CARDITIS

To the Editor—I have under my care a man aged 32 single who in his early youth was nicknamed Dragg by his companions because of apparent lack of physical activity. His parents inform me that he was never active. He was rather a sickly child. Six years ago he contracted syphilis which remained untreated. Last December he noted a persistent swelling of his ankles and consulted a nearby physician who gave him a 6 ounce bottle of tincture of digitalis and told him not to worry. His condition gradually became worse. Edema became more extensive and vesicles developed. He consulted other physicians and eventually had a goodly collection of digitalis in its various forms. I first saw the patient last April. He was hysterical. His last physician told him to go home and die as there was no further hope. Examination revealed marked dyspnea, severe cyanosis, massive edema of the lower extremities, a distended abdomen and bilateral hydrothorax. The heart was markedly enlarged and displaced downward. The apex beat was visible in the mammary line below the costal margin. There was complete obliteration of the heart beats. Systolic and diastolic murmurs were audible at the apex and the base. The heart action was strong forceful and rapid (110). There was no irregularity. The heart was trying hard to keep going. Other observations of significance were a 4+ Wassermann reaction and a mouthful of decayed and abscessed teeth. The right side of the mandible was necrotic as the result of tension of an abscess from the molars. There was no osteomyelitis. Immediate relief measures were instituted. Surgical drainage of both legs relieved the congestion of the extremities but failed to diminish the abdominal distention. Abdominal paracentesis was necessary and considerable fluid (serous) was removed. At the earliest opportune time all the abscessed teeth were removed together with some necrotic jaw bone. Antisyphilitic therapy was instituted. At present the Wassermann reaction is negative. During all this time the patient has continued to fill up so that it is necessary to perform an abdominal paracentesis about every two or three weeks. Digitalization has been tried on several occasions but the heart will not respond perhaps because of too much digitalis during the earlier treatments. I have abandoned this measure of therapy for the present. Several days ago I began to discern an indistinct rather muffled systolic beat at the apex. This was not present at any previous examinations. Percussing the heart's outline also revealed a slight diminution in size. My early diagnosis of the case was a specific endocarditis and myocarditis. Now I am beginning to believe that there was no endocarditis but that the murmurs were secondary to the extreme dilatation. If a way existed whereby I could strengthen the heart wall and decrease the size of the heart the valves would be brought closer together with resultant increased compensation. Your comments and suggestions in the treatment of this case will be greatly appreciated.

L E DENKE MD Mercedosia Ill

ANSWER—It is probable that the heart condition present is the result of a rheumatic carditis and not of syphilis, although a syphilitic basis is remotely possible. The fact that the patient was inactive as a child and "sickly" is suggestive of a rheumatic fever, even without the history of joint symptoms. Cases of rheumatic fever characterized by only "minor manifestations" are more frequent than has been realized. Vinberg has recently called attention to this group characterized by only indefinite symptoms. The high degree of passive congestion would be much more probable with a rheumatic lesion than with a syphilitic lesion.

One should consider the possibility that the heart shows the valvular changes consequent on a rheumatic carditis, with an adhesive pericarditis, and possibly either a Pick cirrhosis, or a cardiac cirrhosis.

Digitalis is of value in a normal rhythm frequently enough to warrant its trial. In many cases it is not of value and may do harm by decreasing the volume output. In this case it has apparently been given at least an adequate trial.

It is stated that the pulse is regular and the rate 110. The question arises as to the possibility of an auricular flutter being present. If auricular flutter is present the rate will show a noticeable constancy and will not change on change of posture or exertion, or it may be exactly double. Should auricular flutter be present, digitalis should be given in full dosage in an attempt to change the rhythm to an auricular fibrillation. If fibrillation does occur, the digitalis should be discontinued temporarily. In some cases the rhythm may return to normal and no digitalis may be necessary. If the auricular fibrillation persists, it should be controlled by resuming the use of digitalis. Should auricular flutter be present and the digitalis not alter the rhythm, the use of digitalis will at least increase the degree of block and slow the heart, although this may not result in any clinical improvement.

It is suggested that the patient be given ammonium nitrate, 2 Gm, four times a day, and from 1 to 2 cc of salyrgan every third day. On the second day after the salyrgan, a saline cathartic will help to eliminate the mercury compounds re-excreted into the bowels and will remove further fluids. The patient should be on a salt-free and preferably neutral diet, and a moderately limited fluid intake. One of the purine-base diuretics, such as caffeine, theobromine or theophylline compounds, may be tried.

It is probable that the anatomic changes in the heart are permanent. In any case they will take care of themselves with rest and time and there is no direct medication possible or advisable.

THINNING OF FINGER NAILS WITH PURPURA BENEATH

To the Editor—A white woman aged 24, a school teacher, has had a progressive thinning of the nails for the past three years. Growth is apparently normal as to length. There have been no symptoms until the past two weeks when 0.2 cm dark areas developed under the nails these spots being exceedingly painful. Routine physical and laboratory work has given negative results. Kindly omit name. M D Wisconsin

ANSWER—Thinning of the nails is usually due to some slight disturbance of the general health, though it might in some cases result from local interference with nutrition. Dark spots under the nails are commonly the evidence of petechial hemorrhage, which sometimes is seen nowhere else. It may be due to any one or more of the many causes of purpura, of which only those in which other symptoms might be absent need be considered here.

1 Trauma may be ruled out, for it would be indeed unlikely to cause many very small spots of approximately equal size.

2 Are the blood platelets normal in number? If below 100,000 a thrombocytopenic form of purpura may be suspected, such as morbus maculosus of Werlhof, lymphatic leukemia, splenic anemia or pernicious anemia.

3 Are coagulation and bleeding time normal? If not, the toxic condition due to liver disease should be considered.

4 What is the condition of the gums? Is mild scurvy possible?

5 Has the patient taken any drug liable to cause petechial hemorrhage, such as antipyrine, iodine, quinine, mercury, the salicylates, ergot, potassium chlorate or hyoscynamus, arsenphenamine gold salts or chloral hydrate? Has she received any injections of foreign protein lately?

6 Is she sensitized to any food? Purpura due to sensitization to wheat and eggs has been recorded.

7 Is there a possibility of focal infection, particularly endocarditis?

8 Hemorrhages under the nails have been observed in the early stage of Raynaud's disease, but this should be shown by paleness and coldness of the fingers with pain, followed by cyanosis, in attacks brought on by exposure to cold.

9 Reports are found in the literature of hemorrhages under the finger nails of a woman who suffered with dysmenorrhea, the spots appearing at the menstrual periods, and of a few idiopathic cases.

On transillumination of the finger, hemorrhages appear as dark spots.

Metastatic tumors are rarely seen under the nails. Melanomas would appear bluish. Syphilitic papules under the nails have been known to be hemorrhagic, but papules as small as these would be follicular secondary syphilids and other skin or mucous membrane lesions as well as positive Wassermann and Kahn reactions would be inevitable.

Treatment depends on the diagnosis. If petechiae, the pain is caused in all probability by pressure and can be relieved by drilling a small hole through the nail at each spot and then using surgical precautions against infection. Rest in bed

general exposures to ultraviolet rays, calcium therapy if jaundice is present, and autogenous vaccine from a focus of infection if such is found, may be beneficial. If sensitization is suspected, diet should correct the condition and it should recur on resumption of the guilty food. Suspension of injurious medication should give prompt relief except perhaps in the case of iodine, the effect of which may wear off slowly. Injections of whole blood or blood serum, or repeated small transfusions may be considered advisable. Iron, arsenic, ergot, the salicylates or quinine may be used as indicated, but only after they can be excluded as etiologic agents.

DERMATITIS HERPETIFORMIS IN VACCINATION

To the Editor—A woman aged 20 was vaccinated for smallpox on the right thigh seven years ago. Every winter since then she has had a recurrence of a pustule at the site of the vaccination accompanied by small pustules in the surrounding area and intense itching. Later there is scab formation and the lesion gives the appearance of a typical vaccination. The lesion usually persists throughout the winter months and clears up the following spring. Are there similar cases on record? Please suggest etiology and treatment. Kindly omit name.

M D Kentucky

ANSWER—The description leads one to picture fairly good sized pustules on nonreddened skin, and therefore not a simple dermatitis. Vesicular and bullous eruptions following vaccination have been noted by many observers. They occur in children or adults without regard to sex and last from months to a number of years. Most of them have been reported as dermatitis herpetiformis, although some cases of erythema multiforme and some of pemphigus have been recorded. These three diseases are related and the etiology in all of them is obscure.

The case described is not clearly any one of these three but may be a mild, atypical example. If eosinophils are numerous in the contents of the pustule or in the differential count of the white blood cells, if the eruption is cleared up by solution of potassium arsenite pushed to the physiologic limit, or if a 50 per cent ointment of potassium iodide applied over night to an area in which the eruption has cleared up produces a recurrence, the probability of its relation to this group of diseases is increased. Even though the internal administration of arsenic clears up the eruption, it is advisable to keep it for an emergency, because the danger of pigmentation and arsenical keratoses, which sometimes end as malignant epithelioma, is too great to warrant long continued use of the drug for so slight a disorder. Applications of sulphur either as ointment, 5 or 10 per cent, or as a lotion containing 1 per cent sulphurated potassa in water may alleviate the itching, or it may be checked better by opening the pustules under surgical precautions. Ultraviolet rays on the affected area strong enough to cause a decided erythema often benefit the eruption. Mild foreign protein therapy may be tried, as intramuscular injections of the patient's own blood, from 5 to 20 cc every fifth day for five doses. Vaccines may be made from the organisms isolated from the patient's stool, tested to determine which ones cause reactions in the patient, and these chosen for therapeutic use. Such eruptions yield but slowly at the best.

TRANSMISSION OF SYPHILIS BY HYPODERMIC NEEDLE

To the Editor—Another doctor made a Wassermann test on my left arm for insurance with a dirty needle and hand without sterilizing the needle, my arm or his hand. All that he did was to take the hypodermic syringe from a dirty medicine case with unclean hands and rub my arm with his dirty fingers making two attempts before getting into the right vein. After drawing blood he cleansed the needle and hypodermic syringe in cold water and put it back in the case. How long can a needle remain infected for syphilis if any was on it from previous case? Kindly omit name.

M D, Michigan

ANSWER—If the outside surface of the needle, when introduced, was and had been completely dry for a period in excess, say, of thirty minutes, the presumption is that spirochetes, at least on the outer surface of the needle, would have been destroyed. The problem arises with the bore of the needle and its content. In this case since the needle was evidently patent at the time the blood was drawn, the presumption is that it contained no clot or blood serum from the previous patient. Pertinent observations suggesting the possible state of affairs in the bore of the needle are these:

In order to make the transmission of syphilis at all likely, the person from whom the last preceding blood was drawn would have to be in the spirochetemic stage of the disease. While this cannot be exactly defined, it might be estimated as covering the first two years of the infection, with especial emphasis on the period of the primary lesion and secondary eruption. The bore of the needle except for the fact that the needle is made of metal instead of glass, approximates the con-

dition of anaerobiosis in the studies of Finger and Mahoney and Bryant, who have demonstrated the prolonged viability of *Spirochaeta pallida* in secretions from the primary lesions when contained in sealed capillary tubes. Contact of these secretions with metal, however, can be expected to have a marked, though unknown, destructive effect on the organism. Gaston and Commandon showed that *Spirochaeta pallida* was still recoverable from the edges of glass tumblers, washed in cold water, thirty minutes after washing. Zinsser and Hopkins found that the spirochetes in dark-field preparations at room temperature and exposed to daylight lived for approximately eleven and one-half hours, and that this was also approximately the life of the organism in secretions contained in moist handkerchiefs. Whether or not the organism remains infective for this entire period is not known. One might estimate, then, that in a needle through which spirochete-containing blood had passed, cleansed only with cold water, and remaining moist the viability of the organism, disregarding the metal wall of the container, might range from thirty minutes to eleven hours. Under favorable conditions, such as the presence of body secretions, strict anaerobiosis, protection from light, and optimal temperature, *Spirochaeta pallida* has been recognizable morphologically and its motility has been preserved for as long as fifty-eight days (Lacy and Haythorne). It is however highly improbable that such conditions would be reduplicated in the bore of a hypodermic needle under the usage described in this question.

As to whether it would be necessary actually to inject material from the supposedly infected needle bore into the subcutaneous tissues of the blood stream, no clear cut answer can be given, but Brown and Pearce have shown that the mere passing of an infected needle (external surface infected of course) through the testicle of a relatively resistant animal such as the rabbit is sufficient to produce infection without the actual injection of material.

CHRONIC SINUSITIS

To the Editor—I am suffering from a chronic condition of the nose and throat dating from an attack of scarlet fever in March 1932. Previous to that time I practically never had a cold, sore throat or any other form of respiratory disease. I had a well developed form of scarlet fever the acute symptoms lasting for about eight or nine days. Following acute symptoms I began to have a profuse thick purulent discharge from the nasal passages. There was no other complication. I continued to have a rather profuse purulent discharge for about two months after which it still continued in a more watery form to a lesser or greater degree varying at intervals up to this time. After about four or five months I began to be plagued by a constant gathering in my throat necessitating a constant clearing of this in order to be able to carry on a conversation. At times the condition is such as to make contact with my patients quite embarrassing because of inability to carry on an uninterrupted conversation. There seems to be a constant discharge in the nasopharynx which seeps down into the laryngeal region and interferes with speech. For the first three or four months no medication was used but since then various forms of ephedrine in oil neosilvol and so on have been used with apparently no benefit. Last March I began the use of Lilly's autolytate vaccine containing the lysed bodies of bacteria normally present in the respiratory tract. Marked improvement resulted for about four months which may have been affected by the summer weather. With the sudden changes of temperature this fall the condition has been worse than formerly at times and has been little affected by medication such as ephedrine antiseptics or the autolytate vaccine. I have consulted an eye ear nose and throat specialist who states that it is a chronic catarrhal infectious condition. He found some deviation of the septum and swelling of the turbinates and mucous membrane but only moderate obstruction to breathing. He states that the sinuses and tonsils are normal but suggests that possibly removal of the tonsils or cauterization of the turbinates might have a beneficial effect but that he doesn't know. I am a general practitioner in a city of 2000 population in a farming community and am 29 years of age. I have always had good general health. I smoked a pipe quite steadily until I discovered that smoking intensified the condition, when I quit it entirely. Could you suggest some method of treatment that would control this condition or cure it? I find that there are many patients in my practice in this locality who suffer in a similar manner and who I find improve quite remarkably well with the use of the autolytate vaccine. Please omit name and address. M D Wisconsin

ANSWER—No answer can be given until it is absolutely certain that no suppurative sinusitis is present. The history of a purulent nasal discharge in the course of a scarlet fever is highly suggestive of nasal sinusitis. Neither the appearance of the nose on occasional examination nor roentgen examination alone is sufficient to rule out the presence of pus in the accessory nasal cavities. Both antrums should be punctured and diagnostic lavage performed several times if necessary. The rhinopharynx should be examined carefully with a view to determining the condition of affairs in the sphenoid sinuses. On occasion without any operative intervention it is possible to perform diagnostic lavage of the sphenoid sinuses. Until it is determined by these methods and until observation of the ethmoid and frontal sinus areas gives satisfactory evidence of

the absence of a purulent process, no diagnosis of a catarrhal condition should be made. In the absence of pus, judicious cauterization of the inferior turbinates may be beneficial. Vaccines are occasionally helpful but their benefits are probably not specific and are due in all likelihood to a foreign protein shock mechanism. The removal of the tonsils in this particular instance will probably not help the nasal condition.

PIMENTO PEPPERS

To the Editor—With interest I have read the editorial on Pimento Peppers in THE JOURNAL Dec 16 1933. I am now asking for information regarding authority for the name. The Funk & Wagnalls Standard Dictionary states that pimenta or pimento is the allspice of the tropics. It also gives pimiento. In this country we have the pimiento or sweet pepper if it may be so called, but we do not apply the name pepper to pimiento which I take it is the fruit which your editorial means. To say pimiento pepper is superfluous. One might say Rio Grande river in the same way. When in markets we speak of or call for pimentos. We use this fruit freely and I am glad to have the information given in the article in THE JOURNAL.

KNOX BACON M D, San Diego Calif

ANSWER—Two points should be made clear: the justification for the use of the word 'pimiento' instead of 'pimienta' and the authority for the term 'pimiento pepper'. The distinction between 'pimiento' and 'pimienta' has been frequently made, the former meaning the sweet pepper and the latter referring to allspice, the dried fruit of *Pimenta officinalis* or Jamaica pepper. Furthermore in the Weekly News Letter of the U S Department of Agriculture dated July 21, 1915, it is stated that the sweet pepper, also called the "pimiento" is incorrectly referred to as pimiento. On the other hand in the Century Dictionary and Cyclopedia appears the following: Pimiento (also pimienta). Sp. pimiento, the pepper plant, capsicum, pimienta, the fruit of this plant applied also to Pimenta officinalis Jamaica pepper (allspice, the berry of Pimenta officinalis). Furthermore, Mr Vizetelly, the distinguished lexicographer of Funk and Wagnalls, states "Our pimiento however, is one of two things (1) allspice, (2) capsicum." Artemus Ward in the 'Encyclopedia of Food' gives "Pimiento or Pimento or Pimienta is large fruited Spanish capsicum yielding, when dried Spanish paprika. It appears, therefore, that the distinction between 'pimiento' and 'pimento' is gradually disappearing.

Pimention is large pepper otherwise Cayenne or red pepper', piment is pepper, specifically black pepper', pimiento is 'capsicum or pepper—as the fruit of the pepper'. In view of the confusion between pimiento (allspice) and pimento (sweet pepper) it makes for clarity to designate the Spanish sweet pepper as the pimiento pepper. From a practical horticultural point of view there are hot peppers, mild peppers and the mild sweet peppers containing more sugar, which have been referred to as pimento peppers. In the U S Department of Agriculture, Departmental Bulletin 669 dated 1918, on pages 26, 27, is mentioned a study of "the influence of pimiento peppers upon the keeping qualities of pimiento cream cheese." Also in the Farmers Bulletin 960, 1918 page 13 it is stated that "pimiento peppers cost about 40 cents a pound." In the current catalogues of each of two well known and reliable seed houses the term 'pimiento peppers' is used to distinguish this fruit from the other kinds of peppers offered for sale. The term 'pimiento' or 'pimienta' has become commonly used as a designation of variety among practical horticulturists.

PARACENTESIS VERSUS SPONTANEOUS PERFORATION IN OTITIS MEDIA

To the Editor—I should like to know the present consensus regarding paracentesis of the ear drum versus spontaneous perforation. Does the delay in waiting for resolution and absorption and the permission of a spontaneous rupture resultant therefrom compensate for the often needless paracentesis of a drum and the resultant danger that infection will follow that procedure? I am aware that an incised drum may heal more nicely than a torn one but does this difference in healing compensate for the possibility that resolution may take place? Just what harm is there in the laissez faire policy of waiting for perforation? The opinion seems to exist of the hasty and promiscuous opening of ear drums with the need less exposing of the middle ear to infection. I should like to know the consensus among pediatricians and general practitioners as well as otologists. Please omit name. M D New York

ANSWER—There is still considerable difference of opinion with reference to paracentesis of the drum membrane as opposed to spontaneous perforation. The Vienna school was long of the opinion that a myringotomy was preferable to spontaneous rupture. It would seem that the same principle should be applied in cases of otitis media that is used when there is a collection of fluid under pressure in any other part of the body.

In other words, it is preferable to relieve pressure by well planned opening rather than permit the spontaneous rupture, which may destroy a considerable portion of the drum membrane and lead to a permanent perforation, whereas a fine incision or puncture with a sharp instrument usually heals rapidly without damage to the drum membrane.

Furthermore, it is a fair assumption that an early evacuation or the promotion of escape of fluid would carry with it less tendency to injury to tissues in the middle ear and mastoid antrum than the damage that often occurs when waiting for a spontaneous rupture, especially through a thickened drum membrane.

While we are not aware of any statistics which definitely prove that cases of otitis media in which early myringotomy was performed show fewer instances of mastoiditis than those in which spontaneous rupture was awaited, we feel, in line with the principles stated, that it is a better policy to puncture the drum membrane when definite signs of pressure from contained fluid are present.

TOXICITY OF SHOE DYE PREPARATIONS

To the Editor—Can you give me any information regarding a preparation called Checker Shoe Dye Primer manufactured by D F Brown and Company Boston? A shoemaker since using this preparation to prepare shoes for dyeing has noticed a diffuse erythema on both hands. I should appreciate any information you can give me regarding the constituents of this product so that I may determine whether or not it is the cause of the trouble. Kindly omit name. MD Chicago

ANSWER—We have no specific information concerning the preparation mentioned. Without reference to any specific types of shoe dye or primer, it may be stated that all are believed to contain constituents capable of inducing skin lesions among some of the total number of those exposed.

Recent examinations have failed to disclose the presence of nitrobenzene in shoe dyes, even when the odor that is more or less characteristic of this substance was present. A widely used solvent for shoe dyes is orthodichlorobenzene. This is an irritant both to the skin and to mucous membranes.

Methyl alcohol, along with various other alcohols, is in some use in products of this type.

Aniline black, if used as the dye, may in itself constitute a skin irritant apart from any of the solvents mentioned.

UNDULANT FEVER

To the Editor—A man aged 36 married has been ill for the past two years. In December 1932 his condition became worse and in April 1933 he was forced to go to bed. He has lost 20 pounds (9 kg). His present weight is 155 pounds (70 kg). The patient is a tall blond with a phthisical chest and slightly stooped posture of typical neurasthenic type. The temperature has never been above 101 F. Hemoglobin is 55 per cent. The urine is negative for red blood cells pus or blood. The Wassermann reaction is negative. The tuberculin test is negative. A roentgenogram of the chest shows considerable peribronchial thickening around the hilar regions. The blood pressure is 108 systolic 70 diastolic. Examination of the heart lungs and abdomen grossly gives negative results. Blood agglutination shows positive for undulant fever in a dilution of 1:160. Treatment has consisted of iron in adequate dosage in the form of iron and ammonium citrate. The hemoglobin has risen to 78 per cent. Neocarsphenamine in 0.6 Gm doses was given four months ago at weekly intervals for six doses but was discontinued because of severe subjective symptoms. Three weeks later an Alcaligenes abortus vaccine or antigen was tried with almost complete remission for six weeks. This case has undoubtedly gone on for more than a year. Does undulant fever usually continue that long? I attribute the peribronchial density to the present infection. Am I right? Why has the temperature not gone above 101 F? In addition to the symptoms mentioned the patient has a mild conjunctivitis which has persisted and which was present before the administration of arsenic. Can you suggest any form of chemotherapy or specific therapy which I have not yet tried? The patient is particularly sensitive to intravenous medication for which reason I have not tried acriflavine or similar substances. Any suggestion as to further treatment would be greatly appreciated. Incidentally the patient's wife also has a positive blood agglutination and evidently had a mild form of the disease but has recovered. Please omit name and address. MD North Carolina

ANSWER—Many cases of undulant fever have been reported in which the disease has persisted for several years. The peribronchial thickening at the root of the lung may be due to the lymphadenitis that frequently accompanies this infection. In the low grade chronic infections it is not unusual for the temperature to exhibit mild fluctuations for many months. Many observers have found the Alcaligenes melitensis (abortus) vaccine an effective therapeutic measure. In the chronic cases larger doses may be required than are ordinarily used for acute or subacute cases. I F Huddleson Michigan State College, East Lansing Mich (*Am J Trop Med* 13:485 [Sept] 1933) has obtained good results with brucellin which apparently exerts a specific influence on the disease.

PSYCHIC REACTIONS TO MENSTRUATION

To the Editor—My patient is a friend of my family, a woman aged 30 married. She has one boy of 7. She had another child but it was born dead as the result of strangulation by the cord during delivery. She is of rather a nervous type intelligent and socially active. She complains of frigidity. She was examined by the most efficient gynecologists but they found her in normal condition. All the tests for the blood and urine were made by an expert including a Wassermann test. A metabolism test was negative. She has a blood pressure of 140 systolic 70 diastolic. Her mother died of arteriosclerosis and hemiplegia. Her sisters also have a blood pressure of 140 systolic 70 diastolic. There is a tendency in the family toward nervous conditions but no insanity or severe nervous diseases. Otherwise the family history is negative. About three days before menstruation the patient is seized with a peculiar attack. She complains of cold finger tips and numbness in both arms the numbness extending rapidly to her back. Her upper lip gets numb and then she commences to cry severely for an hour insisting that she is going to die as she is numb all over. She usually faints during this attack but she has no convulsion. A hypodermic injection of morphine or lately sodium amytal and bromides relieve this attack within a few days. The numbness disappears within twenty-four hours. Nervousness and weakness persist for days until she gets her scanty menstruation and then she is totally relieved. Kindly let me know what you could suggest in this condition. Please omit name. MD, Pennsylvania

ANSWER—The symptoms enumerated here are most likely vasomotor responses to a hormonal stimulus. However, there is undoubtedly a large psychic factor involved. There is visible nervousness in the patient and a family history of the same condition. The slight elevation in blood pressure is probably part of the same picture. An effort should be made to have the patient lead a calmer existence. Special emphasis should be laid on giving up some of the most worrisome of the social activities, particularly if they include club work of a character demanding much time, effort and worry. Sedatives, such as the bromides, sodium amytal, elixir of phenobarbital and others should be given in large doses beginning just before the time the symptoms are expected. Furthermore, an effort should be made to have the patient do some interesting work around this time if possible. Morphine should be avoided, but as much psychotherapy as is deemed wise should be used.

RIGHT AND LEFT HANDEDNESS

To the Editor—Please inform me if it is possible to tell definitely whether a child is right or left handed. The child in question 6 years of age appears to be ambidextrous but is very clumsy with either hand. His teacher will not promote him because his writing and drawing are very poor though he is above average physically and mentally in every other respect. His right eye is the dominant eye with normal vision in both eyes. In his home the child has been permitted to use either hand though gently encouraged to use his right hand. He does not stammer or show any peculiarities except at times a suggestion of mirror writing. Both of his parents are right handed. I have been unable to obtain definite information on this subject. Please omit name if published. MD Texas

ANSWER—Tests of handedness consist of observing the use of the hands in various technical procedures, such as throwing a ball or using tools. Reports of such studies, with references to the literature, will be found in an article by Quman in the *Archives of Neurology and Psychiatry* (24:35 [July] 1930) and further information can doubtless be secured by writing to the Speech Clinic, Iowa State Psychopathic Hospital, Iowa City.

VENEREAL PROPHYLAXIS

To the Editor—What are the prophylactic instructions given and the procedure recommended to the personnel of the United States Army and Navy to prevent gonorrhea and syphilis? Are there any other methods superior to these? Please omit name and address. MD Florida

ANSWER—The technic of prophylaxis for the male is as follows. If possible, the patient is not allowed to administer the treatment to himself. He is made to urinate. He is provided with a basin of warm water and a gauze wipe, with which he washes the genitals thoroughly while liquid green soap is dropped on the penis. The washing to be done thoroughly, should consume about ten minutes and should include the penis, scrotum pubis and the adjacent areas of the thighs. Especial care should be observed in washing thoroughly the folds of the frenum and foreskin. After washing, the parts should be dried thoroughly. The washing with soap and water is important, soap is the only part of the treatment effective against chancroid, and it is also of value as a destroyer of the organism of syphilis.

The next step is the injection of 4 cc (1 drachm) of a freshly made up 2 per cent solution of strong silver protein (or a 10 per cent solution of mild silver protein) into the urethra by

the physician. The patient then holds the meatus firmly between the thumb and forefinger for five minutes, from time to time allowing a drop to escape from the meatus, so that all parts of the urethra are in contact with the solution. At the end of five minutes the silver protein is allowed to escape, without pressure or stripping, so that a few drops remain. From 2 to 4 Gm (one-half to 1 drachm) of 33 per cent calomel ointment is next rubbed thoroughly by the patient, under the observation of the physician, into all parts of the penis for five minutes, special attention being paid to the retracted prepuce, the frenum and the glans. The scrotum also should be rubbed with ointment. The genitalia are then wrapped in toilet paper or waxed paper to protect the clothes, and the patient is instructed not to urinate for four or five hours.

TRANSFUSION OF MATERNAL OR PATERNAL BLOOD IN NEW BORN

To the Editor—The question has arisen whether maternal or paternal blood is preferable in the treatment of hemorrhage in the new born. I am under the impression that there is a hormone in the parturient woman which diminishes the clotting time of the blood. Kindly omit name.

MD Arkansas

ANSWER—So far as now known there is no hormone in the blood of the parturient woman that reduces the clotting time of the blood of the new-born. So far as the properties of blood in stopping hemorrhage is concerned, maternal and paternal blood under normal conditions may be assumed to have the same effect, generally speaking.

WEAKNESS OF KNEES IN OLD AGE

To the Editor—Will you kindly tell me what might be the cause of weakness of the knees in a man about 72 years of age? His legs give way under him involuntarily while standing still. The blood Wassermann reaction is negative and physically he appears to be all right. Kindly omit name.

MD, California

ANSWER—With so few data it is of course impossible to offer any opinion in this particular case. On the organic side, such giving way may be due to temporary ischemia in the spinal cord due to intermittent claudication of blood vessels within the cord. The most common functional cause is a fear of falling, so-called astasia-abasia. Unless the patient is obviously psychoneurotic, it would be more reasonable to look for an organic cause at his age.

RESULTS FROM ONE-SIDED SECTION OF VAGUS

To the Editor—A man at present 40 years of age was wounded in the head about 1917. A gunshot entered below the left eye and emerged in the region of the left angle of the jaw, lodging in the left scapular region from which it was shortly afterward removed. About a month later an aneurysm developed in the internal jugular vein at the point where it emerged from the skull. The internal carotid artery communicated with the sac (arteriovenous aneurysm). The carotid artery was ligated subsequently at operation. Both vagus and hypoglossal nerves were found eroded through by the aneurysm or owing to the effect of the original wound. Naturally such an extensive injury created a profound constitutional disturbance. The patient had the usual paralysis of the face and the glottis some difficulty of deglutition for a while and drooping of the eyelids, but almost complete recovery of these functions has occurred. However since that time more remote effects seem to be increasing in severity. He has constant troublesome constipation and has to use cathartics continually. His accompanying indigestion is amenable to neither diet nor drugs. Recurrent severe headaches are becoming more frequent. Associated with these symptoms is a feeling of general weakness. Any exertion leaves him weak and tired so that he is unable to do even the lightest labor on his farm. A recent examination shows his heart enlarged with a systolic murmur although no cyanosis or dyspnea. What are the late results of one-sided section of the vagus? Is it not possible that the gastrointestinal and cardiac complaints may be due to a change in tone of the muscular walls of the bowels and heart respectively? At any rate that is my theory. As the man is a deserving case and I am convinced there is no question of malingering I have advanced this theory to the board of pension commissioners for Canada who refuse to act on it. Previous suggestive history is negative. GEORGE J. CAMERON MD LeRoy Sask. Canada.

ANSWER—Symptoms produced by destruction of the vagus would have appeared early and later decreased in severity. There may be some independent cardiac or gastro-intestinal ailment that accounts for the late visceral symptoms. True, there is evidence to show that unilateral lesions of the vagus may cause visceral symptoms. Thus, Purves Stewart in his "Diagnosis of Nervous Diseases" says "Gastric symptoms have also been observed even in unilateral cases, such as gastric dilation, vomiting, gastric pain and loss of sensations of hunger and thirst. The oculocardiac reflex is abolished on the affected

side, thus is an important evidence of a lesion of the vagus trunk." Russell Brain in his "Diseases of the Nervous System," 1933, says "Little is known concerning the effects of lesions of the vagus upon its visceral functions." Since the man has a claim for compensation, it is of course possible that a functional neurosis may enter in.

USE OF HIGH CHOLESTEROL DIET IN RELATION TO SCLEROSIS

To the Editor—In *Queries and Minor Notes* in THE JOURNAL, January 13, page 150 the question is asked whether a minimum of cholesterol in the diet may be beneficial in retarding the advance of sclerosis. The answer conveys a little too much of the impression that a high cholesterol diet plays little part in the development of arteriosclerosis in man.

Ever since Anitschkow in 1912 produced atherosclerosis in the aorta of rabbits with cholesterol feedings, pathologists and clinicians have wondered whether or not high fatty diets may cause arteriosclerosis in man. Saltykow, Wacker and Hueck, Aschoff and others confirmed the observations of Anitschkow in the rabbit with cholesterol feedings (milk cream, yolk of eggs, brain substance, solution of cholesterol in oil). Cholesterol feeding experiments demonstrated that it is possible to produce fatty deposits in the intima of the blood vessels of the dog (Adler), white rat (Chafetz) and guinea pig (Anitschkow). Aschoff thinks that the fatty deposits in the intima of the aorta of nursing infants are derived from the fatty substances found in the milk. It has been shown that the experimental atherosclerosis and the suckling atherosclerosis disappear if the fatty diets are stopped. The longer the fatty diets are continued, the more marked the blood vessel changes and the less chance for return of the blood vessel wall to normal after stopping the fatty diet. The addition of bile acids to the fatty diet favors the deposit of fat in experimental animals.

The common occurrence of arteriosclerosis in diabetic patients with high blood cholesterol and acidosis has long been known. Recently Shephardson investigated fifty young diabetic patients and found that paralleling a reduction in lipemia the incidence of arteriosclerosis was greatly reduced. Shephardson considers an altered fat metabolism the important factor for the development of vascular disease in association with diabetes.

In lipid nephrosis the blood cholesterol is very high but still there are no striking deposits of fat in the intima of the blood vessels. It would seem therefore that something other than a high lipid content of the blood plasma favors a lipoidosis of the intima. Schmidtman and Huttich teach that in man the blood vessel walls become more acid with age and that this acidity is at least one factor favoring a lipoidosis of the intima. In his last monograph on arteriosclerosis (1930) Aschoff considers arteriosclerosis a wearing out and nutritional problem. Aschoff believes that with age and hard work the muscle and elastic tissues of the blood vessel wall are replaced with fibrous tissue. Through this change in the consistency of the blood vessel wall Aschoff thinks that the intima can now more readily imbibe the fat presented to it by the blood stream.

Chamberlain states that the blood cholesterol is raised in arteriosclerosis but he does not know whether to regard this as cause or effect. Gechtman and Slanskaya found an excess of cholesterol and calcium in the blood of arteriosclerotic patients and recommended therefore, a diet low in these substances.

So much for the consideration of the fat in the diet in arteriosclerosis. I will now in a sketchy manner recall some of the actions of vitamin D in the diet.

Laech found that the oral administration of ergosterol to adults increased the serum calcium and cholesterol in most cases. Mancke produced calcification and dilatation of the aorta in rabbits by feeding from 1 to 50 mg of viosterol daily, the degree of aortic involvement depending on the duration of administration. Similar results to those of Mancke were obtained in rabbits by Huckel and Wenzel with doses of viosterol ranging from 9 to 700 mg. In from one to three weeks, marked calcifications were noted in the media of the blood vessels with necrosed areas in the overlying intima. Nine milligrams of viosterol damaged the media of the kidney arterioles. King and Hall produced hypercalcemia in chickens using massive doses of viosterol. Besides showing the symptoms of hypercalcemia (anorexia, loss of weight, emaciation, death) the kidneys of these chickens contained heavy calcium deposits.

It has been thought that ultraviolet radiation and sunlight by acting on the sebaceous matter of the skin or the fatty substances in the blood protect and cure rickets possibly through the development of vitamin D or its equivalent. Windaus (Nobel prize winner for showing the relations of irradiated sterols to vitamin D) has even gone so far as to suggest that excessive exposure to sunlight might produce so much viosterol in the blood that calcifications are formed in the media of the blood vessels.

In a recent (1932) study of the alimentary factors in arteriosclerosis Raab has summarized the main evidences as follows:

- 1 The administration of cholesterol in animal experiments leads to a lipoidosis of the intima.
- 2 The administration of vitamin D in animal experiments leads to a calcinosis of the media.
- 3 Lipoidosis of the intima and calcinosis of the media represent the basic changes in arteriosclerosis in man.
- 4 Cholesterol and vitamin D are abundantly present in the much used foods such as egg yolk, cream, butter, milk, animal fats and cod liver oil. The suggestion is given that abundant and long continued use of these foods may produce arteriosclerosis in man.

EDMUND KLINEFELTER MD York Pa

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Cleveland June Sec. Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Written (Group B Candidates) The examinations will be held in various cities of the United States and Canada April 7 Oral (all candidates) Cleveland June 12 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY Cleveland June 11 and Butte Mont July 16 Sec Dr William H Wilder 122 S Michigan Blvd Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

COLORADO Denver April 3 Sec Dr William Whitridge Williams 422 State Office Bldg Denver

CONNECTICUT Regular Hartford March 13 14 Endorsement Hartford March 27 Sec Dr Thomas P Murdock 147 W Main St Meriden *Homoeopathic* New Haven March 13 Sec Dr Edwin C M Hall 82 Grand Ave New Haven

IDAHO Boise April 3 Commissioner of Law Enforcement Hon Emmett Pfozt 205 State House Boise

ILLINOIS Chicago April 10 12 Supt of Regis Mr Eugene R Schwartz Springfield

MAINE Portland March 13 14 Sec Dr Adam P Leighton Jr 192 State St Portland

MASSACHUSETTS Boston March 13 15 Sec Dr Stephen Rushmore 144 State House Boston

MINNESOTA Basic Science Minneapolis April 3 4 Sec Dr J Charnley McKinley 126 Millard Hall University of Minnesota Minneapolis Medical Minneapolis April 17 19 Sec Dr E J Engberg 350 St Peter St St Paul

MONTANA Helena April 3 Sec Dr S A Cooney 7 W 6th Ave Helena

NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates May 7 9 (limited to a few centers) June 25 27 and Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

NEW HAMPSHIRE March 15 16 Sec Dr Charles Duncan State House Concord

NEW MEXICO Santa Fe April 9 10 Sec, Dr P G Cornish Jr 221 W Central Ave Albuquerque

OKLAHOMA Oklahoma City March 13 14 Sec. Dr J M Byrum Mammoth Bldg Shawnee

RHODE ISLAND Providence April 5 6 Dir Dr Lester A Round 319 State Office Bldg Providence

TENNESSEE Memphis March 26 27 Sec Dr H W Qualls 130 Madison Ave Memphis

WEST VIRGINIA Charleston March 12 State Health Commissioner Dr Arthur E McClue Charleston

WISCONSIN Basic Science Madison March 24 Sec Prof Robert N Bauer, 3414 W Wisconsin Ave Milwaukee *Reciprocity* Milwaukee April 5 Sec, Dr Robert E Flynn, 401 Main Street LaCrosse

Oregon July Examination

Dr Joseph F Wood secretary, Oregon State Board of Medical Examiners, reports the written examination held in Portland, July 5-7, 1933 The examination covered 11 subjects An average of 75 per cent was required to pass Forty-eight candidates were examined, 46 of whom passed and 2 failed The following schools were represented

School	PASSED	Year Grad	Per Cent
College of Medical Evangelists	(1933) 87 4	88 5	
Northwestern University Medical School	(1933)	84	
University of Illinois College of Medicine	(1933)	91 7	
State University of Iowa College of Medicine	(1931)	84 8	
Harvard University Medical School	(1931)	88	
Washington University School of Medicine	(1932)	87 8	
Creighton University School of Medicine	(1932)	81 5	
85 9 86 (1933) 83 1 85 2			
University of Nebraska College of Medicine	(1932)	87 9	
University of Oregon Medical School	(1930)	90 6	
(1931) 85 5 (1932) 82 5 83 7 85 3 87 9 (1933) 83 9			
85 8 5 7, 86 1 86 1 86 5 87 8 7 7 88 88 2 88 8 89 1			
90 8 91 2 91 7 92 4			
Hahnemann Medical College and Hosp of Philadelphia	(1933)	88 1	
University of Wisconsin Medical School	(1932)	85 5 89 5	
Karl Franzens Universität Medizinische Fakultät Aus	(1928)	82 9	
† Otopaths	77 5 78 80 80 4 80 7 81 9 85 6		
		Per Cent	
		64 9 69 3	
	FAILED		

Seventeen candidates were licensed by reciprocity and 7 by endorsement from April 26 to November 13 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Stanford University School of Medicine	(1932)	California	
University of California Medical Department	(1902)	California	
University of Colorado School of Medicine	(1931)	Michigan	
Hahnemann Medical College and Hospital Chicago	(1914)	Illinois	
University of Louisville School of Medicine	(1932)	Kentucky	
College of Physicians and Surgeons of Baltimore	(1915)	Utah	

University of Minnesota Medical School (1930) Minnesota
Washington University School of Medicine (1912) Missouri
University of Nebraska College of Medicine (1928) Penna
Miami Medical College Ohio (1903) Illinois
University of Oregon Medical School (1929) Michigan
(1931 2) California
Osteopaths

California 2, Missouri 2

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
College of Medical Evangelists	(1932)	(1933) N B M Ex	
Washington University School of Medicine	(1929)	(1927) N B M Ex	
University of Oregon Med School	(1931, 2)	(1932) N B M Ex	

Nevada Reciprocity Report

Dr Edward E Hamer, secretary, Nevada State Board of Medical Examiners, reports 4 physicians licensed by reciprocity, Aug 7, 1933 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Rush Medical College	(1931)	Illinois	
(1933) Utah			
University of Michigan Medical School	(1931)	Michigan	
Columbia Univ College of Physicians and Surgeons	(1919)	New York	

Georgia October Examination

Mr R C Coleman, joint secretary, State Examining Boards, reports the written examination held Oct 10-11, 1933 The examination covered 10 subjects and included 100 questions An average of 80 per cent was required to pass Four candidates were examined, 3 of whom passed and 1 failed The following schools were represented

School	PASSED	Year Grad	Per Cent
Howard University College of Medicine	(1932)	83 4*	
Rush Medical College	(1933)	83 6	
Medical College of Virginia	(1931)	89	
School	FAILED	Year Grad	
Howard University College of Medicine	(1932)		

Fourteen physicians were licensed by reciprocity from August 5 to December 20 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Howard University College of Medicine	(1931)	Missouri	
Rush Medical College	(1929)	Illinois	
Johns Hopkins University School of Medicine	(1915)	(1930) Maryland	
University of Maryland School of Medicine	(1913)	Maryland	
University of Michigan Medical School	(1932)	Michigan	
University of Minnesota Medical School	(1928)	Minnesota	
Washington University School of Medicine	(1928)	Missouri	
Jefferson Medical College of Philadelphia	(1910)	Penna	
(1929) Alabama			
Memphis Hospital Medical College	(1911)	Alabama	
University of Tennessee College of Medicine	(1926), (1931)	Tennessee	
University of Vermont College of Medicine	(1908)	Vermont	

* License withheld

Illinois October Examination

Mr Eugene R Schwartz, superintendent of registration, Illinois Department of Registration and Education, reports the written and practical examination held in Chicago, Oct 17-19, 1933 The examination covered 10 subjects and included 100 questions An average of 75 per cent was required to pass Seventy-seven candidates were examined, 71 of whom passed and 6 failed The following schools were represented

School	PASSED	Year Grad	Per Cent
Chicago Medical School	76 77 77* 79 80 82 82	(1933)	75
Loyola University School of Medicine	(1933) 84 84 84 84 85 86 86 87*	(1932)	85 *
Northwestern University Medical School	80* 81 81 81* 83, 83 83* 84 84 84 84 84* 85	(1933)	78
Rush Medical College	85 86 87		
(1933) 80 81 81 83 83 83 83 83* 84 84 84* 85		(1931)	85
85 86 86*			
University of Illinois College of Medicine	81 82 82 82 82 82* 83 84 84 84 85 85 85	(1933)	81
86* 88			
University of Nebraska College of Medicine	(1932)	83	
Western Reserve University School of Medicine	(1932)	80	
Medical College of the State of South Carolina	(1929)	86	

School	FAILED	Year Grad	Per Cent
Howard University College of Medicine	(1932)	68	
Chicago Medical School	(1932)	73	
(1933) 71 72 86†			

University of Minnesota Medical School (1933) 78†

* License withheld for fee

† Failed in clinical examination

‡ Received a grade below 60 per cent in anatomy

Book Notices

Modern Clinical Psychiatry By Arthur P. Noyes, M.D., Superintendent of State Hospital for Mental Diseases, Howard, Rhode Island. Cloth. Price \$4.50. Pp. 485. Philadelphia & London: W. B. Saunders Company, 1934.

Textbooks on psychiatry will always be susceptible to much criticism, because of the inconstant nature of the subject. The present work brings into the field a textbook that is well written, simple and substantial. It has the usual introductory chapters describing mental mechanisms and motivations, and these are less conservative than those expressed in previous books but more conservative than are the opinions of psychiatrists in general. The tenor of the work is along conventional state hospital lines rather than those of dynamic psychiatry found among teachers, mental hygienists and private practitioners. The classification of mental disorders adopted by the American Psychiatric Association is the determinant of the chapter arrangement. Each psychosis is dealt with systematically, only essential information is given, and there are the usual illustrative case histories. Some of the features that make this book different from former textbooks are a fair bibliography at the end of each chapter, a practical attitude toward therapy, a chapter on the psychobiologic constitution, and the modern attitude toward mechanisms. On the other hand there is a certain looseness of terminology, quotations are made in the text without references in the bibliography, and there is no glossary. The chapters treating of neuroses, psychopathic constitution, mental deficiency and kindred subjects that confront the practitioner—particularly one who does not practice in a state hospital—are too short and they do not present enough aspects of these subjects to introduce them adequately to the student of mental hygiene and allied fields. This work offers little to the practitioner, but teachers of psychiatry who have been looking for a simple understandable textbook may find this to be what they have wanted.

Causal Factors in Tuberculosis. A Report of an Investigation into the Incidence of Tuberculosis in Certain Tyneside Districts By F. C. S. Bradbury, M.D., D.P.H., Medical Commissioner for Tyneside Inquiry. Paper. Price 2/- Pp. 126. London: National Association for the Prevention of Tuberculosis [n.d.]

Any decision of the causal factors in tuberculosis must take into account the fact that tubercle bacilli are the true causative agents, hence the discussion must necessarily devolve into a consideration of the conditions that affect the dissemination of the bacilli. The contrast in the incidence of tuberculosis in two towns in the same county was the impetus that started the present investigation. Jarrow and Blaydon in the county of Durham have a population of 32,000, but the tuberculosis morbidity of Jarrow is much higher than that of Blaydon. Overcrowding is given initial importance. This is a factor that has long been recognized as of importance in the transmission of tuberculosis, yet it cannot be overstressed as long as undiagnosed cases of tuberculosis and carriers of tubercle bacilli are free to infect their associates. "Intimate and prolonged" contact carries a definite meaning to all workers in tuberculosis and overcrowding in tenement buildings insures that just such conditions will be true of the associates of every open case of tuberculosis. From the standpoint of undernourishment, Bradbury concluded that an insufficiency of fresh milk is more important than shortage of other foods in predisposition to tuberculosis. He found some evidence that the incidence of tuberculosis is relatively higher in households where the mother of the family married at an early age, but he is inclined to believe that poverty is more common in such homes and that it is the more important factor. The greater prevalence of tuberculosis in families of large numbers is explained on the basis of more persons at risk when a case of tuberculosis exists in the family. He points out that poverty shows a marked statistical association with tuberculosis and that this association is greater than in case of most of the other factors studied. The chief results of poverty are overcrowding and undernourishment.

While he found a greater incidence of disease in adult males than in adult females the course of the disease was equally

serious in the two sexes. He found only a small proportion of deaths from nonpulmonary tuberculosis, but among those found there was an unusually high proportion from abdominal disease. This was true also among nonfatal cases. He believes that the limited use of fresh milk in Jarrow may be associated with the local peculiarities in the distribution of bovine and human infection and may be responsible for the small number of cases of bone and joint tuberculosis which occur in that area.

The factor of race in relation to tuberculosis is given considerable space. The author points out that there is more tuberculosis in Irish than in English families and that in Jarrow 14 per cent of the population is Irish, whereas in Blaydon the Irish constitute only 3.5 per cent of the population. He is of the opinion that the inferior environmental conditions of the Irish families does not adequately account for the greater prevalence of tuberculosis among them and offers relative lack of immunity as the explanation. These conclusions as to racial susceptibility or immunity do not tally with the more recent studies of the same factor in this country. As Dr. Bradbury points out, poverty and overcrowding are the important factors in morbidity rates, and stage of disease on diagnosis and efficacy of treatment as pointed out by racial investigators here are the important factors in mortality rates.

The Health and Turnover of Missionaries By William G. Lennox, A.M., Sc.D., M.D., Instructor in Neuropathology, Harvard Medical School, Boston. Published by the Advisory Committee, J. G. Vaughan, M.D., Chairman, E. M. Dodd, M.D., H. J. Tierling, M.D., and M. H. Ward, M.D., Cloth. Price 70 cents. Pp. 217 with 71 illustrations. New York: Foreign Missions Conference, 1933.

In recent years there has been a curtailment in the financial support and in the number of persons who volunteer for service as foreign missionaries. In 1928 the medical secretaries of four large American boards requested that an analysis of the data in their medical files be made so that their judgments might be based on scientific knowledge rather than on general impressions. The author, who was formerly a medical missionary, was engaged in this study more than two years. He was assisted by an advisory committee of physicians. There have been 75,000 workers, of whom 48,000 were women, in more than a century of Protestant missionary work. Only 25,000 of the total are still active. Of the 50,000 who have left the work, 10,000 died while actively engaged and 40,000 left in order to rest or to enter other employment. The death rate and the resignation rate among the women missionaries were greater than among the men. The average length of the period of service of these missionaries has been twelve and a half years. The average length of service of the married and single missionaries was 13.7 and 8.5 years, respectively. A study of 3,733 missionaries who left the work since the year 1900 shows that 46 per cent of them withdrew because of physical breakdown either of the missionary or of a member of the family on the field. Fifteen per cent of all persons leaving had proved to be misfits. Thirty-four per cent of those who left did so because of unavoidable circumstances. Missionaries have a high death rate from tropical diseases, drowning and violence. The illnesses that interfere with their work are due largely to neuroses and to epidemic diseases. From the study of these records it is estimated that in the next 10,000 years of missionary service (about the annual missionary enrolment of the North American Protestant missionary boards) there will be 168 missionaries lost to the service because of ill health, 82 because of death, and 103 because of being misfits. There will be, it is further estimated, 25 persons lost from smallpox, 13 from typhoid, 56 from dysentery and diarrhea, 37 from tuberculosis, and 104 from neurosis.

The rate of withdrawal of missionaries during the seventy-five years between 1840 and 1915, between 3 and 4 per cent, remained remarkably constant. In the five year period ended Jan. 1, 1930, the average yearly withdrawal rate was 5.74 per cent, but in the next two years it decreased again to 4.85 per cent. The rate of turnover of missionaries since the close of the World War for Protestant missionaries has been consistently upgrade. The death rates among missionaries have progressively declined. Thirty-five missionaries out of each thousand died annually during the period 1825 to 1829, and a hundred years later (1925 to 1929) only five out of each thousand missionaries died annually. The probable cause of death

was obtained by the author of 693 missionaries who died either on the field or within a year after leaving. Tropical diseases accounted for about one fifth of these deaths. While smallpox is widely distributed through the world, all deaths of missionaries from that cause reported occurred in China or India. Among the nontropical infections, the respiratory diseases were most important. A surprising number of missionaries have been drowned (2 per 10,000 for all adults). Drowning was nearly twice as deadly as dysentery.

The author analyzes various other data that are contained in the reports of these boards. The business of foreign missions is a major philanthropic venture. In 1923 there were 826 Protestant societies and committees in the United States, Canada, Great Britain and Europe for the furtherance of missionary work. These organizations at times have supported about 29,000 missionaries in foreign lands.

Nouveau Traité de Psychologie. Par Georges Dumas, professeur à la Sorbonne. Tome III. Les associations sensorimotrices. L'équilibre et l'orientation. L'expression des émotions. Les mimiques. Le langage. Avec la collaboration de André Ombredane, assistant près de la chaire de psychologie expérimentale à la Sorbonne. Cloth. Price 100 francs. Pp 462 with 155 illustrations. Paris: Librairie Félix Alcan 1933.

The third volume of this well known treatise deals with those psychic functions which are ordinarily called sensorimotor and among which are customarily included orientation, equilibrium, expression of emotion, mimicry and language. These differ from the primary sensory and motor functions in that they involve multiple sensory and motor pathways, which have already special functions, and impose on them secondary systematizations. The first section, dealing with equilibrium and orientation, is essentially a detailed summary of the work of the Magnus de Kleijn and Sherrington schools of neurophysiology. The discussion of the emotions begins with a historical account of the work of Spencer, Darwin, Duchenne and others, followed by a detailed description of the external expression of various preliminary and special emotions, with numerous illustrations. One may note the interesting analogy given by the author between the effects of stimulation of the facial nerve and the expression of joy, and the effects of paralysis of the nerve and the expression of sadness. The discussion of the mechanism of emotion follows largely the work of Cannon and Head. In the section on mimicry the author maintains his belief that the cerebral cortex is the original seat of the mimic reactions. The volume terminates with a discussion of language. Language is considered to be the totality of the gestures which the individuals of any collectivity use as signs. In the discussion of language, aphasic troubles are given much attention and the work of Marie, Hughlings Jackson and Head utilized at length. The author concludes that there are no innate or preformed cerebral centers for language any more than there are for dancing or swimming, but he admits that the effect of cerebral lesions on the function of language varies with their anatomic situations. This volume is better printed than the former, the proofs have evidently been carefully read. The discussion is well documented. The volume can be heartily recommended as an authoritative treatise on the sensorimotor functions.

Functional Affinities of Man, Monkeys and Apes. A Study of the Bearings of Physiology and Behaviour on the Taxonomy and Phylogeny of Lemurs, Monkeys, Apes and Man. By S. Zuckerman, M.A., D.Sc. MKCS Research Associate, Yale University. Cloth. Price \$3. Pp 203 with 24 illustrations. New York: Harcourt, Brace & Company 1933.

The subject matter of this book was originally prepared for a discussion on "Primates and Early Man," which took place at the meeting of the British Association for the Advancement of Science in 1932. Monkeys and apes were used as experimental subjects because they are suitable for the investigation of certain diseases or for the analysis of physiologic mechanisms. The evolution of man from the animal world can be traced by the correct classifications of the animals, the apes and the monkeys which most closely resemble him in structure. The author uses facts derived from physiologic and behavior experiments in arranging man, apes, monkeys and lemurs in a systematic series. He shows how the functional evidence supports the evidence of gross morphology. A taxonomic and phylogenetic survey is given of the results of experimental investigations on these animals. The author believes

that a study of the functional characteristics of the Primates from the comparative point of view would not only benefit taxonomy but reveal the gaps in our knowledge of functional differentiation. He endeavors to emphasize approaches to the question of primate phylogeny that have been seldom used and to indicate the proper place of functional investigations in the study of the classification and evolution of the Primates. There are a number of interesting pictures of apes, monkeys and lemurs.

Die Bluttransfusion. Von Prof. Dr. F. Oehlecker. Erweiterte Sonderausgabe der gleichbetiteltten Abhandlung im Handbuch der allgemeinen Hamatologie. Herausgegeben von Prof. Dr. Hans Hirschfeld und Dr. Anton Hittmair. Paper. Price 4 marks. Pp 87 with 43 illustrations. Berlin & Vienna: Urban & Schwarzenberg 1933.

An extensive experience with transfusion, both before and after the introduction of the modern serologic methods of grouping and compatibility, forms the basis for the author's quite definite ideas on various aspects of this subject. His main thesis is the hemolytic phenomenon, the reaction, in vivo, resulting from hemolysis of transfused red blood cells of incompatible donors. Descriptions are given of the clinical manifestations of the phenomenon and emphasis is placed on the efficacy of the biologic test. This test is performed by injecting a small amount of the donor's blood into the recipient's circulation and observing the recipient for a few moments. It is employed as a final check on the compatibility test and is prescribed for almost universal use. The various clinical reactions associated with transfusion are differentiated. The serologic features of transfusion are presented with recommendations to insure the obtaining of adequate grouping and compatibility tests. Various transfusion techniques are described and illustrated. The indications for transfusion are, admittedly, given rather broad consideration, the question of the donor, however, is given practical consideration. The subject of hemolysis recurs throughout the book. In defining his concept of this, the author refutes the statements of his critics and gives clinical descriptions of the phenomenon, its results and treatment.

The Organism of the Mind. An Introduction to Analytical Psychotherapy. By Gustav Richard Hever, M.D. Translated by Eden and Cedar Paul. Cloth. Price \$3.50. Pp 271 with 37 illustrations. New York: Harcourt, Brace & Company 1934.

This is a series of lectures, covering generally the subject of psychotherapy. The class of persons for whom it was designed is not obvious, but the subject matter is treated in a way that would imply that the audiences for these lectures were composed of nurses or educated laymen rather than physicians. The general tone of the book is philosophical, and the specific treatment of disease entities is not discussed. While the author's point of view is a modification of Jung's analytic psychology, mechanisms are drawn from Freud and Adler to develop a somewhat unique system of psychotherapy. Infantism, particularly the inability of the individual to cut the strings binding him to his mother, and sexual maladjustments are particularly stressed. The book is composed of two sections. The first part treats of organic expressions of the conflict brought up in the patient when he is attempting to meet some difficult problem of adjustment. An example of this is the vomiting that occurs in an individual who cannot meet some problem, which would imply the existence of an organic disorder, although no detectable organic disorder exists in the patient. This is shown not only in the sphere of the digestion but also in the spheres of the circulation and respiration. When he discusses the latter, Dr. Hever becomes theoretical and religious. The second part of the book is a rather disconnected discussion of the schools of psychotherapy that are outgrowths of the Freudian doctrines which the author, for that reason, calls schools of psychoanalysis, even though Adler claims that individual psychology is not a school of psychoanalysis. In the hands of Hever, modified techniques from each of the modern schools of psychotherapy have been of value, but what he admits as coming from Freud and Adler he does not find so useful as what he gets from Jung. His discussion is so philosophical and general that its value to the practicing psychiatrist is somewhat doubtful but it does reveal a point of view that is likely to be more

impressive as psychiatry develops, namely, the eclectic attitude, which will encourage the taking of the best from each school of psychiatry. Heyer points out that what we in America call egomorphism, i. e., leaning of the therapist toward schools of therapy which stress his own needs, is an important feature. It is this tendency of psychiatrists which will be likely to bring on the author the most severe criticisms, for any one trained in a specific school of psychotherapy—particularly the Freudian school—will be apt to raise the cry of superficiality and inadequacy. There are a number of rather senseless diagrams scattered throughout the book, and there is a large section at the end showing the drawings of various cases from which the author interprets various mental mechanisms.

Medicolegal

Compensation of Physicians Liability of Husband When Credit Extended to Wife—The plaintiff rendered medical services to the wife of the defendant. The plaintiff testified that he entered on his account book a charge against the wife. Two payments were made on the account both by the wife. When the wife made no further payments, the physician sued her husband and secured judgment in the trial court. The husband appealed to the Supreme Court of Ohio.

Medical services are necessities, said the Supreme Court. While in years gone by the courts of Ohio and other States were inclined to hold that the marriage relation created an unconditional liability on the part of the husband for necessities furnished the wife, the law in its wisdom, as women gradually entered man's former sphere, relaxed its requirement so far as the husband was concerned. It shifted some of the responsibility from his shoulders to the shoulders of the wife. In Ohio this gradual process of alleviation has changed the husband's duty to furnish his wife necessities, from an unconditional to a conditional duty. Consequently the liability arising from a breach of this duty is conditional.

The testimony in this case shows said the Supreme Court that if the physician knew that his patient was married he at no time regarded that fact as giving his account added security. He rendered the services to the wife, at her request, he made all charges against her on his account book, and, as he testified he looked to her for his pay. It is only fair to assume that it was not until the physician learned that his account against the wife was not collectible that he proceeded against the husband. Furthermore, said the court, the account book which was admitted in evidence, was not admissible against the husband. If the physician testified that it was his account book, that it was a book of original entries, that the entries were made by him or by some other person under his supervision duly authorized, the account book would then be admissible in evidence, to speak for itself, it could not speak against the husband, for his name nowhere appeared in it. The Supreme Court concluded, therefore, that there was no liability on the part of the husband to pay for the medical services rendered the wife, under the facts in this case and reversed the judgment of the trial court in favor of the physician—*Tille v Finley (Ohio)*, 186 N E 448.

Arteriosclerosis Aggravation by Exposure to Thermic Changes—The employee in this case, in the course of his employment, frequented rooms in which the temperatures ranged from zero F to 22 degrees below zero, F. Often he noticed on leaving these rooms, a numbness in his right foot, which disappeared when he stamped his feet. On Dec 4, 1930, however, the numbness persisted and extended throughout the foot with gradually increasing symptoms. He continued his usual duties until Jan 3, 1931, when he was compelled to quit because of the condition of his right leg. The femoral artery and vein of the right leg were resected, January 5 and the resected portions showed arteriosclerosis Monckeberg's type. The operation did not afford relief, and it became necessary to amputate the leg above the knee. The employee sought compensation under the Longshoremen's and Harbor Workers' Compensation Act, made applicable by statute to employees

generally in the District of Columbia. An award was made by the deputy commissioner, the supreme court of the District of Columbia enjoined its enforcement, and the employee appealed to the Court of Appeals of the District.

The evidence definitely showed, said the Court of Appeals, that exposure to thermic changes, such as occurred in this case, would aggravate a preexisting condition of arteriosclerosis and cause a condition such as that suffered by the claimant. The fact that he was diseased does not bar his right to recovery for accidental injury, notwithstanding the fact that except for his diseased condition the injury would not have occurred. On account of the disease condition of the blood vessels, the frequent, daily exposure to the intense cold set into motion a chain of circumstances that resulted in the amputation of the leg. This constituted an accidental injury within the contemplation of the act under which this proceeding was instituted. The deputy commissioner erred, however, in holding the insurance carrier liable for the physician's and hospital's bills, contracted by the employee. The Longshoremen's and Harbor Workers' Compensation Act requires a physician, when he looks to an insurance carrier for his fee, to report his services within twenty days. This was not done in this case, and there is no provision in the act which permits the deputy commissioner to waive the requirement. Under such circumstances, said the court, the insurance carrier was not liable. The decree of the supreme court of the District of Columbia, enjoining the enforcement of the award, was reversed—*Hoage v Employers Liability Insurance Corporation, Ltd (D C)*, 64 F (2d) 71.

Society Proceedings

COMING MEETINGS

- Alabama Medical Association of the State of Birmingham April 17 19 Dr D I Cannon 519 Dexter Avenue Montgomery Secretary
- American Association for the Study of Neoplastic Diseases Baltimore March 28 30 Dr E R Whitmore 2139 Wyoming Avenue N W Washington D C Secretary
- American Association of Anatomists Philadelphia March 29 31 Dr George W Corner University of Rochester School of Medicine Rochester N Y Secretary
- American Association of Pathologists and Bacteriologists Toronto Canada March 29 30 Dr Howard T Karsner 2085 Adelbert Road Cleveland Secretary
- American College of Physicians Chicago April 16 20 Mr E R Love 14nd 133 South 36th Street Philadelphia Executive Secretary
- American Gastro Enterological Association Atlantic City April 30 May 1 Dr Russell S Boles The Rittenhouse Plaza Philadelphia Secretary
- American Laryngological Rhinological and Otolological Society Charleston S C April 3 5 Dr Robert L Loughran Bridgewater Conn Secretary
- American Otolological Society Atlantic City April 6 7 Dr Thomas J Harris 104 East 40th Street New York Secretary
- American Physiological Society, New York March 28 31 Dr Frank C Mann Mayo Clinic Rochester Minn Secretary
- American Society for Clinical Investigation Atlantic City April 30 Dr H L Blumgart 330 Brookline Avenue Boston Secretary
- American Society for Experimental Pathology New York March 28 31 Dr C Philip Miller Jr 950 East 59th Street Chicago Secretary
- American Society for Pharmacology and Experimental Therapeutics New York March 27 31 Dr V E Henderson Medical Building University of Toronto Toronto Canada Secretary
- American Society of Biological Chemistry New York March 28 31 Dr H A Mattill Chemistry Building State University of Iowa Iowa City Secretary
- Arkansas Medical Society Little Rock April 16-18 Dr W R Brooksher 602 Garrison Avenue Fort Smith Secretary
- Association of American Physicians Atlantic City May 1 2 Dr James H Means Massachusetts General Hospital Boston Secretary
- California Medical Association Riverside April 30 May 3 Dr Emma W Pope 450 Sutter Street San Francisco Secretary
- District of Columbia Medical Society of the Washington May 2 Dr C B Conklin 1718 M Street N W Washington Secretary
- Federation of American Societies for Experimental Biology New York March 28 31 Dr Frank C Mann Mayo Clinic Rochester Minn Secretary
- Florida Medical Association Jacksonville April 30 May 2 Dr Shaler Richardson 111 West Adams Street Jacksonville Secretary
- Louisiana State Medical Society Shreveport April 9 12 Dr P T Talbot 1430 Tulane Avenue New Orleans Secretary
- Maryland Medical and Chirurgical Faculty of Baltimore April 24 26 Dr Walter Dent Wise 1211 Cathedral Street Baltimore Secretary
- North Carolina Medical Society of the State of Pinehurst April 30 May 2 Dr I B McBraver Southern Pines Secretary
- South Carolina Medical Association Charleston May 1 3 Dr E A Hines Seneca Secretary
- Tennessee State Medical Association Chattanooga April 10 12 Dr H H Shoulders 706 Church Street Nashville Secretary
- Western Branch Society American Urological Association Los Angeles April 27 29 Dr George W Hartman 999 Sutter Street San Francisco Secretary

Current Medical Literature

AMERICAN

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Removal of Spinal Cord by Anterior Route New Postmortem Method J W Kernohan Rochester, Minn.—p 455
Torsula Meningitis Report of Case and Summary of Literature F M Johns and C L Attaway, New Orleans—p 459

Micromethod for Estimation of Proteins in Plasma—Medes describes a micromethod for the estimation of the protein fractions of plasma in which 0.7 cc of plasma is required for complete fractionation. For fractionation into fibrinogen, albumin and globulin, 0.4 cc of plasma is used. The method depends on fractional salting out with anhydrous disodic sulphate, precipitating the protein remaining in the various filtrates with trichloroacetic acid, dissolving the precipitates in sodium hydroxide and determining the nitrogen in an aliquot part. The error of the determination is not greater than that of the corresponding macromethod. The author checked this method against the corresponding macromethod in which 1 cc of plasma is used for each fraction and found it to check within the limits of error of the macromethod.

American Journal of Diseases of Children, Chicago

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- Bone Development of Infants and Young Children in Puerto Rico Roentgenographic and Clinical Study, with Especial Reference to Rickets Osteoporosis and Transverse Lines in Radius and Ulna Martha M Flot and Edith B Jackson New Haven Conn.—p 1237
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Sacrococcygeal Chordomas in Children—During a period of eighteen months, Montgomery and Wolman observed sacrococcygeal chordomas in three children of 3 and 3½ years and 22 months, respectively. They believe that the presence of a pelvic tumor in children associated with signs of obstruction of the bladder or intestine is suggestive of a chordoma. The diagnosis can be made by the finding of characteristic physaliphorous cells in the fluid obtained by exploratory puncture. The ideal treatment is complete surgical extirpation of the tumor with the surrounding tissues. This is almost always impossible, as the growth involves contiguous vital organs such as the nerves the intestine and the bladder. Even when a complete surgical removal has been done as in the patient of Mazzia and Vecchi, the tumor has recurred. However, there

is no question that the lives of some patients have been prolonged many years by the repeated removal of large portions of the tumor as it grew back. According to many authors, irradiation usually causes no subsidence of the tumor, although it may relieve pain. Two of the authors' patients seemed much improved after a course of high voltage roentgen treatments.

Schultz-Charlton and Calcium Tests in Scarlet Fever—Fischer and Kojis observed the results of the Schultz-Charlton test in 486 cases and the calcium tests in seventy-five cases. They found that the Schultz-Charlton test is specific for the rash of scarlet fever. A 10 per cent solution of calcium gluconate will cause slight blanching in some recent cases of scarlet fever in which a mild or moderately intense rash is present. This action, however, is not so constant or so persistent as that obtained with dilute scarlet fever antitoxin. The actions of calcium and of antitoxin on the rash of scarlet fever are totally different. The fact that calcium will blanch a rash does not in any way detract from the validity of the Schultz-Charlton test. Provided its limitations are understood, the latter is invaluable in the early diagnosis of scarlet fever.

The Cat in the Transmission of Diphtheria—Brooks performed the Schick test on seventy cats and kittens with one twenty-fifth minimal lethal dose per cat. None of the animals showed a positive reaction. Injections of a standardized toxin, however, were found to be capable of causing death in these animals, the minimal lethal dose of diphtheria toxin for kittens being five times as great as the standard minimal lethal dose for guinea-pigs. Five cats were killed with diphtheria toxin. Four of five cats into which injections of toxin were made were protected by appropriate doses of antitoxin. It therefore appears that cats react both to diphtheria toxin and to antitoxin in the same way as do guinea-pigs. Diphtheria bacilli survived as long as twenty-four hours on the normal and scarified pharyngeal mucosae of cats and kittens. In symbiosis with the fusiform bacilli and spirochetes of Vincent's angina, diphtheria bacilli lived on the scarified pharynx for four days. The diphtheria organisms were found not to live in the nose and lungs of the kitten and the cat for longer than five days. The author has been unable to confirm the work of earlier investigators by producing in cats any condition suggesting diphtheria and to obtain growth of diphtheria organisms on the trachea of a cat, with formation of a membrane and death. He recovered the organisms from the fur of cats for three days, whereas Remlinger recovered organisms for twenty-four days. The author agrees with Savage that cats, while susceptible to parenteral injections of diphtheria toxin, are not susceptible to diphtheria. He does believe that cats may act as carriers from one to four days after exposure to diphtheria, through contamination of the rhinopharynx or fur, and that cats suffering from an infection of the pharynx with Vincent's fusiform bacilli and spirochetes are more likely to harbor and carry the diphtheria bacilli on the pharynx than are healthy cats.

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A Voice from the Past Some Remarks on Dr Bernard Sachs' Protest Against Psychoanalysis F Alexander Chicago—p 193

Spirochetes in Brains of Dementia Paralytica Patients

—Using the Jahnke method, Kopeloff and Blackman found spirochetes in the brains of six of thirty-nine dementia paralytica patients treated with malaria. Degenerate forms of spirochetes were encountered in more instances than normal forms. Three of these patients came to necropsy shortly after malarial inoculation (within six weeks). Spirochetes were found by the Jahnke and Dieterle methods in eight of ten dementia paralytica patients not treated with malaria and none were found in a normal brain. The authors, having thus established the validity of the technical procedure, state that within the limitations of the material at hand it appears that (1) artificially induced malaria is likely to destroy spirochetes in the brain of dementia paralytica patients or (2) that, failing to destroy the spirochetes completely, this form of therapy alters the morphology of Spirocheta pallida to such a degree as to render it degenerate in appearance.

Annals of Medical History, New York

5 511 612 (Nov.) 1933

- William Anderson 1748 1778 Master Surgeon Royal Navy J J Keovil London England—p 511
Johann Peter Frank and His System Finer Vollständigen Medicinischen Polizey Ieona Braumgartner and Elizabeth Mapelsden Ramsey New Haven Conn—p 525
History of Influenza Epidemics J T Townsend Charleston S C—p 533
Graefenberg and the Shepard Family's Medical School R H Turner New Orleans—p 548
The Intolerance of Great Men D B Radner Chicago—p 561
The Two Heberdens William Heberden the Elder (1710 1801) William Heberden the Younger (1767 1845) H Rolleston Haslemere Surrey England—p 566
An Introduction to History of Women in Medicine II Medical Women of Middle Ages Kate Campbell Hurd Mend Haddam Conn—p 584

Archives of Neurology and Psychiatry, Chicago

30 1193 1410 (Dec.) 1933

- Central Path of Pupilloconstrictor Reflex in Response to Light S W Ranson and H W Magoun Chicago—p 1193
Electrical Excitability and Cyto-Architecture of Premotor Cortex in Monkeys P C Bucy Chicago—p 1205
*Pericapillary Encephalorrhagia Due to Arsphenamine So Called Arsphenamine Encephalitis J H Globus and S W Ginsburg New York—p 1226
The Myth of Occipitofrontal Association Tract J Rosett New York—p 1248
*Dystrophia Myotonica Clinicopathologic Study M Keschner and C Davison New York—p 1259
Controlled Spinal Anesthesia Its Value in Establishing Appropriate Levels for Chordotomy T Fay and N Gotten Philadelphia—p 1276
*Puncture of the Cisterna Magna Modification of Ayer's Method Used More Than Five Thousand Times L H Gilman and G F Kempf Indianapolis—p 1282

- Experimental Vitamin (A B, B and B Complex) Deficiency Histologic Changes in the Central Nervous System R R Grinker and Ernestine Kandel Chicago—p 1287
Sedimentation Rate of the Blood in Schizophrenia H Freeman Worcester, Mass—p 1298
Relationship of Arterial Blood Pressure to Cerebrospinal Fluid Pressure in Man F Fremont Smith and H H Merritt Boston—p 1309
Psychopathology Plea for a More Constructive Attitude E A Strecker Philadelphia—p 1318
Reflexes from the Knee Joint A Stengel Jr E L Hammond and W P Stewart Philadelphia—p 1328
Primary Paralysis Agitans (Primary Atrophy of Efferent Striatum and Pallidum Systems) Further Consideration of a System Disease of the Paralysis Agitans Type Its Relation to Syndromes of the Corpus Striatum J R Hunt New York—p 1332

Arsphenamine Encephalitis—Globus and Ginsburg describe two cases of death caused by arsphenamine, one of which occurred in a nonsyphilitic patient. In one case the lesions were mainly perivascular hemorrhages due to rupture of the smaller capillaries, moderate reactive gliosis in response to the toxic substance which had oozed through the injured vessel wall and diapedesis. The other case was one of the acute form of disseminated sclerosis involving the cerebrospinal axis in the typical disseminated fashion. The sclerotic areas presented only degenerative alterations such as demyelination, destruction of axon cylinders and massive accumulation of compound granular cells. The absence of inflammatory lesions excluded even the remote possibility of a syphilitic process. The hemorrhagic lesions were identical with those in the first case and bore no relationship to the underlying disease, which was typical of so-called acute multiple sclerosis. The hemorrhagic lesions were unquestionably provoked by the sulpharsphenamine. In view of the changes in the brain the authors suggest that there is no justification for the use of such terms as 'arsphenamine encephalitis' or 'hemorrhagic encephalitis' and that the term 'pericapillary encephalorrhagia due to arsphenamine' is more appropriate.

Dystrophia Myotonica—Keschner and Davison report two cases of dystrophia myotonica in siblings. One was subjected to a complete histopathologic study, and in the other a biopsy of one of the affected muscles was performed. The principal pathologic observations were changes in (1) the muscles, (2) the endocrine glands (pituitary, suprarenals and testicles) and (3) the nervous system. The lesions in the nervous system consisted of (1) alterations in the ganglion cells of the lateral cell columns (sympathetic) and (2) changes in the nerve cells of the paraventricular and supra-optic nuclei. The neural lesions may possibly be regarded as retrograde degenerations. From a critical review of the necropsy observations in the cases recorded in the literature and in one of their cases it appears to the authors that the disease is one of a primary involvement of the muscles, a true muscular dystrophy (a myopathy). The histologic observations in the cases reported as well as in their case give no clue as to the cause of the myotonia, a clinical manifestation that distinguishes the disease from the other clinical varieties of muscular dystrophy.

Puncture of the Cisterna Magna—The modification by Gilman and Kempf of Ayer's method for puncture of the cisterna magna is as follows. A needle of larger gage (16), which is not very flexible and has a small hilt, with the bevel directed caudally so as to avoid skin tissues from the occiput into its lumen, is inserted into the skin in the exact midline just at the upper border of the first spinous process. If the needle is started in the exact midline at this point and directed at a point in the exact midline at the usual place for the hair line, one can in many cases slowly and steadily carry the needle into the cisterna magna without changing its course. When the needle has been passed through the skin and outer ligaments, the stylet is removed. One then gradually pushes the needle toward the cisterna, never allowing the tip to point below the eyebrows and attempting to keep it pointed as nearly as possible toward the hair line. In order to insure a steady and gradual movement of the needle and to avert its going too far when it passes through the dura, it is best to hold the needle with both index fingers and thumbs, keeping the remaining fingers against the patient's neck and head for support. As soon as the tip of the needle passes through the dura, spinal fluid appears, and with the larger needles even purulent fluid appears at once. When fluid does not appear after the proper distance has been traversed by the needle, and when it cannot

be secured with a syringe, the tap should be called a dry one and the puncture should be stopped. The authors conclude that the important points of their modified technic are (1) to locate the depression below the occiput, the mastoid process and the normal hair line, (2) to start and to keep the needle in the exact midline, (3) to keep the bevel directed caudally and to remove the stylet as soon as the needle has passed through the outer tissues, (4) to hold the needle with both thumbs and forefingers and to steady both hands against the neck and head of the patient and (5) to start the needle low (just above the epistropheus).

Arkansas Medical Society Journal, Fort Smith

30 121 142 (Nov.) 1933

- Enucleation Indications and Contraindications R Caldwell and R J Calcote Little Rock—p 121
Forceps Their Indications Contraindications Uses and Abuses G K Sims Harrison—p 125
*Major Surgical Operation on Case of Myasthenia Gravis G B Fletcher and J S Stell Hot Springs National Park—p 129

Operation on Patient with Myasthenia Gravis—Fletcher and Stell report a case of myasthenia gravis in which a major surgical operation has been performed. The patient, shortly after the birth of her third child, noticed some weakness of the right hand and arm. Later there developed mask-like facies, typical muscular weakness (especially toward the end of the day), mild ophthalmoplegia, difficult deglutition, huskiness of the voice and what she refers to as occasional asthmatic symptoms, which, as a matter of fact, were probably due to involvement of the respiratory muscles. She was placed on ephedrine sulphate from 3 to 8 grains (0.2 to 0.5 Gm) twice a day and showed marked improvement. Three years after the birth of the child the patient stated that she was much better than when she began the use of ephedrine sulphate but still had difficulty toward the end of the day, especially in swallowing, in talking and in the use of the larger groups of muscles. There was a tendency for mucus to accumulate in the throat and she was unable to close the eyelids entirely, there was a mask-like expression, an inability to whistle and to smile and a tendency for the corners of the mouth to turn upward. There was weakness of the right arm and hand power being 30 Kg right and 65 Kg left, the weakness being especially on the ulnar side of the hand, giving somewhat the appearance of the so-called benediction hand. The right mid-arm was about one half inch smaller than the left. Pelvic examination showed the uterus to be in a state of rather marked retroflexion and the cervix showed a deep "alligator mouth like" tear. The vaginal canal showed a tear and the patient complained of marked vaginal discharge. A hysterectomy was performed under spinal anesthesia through an abdominal incision. The intention was to repair the vaginal tear also, but it was thought advisable not to subject her to more than the hysterectomy at this time. She went through the operation well and the ephedrine was increased temporarily to three times a day. Twelve days after the hysterectomy the patient was given 15 Gm of glycine two times a day. Convalescence was uneventful. She no longer complains of the so called asthmatic attacks and feels that these began to disappear shortly after she began the ingestion of glycine. The tendency for mucus to accumulate in the throat is not so much in evidence. The vaginal discharge has almost disappeared.

California and Western Medicine, San Francisco

39 289 360 (Nov.) 1933

- Care of the Indigent and Semi-Indigent Sick Report on Alameda County Plan G G Reinle Oakland—p 289
Spinal Anesthesia Its Technic Records and Results L H Maxson Seattle—p 292
Reflections Concerning Neuropsychiatry C L Allen Los Angeles—p 298
Hypersensitivity of the Skin to Light L R Taussig San Francisco—p 301
Tuberculous Cavities Their Significance Prognosis and Treatment C R Howson Los Angeles—p 302
Pregnancy as a Complication of Heart Disease Ina M Richter and J F Rickard San Francisco—p 306
Clinical Tetanus Study of One Hundred and Thirty One Cases H I Vener A G Bower and J E McKillop Los Angeles—p 309
Commitment Law in California and Elsewhere G Myers Los Angeles—p 313
Asthma in Childhood H Miller and C Pine Los Angeles—p 319
Diphtheria Immunization Julian Kestla Los Angeles—p 322

Canadian Public Health Journal, Toronto

24 505 554 (Nov.) 1933

- Evolution of Tuberculosis Control in Saskatchewan F C Middleton, Regina Sask—p 505
Epidemic of Encephalitis at St Louis Mo 1933 N MacL Harris, Ottawa, Ont—p 514
Progress of Immunization Against Diphtheria in Ontario A L McKav Toronto—p 518
Survey of Hearing in School Children Ruth C Partridge and D L MacLean Toronto—p 524
Sex Differences in Mortalities of Childhood and Adult Life J Wylie Kingston Ont—p 530

Johns Hopkins Hospital Bulletin, Baltimore

53 229 296 (Nov.) 1933

- *Late Congenital Syphilis Study of Results of Treatment in Two Hundred and Sixty Seven Patients F R Smith Jr Baltimore—p 231
Fetal Blood Studies IV Oxygen and Carbon Dioxide Dissociation Curves of Fetal Blood N J Eastman, E M K Geiling and A M DeLawder, Baltimore—p 246
Clinical Features of Contracted Kidney Due to Pyelonephritis W T Longcope and W L Winkenwerder, Baltimore—p 255
Passage of Arsenic Through the Human Placenta Following Arspenamine Therapy N J Eastman and A L Dippel, Baltimore—p 288

Late Congenital Syphilis—Smith presents a study of constitutional factors in 462 patients with late congenital syphilis and the results of treatment in 267 of these patients who were observed for more than two years. The data indicate that the clinical arrest of late congenital syphilis, with or without obvious lesions, unless the nervous system is involved may be accomplished with as little as six months of antisyphilitic treatment with an arsphenamine and a heavy metal, that the clinical results are the same regardless of whether the Wassermann reaction becomes negative or not, and that the optimal amount of treatment depends largely on the disappearance of clinical signs and symptoms, varying between six months and three years. The response of the blood Wassermann reaction may be completely disregarded as a guide to the type of treatment or to its duration.

Journal of Bacteriology, Baltimore

26 431 542 (Nov.) 1933

- Studies on Agar Digesting Bacteria H E Goresline, Ames Iowa—p 435
*Destruction and Survival of Micro-Organisms in Frozen Pack Foods J A Berry Seattle—p 459
Improved Method of Obtaining Surface Colonies of Anaerobic Bacteria J R Reeves Indianapolis—p 471
Utilization of Certain Sugars and Their Derivatives by Bacteria S A Koser and F Saunders Chicago—p 475
Study of Some of the Factors Promoting Dissociation of Bacterium Dysenteriae Sonne R B Dienst Chicago—p 489
*Study of Variation in Hemolytic Streptococci from Scarlet Fever and Erysipelas Preliminary Report Sophie Spicer assisted by Mary F Gonsiorek and Emily L Spicer New York—p 505
Dissociation of Encapsulated Bacteria Hazel E O Neal Baltimore—p 521
Device to Facilitate and Accelerate Uniform Distribution of Inoculum Over the Surface of Poured Plates R Thompson Montreal—p 539

Micro-Organisms in Frozen Pack Foods—Berry presents data showing a decrease of approximately 40 per cent in micro-organisms on blackberries stored in airtight and non-airtight containers for thirteen months at -20°C , of 99 per cent at -10°C and in airtight containers only, of over 99 per cent at -2°C . Also with strawberries a decrease of 60 per cent in micro-organisms has been shown in both airtight and non-airtight containers stored four months at -20°C , of 89 per cent at -10°C and -7°C , and in airtight containers only, of 94 per cent at -4°C . With raspberries stored fourteen weeks the decrease was 61 per cent at -20°C , from 95 to 97 per cent at -10°C and -7°C and 99 per cent in airtight containers only, at -4°C . Possibly the greater respiratory activity of raspberries is reflected in these percentages. No significant microbiologic differences have been noted between sealed containers and partly vacuumized containers stored at the same temperature. Studies on the fate of micro-organisms in artificial mediums at various freezing temperatures have been recorded and indicate that the death rates in such are not comparable to those when the medium is fresh fruit. It has been suggested that carbon dioxide from respiration of the fruit is responsible for the high death rates at -10°C and -27°C and when the container is airtight, at -4°C and -2°C . The author presents the growth of *Cladosporium* species at -2°C ,

and of *Oidium* and torula species at -4°C on small fruit in non-airtight containers and the evidence that lactobacilli and to a lesser extent "colon" organisms persist in peas for at least two years at -10°C and "colon" organisms in string beans and spinach at -10°C for at least nineteen months and ten months, respectively. It has been further noted that bacteria, presumably of the *Pseudomonas* genus, will increase in peas stored at -4°C . The author compared the effect on *Saccharomyces* species of a temperature of -10°C , when the medium remains liquid with the effect at -10°C when the same medium freezes and presents figures showing the destructive effect of the formation of ice on the test organisms.

Variation in Hemolytic Streptococci—Spicer discusses the morphologic, cultural, biochemical and immunologic phases in the dissociative processes, both spontaneous and induced, of seven strains of hemolytic streptococci from scarlet fever and erysipelas cases. These strains are stock strains of known types that have been worked with before and of known physiologic and serologic characteristics (Williams and Gurley, 1927). They are type strains, representative of four scarlet fever groups and three erysipelas groups into which most of the strains fall by the agglutination absorption reaction. Of the seven strains under study, four yielded spontaneous dissociation (two of scarlet fever and two of erysipelas) while, from the remaining three strains variants were obtained by induced dissociation (two of scarlet fever and one of erysipelas).

Journal of Experimental Medicine, New York

78 513 648 (Nov. 1) 1933

- *Comparative Study of Recently Isolated Human Strains and a Passage Strain of Poliomyelitis Virus. J. R. Paul and J. D. Trask. New Haven Conn.—p. 513
- Neutralizing Antibodies in Abortive Poliomyelitis. J. D. Trask and J. R. Paul. New Haven Conn.—p. 531
- Further Studies on Hypophyseal Substance Giving Increased Conadotropic Effects When Combined with Prolan. H. M. Evans, Miriam E. Simpson and P. R. Austin. Berkeley, Calif.—p. 545
- Recognition and Comparison of Prolan and Prolan-Like Substances. H. M. Evans, Miriam E. Simpson and P. R. Austin. Berkeley, Calif.—p. 561
- Concentration of Gonadotropic Hormone in Pregnant Mares Serum. H. M. Evans, E. L. Gustus and Miriam E. Simpson. Berkeley, Calif.—p. 569
- Cultivation of Monocytes in Fluid Medium. Lillian E. Baker. New York.—p. 575
- Production in Dogs of Chronic Black Tongue with Anemia. C. P. Rhoads and D. K. Miller. New York.—p. 585
- Infectious Papillomatosis of Rabbits. R. L. Shope with note on histopathology by E. W. Hurst. Princeton, N. J.—p. 607
- Immunologic Study of Native Denatured and Reversed Serum Albumin. B. F. Miller. Boston.—p. 625
- *Further Observations on Cultivation of Vaccine Virus for Jennerian Prophylaxis in Man. T. M. Rivers and S. M. Ward. New York.—p. 635

Isolated Human Strains and Poliomyelitis Virus—Paul and Trask confirm the qualitative differences that exist between so-called human and passage strains of poliomyelitis virus by the following observations: 1. The experimental disease induced by two human strains usually failed to protect monkeys against a subsequent infection by a passage strain, and in the few instances in which the reverse experiment could be tried a similar lack of protection was observed. 2. In some human serums the neutralizing power for a human strain differed qualitatively from the neutralizing power for a passage strain. The time interval between the intracerebral inoculation of heterologous strains has been found to be an important factor bearing on the results of the reinoculation experiments reported. Within the intervals used the greater the period between the original infection and the reinoculation with a heterologous strain, the less was the degree of cross immunity observed.

Cultivation of Vaccine Virus for Jennerian Prophylaxis—Rivers and Ward passed a dermal strain of vaccine virus through ninety-nine successive culture passages. This procedure led to a diminution in the pathogenicity of the active agent for the rabbit. By repeated testicular passages in rabbits the virus regained its pathogenicity for that host. New cultures were initiated with the revived virus. A culture strain of virus that has been twice revived in this manner has remained fairly stable for the rabbit through sixty cultural passages and it produces mild, yet effective, vaccinal reactions in man. Virus in early cultures was not attenuated for man, but later cultures of the original strain and cultures of the second and

third revived strains produced mild reactions without fever and discomfort to the patients. Intradermal vaccinations with the culture virus are safe and satisfactory. With the culture virus 118 infants and children have been inoculated, and in 100 of them a positive reaction occurred. The culture virus produced a refractory state to a standard dermal strain of calf lymph and vice versa. Culture virus stored in 50 per cent neutral glycerin at -10°C or at $+3^{\circ}\text{C}$ maintained a considerable amount of its activity for at least one year. Desiccated culture virus sealed in tubes maintained some of its activity when stored at 37°C for five weeks. Fresh cultures can be initiated without difficulty from desiccated virus or from virus that has been stored with or without glycerin.

Journal of Industrial Hygiene, Baltimore

15 395 492 (Nov.) 1933

- Mortality Experience of an Occupational Group Exposed to Silica Dust Compared with That of the General Population and an Occupational Group Exposed to Dust Not Containing Silica. E. I. Collis. Cardiff, Wales, and G. U. Yule. Cambridge, England.—p. 395
- Some Cases of Carbon Tetrachloride Poisoning in Connection with Dry Shampooing and Dry Cleaning with a Survey of the Use and Action of the Substance. K. O. Møller. Copenhagen, Denmark.—p. 418
- Health Aspects of Radium Dial Painting. III. Measurements of Radioactivity in Workers. J. E. Ives, F. L. Knowles and R. H. Britten. Washington, D. C.—p. 433
- Id. IV. Medical and Dental Phases. L. Schwartz, F. C. Makepeace and H. T. Dean. Washington, D. C.—p. 447
- Experimental Inhalation of Bituminous Coal Dust and Its Effects on Primary Tuberculous Infection in Guinea Pigs. L. U. Gardner, D. E. Cummings and G. R. Dowd. Saranac Lake, N. Y.—p. 456
- Time Limitation in Compensation for Industrial Diseases. May R. Myers. New York.—p. 466
- Bureau of Mines Approved Devices for Respiratory Protection. W. P. Yant. Pittsburgh.—p. 473

Radium Dial Painting—Schwartz and his associates examined 242 persons exposed to radium and thirty-one girls who were not exposed to it. There was evidence of the accumulation of radioactive material in the bodies of radium dial painters and other radium workers, not only in those who were exposed to radium for more than two and a half years but also in those who were exposed less than this time. No indication of the presence of radium was noted in the controls. Roentgenograms of the alveolar regions of workers exposed to radium for two and a half years or less did not indicate any bone changes that could not be attributed to dental causes. On the other hand, red cell and hemoglobin determinations showed, on the average, a slight tendency to be lower in this group than among the controls. It is therefore felt that the abolition of pointing the brush with the mouth and other changes in practice which may have been introduced at the same time have not entirely solved the problem of radium deposition in the bodies of radium workers in the dial painting industry. Determinations of radioactivity of the dust in the air of the workrooms and of the radon in the air suggest that the inhalation of radioactive material is a factor as well as the ingestion. In making suggestions for preventing radium poisoning the authors have had in mind extreme cleanliness in the factory, thorough personal cleanliness of the workers and adequate ventilation, both general and local.

Journal of Nervous and Mental Disease, New York

78 453 580 (Nov.) 1933

- *Encephalography in Abnormal Mental States with Diabetes Insipidus. P. G. Schube. Boston.—p. 453
- Concerning Striatal Localization in Chronic Progressive Chorea. Report of Three Cases. Two of the Huntington Type in Siblings and One Senile Arteriosclerotic with Necropsies. M. Neustaedter. New York.—p. 470
- *Tumors Involving Gasserian Ganglion. I. Cohen. New York.—p. 492
- Mental Aspects of Brain Tumors in Psychotic Patients. Study of Twenty Six Verified Cases. G. R. Jameison and G. W. Henry. White Plains, N. Y.—p. 500

Encephalography in Abnormal Mental States—Schube reports the cases of three persons presenting neuropsychiatric problems in whom diabetes insipidus was observed after the patient had been admitted to the hospital. One was diagnosed as schizophrenia with diabetes insipidus, one as epileptiform seizures probably organic with diabetes insipidus, and the other as mental retardation probably organic, with diabetes insipidus. Two of the patients were relieved of their diabetes insipidus.

immediately following encephalography. Alleviation of the symptoms of diabetes insipidus has not heretofore been reported as the result of the encephalographic procedure, but there have been reports of the relief of this symptom complex by means of lumbar spinal puncture with the removal of a few cubic centimeters of spinal fluid. Herrick, Graham, Cammidge, Tucker and King each reported a case in which diabetes insipidus was cured by lumbar puncture. The procedure in one of the author's cases alleviated the symptoms of the diabetes insipidus but accentuated the abnormal mental state, in the second case it alleviated both the diabetes insipidus and the abnormal mental state, and in the third case the diabetes insipidus and the abnormal mental state remained unchanged.

Tumors Involving the Gasserian Ganglion—Cohen removed successfully a tumor of the gasserian ganglion in a woman of 32 whose chief complaint was headache and loss of vision, and who under an observation of six weeks began to complain of severe pain in the face and with the pain developed a hypesthesia going on to anesthesia of the fifth nerve. At operation the author removed a meningioma springing widely from the dura of the middle fossa extending from the clinoids laterally. The patient recovered normal sensation and has had no symptoms referable to her fifth nerve in the three years since the operation. In spite of the fact that in the history of the patient's illness pain is conspicuous, it never seemed a prominent feature during her preoperative observation. Sedatives were rarely required. A widening of the sphenoidal fissure as was shown roentgenologically has not, to the author's knowledge, been noted before in such a tumor. It was one of the factors in leading to a wrong preoperative diagnosis. A unilateral exophthalmos was another feature that seemed to point to a meningioma probably arising from the sphenoidal ridge. While an extradural approach would have been made had the nature of the lesion been suspected, the intradural method did not add to the difficulties of the operation. It made, in fact, the exposure of the mesial limits of the tumor easier.

Michigan State M. Society Journal, Grand Rapids

32 573 636 (Nov.) 1933

- Treatment of Peritonitis Associated with Appendicitis E. B. Potter and F. A. Collier Ann Arbor—p. 573
New Method for Study of Retinoscopy R. N. Monfort Wolverine—p. 577
Pure Crystalline Carbonate Urinary Calculi Case Report G. C. Burr and W. R. Flora Detroit—p. 579

New England Journal of Medicine, Boston

209 1033 1084 (Nov. 23) 1933

- *Abdominal Symptoms With or Without Abdominal Lesions in Diabetic Acidosis I. S. McKittrick Boston—p. 1033
Diseases of Biliary Tract: Diagnosis and Treatment Medical Aspects R. Fitz Boston—p. 1037
Id. Roentgen Examination of the Gallbladder G. W. Holmes Boston—p. 1039
Id. Surgical Aspect of Diseases of Biliary Tract A. T. Bazin, Montreal—p. 1042
Use of Benzyl Methyl Carbinamine Carbonate in Treatment of Rhinitis H. V. Byrne, Boston—p. 1048
Agranulocytosis G. Fitz Hugh Boston—p. 1051
Id. Report of Three Cases Treated with Nucleic Acid Derivatives W. Dameshek Boston—p. 1054
Needle Holder for Blood Transfusion and Intravenous Therapy W. B. Christie Boston—p. 1062
Treatment of Amebic Dysentery R. P. Strong Boston—p. 1071

Abdominal Symptoms in Diabetic Acidosis—McKittrick studied cases reported in the literature, reviewed the records of the diabetic coma cases at the Massachusetts General Hospital and observed the large series of cases placed at his disposal through the courtesy of Joslin. The histories of emergency operations in diabetic patients under his own personal observation have been studied in detail. The observations in postmortem examinations of patients who have died in coma have also been utilized. On the basis of these observations the author concludes that one is justified in saying that a history of malaise, drowsiness, vomiting and diffuse abdominal pain associated with widespread tenderness and spasm is so suggestive of diabetic acidosis without demonstrable intra-abdominal pathologic changes that operation should not be done unless the abdominal symptoms persist after three or four hours of adequate insulin treatment. Conversely, a history of

abdominal pain with or without vomiting, when associated with localized and definite abdominal tenderness, usually with spasm, is suggestive of a surgical lesion within the abdomen in the patient with diabetic acidosis, just as it is in the nondiabetic patient, and may be an indication for immediate operation. In that rare case, in which definite differentiation is impossible and yet imperative, it may be safer to open the abdomen under local anesthesia than to suffer further delay.

Benzyl-Methyl-Carbinamine-Carbonate in Treatment of Rhinitis—Byrne treated fifty-one cases of rhinitis with benzyl-methyl-carbinamine-carbonate. The results obtained in the treatment of vasomotor rhinitis (hay fever) and acute rhinitis were encouraging. There was definite proof, in this type of case, that the amount of secretion was diminished, the subjective itching and feeling of fullness relieved and decongestion of the mucous membrane accomplished. The results obtained by using the drug in patients having sinusitis were poor and, in certain instances, increased rather than diminished the severity of the symptoms. The drug should be used after a careful examination of the nose has been made by a competent rhinologist and the character and cause of the rhinitis determined. The drug should be prescribed with careful directions. The ease of administration (inhalation) of the drug recommends itself to the ambulatory patient and tends to make more certain the patient's use of the material.

Treatment of Amebic Dysentery—Strong states that the treatment of amebic dysentery should receive careful supervision. During the acute stages, the patient should be kept in bed. If bowel movements are numerous, only liquid diet should be allowed. In general the diet should be regulated according to the frequency and character of the stools and should be bland in all cases. Emetine, he says, is the standard drug for specific treatment. It should be given during the acute stages of the disease in doses (for adults) of 1 grain (0.065 Gm.) of emetine hydrochloride dissolved in 1 cc. of distilled water, either by hypodermic or by intramuscular injection, this dose being continued for a week to ten days, or even twelve days if special susceptibility to the drug is not manifested. Such treatment in a number of cases does not cause complete eradication of the infection, and if amebas are still present in the feces it should be supplemented by a second course of treatment with the double iodide of emetine and bismuth (emetine bismuth iodide), containing about 26 per cent of emetine. Doses of 3 grains (0.2 Gm.) of this preparation should be given by mouth for ten or twelve consecutive days. In cases of peripheral neuritis occurring after treatment with emetine, the symptoms are usually general muscular pains and weakness, especially in the legs, progressing sometimes to paresis. Wrist drop and toe drop may occur. These symptoms, however, usually disappear gradually with the stopping of emetine. In six of twenty cases of poisoning from the use of emetine collected from the literature, less than 10 grains (0.65 Gm.) was given. All recovered except one patient who received daily subcutaneous injections of 1½ grains (0.1 Gm.) of emetine hydrochloride for twenty days, a total of 29 grains (1.9 Gm.). Diarrhea also may be an important symptom of emetine poisoning. Many cases of amebic dysentery, particularly those presenting advanced lesions, do not yield to treatment with emetine, therefore amebic dysentery should be treated early and symptoms of relapse should have prompt and careful attention.

New York State Journal of Medicine, New York

33 1307 1364 (Nov. 15) 1933

- Observations on Deposition of Liver Fat in Normal and Diabetic Animals C. H. Best Toronto—p. 1307
Pathology of Icterus P. Klempner New York—p. 1309
Significance of Liver Function from Surgeon's Standpoint C. G. Heyd New York—p. 1317
Personal Impressions in Treatment of a Few of the Commoner Invertebrate Diseases of the Skin F. Wise New York—p. 1321
Some Personal Impressions of Present Day Syphilotherapy J. H. Stokes Philadelphia—p. 1324
Infestation of Vagina by Trichomonas Vaginalis Clinical Features Diagnosis and Treatment J. J. Berkowitz New York—p. 1328
A Year's Activities of the Bronx County Medical Society W. Klein New York—p. 1330
Treatment of Carcinoma of the Fundus T. P. Farmer, Syracuse—p. 1332

Ohio State Medical Journal, Columbus

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- Acute and Chronic Intussusception C W Mayo Rochester Minn —p 693
 Economic Status of Public Health Administration H G Southard Columbus —p 695
 Penetrating Wound of Heart and Lung with Successful Surgical Removal of Foreign Body B J Dreiling Youngstown —p 698
 General Paralysis and Malarial Treatment F I Rhodes Massillon —p 700
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Philippine Journal of Science, Manila

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- Experimental Inquiry into Transmission of Rat Bite Fever Among Rats Part I S Arima Manila —p 89
 Studies on Weights of Visceral Organs in Filipinos P I de Jesus and W de Leon Manila —p 97
 Normal Weights of Visceral Organs in Filipino Children P I de Jesus W de Leon and P Anzuers Manila —p 99
 Normal Weights of Visceral Organs in Adult Filipinos W de Leon A Garcia and P I de Jesus Manila —p 111
 Normal Weights of Visceral Organs in Filipinos in Relation to Length and Body Weight P I de Jesus, W de Leon and J M Ramos Manila —p 119

Public Health Reports, Washington, D C

48 1389 1416 (Nov. 17) 1933

- Acute Response of Guinea Pigs to Vapors of Some New Commercial Organic Compounds H H Dichloroethyl Ether H H Schrenk I A Patty and W P Yant —p 1389

Radiology, St Paul

21 411 512 (Nov.) 1933

- Encephalography Review of One Hundred and Thirteen Cases and Report of Postmortem Studies on the Injection of Air R S Stone and O W Jones Jr San Francisco —p 411
 Methods of Roentgen Treatment in Carcinoma of the Breast Report of Two Hundred and Ten Cases F A May Newark N J —p 420
 Pleural Calcification Calcification of Entire Parietal Pleura Report of Case H A Hill New Haven Conn —p 431
 Effect of X Rays on Vitamin B Content of Wheat Seedlings K Sugiura New York —p 438
 *Decholin Sodium in Cholecystography I R Jankelson and W S Altman Boston —p 448
 Improved Method of Charting Patients for Deep Roentgen Therapy T P Loughery and W R Stecher Philadelphia —p 454
 Angiogramography E Conte and A Costa Turin Italy —p 461
 Acne Vulgaris from Radiologic Standpoint B H Sherman Hollywood Calif —p 465
 Practical Application of Cholecystography H Hauser Cleveland —p 472
 Study of Motor Phenomenon of Mediastinum in Infants and Children with Particular Reference to Hyperplasia of Thymus C K Hasley Detroit —p 477

Sodium Dehydrocholate in Cholecystography—Jankelson and Altman present an analysis of ninety-eight consecutive cases of cholecystography with the aid of sodium dehydrocholate. The technic used is as follows: The evening preceding the roentgen examination, the patient is given a light meal and two hours later the dye (tetraiodophenolphthalein) is given by mouth. If the patient is particularly distressed, sodium bicarbonate may be taken. Ordinarily neither food nor liquids are given to the patient for the next fourteen hours until the roentgen plates are taken, then 10 cc of a 20 per cent solution of sodium dehydrocholate is administered intravenously whether or not the roentgenograms taken fourteen hours after the oral administration of the dye reveal the gallbladder shadow. Further roentgenograms are taken forty-five minutes later. If the gallbladder shadow is demonstrated on the roentgenograms after the intravenous injection of sodium dehydrocholate, the patient is given a fat-protein meal and other roentgenograms are taken two hours later. The radiographic technic used was worked out painstakingly, so that all roentgenograms in the individual case were taken with the same kilovolt peak, the same plate-target distance and the same length of exposure. In the absence of serious pathologic changes of the liver failure to demonstrate an increase in the size of the outline of the gallbladder within forty-five minutes after the administration of sodium dehydrocholate is evidence that the gallbladder has lost its normal capacity to enlarge with the ingress of bile. Some diverticula and adhesions about the gallbladder are better demonstrated after the administration of sodium dehydrocholate. Sodium dehydrocholate seems to be of little value in indicating stones within the gallbladder.

Southwestern Medicine, Phoenix, Ariz

17 399 440 (Dec.) 1933

- Upper Obstructive Uropathy and Problems It Presents A W Multhaupt El Paso Texas —p 399
 Open Reduction of Complicated Fractures of Long Bones F C Goodwin El Paso Texas —p 403
 Choice of Treatment of Fibroids of the Uterus J T Moore Houston Texas —p 406
 Exophthalmic Goiter Diagnosis and Management J W Hendrick Amarillo Texas —p 413
 Surgical Treatment of Pulmonary Cavities in Tuberculosis V Randolph Phoenix Ariz —p 418
 Use of Drugs in Treatment of Heart Failure P T Bohan Kansas City Mo —p 424

Tennessee State Medical Assn Journal, Nashville

26 509 556 (Dec.) 1933

- Epidemic Amebic Dysentery J Witherspoon Nashville —p 536
 Dermatitis C M Hamilton Nashville —p 539

Texas State Journal of Medicine, Fort Worth

29 417 478 (Nov.) 1933

- Responsibility of Official and Nonofficial Agencies in Control of Tuberculosis E Mendenhall Dallas —p 421
 Treatment in Control of Tuberculosis H F Carman Dallas —p 423
 Resume of the Study of Childhood Tuberculosis in Texas Elva A Wright Houston —p 426
 Childhood Tuberculosis Its Prevalence and Infectivity in Southwestern Community Preliminary Report J G Young Dallas —p 429
 Therapeutic Abortion Indications and Methods W C Tenney Waco Texas —p 432
 The Mother After the Baby Arrives W W Maxwell San Antonio —p 436
 Penetrating Wounds of Chest in Civil Life P H Duff Dallas —p 438
 X Ray and Diathermy Treatment of Prostatitis and Hypertrophied Prostate S D Whitten Greenville —p 442
 X Rays as Aid in Treatment of Some Chronic Conditions J W Torbett Marlin —p 444
 Neurofilom of Orbit in Recklinghausen's Disease E M Sykes San Antonio —p 447
 Iris Inclusion Operations in Glaucoma F W Griffey and E L Goar Houston —p 450
 External Eye Findings in Systemic Disease I C McGee Dallas —p 453
 Correction of Strabismus J D Walker Houston —p 455
 The Family Physician B I Jenkins Clarendon —p 459
 Industrial Value of Medicine in San Antonio C S Venable San Antonio —p 462

Western J Surg, Obst & Gynecology, Portland, Ore

41 605 662 (Nov.) 1933

- Digest of Statistics on Appendicitis with Deductions Therefrom P S Campiche San Francisco —p 605
 *Calcium (Psammoma) Bodies in Fallopian Tubes and the Ovary W M Wilson Portland Ore —p 614
 Cystine Renal Calculus Report of Two Surgical Cases W Walters and K B Castleton Rochester Minn —p 622
 Peripheral Nerve Lesions Their Treatment and Prognosis B B Newbarr and F D Newbarr Los Angeles —p 628
 Relationship of Blood Supply and Lymphatic Drainage of Sigmoid and Rectum to Surgical Procedures K E Smiley Los Angeles —p 635
 Prevention of Remote Sequelae of Pregnancy Importance of Prolonged Postpartum Check Up F B Zener Portland Ore —p 640

Calcium (Psammoma) Bodies in Fallopian Tubes—According to Wilson calcium (psammoma) bodies are not infrequently present in chronic inflammatory and neoplastic diseases of the fallopian tubes and ovaries. The bodies occasionally form serosal tubercles, which are macroscopically indistinguishable from those commonly observed in tuberculous salpingitis. They also form microscopic lesions which are erroneously thought by some clinicians and pathologists to be tuberculous or posttuberculous in character. This error may explain the high incidence of tuberculous salpingitis reported by some hospitals and clinics. The genesis of psammoma bodies in the adnexa is unknown. The chemical composition of the bodies suggests that they may be explained on the basis of an altered tissue metabolism, which results in a precipitation of the lime salts normally present in all tissue juices. The author reports a case that presents a rare histologic picture (sections of a fallopian tube) which is generally unfamiliar to clinicians and pathologists and does not appear in the current literature dealing with pathologic conditions of the adnexa. Every section of the tube contained numerous concentrically laminated foreign bodies many of which resembled the sectional remains of intestinal parasites.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

17 641 704 (Nov.) 1933

- Intra Ocular Color Filters of Vertebrates G L Walls and H D Judd —p 641
Ciliary Muscle and Descemet's Membrane H de Villiers —p 675
Diagnosis of Iridociliary Tuberculosis H Lagrange —p 679

British Journal of Physical Medicine, London

8 101 116 (Nov.) 1933

- Short Wave Therapy A Compere —p 101
Rationale and Technique of Treatment by Graduated Muscular Contractions M Smart —p 104
Fibrositis and Panniculitis P W McKeag —p 107

British Medical Journal, London

2 905 954 (Nov. 18) 1933

- Human Tuberculosis of Bovine Origin W G Savage —p 905
Renal Aspects of Essential Vascular Hypertension (Hyperpiesta of Clifford Allbutt) W W D Thomson —p 910
Psittacosis: Report on Two Cases E J Pye Smith and D Guest serologic note by S P Bedson —p 914
*Chorionic Carcinoma W Salisbury —p 916
*Treatment of Severe Cases of Fractured Nasal Bones A B K Watkins —p 917

Chorionic Carcinoma—Salisbury reports a case of chorionic carcinoma, following a hydatidiform mole, in which there had not been recurrence five years after operation. He was of the opinion that the bleeding came from a chorionic carcinoma and not from the retained products, so that he decided not to risk further hemorrhage or dissemination by exploring the cavity but to perform a hysterectomy as soon as the patient's condition permitted. Under a general anesthetic the vagina was swabbed out with violet green the cervix closed with a mattress suture and the abdomen opened by a subumbilical incision. The uterus was about the size of an eight weeks pregnancy, there was no sign of growth on its peritoneal surface or invading the broad ligaments or glands, nor were there any metastases in the abdomen. An ordinary panhysterectomy was performed including the fallopian tubes. Recovery was uneventful and the patient was discharged to a convalescent home on the fifteenth day. The uterus contained a soft, dark red ovoid growth measuring 3 by 1.8 by 1.4 cm, and arising in the posterior wall of the body, its lowest point was 1 cm above the internal os. It protruded into the uterine cavity and was in part covered with mucous membrane at its center it invaded the uterine wall for half its thickness. No vesicles of the preceding mole were present. Microscopic examination showed the structure of a chorionic carcinoma. The muscular wall was infiltrated with large cells from Langhans' layer. There were some small syncytial masses and there appeared to be one formed chorionic villus. There was a large amount of blood among the cell masses. The patient is perfectly well and free from all signs of recurrence five years after the operation and has gained slightly in weight.

Treatment of Fractured Nasal Bones—Watkins describes a method for the treatment of fractured nasal bones based on a splint described by Carter. The author first modified the splint by substituting U-shaped metal splints for Carter's straight intranasal splints one limb of the splint being inserted so that when traction is taken from the part of the limb outside the nose opposite the middle of the nasal bone the effect is the same as if short intranasal splints were used and traction were taken from the middle of them. In order that the splint should not work in farther or work out when tension was applied it was found essential that such tension should be applied exactly at right angles to the axis of the nasal bone. This is obtained by adding a mast the effective length of which can be varied from the forehead to the apex of the splint. Grooves are cut on the mast and a silk thread from each U splint is tied to its fellow on the opposite side over the correct groove in the mast in such a way that the direction of the pull is at right angles to the nasal bones. The bases of the splint are fitted with thick rubber tubing and are used only for counterpressure on the face. When wounds are present

they are avoided by adjusting the distance between these rubbers with a milled screw. If, during treatment, the silk threads need only slight tightening, this is effected by adjusting the screw to narrow the angle between the two sides of the splint. The forehead piece of the splint is padded with a flat piece of rubber and kept in place with a band of adhesive strapping round the head. Nasal respiration is possible during treatment. The splint is left in about four days, though at any time it may be removed (all except the mast) for the dressing of wounds and the use of douches, and it can readily be reapplied. Adjustments may be slackened after this period and recurrence of deformity watched for. If none occurs the splint is removed, otherwise it is replaced. Treatment varies from a few days up to about three weeks.

Clinical Science, London

1 1 158 (July 21) 1933

- *Physiologic Activation of Insulin H P Himsworth —p 1
Pain Derived from Skin and Mechanism of Its Production T Lewis and W Hess —p 39
Clinical Observations on Two Pure Glucosides of Digitalis Digoxin and Digitalinum Verum E J Wayne —p 63
Observations on Mechanism of Headache Produced by Histamine G W Pickering in collaboration with W Hess —p 77
*Observations on Angina of Effort E J Wayne and L B Laplace —p 103
Chloride and Urea Excretion as a Measure of Functional Activity of Healthy and Diseased Kidneys F H Smirk —p 131

Physiologic Activation of Insulin—Himsworth investigated the effect of high carbohydrate and high fat diets on hyperglycemia after the ingestion of 50 Gm of dextrose and on the rate of depression of the blood sugar after a standard dose of crystalline insulin. Simultaneous curves in capillary and venous blood have been obtained after the oral administration of dextrose. After an intravenous injection of crystalline insulin, a short latent period occurred in which there was no detectable action of insulin on the blood sugar. This was succeeded by a period in which insulin manifested its action with increasing velocity. After a period on a high carbohydrate diet the oral administration of dextrose was followed by a lower and less prolonged hyperglycemia and an earlier development of the venous step, and the injection of a standard dose of insulin was followed by a shorter latent period and a more rapid rate of fall of the blood sugar than when the subject was taking a high fat diet. The same results were obtained when doses of dextrose were given to a subject prior to investigation. The author concludes that the administration of carbohydrate stimulates the production of the unknown "insulin-kinase" and discusses the association of disease or injury of the liver with the development of insulin activity.

Observations on Angina of Effort—Wayne and Laplace observed for more than a year eleven patients in whom effort alone induced attacks of anginal pain. The amount of such exercise in successive control tests, was found to be constant in any one case. The appearance and disappearance of pain was unrelated to the height of the blood pressure, but in most cases a relation to the heart rate could be shown. In four patients who received atropine it caused a diminution in the amount of exercise required to produce pain and the attack was prolonged. Pressure on the carotid sinus diminished the duration of pain. The inhalation of amyl nitrite reduced the duration of pain but its disappearance showed no relation to the fall in blood pressure. After glyceryl trinitrate, which in all but two cases increased the exercise tolerated, pain often arose at blood pressures no higher than normal. Erythrol tetranitrate increased the amount of exercise tolerated in only three subjects, although the pulse and blood pressure were usually considerably affected. In one, both amyl nitrite and glyceryl trinitrate prolonged the pain. In two of four patients, all of whom had responded well to glyceryl trinitrate, intravenous theophylline ethylenediamine gave only a slight increase in the amount of exercise that could be taken before pain arose. Prolonged rest in bed had a more favorable influence on the amount of exercise tolerated in cases of recent onset than in those of longer standing. The authors' results are consistent with the view that anginal pain is due to a relative myocardial ischemia. The rise in heart rate which is more important than the raised blood pressure, increases the energy

expenditure of the heart without a concomitant increase in the coronary flow. The beneficial action of the nitrites in angina of effort is due to dilatation of the coronary vessels and not to the fall in blood pressure which they produce.

Glasgow Medical Journal

2 153 192 (Nov.) 1933

Surgical Diseases of Biliary Tracts Analysis of Two Hundred Cases
G H Edington—p 153
Treatment of Empyema Review of Recent Methods C A Ferguson
—p 163

Irish Journal of Medical Science, Dublin

No 95 599 642 (Nov.) 1933

Operative Treatment of Cataract R E Wright—p 599
*Occurrence of Diphtheria in Immunized Persons J C Saunders—
p 611
Use of Renal Function Tests in Differential Diagnosis of Essential
Vascular Hypertension T W T Dillon—p 620
Bishop Berkeley on the Tar Water J Bell—p 629

Occurrence of Diphtheria in Immunized Persons—
Saunders discusses the seventy-eight cases of diphtheria that occurred among a group of 8027 immunized children (6,878 fully and 1,149 partially immunized). In thirty-three instances the diagnosis was not confirmed in the hospital (42.3 per cent). In eighteen instances treatment was incomplete or the "latent period" had not expired. In twenty-seven cases the necessary conditions for the development of immunity had been fulfilled. In nine of these the diagnosis was extremely doubtful, and in four others it was doubtful. Of the remaining fourteen cases, twelve had not been Schick tested after treatment. Diphtheria was reported in seven known Schick-negative reactors (two primary and five secondary) but in five of the cases the diagnosis was extremely doubtful. Two negative reactors (both secondary) developed definite diphtheria. With two exceptions, the response to antitoxin treatment in the "immunized" cases was rapid and complications occurred in only one instance (in the form of cardiac irregularity). In all cases recovery was eventually complete.

Journal of Laryngology and Otology, Edinburgh

48 733 796 (Nov.) 1933

Malignant Disease of the Bronchus F C Ormerod—p 733
*Partial Thoracic Stomach with Short Esophagus Report of Seven
Cases J P Monkhouse and S K Montgomery—p 743
Blood Infection from Otitis Media Analysis of Sixty Three Consecutive Cases in Nottingham and District During the Period 1926 1932
Inclusive E J G Glass—p 754

Partial Thoracic Stomach with Short Esophagus—
Monkhouse and Montgomery report seven cases of partial thoracic stomach with short esophagus of mild degree. In six, the diagnosis was confirmed by esophagoscopy and in one by roentgen evidence alone. These cases fall into two groups, those with and those without dysphagia. Both types have pain that resembles the flatulent dyspepsia of cholecystitis. The dysphagia is not steadily progressive as in carcinoma but is intermittent and for some time often years is not severe. It is due to the presence of an ulcerated stricture. Hematemesis may occur in both groups. The diagnosis rests on roentgen and endoscopic examination. In the former, unless the barium is given orally, the lesion is not seen, and it is essential that the passage of the opaque material should be watched on the screen in order to differentiate from a para-esophageal hernia. In cases with dysphagia esophagoscopy shows a stricture possibly with visible ulceration, and mucous membrane removed from this level is found to be gastric in character. In the second group no stricture is seen, but a dilatation may be observed at a level which is certainly above the diaphragm and from which gastric mucosa is obtained. Dilatation will relieve the symptoms in the obstructive type; those without dysphagia receive some benefit from prolonged medical treatment but do not respond well.

Journal of Tropical Medicine and Hygiene, London

36 345 360 (Nov.) 1933

Endemiology and Epidemiology of Schistosomiasis in the Sudan R G Archibald—p 345
Bilharziasis and Diabetes Mellitus M Erfan—p 348
Health of New Zealand S M Lambert—p 349

Lancet, London

2 1075 1130 (Nov. 11) 1933

Psychologic Regard of Medical Education C S Myers—p 1075
*Use of 3,5-Diiodothyronine in Treatment of Myxedema A B Anderson C R Harrington and D M Lyon—p 1081
Primary Meningitis Due to Gartner Bacillus F H Stevenson and L K Wills—p 1084
Congenital Steatorrhea F A Cockayne—p 1086
Blood Pressure and Subarachnoid Hemorrhage M C Andrews—p 1087
Carcinoma of Large Bowel as Direct Cause of Acute Appendicitis and Simultaneous Acute Intestinal Obstruction G E Parker and D B Rosenthal—p 1089

3,5-Diiodothyronine in Treatment of Myxedema—
Anderson and his associates observed that 3,5-diiodothyronine, in doses of from 50 to 75 mg daily, is capable of relieving the symptoms of a high grade of myxedema. Under such treatment the basal metabolic rate is restored to and maintained at an approximately normal level, at the same time there is usually a considerable loss of weight and the pulse rate is slightly raised. Toxic symptoms have never been observed. The diagrams obtained are similar to those which would be obtained in response to the daily injection of 1 mg of thyroxine and there seems no reason to doubt that the 3,5-diiodothyronine is acting as a true substitute for the thyroid hormone. The reason for the qualitative similarity between the actions of thyroxine and 3,5-diiodothyronine is not perfectly clear, but an obvious possibility is that a part of the 3,5-diiodothyronine becomes converted into thyroxine itself, a change that requires only the easy introduction of the iodine atoms into the 3' 5' positions. The drug (3,5-diiodothyronine) is a compound that is readily obtainable by a synthetic method in a state of purity, it is, in fact, the penultimate product in the synthetic preparation of thyroxine. Moreover it is perfectly stable. The advantages of such a product for therapeutic purposes over a biologic material such as thyroid are sufficiently evident. It is true that the standardization of thyroid has recently been improved, but the accuracy of this standardization cannot be said to be securely established. Further with biologic material the uncertain factor of deterioration during storage cannot be entirely eliminated. On the other hand, 3,5-diiodothyronine can be standardized with perfect accuracy by its analysis and physical constants, while it exhibits its physiologic activity with a remarkable degree of constancy.

South African Medical Journal, Cape Town

7 707 742 (Nov. 11) 1933

Letchworth Practical Experiment in Town Planning H S Gear—
p 709
Ergot Preparations Florence Stephen—p 713
Typhus Like Virus in South African Rats Preliminary Note A Pijper
and Helen Dau—p 715
Intravenous Pteleography as an Aid to Diagnosis N Wall Mesham—
p 717

7 743 778 (Nov. 25) 1933

South African Medical Pioneers in Veterinary Science H H Curson—
p 745
Intravenous Injections N Finn—p 751

Tubercle, London

15 148 (Oct.) 1933

Accessory Lobe of Azygos Vein Record of Fourteen Cases with
Special Reference to Heredity as Etiologic Factor and to Pathologic
Features of the Condition E A Underwood and N Tatterall—
p 1
Misapplication of Artificial Pneumothorax in Treatment of Pulmonary
Tuberculosis F Heaf—p 13

Chinese Medical Journal, Shanghai

47 953 1074 (Oct.) 1933

Thyroid Disease in the Orient H W Miller—p 953
Effects of Simultaneous Administration of Digitalis and Quinine on
Cardiac Mechanism in Auricular Flutter C L Tung—p 973
Studies in Chronic Arsenic Poisoning I Arsenic Content of Mosquito
Incense P L Li and C S Yang—p 979
Studies on Tissue Acetylcholine III Oxytocic Action of Acetylcholine
Experimental and Applied for Induction of Labor and in Other
Obstetric Conditions A Wong and H C Chang—p 987
Medical Education of Chinese Women S M Tao—p 1010
Some Statistics on Medical Schools in China for 1932 1933 T Lee
—p 1029
Some Notes on English Medical and Vital Statistical History H S
Gear—p 1040
Congenital Partial Absence of Right Ulna and Associated Deformities
Case S H Liu—p 1052

Journal of Oriental Medicine, South Manchuria

19 39 56 (Oct) 1933

- Tryptophan Content of Blood Serum Imai Saburo—p 39
 Pathologic Anatomic and Bacteriologic Study on Human and Animal Pertussis S Inamori—p 45
 Influence of Endocrine Medicine on Formation of Rhodan Compound C Tsuru—p 47
 Metachromatic Vital Staining with Especial Reference to Vital Staining with Litmus S Hatano and S Iwata—p 48
 Alimentation of Japanese Farmers in Manchuria A Abe, U Takei, O Ueno M Ebihara and A Yokota—p 49
 Clinical and Necropsy Study of Congenital False Diaphragmatic Hernia M Kobayashi—p 50
 Frontal Sinus of Chinese N Toida—p 51
 Effects of Blood Transfusion on Immune Bodies III Blood Transfusion and Opsonin M Okamoto—p 52
 Dermatomycosis in New Independent State of Manchukuo and Its Mycologic Causative Agents S Kitamura and T Terai—p 53
 Clinical Study of Sixty Six Cases of Infectious Erythema Occurring Within Present Year T Maki and K Takahashi—p 56

19 57 74 (Nov) 1933

- *Vitamin D and Calculus Formation. Experimental Study on Relation Between Vitamin D and Calculus Formation S Saiki—p 57
 Cholera and Cholera Like Vibrio Part I Types and Biologic Characters of Cholera Vibrios Prevailing in Manchuria During the Summer of 1932 K Manako—p 64
 Component Immunity of Tubercle Bacilli and Vaccine I Contrast Experiment in Study of Immunity Obtained with the Living Mildly Virulent Tubercle Bacilli T Toda and M Yato—p 65
 Amebic Dysentery III Hydrogen Ion Concentration of Entamoeba Histolytica M Yosezato—p 66
 Hydrogen Ion Concentration of Histocyte by Vital Staining with Indicator Dyes Part I S Hatano and S Iwata—p 67
 Pathologic Anatomy of Cholera Asiatica H Kubo and Ku Ien Yuan—p 68
 The Blood Picture of the Hemolytic Streptococcus Carriers Convalescing from Scarlet Fever G Ishiyama—p 69
 Pharmacologic Study on Humanin a Toxic Ingredient of Hu Man Chiang T Okanishi—p 70
 Biochemical Study on Nitril Compound Part II Difference in Degree of Decomposition of Cyan with Regard to Classification (of Nitril) and the Species (of Animal) C Tsuru—p 72
 Intravenous Pyelography Part I T Miyata and K Kitagawa—p 73
 Ohara's Bacillus in Dysentery Agglutination Test on Ohara's Bacillus in Children in Mukden Attacked by Dysentery and Like Diseases M Kitamura and M Endo—p 74

Relation Between Vitamin D and Calculus Formation

—Saiki points out that animals, when fed a fat-soluble-vitamin-deficient diet for a certain duration, undergo calculus formation in their urinary bladders, kidneys and bile ducts. Among them, stone in the bladder is most easily produced and gallstone the most difficult. If the animals are exposed to ultraviolet rays, the formation of calculus is difficult, even when they are fed a fat soluble vitamin-deficient diet with abundant calcium and an insufficient amount of inorganic phosphorus for a long period. The true factor in the production of calculus in animals fed a fat-soluble vitamin is not the deficiency of vitamin A in food but, perhaps, the deficiency of vitamin D.

Presse Medicale, Paris

42 116 (Jan 3) 1934

- Involuntary Defecation in School Children A B Marfan—p 1
 *Calcium Chloride Treatment of Pleural Effusion Occurring in Course of Artificial Pneumothorax J Foix and E Grunwald—p 3
 Therapeutic Applications of Snake Venom A Ravina—p 4

Calcium Chloride Treatment of Pleural Effusion—

Foix and Grunwald use a 66 per cent aqueous solution of calcium chloride corresponding to 1 Gm of calcium chloride to a soup-spoonful of solution, of which the patient ingests from six to twelve spoonfuls a day. They have seldom observed symptoms of intolerance (vomiting, diarrhea) they attribute this to the low concentration of their solution. Often they have administered calcium intravenously in addition to that taken orally and injected twice weekly 10 cc of a 1:10 solution of calcium gluconate. In twenty-four of forty-eight patients treated, they obtained a rapid defervescence of the temperature, in thirteen the defervescence was obtained in from six to seven hours and in eleven the defervescence lasted for ten days. Among twenty-four patients in whom the results of this therapy were disappointing three had purulent pleurisy and twelve old pleural effusion. Calcic therapy has its best chance for success when it is begun immediately after the appearance of pleural inflammation. In cases of serofibrinous effusion the effect is much slower and often negative and in purulent pleurisy it is always

negative. On the other hand, in some cases the calcic therapy was without effect although it was started at the beginning of the purely inflammatory stage of pleural effusion. According to Blum's theory, natural or artificial inflammation of the pleura may occur only in the presence of sodium. The exudates are essentially composed of water, protein and sodium chloride. On ingestion of calcium chloride the calcium displaces the sodium and, by eliminating the sodium and water, stops the inflammation. Because this therapy appeared efficacious in 70 cases out of 100, generally speaking, the authors think that it is desirable to use this inoffensive calcic therapy systematically to combat the menace of pleural effusions that occur during the course of artificial pneumothorax.

Diagnostica e Tecnica di Laboratorio, Naples

4 729 824 (Sept 25) 1933

- Clinical and Experimental Hypoglycemia P Ljovraga—p 729
 Formaldehyde Acidity in Puncture Fluids Ferro Luzzi Test C D Ignazio and F Donati—p 733
 *New Practical Method for Determination of Coagulation Time of Blood R Santi—p 758
 Grollman's Method for Determination of Circulatory Blood Volume in Man L Alzona—p 764
 Determination of Indican in Blood E Macchia—p 773

Determination of Coagulation Time of Blood—Santi

employs a capillary tube 5 cm in length and from 0.7 to 0.8 mm in width, the lumen of which is sterilized with alcohol-ether and completely dry. The tip of the finger or the lobe of the ear is pricked with a sterilized needle. Either end of the capillary tube is placed on the drop of blood, the drop is drawn into the lumen of the tube until it fills half or slightly more than half the length of the tube, and the column of blood is made to occupy the middle part of the tube so that it may be removed from any direct contact with air and dust and from the margins of the tube, to which it might easily adhere. The tube is held horizontal for two minutes, after which it is slanted every minute to show whether the column of blood is moving within the lumen of the tube. If so, the capillary tube is again placed in the horizontal position and the process is repeated every minute until the column does not show the slightest displacement. The period between the exit of the blood from the finger and the moment at which the immobility of the column in the tube is observed in vertical position is the time of coagulation. In experimenting with normal persons, the author found that the time of coagulation varies from five to ten minutes at a temperature of 15 C (59 F). At higher temperatures coagulation is accelerated two minutes for each 5 degrees of temperature. At temperatures lower than 15 C the variations are higher and may double the retardation time of coagulation to approximately four minutes. The method revealed gross changes in the coagulation time in three cases of hemophilia, in which the retardation is generally due to diminution in the formation of thrombin. The author studied other diseases in which the blood changes were slighter. In various cases of chronic and acute hepatic diseases there was diminution of the fibrinogen in the blood plasma, in severe anemia and cachexia the deficient coagulability is due not only to reduction of the fibrinogen but also to a deficiency in thrombinase and to a modification of coagulating factors. The author advocates this method for its simplicity.

Prensa Médica, Buenos Aires

20 2593 2634 (Dec 13) 1933

- *Duodenal Drainage in Treatment of Uremia C Patiño Mayer and J E Israel—p 2593
 Abscess of Lung Cured by Intravenous Injections of Alcohol Results in a Case J C Galan and R A Poletti—p 2598
 *Rheumatic Pancarditis in Children E A Beretervide and A Garay—p 2604
 Serous Cyst of Kidney Case A J Pavlovsky—p 2619
 Hydatid Cyst of Liver Ruptured into Biliary Tract Case N Arenas and L A Pochat—p 2625

Duodenal Drainage in Treatment of Uremia—Patiño Mayer and Israel state that duodenal drainage is of great therapeutic value in the treatment of uremia. The method compares in value with bleeding without having the inconveniences of the latter. The removal of 160 cc (more or less) of duodenal content produces a diminution in the urea content of the blood equal to that produced by bleeding of 200 cc. It

is a simple procedure without any secondary ill effects and may frequently be repeated if necessary. The only precaution to be observed in order to obtain good results is to make sure in checking the drainage that the sound is placed in the duodenum and not in the stomach. The author reports satisfactory results in a case.

Rheumatic Pancarditis in Children—Beretervide and Garay study the treatment and prognosis of the grave forms of rheumatic pericarditis in children, which they consider a selective localization of the rheumatic virus in the myocardium, after having been localized in the pericardium and endocardium. The grave forms may be so from the beginning of the disease or may represent the terminal phase of less grave forms. The initial symptoms are similar in both forms but the clinical evolution of the disease is in relation to the degree of myocardial involvement. The treatment is essentially symptomatic during the onset of the pericardial symptoms, and cardiac, tonic and diuretic once the asthyle has been established. Diet is of importance. If there is fever and the rheumatic symptoms persist, treatment with salicylates is also advisable. Because of the poor condition of the myocardium in rheumatic pancarditis the action of digitalis, ouabain and strophanthus is either slight or negative. Caffeine should be resorted to only in serious cases. In general the treatment either fails or causes a temporary improvement in the symptoms without having any action on the tachycardia. In patients of the last mentioned group there is a recurrent asthyle which becomes graver with every new attack. The authors report four cases of rheumatic pancarditis and conclude by saying that up to the present time a treatment capable of preventing the endomyopericardial localization of rheumatic virus is lacking and that the prognosis is fatal in pericardiac forms. Although in less grave forms the immediate prognosis is not fatal, the children cannot reach the puberal age.

Archiv für klinische Chirurgie, Berlin

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- Skull Injury Concussion Neurosis or Traumatic Hyperthyroidism G. Gronwald—p. 207
- Fractures of Facial Skull and Hematoma of Eye E. Werner—p. 224
- Results in Trigeminal Neuralgia Especially After Destruction of Ganglion After Method of Hartel P. Zander—p. 242
- *Results of Operative Treatment of Wryneck W. Arnold—p. 257
- Hernia of Esophageal Hiatus A. W. Fischer—p. 274
- Laparoscopy in Surgical Diagnosis M. Stolze—p. 288
- Question of Causal Relationship Between Postoperative Parotitis and Separation of Suture Line After Abdominal Operations W. Grunewald—p. 301
- Early Operation in Pneumococcal Peritonitis W. Budde—p. 308
- Functional Activity of Duodenal Bulb K. H. Schmidt and F. J. Irsigler—p. 322
- Almost Total Emphysema of Skin After Suprapubic Prostatectomy Buttner and Hüssermeier—p. 334
- Thoracic Deposits in Kidney K. Scheele—p. 340
- Simultaneous Roentgenologic Presentation of Male Urethra and Bladder E. Kraas—p. 361
- So Called Chronic Pyelitis H. Kohler—p. 376
- Results with Injection Treatment of Hemorrhoids H. Junghanns—p. 383
- Melanoma of Rectum P. Gerritzen—p. 400
- Campaign Against and Prophylaxis of Cancer of Rectum H. Westhues—p. 408
- Question of Wandering of Bullet F. F. Hartel—p. 431
- Electrocoagulation as Method of Choice in Treatment of Roentgenologic Lesions and Roentgenologic Carcinoma H. Holfelder—p. 437

Results of Operative Treatment of Wryneck—Arnold reports fifty-six cases of torticollis in which operation was performed, fifty one of which were followed up. Sixteen patients were operated on between 1919 and 1924 by the Volkmann method of open tenotomy of the lower ends of the sternocleidomastoid muscle. From 1924 to 1931 forty were operated on by the method of Mikulicz, which consists of partial or complete extirpation of the sternocleidomastoid muscle. A number of the patients came at a late stage after the tenth year of life, when irreparable secondary changes have taken place. In forty-three cases in which the obstetric history could be obtained twenty-five had been breech, seventeen occipital and one posterior parietal presentations. Much stress is laid on the postoperative treatment. This consists of massage of the scar, passive and active exercises of the neck and certain special gymnastic procedures. The functional result after the Mikulicz operation was far superior to that of tenotomy. There

were two failures after fourteen tenotomies and only one failure after thirty-five Mikulicz operations. Since 1931 the author has had experience in nine cases with the method advocated by Lange and by Tillaux. It consists of sectioning the upper end of the sternocleidomastoid muscle just below the mastoid process. The advantages claimed for it are (1) a scar that can be concealed by the hair, (2) preservation of the contour of the neck and avoidance of a depression just above the clavicle, (3) better functional result, and (4) a smaller operation without accidental injuries (jugular vein, the accessory nerve). Of the nine cases, seven presented excellent results, one was improved and one was a failure. The author feels that in the future he will prefer the Lange-Tillaux procedure for the cases belonging to the group 1 of Lorenz as well as for the milder cases of the group 2 of Lorenz up to the age of 15 years. Past this age the choice of the procedure must depend on the severity of the case. For the more severe cases, partial or complete extirpation of the sternocleidomastoid muscle holds out the prospect of a better functional result. Better results may be expected with individualization of the operative method rather than by adhering to any one scheme.

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- Value of Contrast Method of Roentgenologic Study in Neurology H. Peiper—p. 441
- Artificial Occlusion of Duodenum in Dogs and Suture Closure of Perforated Ulcers E. R. Schmidt—p. 471
- Treatment of Postoperative Hiccups H. Kallfelz—p. 474
- *Subphrenic Abscess G. Janz—p. 482
- Experimental and Clinical Study of White Bile or Hydrops of Biliary Tract F. Bernhard—p. 495
- Roentgenogram of Benign Gastric Tumor and Its Clinical Value H. Painsdorf and A. Determann—p. 503
- Treatment of Pseudarthrosis of Forearm H. Nissen—p. 517
- Treatment and Course of Tuberculous Foci in Bone Close to a Joint J. Müller—p. 526
- Malformations of Hip Joint H. Fischer—p. 541
- Treatment of Congenital Dislocation of Astragalus F. Loeffler—p. 558
- Histologic Differences in Closed and in Operative Healing of Fractures O. Goetze and W. Brackertz—p. 565
- Experimental Data in Support of Use of Small Intestine to Increase Size of Urinary Bladder W. Sebening and H. Meltzer—p. 591

Subphrenic Abscess—Janz reports the incidence of subphrenic abscess in the Frankfurt University clinic for the last nine years. The etiology is variable, the most common cause being some inflammatory intra-abdominal process. In about 10 per cent of the cases the etiology remains obscure. There is little to support the hematogenous infection in the case of a history of furuncle or other distant inflammatory process. In their material appendicitis gave rise to relatively few cases of subphrenic abscess, five after 2,452 operations, or 0.25 per cent. The incidence of abscess in the pouch of Douglas was likewise lower than that given in most statistics. The author ascribes this to the accepted principle of the Frankfurt clinic of immediately operating in appendicitis at every stage. In cases complicated by abscess formation, perforation of the appendix or total gangrene of the appendix, extensive drainage was resorted to. The lapse of time between the original disease and the development of the subphrenic abscess is a matter of months or years. The interval in one of their cases was seven years. The diagnostic difficulties are many and are due to the presence of various symptoms, none of which are pathognomonic. In obscure cases the history is important. Roentgen study plays the most important part. The high position and partial or total immobility of the diaphragm with slight displacement of the cardiac shadow is quite suggestive. In gas-forming abscesses, which constitute about one fourth of all cases, the roentgenogram is even more pathognomonic. It shows a collection of gas under the cupola of the diaphragm with a fluid level below. The existence of a basal pleurisy on the same side renders the roentgen differentiation impossible. Diagnostic puncture carries with it the danger of puncturing and infecting the pleura and is therefore, to be regarded as the last measure to be undertaken only just before the operation. Many authors prefer operative exposure of the subdiaphragmatic space. The treatment is always surgical. One should be governed in the choice of the operative method by the indications in the individual case. Dogmatic adherence to any one method to the exclusion of others is not justified. The author does not share Nather's categorical rejection of

the transdiaphragmatic transpleural approach. Generally speaking the method that offers the best opportunity for efficient drainage is best suited for the individual case. They have lost only one patient of fifteen who were operated on. Contrary to the general view spontaneous healing of the subphrenic abscess may take place, as proved in one of their cases. The author is inclined to regard the principle of an immediate operation in every stage of appendicitis as of prophylactic importance in the incidence of this form of subphrenic and other residual abscesses.

Histologic Differences in Healing of Fractures—Goetze and Brackertz demonstrated histologically in animal experiments that the mere operative act of exposing the fracture, without an attempt at reduction and fixation, regularly interfered with the process of normal consolidation. The rapid metaplasia of the early fibroblastic tissue in temporary osteoid and chondroid callus is much delayed. The wound developed an increased acidity. These disturbances in consolidation are increased by injury to the periosteum. Postponement of the time of operation to a later date when sufficient temporary callus is present diminishes the disturbance in metaplasia. The author demonstrated in histologic studies that the ends of the fragments in every fracture undergo a necrosis and a breaking down of the bony structures. The histologic studies of the closed healing and operative healing of fractures furnish a basis for preference in favor of the conservative methods. These can act as guides when the advantages of exact anatomic reduction require osteosynthesis. The not too early nor too late operation is of great importance. The operative procedure should be limited to a few essentials. One should avoid making an exposure or, if necessary, be content with the least exposure. One should further avoid injury to the periosteum, periosteal callus and periosteal blood vessels. It is preferable not to leave a foreign body in the wound and, if advisable only the smallest foreign body susceptible of being removed through a small incision.

Beitrage zur Klinik der Tuberkulose, Berlin

84 1 254 (Dec 23) 1933 Partial Index

- Fundamentals to Problem of Transient Pulmonary Infiltrates. Significance of Pneumonic Processes for Clinic of Tuberculosis. F. Kellner. p. 1.
Miliary Silicosis or Healed Miliary Tuberculosis. H. Tesseroux and R. Ruiz Olmos. p. 12.
Tuberculosis. H. Gerhartz. p. 26.
Hematogenous Tuberculous Infiltrates. Held. p. 62.
Pathogenesis of Bronchiectasis. Familial Occurrence of Bronchiectasis. M. Kartagener. p. 73.
Laws of determination of Curative Value of Treatments in Tuberculosis. P. Martini. p. 80.
Roentgenologic Studies on Mechanism of Respiration. H. H. Weber. p. 99.
Prognosis of Silicosis. A. Bohme. p. 119.
Reciprocal Modification of Pulmonary Blastomycetes and Other Pathogenic Micro Organisms on Artificial Culture Mediums. B. Besta. p. 140.
Growth of Various Blastomycetes from Tuberculous Lungs on Sugar Culture Mediums. B. Besta. p. 151.
Problems of Phrenic Exeresis. Experiences in Three Hundred and Thirty Cases. F. Schwarzmann and L. Waltuch. p. 160.
Clinical Aspects and Diagnosis of So-Called Tuberculous Rheumatism. A. Raschewskaja, D. Piskarew and W. Ljachowsky. p. 177.
Suitability for Sports Training and Heart. W. Borgard and H. Hermannsen. p. 194.
Open Tuberculosis in Early Childhood. F. Strunz. p. 206.
Exudative Pleurisy and Allergy. I. Furlan. p. 215.
Simple Apicolysis in Treatment of Isolated Apical Cavities. A. Omodei Zorini. p. 224.
Combination of Phrenic Exeresis and Artificial Pneumothorax. A. Omodei Zorini. p. 237.
Lymphogenic Tuberculous Gastric Ulcer. Case. J. Benjamin. p. 249.

Hematogenous Tuberculous Infiltrates—Held maintains that the tuberculous pulmonary focus no matter whether of bronchogenic or of hematogenous origin is highly inflammatory at the beginning of the reinfection but he considers it an unproved generalization to assert that every tuberculous focus begins (independent of the phase of infection) as an "infiltrate" (he considers this as merely a roentgenologic term). The mode of dissemination indicates only that hematogenous infections produce as a rule acute manifestations while the bronchogenic disseminations may produce highly inflammatory new foci (daughter infiltrates) or chronically granulating acne-nodose foci. The author shows that the hematogenous infil-

trates are not of a uniform character and that they should be estimated not on the basis of the inflammatory character but on the immunobiologic basis. They can be differentiated into those that present a manifestation of hypersensitivity (round infiltrates) and those that are the result of a disturbance in the defense action. The author illustrates the two groups with case reports.

So-Called Tuberculous Rheumatism—Raschewskaja and her associates call attention to the fact that a number of investigators have advanced evidence that relations exist between certain forms of polyarthritides and tuberculous infections, but they do not agree on the points on which a definite diagnosis can be based. The authors report three cases. They do not agree with Poncet who considers tuberculous every polyarthritides in a patient having tuberculosis. On the contrary, in rheumatic or arthritic disorders, in which bacteriologic and histologic proofs of a tuberculous nature are absent, they consider the diagnosis tuberculous rheumatism justified only if the following points are fulfilled: (1) absence of other infections, (2) the development of a polyarthritides in connection with the acute flare up of the primary, specific tuberculous process or the further development of a fungus or a white tumor, (3) refractoriness to treatment with salicylates, (4) absence of endocarditis, and (5) to a certain extent the positivity of the tuberculin reaction. The authors realize that objections may be made to their cases because of the absence of histologic and bacteriologic proofs, but they hope that their report will draw the attention of physicians to this form of polyarthritides. They think that, if this form is recognized early enough, suitable therapeutic measures will be resorted to, such as climatic cures, roborating treatment, quartz lamp irradiation and, occasionally, tuberculin therapy.

Exudative Pleurisy and Allergy—Furlan shows that two factors are of primary importance in the development of exudative pleurisy: the allergic condition of the organism and the quantity of bacilli that reach the pleural cavity. Both factors may exist in various degrees and thus numerous combinations are possible, which explains the great diversity in the clinical picture of exudative pleurisy. Other factors may also play a part, such as the virulence of the bacillus and the constitution of the patient.

Deutsche Zeitschrift für Chirurgie, Berlin

242 77 188 (Dec 28) 1933

- Surgical Treatment of Exophthalmic Goiter. H. von Haberer. p. 77.
Studies of Biologic Principles Underlying Malformations of Vertebral Column. W. Müller. p. 94.
Normal and Pathologic Anatomy of Cervical Portion of Vertebral Column. Rathke. p. 122.
Rat Bite Fever. H. Nathan. p. 138.
Operative Treatment of Tumors of Colon. A. Jacobson. p. 148.
Experimental Study of Filling Material for Extrapleural Filling in Human Being. W. Schulze. p. 166.
Symptomatology of Persistent Bronchial Fissures. K. H. Link. p. 171.

Surgical Treatment of Exophthalmic Goiter—Von Haberer has operated on 103 patients suffering from hyperthyroidism. He is convinced that in some cases of exophthalmic goiter thymus hyperplasia is an important factor, which explains why some patients are not cured by a most extensive thyroidectomy. Geographic variations undoubtedly play a part. The general picture of exophthalmic goiter in the Rhineland is much graver than in the Austrian Alpine territory. The author observed that the thymus plays a much less important part in Rhine Province than in the Austrian Alps, particularly in Tyrol. Considering his mortality figures in cases in which thyroidectomy alone was performed the author emphasizes that, with the exception of one purely cardiac death, all showed on postmortem examination a large hyperplastic thymus which was considered by the pathologist to be the cause of death. Of four patients who died after the combined operation of thyroidectomy and thymectomy, it was established on postmortem examination that considerable amounts of the thymus were left behind in three. The author summarizes his surgical indications as follows: 1. When the symptoms point mainly to the disturbance of the thyroid he performs a radical thyroidectomy. When palpation in the region of the jugular notch reveals fatty tissue in the place of the thymus, nothing further is done. 2. When palpation in the region of the jugular notch reveals a

hyperplastic thymus rich in lymphoid tissue, he removes as much as possible of the thymus. 3 Thymectomy alone is done in the rare cases of exophthalmic goiter in which no enlargement of the thyroid gland is present and in which the thymus acts as the stimulating agent.

Anatomy of Cervical Portion of Vertebral Column—According to Rathcke, the normal physiologic configuration of the cervical portion of the vertebral column is one of lordosis. Deviations from this configuration are the result of disintegration or of fibrous transformation of the intervertebral disks. The lordosis is due to the disks being wedge shaped, with their nuclei placed considerably forward. The cervical vertebrae differ in form from the rest of the vertebrae. Their surfaces up to the seventh year are almost flat. Past this age, the lateral segments of the vertebrae begin to rise so as to surround the lower aspect of the vertebra above. The lateral ligaments do not run along the lateral protuberances but about the base of the vertebra. The author was not able to recognize on macroscopic and microscopic examination the existence of lateral joints described by Luschka. After the second decade there appear fissures in the lateral segments of the vertebrae. This was erroneously construed by Giraudi as spondylosis deformans of the lateral articulations. Cartilaginous rests of disintegrated intervertebral disks are to be found in the epistropheus up to an advanced age. This is regularly observed up to the seventh year and was observed in a child aged 11. The absence of a nucleus is the peculiar feature of such a disk. Calcifying intervertebral disks are likewise seen in the sacral bone. These cartilaginous rests probably favor the occurrence of fractures. The intervertebral spaces in children appear in the roentgenogram as slits. The most frequent alteration observed in the intervertebral disks of the cervical portions of the vertebral column is disintegration. This affects with the greatest frequency the fifth and sixth disks. The process may be so pronounced as to lead to osteochondrosis. Crumbling leads to spondylosis deformans. In high grade spondylosis deformans the lateral eminences of the superior aspect of the vertebrae spread so as to become flat.

Klinische Wochenschrift, Berlin

113 41-80 (Jan 13) 1934

- Various Courses of Pulmonary Tuberculosis H. Wurm—p. 41
- *Action of Extracts of Anterior Lobe of Hypophysis on Calcium Content of Blood F. Hoffmann and K. J. Anselmino—p. 44
- *Parathyrotropic Action of Extracts of Anterior Lobe of Hypophysis K. J. Anselmino, F. Hoffmann and L. Herold—p. 45
- Does Pigment of Kayser Fleischer Corneal Ring Consist of Silver? W. Gerlach and W. Rohrschneider—p. 48
- Treatment of Hematemesis and Melena Without Dietary Restrictions E. Meulengracht—p. 49
- Pectin as Factor Mainly Responsible for Action of Apple Diet G. Malyoth—p. 51
- Ophthalmologic Contributions to Problem of Sterilization E. Kruckmann—p. 54
- Comparative Studies on Outcome of Allvorden's Reaction on Hair of Healthy and Diseased Persons H. Rachold and W. Heimmüller—p. 56
- Case of Gastric Volvulus with Occlusion Icterus D. Eisenklam—p. 58
- Dehydrating Action of Diet Deficient in Carbohydrates and Its Therapeutic Applicability E. Foldes—p. 61
- Criticism of Erythrocytometer According to Bock A. Piper—p. 62
- Penetration of Nonelectrolyte Insoluble in Lipoid and with Relatively Large Molecular Volume into Erythrocytes of Mammals R. Hober and H. Ulrich—p. 63
- Method of Determination of Ammonia in Blood C. Urbach—p. 63
- Gastritis Problem A. Meyer—p. 64

Anterior Hypophysis and Calcium Content of Blood—Hoffmann and Anselmino demonstrate in experiments on dogs and rats that the calcium content of the blood of these animals increases under the influence of extracts from the anterior lobe of the hypophysis. They detected also that the substance is thermolabile. In parathyroprival rats, however, extracts of the anterior lobe of the hypophysis did not produce an increase in the calcium content of the blood. On the basis of these observations and of the formerly reported histologic changes in the parathyroids, the authors conclude that the increase in the blood calcium effected by the extracts of the anterior hypophysis is due to an activation of the parathyroids and to an increased secretion of parathyroid hormone.

Parathyrotropic Action of Extracts of Anterior Lobe of Hypophysis—Anselmino and his collaborators describe the

action of extracts of the anterior lobe of the hypophysis on the histologic picture of the parathyroids of rats. They found that by means of extracts of the anterior hypophysis it is possible to produce characteristic morphologic changes in the parathyroids. These changes are evidenced by an enlargement that amounts to from two to three times the original size, by a predominance of the clear cells over the dark cells, by absence of the oxyphil cells, by the disappearance of the intracellular fat granules and by a strong vascular reaction. These changes are interpreted as signs of an activation of the parathyroids. The authors are as yet unable to decide whether these changes are the result of a specific parathyrotropic substance of the anterior lobe of the hypophysis.

Munchener medizinische Wochenschrift, Munich

81 140 (Jan 5) 1934 Partial Index

- *Exclusion of Pain in Operations Particularly Abdominal Operations M. Kirschner—p. 1
- *Diagnosis of Cerebral Tumor and Indications for Surgical Treatment H. Pette—p. 5
- Prescription T. Haffner—p. 11
- Diagnosis and Treatment of Heart Disease R. Siebeck—p. 13
- Cerumen Plugs H. Doerfler—p. 16
- Prevention of Hereditary Eye Diseases B. Fleischer—p. 17
- Eugenic Efforts of Our Time Von Brunn—p. 20
- Simple Bandage in Paralysis of Serratus Muscle Hohmann—p. 23
- Public Hygiene and Its Organization L. Schaetz—p. 24

Anesthesia, Particularly in Abdominal Operations—Kirschner in abdominal operations has found it helpful to combine spinal and local anesthesia. He adds the local infiltration anesthesia to the spinal girdle anesthesia. For the administration of the local anesthetic he recommends a high pressure apparatus that introduces the anesthetic under a pressure of three atmospheres. Within a few seconds a large area can be infiltrated. The anesthetic fluid saturates the interstitial tissue and is brought into close contact with the finest nerve elements, and the anesthetic is effective at once. The author illustrates the entire procedure of the combination of spinal girdle anesthesia with high pressure local anesthesia as it is done in a case of gastric resection. He recapitulates the advantages of high pressure local anesthesia over the usual administration by means of the hand syringe. He employed the method in approximately 5,000 cases without experiencing a single serious impairment, and now he uses it in all abdominal operations.

Cerebral Tumors—Pette differentiates between extracerebral and cerebral tumors. In discussing the extracerebral tumors he reviews particularly the symptomatology of meningiomas but also discusses tumors of the hypophysis. He reviews the symptoms of malignant gliomas. There is generally a change in the personality of the patient, which becomes manifest as a shallowing of all psychic reactions. Unnatural drowsiness is another symptom. The causal factor of these manifestations is probably cerebral swelling. The local symptoms are dependent on the site of the tumor. There may be jacksonian attacks, or if the internal capsule and the basal ganglions become involved, spastic or flaccid hemipareses may develop. The fact that the malignant glioma does not tolerate interventions but rather reacts to them with acute exacerbations of the sympathetic disorders induced the author to refrain from operative interventions. The patient should be left to his fate and the treatment should be limited to symptomatic measures. Even a lumbar puncture may have disastrous results. If the severity of the general symptoms necessitates a depressive intervention which, however, is only rarely the case, trepanation should be done at the site where the tumor is suspected. Should an operation be decided on, which is often the case in the event of doubtful diagnosis, the soft tumor should be removed as extensively as possible, so as to make room for an eventual postoperative edema. The author thinks that in cases in which the centers of the intellectual sphere are involved a surgical intervention should be dispensed with, for a successful intervention would mean only a prolongation of suffering for the patient. After discussing benign gliomas, infratentorially developing tumors and growths of the cerebellum, he evaluates various methods of physical examination, including ventriculography and arteriography, but he emphasizes that the clinical methods of examination are of primary importance.

Wiener klinische Wochenschrift, Vienna

47 33 64 (Jan 12) 1934

- Mortality from Cancer and Tuberculosis in Innsbruck from 1900 to 1931 P P Daser—p 33
 *Do Benign Tumors of Breast Form Basis of Cancer Development? F Hogenauer—p 36
 *Immunobiology of Erysipelas with Especial Consideration of Specific Therapy E Neuber—p 40
 Arthrogenous Neuralgias A Saxl—p 44
 Conditions of Collapse H Eppinger—p 47
 Blood Characteristics M and N K Meixner—p 51
 Diagnosis and Therapy of Gastrointestinal Diseases C von Noorden—p 53
 Indications and Contraindications to Short Wave Therapy and Is It Necessary to Vary the Length of Short Waves According to Types of Disease? P Liebesny—p 55

Benign Tumors of Breast and Cancer—Control examinations of forty-five women, in whom a benign tumor of the breast had been removed, convinced Hogenauer that the solid tumors are hardly ever the cause of cancer development. The cystic formations, that is, diffuse fibrosis and cystic breast, likewise have no tendency to carcinoma formation. However the author considers it inadvisable to group cystadenoma in this respect with the other cyst formations, because of four patients, in whom a cystadenoma had been removed, two developed a malignant growth in later years. From this the author concludes that the cystadenoma has to be judged carefully in regard to its tendency to malignant degeneration. Since the entire gland apart from the palpable tumor is often diseased, amputation of the breast is advisable but, if only the nodule has been extirpated and the histologic examination proves it to be a cystadenoma, the patient should be kept under constant control. Since there are transitional forms between the cystic formations of the breast and the examination does not reveal the exact character of the neoplasm the author considers it advisable to adhere to the rule that in doubtful cases extirpation should be resorted to.

Specific Therapy of Erysipelas—Neuber employed convalescent serum in thirty-six cases of erysipelas and gained the impression that the defervescence and the disappearance of the toxic and of the local symptoms are effected more rapidly and completely than was the case in patients who received non-specific treatment. Only one of the thirty-six patients who received the specific treatment died, and this one had sepsis and phlegmon and was moribund when he arrived at the clinic. The author asserts that the administration of the convalescent serum produced no fever reaction, at least, the existing fever was not increased. The serum was administered by intragluteal and occasionally by subcutaneous injection. The usual dosage was from 20 to 40 cc, depending on age, weight and other factors. In the majority of cases two administrations were sufficient (from 50 to 80 cc), and in mild cases sometimes one. The author thinks that convalescent serum should have a leading place in the treatment of erysipelas. He ascribes the favorable results to the action of the specific protective substances that are present in the convalescent serum. Undesirable secondary manifestations, such as shock or delirium, were never observed.

Zentralblatt für Gynäkologie, Leipzig

58 180 (Jan 6) 1934

- *Radium Treatment of Menopausal Hemorrhages H Martius—p 1
 Cinematographic Record of Fertilization and Segmentation of Ovary of Rabbit G Frommolt—p 7
 *Elective Therapy in Carcinoma of Cervix Uteri F von Mikulicz Radecki—p 13
 Value of Clinical Classification of Carcinomas of Cervix Uteri G Doderlein and H Baatz—p 22
 Carcinoma in Uterine Isthmus O Frankl—p 32
 Carcinoma of Cervical Stump Following Supravaginal Amputation of Uterus L Waldeyer—p 35
 Role of Connective Tissue as Curative Factor in Cervical Carcinoma P Caffier—p 44
 *Blood Pressure Reducing Action of Cancer P Feldweg—p 54
 Campaign Against Cancer K E Fecht—p 63
 Tuberculosis of Pelvic Lymph Nodes H H Schmid—p 64

Radium Treatment of Menopausal Hemorrhages—Martius gives the following reasons that induced him to replace the roentgen treatment of menopausal hemorrhages by radium treatment: the more prompt hemostatic effect, the greater simplicity of the method and the fact that the intoxication and the deficiency symptoms are less severe after radium. He con-

siders from 1,800 to 2,000 milligram element hours administered in from twenty to twenty-two hours with 90 mg of radium element the best mode of application. The use of smaller amounts of radium is inadvisable because the radium must remain longer in the uterus, a factor that increases the danger of infection. The author proceeds generally as follows: After curettage or exploration of the uterus, the curetted material is examined under the microscope and from three to four days later the radium is introduced, usually by means of a brass container of 13 mm wall thickness and 35 cm length. This method of application was employed by the author for eighty-seven women between the ages of 40 and 57. It was successful with all but three and in one of these cases the diagnosis had been erroneous in that a small submucous myoma had been overlooked. That the effects of the treatment are permanent is evidenced by the fact that in all but two of the eighty-four the amenorrhea still persisted, after the treatment had been completed for more than eighteen months.

Elective Therapy of Carcinoma of Uterine Cervix—Von Mikulicz-Radecki points out that, since the elective therapy employs both surgery and irradiation, the old dispute about the advisability of the one or the other is avoided. Many patients are surgically treated, however, not all for whom a surgical intervention would be possible but only those for whom the operation promises favorable results. The patients who have been operated on receive roentgen treatments, or, eventually, the operation may be preceded by irradiation. Other patients are treated only with radium and roentgen rays. The author illustrates the results of the elective therapy of carcinoma of the uterine cervix in a statistical report comprising 5,500 cases. Combined surgical and ray treatment was given in 34.8 per cent of the cases, and the other patients were treated only by radiation, with the exception of 5 per cent of the cases that were entirely incurable. Complete cure was obtained in 24.5 per cent of the cases, that is, about every fourth patient recovered. This is a rather favorable rate in such a large material, although some clinics have obtained 36.5 per cent of complete cures. The author concludes that the elective therapy is the method of choice. To obtain these results from 20 to 40 per cent of the patients should be subjected to radical operation, in the course of which it is advisable to remove considerable portions of the parametric, paravaginal and pararectal tissues, together with portions of the vagina, for these are the regions to which cervical cancer spreads first. This extensive resection presents the main advantage of the radical operation over exclusive ray treatment. Simple extirpation of the uterus is entirely inadequate and therefore inadvisable. The removal of the iliac and the hypogastric lymph nodes is of minor significance. Abdominal or vaginal radical operations give about the same final results, but the primary mortality rate is lower in case of vaginal radical amputation, and consequently the author considers this method the better one. Surgical treatment should be limited to the cases that are still well operable, because an incomplete operation does more harm than good. As a routine measure, the operation should always be followed by roentgen treatment. Radium treatment is advisable in cases in which complete surgical removal of the cancer is not certain. Preoperative irradiation can be resorted to in cases that are to be made operable, while in carcinomas that are operable in the beginning, valuable time may be lost by preoperative irradiation. Intensive radium and roentgen treatments should be administered in all inoperable cases.

Blood Pressure Reducing Action of Cancer—Feldweg kept records of the blood pressure of more than 300 patients having cancer and found that the blood pressure is lower than in those who have been cured. Following successful treatment, the blood pressure increases on the average about 15 mm of mercury, and this increase persists if no relapse sets in. However if the cancer continues to grow, the blood pressure remains low or decreases still further. The blood pressure reducing action must be effected by the cancer as such, for observations revealed that it is not dependent on the factors of age, the menopause or cachexia. The author thinks that in cancer patients the regular measurement of the blood pressure is a valuable aid in prognostication and in the recognition of a relapse.

Finska Lakaresällskapets Handlingar, Helsingfors

75 1111 1183 (Dec.) 1933

*Roentgen Diagnosis of Papilloma of Pelvis of Kidney Gosta Jansson —p 1111

Coagulation of Blood T Leiri —p 1119

Annual and Mensual Morbidity Rate at Ophthalmologic Clinic in Helsingfors from 1912 to 1926 S Werner —p 1126

*Mycosis Fungoides Nine Cases N E Wilen —p 1144

Papilloma of Pelvis of Kidney—Jansson says that pyelography may be of greater importance in the diagnosis of papilloma of the renal pelvis than in tumors of the renal parenchyma, in which it frequently merely confirms a certain clinical diagnosis. Further, since papilloma of the bladder may be a secondary manifestation of a papillomatous primary tumor in the renal pelvis and can be successfully treated only if the underlying cause is recognized, the importance of improved roentgen diagnosis in this field is evident.

Mycosis Fungoides—Wilen states that seven of his nine cases are of the classic Alibert-Bazin type, one is perhaps an example of primary mycosis fungoides, and one is regarded as a fungoid granuloma.

Hospitalstidende, Copenhagen

76 1181 1208 (Dec 7) 1933

*Simple Hemorrhagic Proctitis and Proctosigmoiditis T E H Thaysen —p 1181

*Acromioclavicular Luxation H K Lassen —p 1196

Simple Hemorrhagic Proctitis and Proctosigmoiditis—Thaysen says that this ailment, while confused with other forms of proctitis and particularly with ulcerative, suppurative colitis, is rectoscopically, microscopically and clinically characteristic. In simple hemorrhagic proctitis and proctosigmoiditis the mucous membrane, when the inflammation is fully developed, is bright red, moist, glistening and finely granulated. Hyperemia and hemorrhages in the tissues stamp the microscopic picture. The graver cases seem often to start with a mild proctitis as the only symptom and maintain this stage for years, until a sudden spread of the inflammation in the rectum possibly into the sigmoid flexure, causes symptoms that send the patient to the physician. Certain diagnosis can be made only by rectoscopy, which also shows the extent and degree of inflammation. In chronic ulcerative colitis the course is afebrile except in the few cases with acute onset, the general condition is little affected, anemia rare, constipation the chief functional intestinal disturbance, and prognosis good. Treatment is partly local, partly general. The immediate results of treatment in nineteen cases were excellent, the late results, observed up to four years, relatively good, recurrence usually mild, was seen in most cases but as a rule disappeared after a short treatment. Three cases are described in detail.

Acromioclavicular Luxation—Lassen's after-examination in thirty-one cases of certain acromioclavicular luxation treated from 1920 to 1931 (twenty-seven conservatively, four surgically) showed that sixteen patients were free from symptoms, four of these without any abnormality, and that in the fifteen with subjective symptoms objective changes were noted. About 16 per cent of the patients were unable to do their previous work. Comparison is made with forty-nine similar cases from the Workman's Insurance Commission treated during the same period. Both materials indicate that in pronounced luxation operative procedure is called for. The question, the author finds, is how to treat the cases of luxation of about 1 cm in some of which conservative treatment gives unsatisfactory results.

76 1209 1224 (Dec 14) 1933

*Clinical Investigation on Symptoms of Intoxication in Lacquering with Duco M Ellermann and J Jakobsen —p 1213

Removal of Intrathoracic Neurofibroma of Size of Fist in Girl Aged 9 J Gravesen —p 1221

Symptoms of Intoxication in Duco Lacquering—Following a case report Ellermann and Jakobsen discuss the acute and chronic symptoms due to working with duco lacquer, the former consisting of sudden sleepiness, tired feeling, dizziness, irritation of the mucous membrane and sometimes, dyspeptic symptoms, and the latter of irritability. In prophylaxis strong ventilation and possibly, intermissions to be spent in the open air are advised. The intake of milk and daily use of eye wash and nose ointment are subjectively effective against the irrita-

tion of the mucous membrane. The quality of the thinner is believed to be of especial importance, as certain thinners are more disturbing than others, and systematic analysis of the available thinners with withdrawal from the market of the inferior sorts is suggested.

76 1237 1252 (Dec 28) 1933

*Disorder of Nervous System After Serum Injection F Wulff —p 1237

Disorder of Nervous System After Serum Injection—During the serum sickness following prophylactic injection of antitetanus serum in the first case reported, paralysis of muscle of the arm appeared. In the second case, treatment of tetanus with antitetanus serum was followed by serum sickness and four weeks later, by myelitis with paralysis of the lower extremities. The neuritis in the first case is definitely ascribed to the serum and it is assumed that the involvement of the central nervous system in the second case was due also to the serum or the serum sickness. Wulff emphasizes that this disturbance of the nervous system is so rare that it does not limit the indications for the use of serum.

Uppsala Lakareforenings Forhandlingar, Uppsala

39 1150 (Dec 1) 1933

Innervation System of Heart of Beef Embryo Thirty Two Millimeters Long B Wahlén —p 1

*Cod Liver Oil Lesions and Their Healing Tendency H Andersson —p 27

Fetus with Congenital Malformations I Holmqvist —p 57

*Significance of Diet for Regeneration of Injuries to Heart Muscle E Agdahl —p 63

*Vioosterol and Repeated Gravidities Do They Have Influence on Postnatal Development in Number of Nerve Fibers? Edith Kereci —p 91

*Contribution to Knowledge of Nerve Fibers in Roots of Spinal Nerves in Man N Arnell —p 97

Spontaneous Pneumothorax in Connection with Tuberculosis in Infants O Brandberg —p 119

Roentgenograms with Fluid in Abdominal Cavity in Small Intestine and in These Two Places (On Vertical Direction of Rays) H Laurell —p 125

Observations on Reducing Substances in Blood in Schizophrenic Patients E Ljungberg —p 139

Cod Liver Oil Lesions and Their Healing Tendency—Andersson followed the development and the healing of the lesions produced in white mice by giving 3 cc of cod liver oil per kilogram of body weight daily. Pigment and vacuole degeneration, transformation of muscle cells into connective tissue and sometimes degenerative fatty infiltration and calcareous incrustation were found in the heart. In the diaphragm, there were pigment degeneration and sometimes waxy degeneration and calcareous incrustation in four cases of diaphragmatic hernia. Conglomeration and pigmentation degeneration of the cells of the medulla appeared in the suprarenals, parenchymatous degeneration and calcareous incrustation were sometimes seen in the kidneys and pigment degeneration, sometimes stasis and degenerative fatty infiltration and, in four cases, necrosis in the liver. The lesions usually appeared independently of the diet but more rapidly with incomplete diet. Some lesions healed well, healing of pigment degeneration, calcic incrustation and degenerative fatty infiltration were not observed. There was never complete restitution.

Diet and Regeneration of Injuries to Heart Muscle—Agdahl's electrocardiographic and histologic studies in white mice with heart lesions produced by cod liver oil treatment seem to him to show that regeneration and restitution of the muscle cells of the heart can occur with more conspicuously practical results if a complete diet is given during the period of healing. The results of healing are especially notable if an incomplete diet is used during the time of cod liver oil treatment and a complete diet after the end of the treatment.

Nerve Fibers in Roots of Spinal Nerves—Arnell's results confirm Ranson's observations that nerve fibers free from myelin sheath are present in the roots of the spinal nerves in man and show that such nerve fibers appear in the roots of all spinal nerves, being numerous in all dorsal roots. In a rather slight man the number of nerve fibers in the roots of the spinal nerves on the left side was 952,777 in the dorsal roots and 197,256 in the ventral roots. In the same right-handed person the number of nerve fibers on the right side, both in dorsal and in ventral roots, was greater than on the left side.

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THE INCIDENCE AND PATHOGENESIS OF DEGENERATIVE ARTHRITIS

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BOSTON

In determining the incidence of chronic degenerative arthritis, three general methods may be used: 1. The various joints may be examined post mortem. 2. Roentgen examination of the joints may be made. 3. The number of patients having symptoms referable to their joints may be determined. Of these three, the first is by far the most satisfactory. It is generally known that anatomic changes may be present with few symptoms and, unless there are evidences of irregularities at the margin of the joint surfaces or a decrease in the joint space, roentgen examinations of joints may fail to demonstrate changes. In order to gather more precise information regarding the incidence of degenerative arthritis, we have examined approximately 150 knee joints obtained from patients dying of a variety of diseases. Aside from these observations, we have compiled from the literature the results of anatomic studies of the joints as found at necropsy by a number of observers.

In a previous paper, we pointed out that in 100 knee joints anatomic changes were observed in 81 of the cases. Lesions were observed increasing in frequency with advancing age and the areas showing the most striking lesions were those subjected to the greatest pressure, movement, weight and trauma. The following parts of the joints were involved in the order of frequency: the patella, the intercondyloid areas of the femur, the condyles of the tibia and finally the condyles of the femur. Similar observations have been made by Heine,¹ Rimann-Clark,² Beitzke,⁴ Bauer and Bennett-Meyer⁶ and Keyes.⁷ Figure 1 illustrates the prevalence of the changes observed in the knee joints (A) by ourselves and (B) by Heine. It is seen that the curves are similar in form. That of Heine is smoother in outline owing to the wider scope of observations. It is obvious that in both instances, the extent

of the condition increased with advancing age. Rimann recorded changes in 67 per cent of 100 patients ranging in age from 15 to 80 years. Beitzke found changes in the joints of 178 of 200 bodies examined. He studied the knee, metatarsal, hip and shoulder joints. He observed that the frequency of arthritic changes increased with age, so that between 20 and 40 years 60 per cent of the cases showed defects, between 40 and 50 years 95 per cent, and 100 per cent of older persons.

What has been said of the knee joint applies to other joints and, particularly, to the joints of the spine. The most exhaustive and thorough anatomic study of the range of degenerative arthritis of the spine (spondylosis deformans) is that of Schmorl and Junghans,⁸ who examined 4,253 spines at necropsy. We have constructed a chart from their data, and it requires little comment (fig. 2). It is seen that the changes increased with age. Heine has made similar observations on 1,000 cadavers. The incidence of degenerative arthritis of the spine as recorded by him was somewhat lower than that recorded by Schmorl and Junghans and is due to a difference in the number of cases and to the criteria used in recording the presence or absence of exostoses. Similar observations on the extent of spinal changes have been made by roentgen examination by Gantenberg⁹ and Garvin.¹⁰ They all agree that the condition increases with age.

Aside from the knee and spine, other joints such as the sternoclavicular joint, acromioclavicular and sacro-iliac joint have been studied by Ely,¹¹ Sievers,¹² Zollner¹³ and Smith-Petersen.¹⁴ Heine has examined, in addition to the joints mentioned, the hip, shoulder, elbow, metatarsal and sternoclavicular joints. The results of the observations of Sievers on the acromioclavicular joint of seventy-seven patients and of Zollner on the sacro-iliac joint of sixty patients are shown in figures 2 and 3. Here again it is seen that the curve rises with age. In figure 4 the results of Heine's studies are recorded for all the joints examined, and the results require special comment. While it is accepted that the percentage of cases showing changes in the joints increases with age, there are differences in the

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¹ Heine, J. Ueber die Arthritis deformans. Virchows Arch f path Anat 260: 521-66, 1926.

² Rimann, Arb a d path Inst zu Berl z Feier 5: 139, 1906.

³ Clark, H. C. Etiologic Factors in Gross Lesions of the Large Joints. Observations from 1,100 Consecutive Necropsies. J A M A 69: 2099 (Dec 22) 1917.

⁴ Beitzke, H. Ueber die sogenannten Arthritis deformans atrophica. Ztchr f klin Med 4: 215, 1912.

⁵ Bauer, W. and Bennett, G. Personal communication to the authors.

⁶ Meyer, A. W. Further Observations on Late Destruction in Joints. J Bone & Joint Surg 4: 491 (July) 1922.

⁷ Keyes, E. J. Erosions of the Articular Surfaces of the Knee Joint. J Bone & Joint Surg 15: 369 (April) 1933.

⁸ Schmorl, Georg and Junghans, Herbert. Die gesunde und kranke Wirbelsäule im Röntgenbild. Leipzig: Georg Thieme, 1932.

⁹ Gantenberg, R. Die Bedeutung deformierender Prozesse der Wirbelsäule. Fortschr a d Geb d Röntgenstrahlen 42: 740 (Dec) 1930. Die Bedeutung deformierender Prozesse der Wirbelsäule unter besonderer Berücksichtigung der Verhältnisse bei den Bergleuten. Ibid 39: 650 (April) 1929.

¹⁰ Garvin, J. D. Hypertrophic Arthritis of Spine. Arch Surg 15: 118 (July) 1927.

¹¹ Ely, L. W. A Study of the Sternoclavicular Joint. Bone & Joint Studies. Ely, L. W. and Cowan, J. F. Bone and Joint Studies. Stanford University Press, 1916, p 121.

¹² Sievers, R. Arthritis deformans des Akromioclaviculargelenks. Zugleich ein Beitrag zur traumatischen Entstehung der Arthritis deformans chronica. Virchows Arch f path Anat 226: 1919.

¹³ Zollner, F. Untersuchungen über die Erscheinungsformen der Arthritis deformans in den Sacro-iliacalgelenken. Virchows Arch f path Anat 277: 817, 1930.

¹⁴ Smith-Petersen, M. N. Traumatic Arthritis. Arch Surg 18: 1216 (April) 1929.

frequency with which these changes are observed in the different joints. The knee, the metatarsal the acromioclavicular, the elbow and hip, and the spine showed changes more frequently than the sternoclavicular and shoulder joints. These differences are probably accounted for in part, at least by the variations in weight, pressure and trauma. Thus the knee is subjected to more or less constant movement, weight and pressure and is therefore traumatized more frequently than other joints. Thus, from our own observations and those of others it is sufficiently

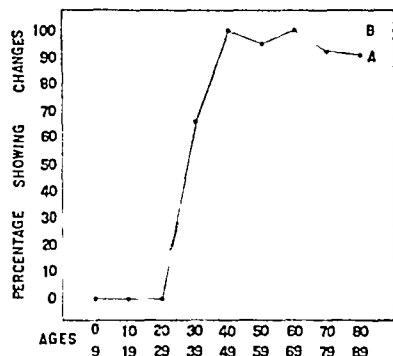


Fig. 1—Incidence of anatomic changes in the knee joint with advancing age. A authors' series of 100 cases. B Heime's series of 1 000 autopsies.

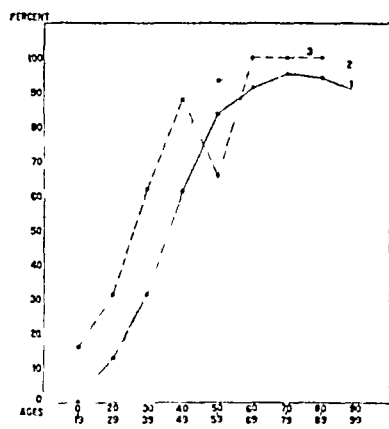


Fig. 2—Observations of Schmorl and Junghans on the incidence of spondylosis deformans with advancing age and of Sievers on the incidence of changes in the acromioclavicular joints. 1 female patients with spondylosis deformans. 2 male patients with spondylosis deformans. 3 patients with changes in the acromioclavicular joints.

clear that degenerative arthritis increases in frequency with advancing age. It is true regardless of the movable joints examined and must be considered in any study of the prevalence of the condition.

Since this fact has been established, it is necessary to consider factors other than age which influence its frequency. A few of the more important ones are occupation, static deformities and trauma.

It has been long appreciated that occupation is of the highest importance in determining the site and extent of degenerative changes in the joints. Lane¹⁵ emphasized this point of view in 1886 and since then his observations have been repeatedly confirmed and amplified. In a most interesting study of the relationship between occupation and degenerative arthritis, Fischer¹⁶ and other continental investigators have shown that arthritis of the elbow, shoulder and metacarpophalangeal joints is extremely common in men who use compressed air hammers. This was especially true of workers using such tools after a period of from three to ten years. Dr. Joseph L. Miller has informed us that he has observed similar cases and that many of these patients develop Raynaud's syndrome. Gntenberg has likewise pointed out that, while spondylosis deformans increases with age, it is commoner in laborers subjected to heavy work, such as miners and farmers, than it is in factory workers and mechanics. In his observations women showed fewer changes than men. It is essential, there-

fore, to consider the patient's occupation in the evaluation of joint changes that are seen in degenerative arthritis.

Aside from occupation, it has long been known that static deformities are commonly followed by degenerative changes in the joints. Preiser¹⁷ was one of the foremost advocates of this view, and degenerative changes are seen frequently in the hip, knees, ankles and feet of persons with flat feet, bow legs, knock knees, or coxa vara or valga. The unequal distribution of weight, together with the increasing amount of trauma to certain parts of the joints invariably leads to degeneration of the cartilage and damage to the underlying subchondral bone.

Another factor for consideration in evaluating degenerative changes is gross trauma. Injury to joints with hemorrhage into the joint cavities, as in hemophilia, is frequently followed by degenerative changes.¹⁸ Fractures extending into the joints and repeated injuries to the joints in patients with disorders of the central nervous system and loss of pain sensation, such as tabes dorsalis and syringomyelia, are the cause of alterations in the joints giving the picture of degenerative arthritis.

Since the incidence of degenerative arthritis will depend on the factors mentioned, the question arises: What is the sequence of events in the evolution of the gross and histologic changes that are observed in these joints? As a result of our observations, we believe that the evolution of the process is as follows: As a result of the aging of the cartilage or gross trauma, it loses its

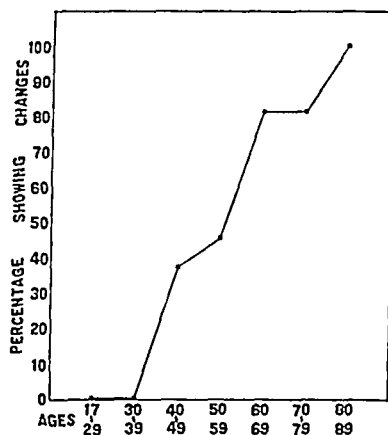


Fig. 3—Observations of Zollner showing incidence of anatomic changes in the sacroiliac joints of sixty-six patients at different age periods.

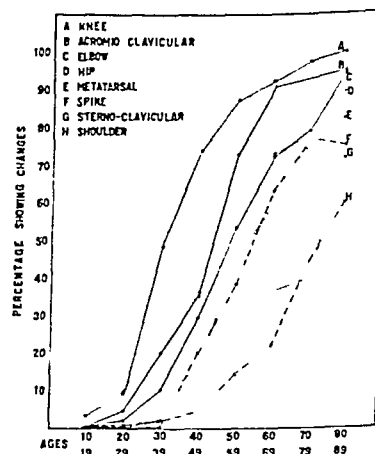


Fig. 4—Observations of Heime giving the percentage of cases showing anatomic changes in the various joints with advancing age.

elasticity and becomes split or fibrillated in the vertical plane. Following this change the damaged cartilage no longer protects the subchondral plate of bone from pressure, weight and impacts, in the same way as does

15 Lane W. A. Some Points in the Physiology and Pathology of the Osseous Systems of Trunk and Shoulder Girdle. Guy's Hosp. Rep. 1886.

16 Fischer Anton. Rheumatismus als Berufskrankheit. Acta rheumatol. 4: 24 (Dec.) 1932.

17 Preiser Georg. Statische Gelenkerkrankungen. Stuttgart 1911. Ueber die Arthritis def. Coxae ihre Beziehungen zur Roser-Netel-schen Linie und uiber den Trochanter Hochstand. Huftgesunder Infolge abnormaler Pfannenstellungen. Deutsche Ztschr. f. klin. Chir. 89: 591 1907.

18 Keefler C. S. and Myers W. K. Hemophilic Arthritis. New England J. Med. to be published. Key J. A. Hemophilic Arthritis. Ann. Surg. 95: 198 (Feb.) 1932.

normal cartilage. This leads to compression of the subchondral bone, so that the normal joint line is distorted and the subchondral bone appears thickened (fig 5). When the cartilage has been completely lost over the surface and pressure and movement of the exposed bony surface continue, the bone becomes very dense and the surface highly polished. Actual fractures of the bony trabeculae may occur, and when it does there is an attempt on the part of the bone to repair the damage. In some cases new bone is formed in these fractured areas, and islands and nests of cartilage and small cystlike areas are seen to appear in the medulla of the bone.

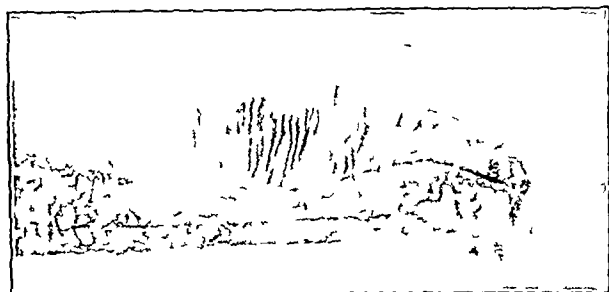


Fig. 5—Section from the patella showing fibrillation of the cartilage and alteration in the contour of the normal subchondral bone with compression and thickening

At the margins of the joints, so-called exostoses are seen. It is commonly stated that these bony excrescences arise from the subchondral bone. In other words, they are bony outgrowths. From our observations we have not been able to convince ourselves that this is true. In some instances the periosteum may show bony proliferation covered by new cartilage at the insertion of tendons, but the usual projections at

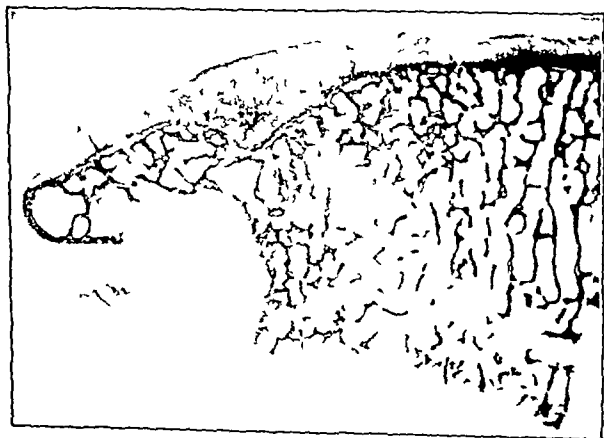


Fig. 6—Section from femoral condyle showing projection of bone and cartilage over the edge of the condyle—a so-called exostosis or lipping

the joint margins which are so common have a different origin. In our experience, we have not observed evidence in the histologic sections that these areas are overgrowths of bone. They appear to arise as a result of changes in the joint line, and in some cases the normal joint line has been depressed and flattened so that the edge projects over the margin of the bone like a mushroom. In other instances they simply represent the remnants of joint margin which have been forced outward by constant pressure. This change is best illustrated in figure 6.

SUMMARY

The incidence of degenerative arthritis increases with advancing age. It is more prevalent in certain occupations, when there has been injury to the joint surfaces, and when static deformities are present. The anatomic changes can be explained on a basis of injury to the cartilage and bone, which follows the wear and tear of the joint structures, and are not due to any particular disease process.

ACUTE APPENDICITIS IN PHILADELPHIA

A REPORT OF THE PROGRESS MADE IN THE
CAMPAIGN FOR ITS REDUCTION

JOHN O. BOWER, M.D.

PHILADELPHIA

The reports of the original and subsequent surveys with a description of the plan for the reduction of the mortality of acute appendicitis, as carried out in Philadelphia, were published in 1927,¹ 1931,² and 1932.³

Dr. J. Norman Henry, director of the department of public health, with the cooperation of Dr. W. G. Turnbull, superintendent of the Philadelphia General Hospital, made this year's survey possible. The Philadelphia County Medical Society, the College of Physicians, the staffs and superintendents of the various hospitals and the Philadelphia Association of Retail Druggists cooperated with the department of public health in the campaign to reduce the time between the onset of symptoms and hospitalization and to prevent the administration of laxatives.

The sticker warning was not distributed to the physicians of Philadelphia as in previous campaigns but, with the help of Drs. E. C. Broom and W. S. Cornell of the board of education, arrangements were made to place them directly in the hands of high school students, with the request that they affix them to the cover of a book they use daily. Appendicitis occurs most frequently between the ages of 10 and 20 years, which explains our reason for selecting the high school group. Short talks explaining the dangers of delay in hospitalization and the giving of laxatives were given to several thousand students. With the cooperation of Dr. Borzel, chairman of publicity of the Philadelphia County Medical Society, an attempt will be made to extend this publicity to both junior and senior high school students.

MORTALITY

Table 1 shows the total number of clinical records reviewed in the past five years, with the number of deaths and the percentage of mortality.

In 1931 the decrease in mortality percentage was 0.42, the surgeons of Philadelphia contributed largely to the diminished mortality by their improved management of spreading peritonitis, in which there was a decrease of 1.81 as compared with 1930 (table 2). The percentage of peritonitis cases admitted each year was practically the same, but the delay in hospitalization in 1931 was 4.63 hours longer. We expected little or no progress during the past year, because it was impossible to carry out as intensive a campaign as in previous years.

From the Philadelphia General Hospital		
1	Bower, J. O.	Am. J. M. Sc. 174: 225 (Aug.) 1927
2	Bower, J. O.	Acute Appendicitis, J. A. M. A. 96: 1461 (May 2) 1931
3	Bower, J. O.	Mortality of Acute Appendicitis, J. A. M. A. 99: 1765-1767 (Nov. 19) 1932

During 1932, however, six factors entered into the diminished mortality

- 1 A marked increase in the number of cases over preceding years
- 2 Earlier hospitalization
- 3 A diminished number of cases of peritonitis
- 4 A diminished number of cases of spreading peritonitis
- 5 An improvement in the management of spreading peritonitis by the surgeons of Philadelphia
- 6 Less frequent administration of laxatives

INCREASE IN THE NUMBER OF CASES

The clinical records of the same hospitals examined in previous years were analyzed. While there was a change in the personnel of those abstracting the charts, the supervision of the abstracting, the segregation of the pathologic observations and the compilation of the statistics were carried out by the same persons.

The marked increase in the number of cases was in the ward group. In one of our public institutions the

TABLE 1—Mortality Record for Five Years

Year	Number of Cases	Deaths	
		Number	Per Cent
1928-1929	5,121	306	5.97
1930	3,093	149	4.81
1931	3,142	178	5.66
1932	3,546	122	3.44
Totals	14,904	715	4.79

increase was 44 per cent over 1931. In hospitals in which both private and ward patients were operated on, however, the increase was decidedly less. The economic situation no doubt made it easier for the family physician to hospitalize patients earlier, especially the unemployed, who were admitted as ward patients.

EARLIER HOSPITALIZATION

There is a varying relationship between the time that elapsed between the onset of symptoms and operation and mortality. For example, the reduction in time in the 1930 series over the 1928-1929 was 23.92 per cent, and the mortality was reduced 24.1 per cent. Earlier hospitalization undoubtedly has a bearing on the decreased mortality, but the close relationship between the aforementioned series does not always exist. For

TABLE 2—Diminished Number of Cases of Spreading Peritonitis

Year	Number of Cases of Appendicitis	Number of Cases of Spreading Peritonitis	Per Cent of Cases Admitted	Number of Deaths from Spreading Peritonitis	Mortality
1928-1929	5,121	608	11.87	237	38.9
1930	3,093	412	13.32	124	26.2
1931	3,142	491	15.62	170	24.4
1932	3,546	457	12.89	101	22.1
Totals	14,904	2,118	14.21	582	27.47

instance, in 1931 the reduction in time and mortality as compared with 1928-1929 was 12.23 per cent and 26.46 per cent, respectively, in 1932 19.16 per cent and 42.7 per cent as compared with 1928-1929.

From table 3 it will be noted that there is an increase in the mortality of those admitted within twenty-four

hours. This is due in part to the increase in catastrophes, ten in number, six of these patients were admitted to the hospital within the first twenty-four hours. This group included one anesthetic death, two deaths from acute cardiac dilatation, one from auricular fibrillation and one each from coronary and pulmonary embolism.

TABLE 3—Relation of Time of Hospitalization and Mortality

	Admitted Within 24 Hours			Admitted Within 48 Hours			Admitted Within 72 Hours			Admitted After 12 Hours		
	Recoveries	No.	Deaths	Recoveries	No.	Deaths	Recoveries	No.	Deaths	Recoveries	No.	Deaths
1928-1929	1,643	42	2.49	1,648	104	5.93	628	74	7.92	896	106	10.8
1930	963	24	2.49	1,143	47	3.05	414	31	6.97	451	47	9.44
1931	930	12	1.27	1,117	48	4.12	403	28	6.49	554	50	8.93
1932	1,149	18	1.54	1,191	50	4.01	518	18	3.44	563	36	6.4
Totals	4,660	96	2.06	4,102	249	4.88	1,963	131	6.67	2,464	239	9.4

Two patients died from internal hemorrhage, one in the seventy-two and one in the ninety-six hour group. The catastrophe is always a factor in mortality. In most instances it is unavoidable. Other factors that have a bearing are the number of surgeons operating (306 in the 1932 group) and the constant change in personnel.

The forty-eight hour group is by far the most interesting to study—interesting because the percentage of mortality has been almost constant. The average mortality for the past three years has been 4.03 per cent, in 1932 it was 4.01 per cent. If one looks for the cause of this it is not necessary to go far. The mortality of spreading peritonitis in the forty-eight hour

TABLE 4—Diminished Number of Peritonitis Cases

Year	Number of Cases	Clean Cases		Average Number Time of Onset of Symptoms and Operation	Number of Cases of Spreading Peritonitis	Number of Local Peritonitis	Mortality per Cent
		Number	Per Cent				
1928-1929	5,121	2,921	57.04	61.17	695	1,502	5.9
1930	3,093	1,995	64.52	49.36	412	679	4.81
1931	3,142	2,033	64.70	53.69	491	618	4.89
1932	3,546	2,517	70.98	49.45	457	552	3.44
Totals	14,904	9,469	63.53	54.35	2,118	3,317	4.79

group over a period of four years has been practically the same. The decrease in mortality is in the groups admitted after the second day and is due to the better management of spreading peritonitis.

DIMINISHED NUMBER OF PERITONITIS CASES

Table 4 shows earlier hospitalization, an increase in the number of clean cases, a decrease in the number of peritonitis cases and a lowered mortality.

Of 14,904 patients admitted to Philadelphia hospitals, 2,118 had spreading peritonitis and 582 died, a mortality of 27.47 per cent. It is fair to assume not only that these figures, to be of any real significance, must represent the results of an accurate analysis of the clinical records reviewed but also that the analysis must be identical each year. In our own behalf we wish to call the reader's attention to the third column in table 2 under "per cent of cases admitted." During the five years the average percentage was 14.21, the greatest

variation from this average occurring in 1932 (1 32), the least, in 1928-1929 (0 67) This I believe is a legitimate variation The segregation of the clinical group spreading peritonitis is so important that I am including a brief abstract of how it is done

The segregation of the spreading peritonitis death is not difficult Frequently the autopsy records are attached and invariably the residents' notes are complete When a surgeon definitely states in his operative observations that spreading peritonitis is present, the case is classified as such Notation is made of the presence or absence of drain, temperature pulse, rigidity, leukocytosis, the time between the onset of symptoms and operation and administration of laxatives When the surgeons' or interns' notes are incomplete or indefinite, the notations on the abstract sheet are consulted and used to arrive at a decision as to whether the patient was treated according to the method of Ochsner and whether the appendix was removed or searched for

TABLE 5—History of Laxatives

	Positive History				Single Laxatives		Multiple Laxatives		Kind Not Mentioned		No History	
	Yes		No									
	Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths
1930	915	77	397	5	567	47	88	15	260	15	1 634	67
1931	1 068	69	388	2	723	32	100	12	236	29	1 558	67
1932	1 118	46	508	5	697	35	174	13	247	8	1 798	61
Totals	3 001	202	1 293	12	1 987	114	362	40	742	48	4 990	196

TABLE 6—Local Peritonitis Decreased Mortality of Local Peritonitis

Year	Number of Cases	Number of Deaths	Mortality per Cent
1928-1929	1 502	57	3 79
1930	626	11	1 76
1931	618	10	1 62
1932	572	5	0 87
	3 817	83	2 50

In the 1931 survey I mentioned that in a definite percentage of patients, diagnosed before or after admission to the hospital as having a local peritonitis, spreading peritonitis developed because of the operation or poor resistance These I have continued to place in the spreading peritonitis group In 1932 the number of cases admitted was approximately 6 per cent less than in the preceding year

IMPROVEMENT IN THE MANAGEMENT OF SPREADING PERITONITIS IN PHILADELPHIA

Prompted by the progress made in the past three years in Philadelphia in the management of spreading peritonitis, I repeat a previous statement with added confidence If a publicity campaign of increasing intensity can be waged against delay in hospitalization and the abuse of laxatives in 1940 spreading peritonitis will be as rare in our Philadelphia hospitals as cases of typhoid fever are today

While earlier hospitalization has played an important part in the reduction of the mortality, diminishing the number of cases of peritonitis admitted, the most prominent feature is the improvement in the management of

spreading peritonitis by the surgeons of Philadelphia During the past two years the mortality has been reduced 4 15 per cent (table 2)

Based on a critical review of the entire group of cases of spreading peritonitis I venture the following explanation for the improvement Surgeons are becoming spreading peritonitis conscious, they are thinking more about it and are approaching the fulminating case of appendicitis more deliberately

Fifty per cent of surgical management is in knowing what not to do and it is because of this that the following suggestion is presented

That the surgical service in our hospitals as it pertains to acute appendicitis be modified to the extent that the

junior members of the surgical group manage the clean cases but that a consultation be held with the chief of service regarding the management of the perforative or suspected perforative case Neither a watchful waiting nor a drastic policy is advocated, but a request that the 12 or 15 per cent of patients admitted to our hospital with spreading peritonitis who have only about one chance in four of living be given the benefit of all that the service affords in the matter of surgical judgment and experience Wisdom in surgery usually increases with experience, but not always The clinical records reviewed showed that a man may spend decades managing spreading peritonitis and still have a mortality of 65 per cent The associate of the surgical service should concentrate on the preoperative diagnosis of spreading peritonitis, his chief should concentrate on management and be willing to pass along to his associates the knowledge he has gained in the managing

Chart 1 shows the mortality curve for 1,661 cases of spreading peritonitis in twenty-eight hospitals of Philadelphia from 1928-1929 to 1931, inclusive The mortality was lowest on the first and seventh days

Chart 2 shows the mortality curve for 2,118 cases of spreading peritonitis in the same twenty-eight hospitals from 1928-1929 to 1932, inclusive, and the seventh day again has the lowest percentage after the first

Of the 9,783 clinical records abstracted during 1930, 1931 and 1932, 4,598, or 47 per cent, gave a definite history regarding the administration of laxatives The percentage for the three years varied slightly, 45, 48 2 and 47 5, respectively Seventy-two per cent of the 4,598 patients, or 3,293, had received a laxative and 202 or one in sixteen, died 1,305, the remaining 28

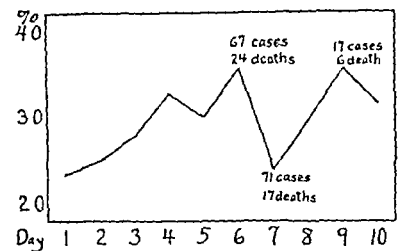


Chart 1—Mortality curve for 1 661 cases of spreading peritonitis in twenty eight hospitals of Philadelphia from 1928-1929 to 1931 inclusive The mortality was lowest on the first and seventh days

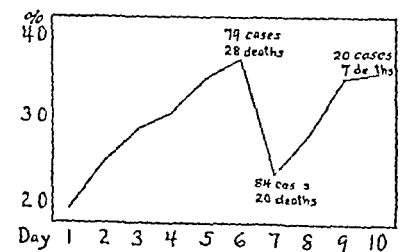


Chart 2—Mortality curve for 2 118 cases of spreading peritonitis in the same twenty eight hospitals from 1928-1929 to 1932 inclusive The seventh day again has the lowest percentage after the first

per cent, did not receive a laxative and twelve, or one in 109, died. Of those who received one laxative, one in eighteen died, of those who received more than one, one in ten died.

TABLE 7—Death Rate in 1932 from Appendicitis in Twenty-Nine Cities of More Than 300,000 Population*

City	Population	Deaths	Death Rate per 100,000		
			1932	1931	1930
Indianapolis	375,042	41	10.9	13.2	1.1
Philadelphia	1,948,663	223	11.3	13.0	14.4
Los Angeles	1,382,066	168	12.2	14.6	15.3
San Francisco	662,204	83	12.5	16.5	15.1
Seattle	376,518	48	12.7	17.2	14.7
Milwaukee	604,628	78	12.9	17.0	20.5
Cleveland	922,974	129	14.0	18.1	17.2
Detroit	1,697,861	241	14.2	17.8	18.7
Chicago	3,523,345	511	14.5	17.7	18.2
New York	7,210,787	1,065	14.8	16.1	11.9
Baltimore	870,141	121	15.2	14.5	18.2
St. Louis	832,642	129	15.5	19.8	21.3
Rochester, N. Y.	131,179	23	16.8	16.0	15.8
Houston, Texas	525,913	52	16.0	7.4	
Pittsburgh	684,462	120	17.5	11.0	16.4
Portland, Ore.	110,912	55	17.7	15.3	14.0
Jersey City	20,761	57	17.8	16.0	13.8
Atlanta, Ga.	701,329	50	18.2		
Boston	788,797	150	19.0	22.7	21.0
Washington, D. C.	491,111	93	19.7	18.9	20.1
Toledo, Ohio	301,080	60	19.9		
New Orleans	414,111	99	20.9	21.0	21.0
Louisville, Ky.	313,621	68	21.0	17.7	18.8
Newark, N. J.	448,481	91	21.2	20.6	22.0
Minneapolis	482,008	106	22.0	21.7	23.2
Buffalo	587,521	130	22.1	20.7	19.0
Columbus, Ohio	302,278	73	24.2		
Kansas City, Mo.	416,162	104	25.0	28.6	26.4
Cincinnati	462,041	120	26.1	25.2	24.1
Totals	27,708,427	4,342	15.64	17.16	17.02

* This table and those published in The Bulletin for December 1932 were taken from the Spectator. The Appendicitis Records for August 1933, 1932 and 1931. Frederick L. Hoffman, LL.D.

TABLE 8—Kind of Laxatives

	1930			1931			1932		
	Recoveries	Deaths	Totals	Recoveries	Deaths	Totals	Recoveries	Deaths	Totals
Citrate of magnesia	168	10	178	170	12	182	130	8	138
Castor oil	140	21	161	167	7	174	120	8	128
Salts	93	10	103	168	4	172	160	10	170
Milk of magnesia	49	3	52	72	4	76	81	3	84
E. Lax.	38	0	38	50	1	51	68	3	71
Mineral oil	14	0	14	14	0	14	20	0	20
Cascara	13	0	13	15	1	16	13	0	13
Sal hepatica	5	3	8	11	0	11	0	1	10
Alophen	8	0	8	9	0	9	4	0	4
Selditz	8	0	8	7	0	7	5	0	5
Calomel	7	0	7	1	0	1	0	0	0
Pluto	7	0	7	7	0	7	11	0	11
Iscnamint	5	0	5	6	1	7	14	0	14
Syrup of figs	4	0	4	4	0	4	0	1	1
Castoria	3	0	3	5	1	6	1	0	1
Phenolax	2	0	2	1	0	1	5	0	5
Sodium phosphate	2	0	2	0	0	0	2	1	3
Sodium bicarbonate	0	0	0	4	0	4	7	0	7
Psylla seed	1	0	1	0	0	0	0	0	0
Senna	0	0	0	2	0	2	1	0	1
Agarol	0	0	0	2	0	2	15	0	15
Rhubarb	0	0	0	1	1	2	1	0	1
Schenck's pills	0	0	0	1	0	1	0	0	0
Petrolagar	0	0	0	1	0	1	0	0	0
666	0	0	0	0	0	0	2	0	2
Gasoda	0	0	0	0	0	0	2	0	2
Licorice powder	0	0	0	0	0	0	2	0	2
Beecham's pills	0	0	0	0	0	0	2	0	2
Flaxulin	0	0	0	0	0	0	1	0	1
Compound cathartic pills	0	0	0	0	0	0	1	0	1
Carter's liver pills	0	0	0	0	0	0	1	0	1
Apco	0	0	0	0	0	0	1	0	1
Habit Lax	0	0	0	0	0	0	1	0	1
Nature's remedy	0	0	0	0	0	0	1	0	1
Bell's	0	0	0	0	0	0	1	0	1
Multiple laxative	88	10	103	100	12	112	174	13	187
Kind not mentioned	209	15	225	235	20	260	247	8	255
No laxative	397	5	402	388	2	390	508	5	513
No history	1,634	67	1,701	1,538	67	1,605	1,793	61	1,854
Totals	2,946	149	3,095	3,004	138	3,142	3,424	122	3,546

Table 5 shows that the number of patients who had not been given laxatives in 1932 was increased by 2 per cent over 1931. The percentage who had received laxatives in 1932 was diminished by 0.71 as compared with 1931.

The number of deaths following the administration of laxatives has gradually decreased. Of those who had been given laxatives in 1930, one in twelve died, in 1931, one in fifteen died, and in 1932, one in twenty died.

Since the time of Hippocrates, people have taken laxatives for the relief of abdominal pain, but even Hippocrates knew, as far back as 400 B. C., that they were dangerous, because he warned that "in sharp disease

TABLE 9—Survey of Twenty-Eight Hospitals in 1932

Hospital Number	Number of Cases	Number of Deaths	Mortality per Cent	Average Time of Onset of Symptoms and Operation Hrs.	Average Time of Onset of Symptom and Operation Hours		Admitted Within 24 Hours		Admitted Within 48 Hours		Admitted Within 72 Hours		Admitted After 72 Hours	
					Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths
					Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths
1	187	2	1.0	43.4	49	170.0	79	1	62	0	18	0	26	1
2	16	1	6.2	20.5	16	80.0	0	0	3	0	29	1	27	1
3	1	1	100.0	3.75	360.0	0	0	11	1	14	0	9	0	0
4	1	1	100.0	38.88	36	70.0	2	42	0	21	1	19	0	0
5	10	2	20.0	57.07	80	48.0	17	0	31	1	20	1	23	0
6	198	4	2.0	42.14	42.14	41.2	61	0	78	4	31	0	20	0
7	4	1	25.0	42.7	42.43	48.0	10	0	25	1	6	0	3	0
8	214	5	2.3	28.57	38.9	50.0	87	1	70	2	27	2	20	0
9	41	1	2.4	39.42	39.21	48.0	19	0	17	1	3	0	3	0
10	141	4	2.8	41.08	42.7	60.0	51	0	64	1	14	0	18	1
11	160	3	1.9	48.3	48.18	34.1	31	0	29	0	9	0	18	0
12	18	1	5.6	30.5	3.76	50.5	47	0	66	1	19	0	21	4
13	166	1	0.6	41.7	104.0	3.4	0	68	0	19	0	28	5	1
14	9	8	88.9	47.9	41.1	50.2	96	1	62	4	30	2	43	1
15	267	9	3.4	41.23	0.41	73.5	79	1	7	2	50	4	56	2
16	28	9	31.8	44.38	41.1	60.2	78	77	2	29	12	45	12	12
17	131	1	0.8	60.46	63.32	172.0	4	0	37	0	29	1	27	5
18	49	2	4.1	41.19	41.06	90.0	17	0	18	0	9	1	3	1
19	219	11	5.0	67.81	67.88	91.0	41	2	8	4	33	0	58	5
20	119	1	0.8	60.6	60.67	60.0	10	2	33	2	2	0	23	12
21	111	6	5.4	50.4	49.4	68.0	25	2	40	1	18	1	13	12
22	94	6	6.4	32.8	31.1	53.67	47	1	33	2	6	1	3	12
23	161	0	0.0	43.7	49.37	52.9	32	1	6	7	16	0	22	1
24	18	1	5.6	26.89	26.9	49.0	12	0	2	0	1	1	2	0
25	71	4	5.6	44.7	42.3	86.2	22	0	28	1	6	0	11	1
26	4	2	50.0	17	29.12	25.0	15	1	8	1	6	0	3	0
27	16	1	6.2	61	64	48.0	0	0	9	1	3	0	3	0
28	34	4	11.8	34.1	2.6	48.0	9	0	29	4	6	0	6	0
Totals	3,546	122	3.44	41.4	48.6	72.9	1,140	18	1,104	50	115	18	363	36
								1.07%		4.10%		3.47%		6.4%

and in their beginning, we ought seldom to use a purging medicine."

It is an indictment against the profession to be forced to report that fifty-five physicians prescribed laxatives to fifty-five patients suffering with appendicitis, which resulted in four deaths.

The high mortality of the 1928-1929 group in table 6 is due, as has been previously mentioned, to the placing in this group patients in whom spreading peritonitis actually developed but who on admission were diagnosed as having a local peritonitis. During the past three years these patients have been included in the spreading peritonitis group.

The diminished mortality in 1932 as compared with 1930 and 1931 is due mainly to the actual decrease in the number of cases admitted. In 1930, 20.2 per cent of the patients admitted to hospitals had a local peritonitis, in 1931 there were 19.6 per cent, and in 1932 there were 15.9 per cent. We were unable to find any marked difference in the surgical management of those operated on in 1931 and those in 1932.

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STABILITY OF U S P ETHER AFTER
THE METAL CONTAINER
IS OPENEDHARRY GOLD MD
AND
DAVID GOLD, BA
NEW YORK

While examining a record of the drugs dispensed in one of the hospital pharmacies, we observed that ether was listed under two headings (1) "Ether U S P in 27 pound drums at 11 cents a pound," and (2) "Ether for anesthesia in $\frac{1}{4}$ pound cans at 63 cents a pound." The cost of ether in the small cans was therefore nearly six times as much as that in the large drums, although the latter had been filled with ether which complied with standards for purity set up by the United States Pharmacopeia for ether of anesthetic quality. Our interest was aroused in this matter by the fact that the considerable difference in cost implies essential differences in the quality of the two kinds of ether, and we undertook to look into it further.

The latest edition of the United States Pharmacopeia (U S P X) makes the following statement in italics in the article on ether: "Caution—Ether to be used for anesthesia must be preserved only in small, well-closed containers, and is not to be used for this purpose, if the original container has been opened longer than twenty-four hours." The twenty-four hour clause was not present in the older pharmacopeias and appeared for the first time in U S P IX, although even there the statement was not prefaced by the term "caution," nor was it emphasized by italics. This statement alone would be quite sufficient to justify the almost universal practice in hospitals of using only quarter-pound or half-pound cans for anesthesia. What remains in the can is usually regarded as unfit for anesthesia on the following day and is used for cleansing or other purposes.

Widely divergent opinions prevail as to the effect on patients of ether taken from a container that has been opened any length of time. Some state that it becomes very irritant, some that it becomes very toxic, so that extremely small quantities produce collapse symptoms, others state that they have found it loses some of its anesthetic properties, so that it becomes almost impossible to induce satisfactory anesthesia. One cannot be impressed with the soundness of these opinions, especially when one bears in mind that impurities have on the one hand been charged with most of the disagreeable effects of ether¹ and on the other hand some of them have been held chiefly responsible for the desirable anesthetic properties of ether.² There is, indeed, a question whether the prevailing views regarding the dangers of ether in a container that has been opened for some time are not notions arising chiefly from the numerous reports in the literature on untoward reactions arising during anesthesia with samples of ether which in some cases proved subsequently to have been impure or to have deteriorated. As a matter of fact, adherence to the practice directed by the U S Pharmacopeia has been so general that one does not readily

find an anesthetist who has had sufficient experience with controlled observations to afford a sound judgment regarding the use of U S P ether for anesthesia taken from metal containers of varying sizes after they have been opened several days.

The fact is well established that, when ether is exposed to air, moisture, light or certain chemical substances which may act as catalysts, it undergoes oxidation with the formation chiefly of toxic aldehydes and peroxides. This oxidation appears to be erratic and to depend on factors that are not always in evidence. For example, Nitardy and Tapley³ stated that the formation of peroxides varies widely in different samples of the same lot of ether, stored in what may appear to be the same kind of containers, and suggested that impurities such as dust or soldering flux may be responsible for some of the differences. Small quantities of peroxides⁴ as well as of aldehydes⁵ are said to accelerate the formation of oxidation products, so that an impure ether would tend to oxidize more quickly. The most important question from the practical standpoint is that regarding the rapidity of these changes under the ordinary conditions in which U S P ether is supplied at the present time. The answer to this question in the literature is not satisfactory, although the prevailing impressions are that they occur very rapidly.

Baskerville⁶ made some of the early and very notable contributions to the chemistry of the oxidation of ether. In one of his papers^{6a} he states "In view of the fact that the presence of the products of the oxidation of ether in excessive amounts gives rise to respiratory irritation during anesthesia, it cannot be too strongly urged that the ether be supplied in small containers, of such a size that they need not be opened without being emptied by use [sic], and any remnants in these containers should not be used for anesthetic or analytical purposes without being subjected to purification." Part of this statement was practically paraphrased in the U S Pharmacopeia IX, which appeared a few years later. The reason for this statement is not evident since Baskerville's own experiments^{6b} gave no indication whatever that oxidation is rapid. He found that aldehydes, peroxides and acids formed in ether in experiments carried out under extreme conditions, namely, colorless bottles, poorly stoppered tin cans, exposure to sunlight and heat and storage for periods in most instances of from 193 to 200 days. In one group of nine specimens of ether in tin containers, he found the test for peroxides negative in the five which were properly stoppered, even though the period of storage was 200 days, those not tightly stoppered giving a positive test. In his conclusions he went further beyond the bounds of his results and stated "Finally, there is no doubt but that the chemical and physical tests even improved ones, are insufficient. They may be stated ever so clearly in print and properly serve to eliminate some low grade material, yet clinical experience must have the final word." The intent of this statement which has been quoted in substance on the labels of ether cans, is not clear unless it is to indicate that a specimen of ether may still be

³ Nitardy F W and Tapley M W The Stability of Anesthetic Ether *Anesth & Analg* 7 318 (Sept Oct) 1928

⁴ Rowe A W Ether Studies *Mod Hosp* 18 351 (April) 1922

⁵ Clover A M The Autooxidation of Ethyl Ether *J Am Chem Soc* 44 1107 (May) 1922

⁶ (a) Baskerville Charles Ethyl Ether for Anesthetic Purposes *Am Druggist & Pharmaceut Rec* 57 162 1910 (b) Baskerville Charles and Hamor W A Chemistry of Anesthetics I Ethyl Ether *Indust & Engin Chem* 3 378 1911 (c) Baskerville Charles Chem *istry of Inhalation Anesthetics Tr Sect Pharm & Therap A M A* 1912 p 157

From the Department of Pharmacology Cornell University Medical College

¹ McMechan F H Discussion on Newer Gas Anesthetics Some Comparative Considerations *Brit M J* 2 1106 (Dec 11) 1926

² Cotton T H Anesthesia from Commercial Ether Administration What It Is Due to *Canad M J* 7 769 (Sept.) 1917 Wallis L M and Hewer C I A New General Anesthetic *Lancet* 1 11 (June 4) 1921

unsatisfactory for anesthesia even though it fulfils all the chemical and physical requirements of U S P ether. There is no evidence in the literature that lends any support to such a possibility.

More recently, Laws⁷ stated that, since in the closed method of administration (Shipway) oxygen or air is bubbled through ether in a bottle impurities are formed in the apparatus during its administration. He therefore urged that the surplus left after the previous operation be discarded to avoid accumulation of impurities. He did not present any proof that such rapid oxidation of anesthetic ether occurs under ordinary conditions. The literature on the speed of deterioration of ether abounds in statements of a similar nature but they are conspicuous by the dearth of evidence to substantiate them.

The present study was undertaken to ascertain the rapidity of deterioration of U S P ether under ordinary conditions after the metal containers in which it is commonly marketed in the United States at the present time have been opened.

METHOD

A series of specimens of U S P ether were collected. In order to obtain samples that were kept under ordinary conditions but as varied as possible, these specimens were gathered from nine different hospitals and ten different laboratories in New York City. The sources of these specimens, according to the labels, were five different and well known manufacturers or distributors. The metal caps had been cut away from every one of the tin cans which were then stoppered with a cork, except in the case of the steel drums, which were always closed with the special metal cap with which they are provided. With few exceptions the cans of ether were used in animal laboratories, they had been opened from time to time and then set aside to be used again for anesthesia. No special precautions were taken against exposure to air or moisture other than stoppering after the required quantity was used. An approximate estimate was made in each case of the number of times a container was opened. This varied from one to more than ten times (in the case of the 5-pound cans) before the tests were made. In many instances the exact date when the can was opened for the first time was known, in other cases only the approximate interval between the date of the first opening and the date of testing was determined and this was stated in weeks or months. The containers were from one-fifth to three-fourths full at the time of testing for deterioration.

In all there were fifty-three specimens in metal containers, labeled either "U S P Ether" or "Ether for Anesthesia." Of the latter, there were twenty-five specimens. Eight additional specimens of ether stored for varying periods of time in various types of containers other than metal cans were also tested for impurities. The size of the containers and the number of each were as follows: 27-pound and 55-pound drums, three of each, fifteen 5-pound tins, twenty-two 1-pound tins, two half-pound tins, and eight quarter-pound tins. From each container a sample was taken and examined by the U S P tests for aldehydes, peroxides and acids, namely, the cadmium and potassium iodide test for peroxides, the potassium hydroxide test solution for aldehydes and the litmus test for acids. These are the essential impurities that form when anesthetic ether undergoes oxidation on exposure to moisture, air or light during storage.^{8b} There are more

delicate tests both for aldehydes and peroxides⁸ in ether than those described in the Pharmacopeia. Eight specimens were tested for aldehydes by the solid potassium hydroxide test as well, which is stated to be sensitive to about 0.01 per cent of aldehydes, about five times as sensitive as the U S P test with solution of potassium hydroxide.^{8b} It was deemed undesirable to depart from the pharmacopoeial tests, as it would not be possible to interpret the results if one tried to detect deterioration with tests more delicate than those used in many cases when the ether was first introduced into the container.

RESULTS

The results of the tests for aldehydes, peroxides and acids were negative in all of fifty specimens of U S P ether in metal containers that had been opened and again stoppered one or many times at intervals during periods of from four days to eight months from the time the container was first opened to the time a sample was tested for deterioration. The distribution of the specimens according to these periods was as follows: twelve specimens of from four days to one week, eight specimens of from eight days to two weeks, seventeen specimens of from two and a half to four weeks, seven specimens of from five to eight weeks, six specimens of from ten weeks to eight months. Positive tests were obtained on specimens in three metal containers of U S P ether, specimen 51, a 1-pound tin, gave a positive test for peroxides a month after the can had been opened but the can had been very poorly stoppered, specimen 52, a 1-pound tin, gave positive tests for peroxides and aldehydes twelve months after the container was first opened. We were afforded an opportunity to examine another interesting old specimen of ether, which was in a half-pound, rusty, tin can (manufacturer D) and was labeled "ether for anesthesia." The can was nearly full, the metal cap having been cut away and the can tightly stoppered with cork about fifteen years previously. This specimen also gave negative U S P tests for aldehydes and peroxides but a positive one for acid. It has been stated that after prolonged storage aldehydes and peroxides may form and then again disappear,⁹ the end-product in the oxidation being an organic acid.^{8b} The heterogeneous group of specimens of ether, specimens 53 to 60, with one exception (55, ether in a dark brown glass bottle), gave positive tests for peroxides, aldehydes or acids. These however, were either U S P ether exposed to sunlight in colorless bottles or very old specimens, or specimens labeled "not U S P" or "not for medicinal use." The results are presented in somewhat greater detail in a table which is included in the reprints of this article. The terms and numbers which identify the specimens are those used in the table.

In a study of the literature in connection with this problem we have sought to ascertain evidence which would justify the statement in the Pharmacopeia that ether should not be used for anesthesia twenty-four hours after the container has been opened and which would explain the widespread belief that ether in a metal container rapidly deteriorates, so that it becomes unfit for anesthesia shortly after the container has been opened. The literature on the impurities in ether, the oxidation of ether, and methods for the purification, preservation and storage of the drug is very extensive and it would not be feasible to review it here. We have

⁸ (a) Baskerville and Hamor.^{8a} (b) Mallinckrodt, E. Jr. Reactions of Anesthetic Ethers with Potassium Hydroxide and with Mercury and the Test for Foreign Odors. *J. Am. Chem. Soc.* **49**: 2655 (Oct.) 1927. (c) Middleton G. The Preservation of Anesthetic Ether. *Pharm. J.* **59**: 130 (July 26) 1924.

been unable to find, however, strange as it may seem, a single study which shows that U S P ether in the metal containers in which it is at the present time supplied by the better known manufacturers in this country deteriorates rapidly under ordinary conditions after the container has been opened. In some of the papers oxidation products found in specimens of ether are charged to deterioration during storage, without proof that the impurities were not present at the start. Rowe⁹ examined a hundred specimens of anesthetic ether from various sources and found that about one third of them were contaminated chiefly with aldehydes and peroxides and failed to comply with the standards of the U S Pharmacopeia. He suggested that use of the metal containers with appreciable air space in the way in which ether is marketed in this country is partially responsible for the formation of the impurities. There are no details in this paper as to the age of the specimens or as to the manner in which they were stored before the tests for deterioration were made.

The use of suitable means for storing anesthetic ether so as to prevent oxidation has been a problem of considerable importance. In this country, ether is usually stored in metal containers. Nitardy and Tapley³ stated that in practically all samples of pure ether stored in ordinary tin containers peroxides can at one time or another be demonstrated. They found that storage in copper prevents the formation of peroxides, a practice that has been adopted by one of the manufacturers. This appears to have been confirmed in a study from the same laboratories by Deripe, Green and Schoetzow.¹⁰ They divided a lot of anesthetic ether into three types of containers, namely, copper-lined tin cans, ordinary tin cans and glass-stoppered amber bottles, about 170 specimens of 4 ounces in each type. These were stored under identical conditions. They stated that the ether in the copper-lined cans remained free from aldehydes and peroxides for fifteen months, while nine of ten specimens in ordinary tin cans showed peroxides in one month by U S P tests. As this sample deteriorated before the cans were opened and as the first test for deterioration was made after one month, this paper does not throw any light on the reason for the belief that opening of the containers will lead to deterioration in hours or a few days.

U S P ether contains some substances other than ether, namely, water, alcohol, and sometimes traces of other volatile and nonvolatile matter. Some manufacturers claim special purity for their anesthetic ether. They maintain that their ether for anesthesia contains even less of the foregoing impurities than is permitted by the Pharmacopeia in anesthetic ether. Such statements usually appeal to the popular imagination. The purification of drugs to a degree that is unnecessary for practical therapeutics cannot be considered justified if the process entails a marked increase in their cost. A notable example is the case of the digitalis bodies, from which some manufacturers remove impurities that do not interfere with the efficiency of the drug resulting in extremely costly preparations. There is no satisfactory clinical or experimental evidence that specially purified ether has any material advantage for anesthesia in man over that which meets the U S P requirements for anesthetic ether.

The subject of the effects of ether that has undergone deterioration does not come strictly within the

scope of this paper. It may be well to state, however, that in our study of the literature it has been difficult to escape the conviction that the dangers of small amounts of peroxides and aldehydes have been grossly overrated.¹¹ Various toxic symptoms occurring during ether anesthesia have been attributed to impurities in ether,¹² although these have also been observed with pure ether.¹³ Some authors have stressed improper technique in its administration as the chief cause of the disagreeable or toxic complications.¹⁴ A paper by Mita¹⁵ has been quoted as showing the toxic effects of oxidized ether locally and on the heart and central nervous system. His experiments were carried out on frogs, in which toxic effects were induced by the injection of extracts of deteriorated ether in quantities equivalent to about 5 to 10 liters of ether for man, and the age of these preparations was not stated. Bourne¹⁶ found that while the addition of 0.5 per cent peroxides or 1.0 per cent acetaldehyde to ether administered to dogs caused respiratory and circulatory disturbances, 0.3 per cent peroxides or 0.5 per cent acetaldehyde had no appreciable effect.

Since the U S P tests detect both substances in much greater dilution these results offer no justification for some of the special therapeutic claims that are made for ether purified beyond the pharmacopeial requirements. Mendenhall and Connolly¹⁷ performed similar experiments and found that ether contaminated with from 0.1 to 1.0 per cent aldehydes or peroxides produced no perceptible effects on the heart, blood pressure or respiration in normal cats. They found, however, that ether contaminated with small quantities of peroxides and aldehydes depressed the movement of cilia of the oyster and suggested that such an action may be responsible for the cases of pneumonia, which they believed resulted from the use of impure ether in their hospital. In this connection it is to be noted that some authors have recently recommended acetaldehyde by mouth and by injection as an effective measure against circulatory depression in alimentary toxemias and in various severe infections, including pneumonia.¹⁸

It is necessary to stress the fact that we do not propose that ether containing appreciable quantities of oxidation products is desirable for anesthesia. The opinions are widely held that minute quantities of aldehydes and peroxides in ether are injurious¹ and that anesthetic ether becomes unfit for anesthesia within twenty-four hours after the container has been opened. These views have played an important role in the development of certain practices, such as (1) demands for special purification of ether for anesthesia suggesting that official U S P ether is not adequate for that purpose, (2) the use of ether for anesthesia only in small containers, and (3) condemning for anesthetic purposes the remainder in the can opened a day or so

11 The Ether Problem, editorial *Indust & Engin Chem* 21 993 (Nov 1) 1929

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13 Sears J B Late Ether Convulsions *J A M A* 100 1150 (April 15) 1933

14 Leffmann H and Pines C C The Quality of Commercial Ether *Am J Pharm* 102 58 1930. Offergeld H Chemische Reaktionen im Aether und Narkose *Arch f Klin Chir* 161 172 1930

15 Mita J Zur Pharmakologie der Aetheroxydationsprodukte *Arch f exper Path u Pharm* 104 276 1924

16 Bourne W On the Effects of Acetaldehyde Ether Peroxide Ethyl Mercaptan Ethyl Sulphide and Several Ketones—Di Methyl Ethyl Methyl and Di Ethyl—When Added to Anesthetic Ether *J Pharmacol & Exper Therap* 28 409 (Sept) 1926

17 Mendenhall W L and Connolly R Pharmacological Effect of Impurities in Ether *J Pharmacol & Exper Therap* 43 315 (Oct) 1931

18 Georgs P Acetaldehyd—Ein Kreislaufmittel *Klin Wchnschr* 11 227 (Feb 6) 1932. Burchard H Erfahrungen mit dem Acetaldehyd als Kreislaufmittel *Deutsche med Wchnschr* 58 448 (March 18) 1932

9 Rowe A W The More Common Impurities of Anesthetic Ether *Indust & Engin Chem* 16 896 (Sept) 1924

10 Van Dyne F Green I W and Schoetzow R E Stability of Anesthetic Ether in Containers of Various Types *J Am Pharm A* 18 1218 (Dec) 1929

previously. One of the results has been an inordinate increase in the cost of anesthetic ether. For example, in one hospital the sum of \$383 was spent for anesthetic ether in quarter-pound and half-pound cans in one year. All this could have been satisfactorily supplied for about \$70 if U S P ether had been bought in 27-pound or 55-pound drums. Small tin containers could be filled daily from these drums, they could be stoppered with ordinary cork and supplied to the operating rooms by the hospital pharmacist. In the average hospital, one or more of these drums would be consumed in about one or two weeks. One may readily imagine the extent of the saving if this procedure should be generally adopted throughout the United States.

The matter of cost is only secondary to be sure, and no amount of saving would justify the use of ether that contains impurities causing toxic effects. There is, however, no evidence in the literature to justify the anxiety over the traces of impurities that may be found in ether complying with the U S P requirements for anesthetic ether, or over the supposed rapid deterioration of ether in metal containers that have been opened part of the contents used and the remainder stoppered with cork. The present study of more than fifty specimens shows that U S P ether does not deteriorate rapidly. As we have shown, after the containers had been opened and again stoppered many times during periods of from several days to several months, the ether still gave negative tests for aldehydes, peroxides and acids, the oxidation products which are held chiefly responsible for the toxic effects of deteriorated ether. These results were obtained with ether from five different manufacturers or distributors, supplied in containers varying from quarter-pound cans to 55-pound drums. In many cases the labels stated that the cans were copper lined, or so treated as to become "catalytically inert," or to contain a coil of steel wire to inhibit oxidation. In the case of the steel drums, as well as many of the tin cans, no special claims regarding the quality of the containers were made. The results were identical in all.

CONCLUSIONS

1 U S P ether in metal cans as it is supplied in this country at the present time by the better known manufacturers, does not deteriorate rapidly under ordinary conditions when the metal containers are opened. The present study shows that the can may be opened and again stoppered with cork many times during periods of weeks without oxidation detectable by the U S P tests.

2 There is no evidence that ether specially purified "for anesthesia" has any material advantage over ordinary U S P ether for anesthetic purposes.

3 It is recommended that hospitals buy ordinary U S P ether in large steel drums and that for anesthesia the operating room be supplied with ether in small tin cans filled daily from the drums by the hospital pharmacist. The ether in the drum may be tested daily for aldehydes and peroxides, there being very simple tests for each requiring only from five to ten minutes to perform. This would help not only to correct an erroneous view regarding the speed of deterioration of ether after the container is opened but to abolish the extravagant practice of buying ether in hundreds of quarter-pound or half-pound cans at from four to six times the cost of ether in drums, when large quantities of ether for anesthesia are used.

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PNEUMOCOCCIC MENINGITIS

REPORT OF CASE WITH RECOVERY FOLLOWING CISTERNAL DRAINAGE

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Pneumococcic meningitis is almost inevitably a fatal disease. Scattered reports of recovery have appeared in the medical literature, the reader is referred to papers by Harkavy,¹ Globus and Kasanin,² and Stoessiger³ for critical reviews of such cases. As yet there is no therapeutic procedure that is widely accepted in the specific treatment of pneumococcic meningitis. It is therefore desirable to report a case in which complete recovery followed the early use of continuous cisternal drainage, in the hope of stimulating further trial of this method, described by Dandy⁴ in the treatment of staphylococcic and streptococcic meningitis.

REPORT OF CASE

History.—A Negro woman aged 42, who came to the Johns Hopkins Hospital June 7, 1932, complained of severe right-sided headache. In general her health had been good. Fifteen months before she had suffered from weakness, her local physician discovered sugar in the urine for which he prescribed a low carbohydrate diet. In September 1931, she was first seen in the outpatient dispensary on account of intermittent parietal headache radiating to the left frontal region. Physical examination was essentially normal and the urine was sugar free but the blood sugar showed a typical diabetic curve following ingestion of dextrose, and the blood Wassermann reaction was positive. Although there were no signs nor history of syphilis, the patient's husband who was in the medical ward had syphilitic aortitis and aortic insufficiency. Her spinal fluid in December, 1931, showed 4 cells with the Wassermann, mastic curve and globulin tests negative. Roentgenograms of the skull on two occasions were negative. From September to May she received weekly injections of arsphenamine or a bis muth compound; the headache was relieved after the first injection. The diabetes was readily controlled on a diet of 60 Gm of protein, 140 Gm of fat and 80 Gm of carbohydrate.

June 4 she was seized with a constant severe, right-sided headache, which radiated from the vertex to the right frontal region and behind the right eye. She had not had a recent cold but had had occasional postnasal discharge. The headache persisted and on June 7 she was examined in the outpatient dispensary where it was noted that she was in acute pain and seemed rather dazed and that there was marked tenderness on light percussion above the right eyebrow, extending up to the top of the head. The right antrum was dark on transillumination with a moderate amount of discharge coming from the meatus, the other sinuses seemed clear. The antrum was punctured and irrigated with boric acid, and a small amount of mucoid material was obtained but no frank pus. Some difficulty was encountered during the irrigation, and on this account she was admitted to the ward in the otolaryngologic service for observation.

On admission, her temperature was normal, but the following afternoon June 8, it rose to 102.4 F, the headache was more severe and she complained of some pain on the right side of the neck. June 9, the right upper eyelid became edematous and partially closed, with pain in the right frontal region and considerable postnasal discharge. The temperature continued to mount, reaching 105.4 F on June 10, at which time she became

From the Medical Clinic of the Johns Hopkins Hospital and University.

¹ Harkavy, Joseph. *Pneumococcus Meningitis: Recovery with Serum Therapy*. J. A. M. A. **90**: 597 (Feb. 25) 1928.

² Globus, J. H. and Kasanin, J. I. *Pneumococcus (Type IV) Meningitis: Report of a Case Treated by Forced Subarachnoid Drainage with Recovery*. J. A. M. A. **90**: 599 (Feb. 25) 1928.

³ Stoessiger, H. N. *Recovery from Pneumococcus Meningitis*. Brit. J. Child Dis. **27**: 35 (Jan. March) 1930.

⁴ Dandy, W. E. *The Treatment of Staphylococcus and Streptococcus Meningitis by Continuous Drainage of the Cisterna Magna*. Surg. Gynec. & Obst. **39**: 760 (Dec.) 1924.

semistuporous, with a stiff neck and a positive Kernig sign. Lumbar puncture showed purulent fluid under increased pressure and she was transferred to the medical service with the diagnosis of meningitis.

Examination—The temperature was 106, the pulse 94, the respiration rate 20 and the blood pressure 130 systolic, 70 diastolic.

The patient was well developed and appeared acutely ill, drowsy and delirious at times but responded to simple questions and cooperated to some extent during the examination. She still complained of right frontal headache. The upper lid was so swollen that it could barely be opened. The ear drums appeared normal. There was marked oral sepsis with many gold crowned teeth, in one of which a diamond was set. Interest centered in the neurologic examination, the neck was definitely stiff but not retracted. Ophthalmoscopic examination showed fullness of the veins and hyperemia of both optic disks without elevation or blurring of the disk margins. Otherwise the cranial nerves were intact, and no sensory or motor disturbance was noted. The deep reflexes were increased in the upper extremities while the knee jerks and ankle jerks were normal. Abdominal reflexes were absent, and there was a suggestively positive Babinski sign on the left. There was no patellar nor ankle clonus. Kernig's sign was present but not marked and was more definite on the left than on the right.

The blood Wassermann reaction was positive.

The blood count showed red blood cells 4,600,000, hemoglobin 80 per cent, white blood cells 20,500, polymorphonuclears, 88 per cent.

The urine was acid with a specific gravity of 1.017. Sugar was not present, albumin +, and acetone +. A few white blood cells were found in the sediment but no red blood cells or casts.

The blood chemistry showed fasting sugar 140 mg per hundred cubic centimeters, nonprotein nitrogen 26 mg per hundred cubic centimeters. Culture of the urine yielded a heavy growth of *Bacillus coli*.

A roentgenogram of the chest showed that the lungs were clear. One of the sinuses showed an old infection of both antrums, the frontals and ethmoids were cloudy.

The blood culture was sterile.

Lumbar puncture revealed diffusely cloudy cerebrospinal fluid without flakes. Twenty-five cubic centimeters of fluid was withdrawn under an initial pressure of 350 mm of water. The Queckenstedt sign was negative. The cell count was 8,000 white blood cells with 88 per cent polymorphonuclears. Smear stained by Gram's method showed many gram positive diplococci. The spinal fluid yielded a pure culture of pneumococcus group IV.

Treatment—In view of the relatively early stage of the meningitis and the good condition of the patient, this was considered an excellent case in which to try a radical measure of cerebrospinal drainage. After various methods of therapy advocated in recent literature had been considered, the following plan of treatment was decided on:

- 1 Continuous cisternal drainage
- 2 Frequent lumbar puncture
- 3 Cisternolumbar irrigations
- 4 Cisternal irrigations
- 5 Periodic cerebral dehydration with hypertonic dextrose

On the day on which symptoms of meningitis appeared, a rubber drainage tube was introduced into the cisterna magna. The operation was performed under general anesthesia by Dr. Frederick Geib. At that time her temperature was 106, pulse 94 and respiration rate 20. She received 75 mg of tribromethanol per kilogram rectally and 4 ounces (120 cc) of ether. Posterior trephine openings were made in case it should be desirable to tap the lateral ventricles but this was never done. A midline incision was made over the lower part of the occiput and the muscles were divided. An opening about 2 cm in diameter was resected in the occiput the lower margin of which was close to the atlas. When the dura was opened in the midline thickened leptomeninges and a thin layer of exudate were found. One hundred cubic centimeters of fluid under pressure was aspirated from the cisterna magna. A number 14 soft rubber catheter was used as a drainage tube,

but a larger one would probably have been preferable. After the hole and tip of the catheter had been cut off, two opposing U-shaped pieces were cut out of this end. One centimeter above the U-shaped openings, two holes were cut in the opposite plane. This end of the catheter was now sutured with interrupted black silk flush to the dura on each side, near the lower margin of the bony defect. Above and below the tube, the dura was left wide open. The muscles were closed and the tube was anchored to the skin by two silk sutures. This closure provided free drainage through the dura into a space about the end of the catheter, which in turn was drained by the many holes in the tube. The successful drainage seemed to be due in large part to this procedure.

The drainage system was so built that it would allow us to vary the pressure in the system. A thin neck gallon bottle was fitted with a two hole rubber stopper, and the short arm of a right angle piece of glass tubing was placed through one of the holes. About 3 feet of one-fourth inch rubber tubing and glass connections, one of which was a double circle to act as a trap, was used to connect the catheter to the bottle. The system was sterilized and connected to the drainage tube and the second hole in the rubber stopper plugged with sterile cotton. Thus the inside of the bottle remained at atmospheric pressure. Positive or negative pressure could be exerted on the fluid in the system by raising and lowering the bottle. Negative pressure was avoided in order to keep the brain stem from being sucked against the dura closing off the drainage openings. Maximum flow was obtained when the top of the glass angle tube was elevated several centimeters above the cisterna level. The exact conditions for obtaining optimum flow had to be frequently redetermined by slightly raising or lowering the bottle. Approximately 200 cc of cerebrospinal fluid was drained from the cisterna magna every twenty-four hours by this method.

With the patient in the lateral decubitus lumbar puncture was performed every twenty-four hours from June 10 to June 23. During the period of continuous cisternal drainage the spinal fluid was not under pressure and little fluid was obtained from the lumbar needle. After the cisterna was closed, from 30 to 40 cc of fluid was removed daily by this process.

With the lumbar needle in place 50 cc of warm physiologic solution of sodium chloride was slowly introduced by gravity into the cisternal catheter (temporarily disconnected from the drainage bottle) and allowed to escape by the lumbar route. Although there was considerable variability in the cell count of the fluid obtained the cell count at the end of the procedure was usually much lower than the initial one.

As soon as the irrigation just described was completed, the lumbar needle was withdrawn. Small amounts of physiologic solution of sodium chloride were then gently introduced into the cisterna and removed by the same route in order to wash out flakes of exudate from the cisternal region as thoroughly as possible. During both forms of irrigation the patient showed increasing motor excitability, but serious respiratory or circulatory disturbance was never noted.

It is well known that the volume of the brain can be reduced by intravenous injection of hypertonic solutions. By using this principle, we hoped to facilitate subarachnoid drainage and prevent blockage of the basal cisternae. After fluids had been withheld for an hour, 100 cc of 50 per cent dextrose was given intravenously daily, as shown in the chart. Two hours later, fluids were forced. No conspicuous change in the rate of flow of cerebrospinal fluid was noted during this period. Although it is difficult to estimate the value of this procedure, it certainly deserves further trial.

The patient was turned daily from side to side, care was taken to prevent her lying on her back or raising her head. For ten days restlessness was controlled by paraldehyde, from 10 to 20 cc by rectum. Morphine in doses of from 12 to 16 mg and restraint of the hands and feet as indicated. A liquid diet was given by mouth and fluids were supplemented by rectal dextrose and saline infusions in order to bring the total fluid intake up to from 3,000 to 4,000 cc a day. A transfusion of 500 cc of citrated blood was given, June 20.

Course—Following the operative insertion of the drainage tube in the cisterna magna the temperature fell from 106 to 102 and never rose above 104 thereafter. Simultaneously, the

pulse rate rose from 94 to 120 and as long as free cisternal drainage persisted no further relative bradycardia was noted. For ten days, improvement in the general condition was slight. The patient cooperated to the extent of taking nourishment by mouth but remained delirious and incontinent of urine. There was no vomiting. The neurologic status was essentially unchanged, papilledema did not increase, and no localizing signs appeared.

The important features of her course are shown in the chart. Gram-positive diplococci were seen daily in the smears of the spinal fluid sediment until June 17. After the saline irrigations were started, growth of pneumococci was no longer obtained. Four days after the insertion of the tube the cerebrospinal fluid was almost clear, but in the next few days it became rapidly more purulent with thick flakes of exudate escaping through the tubing. *Bacillus proteus* now grew abundantly from the spinal fluid. June 18 the catheter became plugged with fibrin and the pulse rate dropped to 68. On the same day the cisternal catheter was removed, the wound appeared clean and was dressed with gauze, without being closed in any way. Two lumbar punctures were done, June 18, to relieve pressure, thereafter they were performed daily. The spinal fluid rapidly cleared, June 23 there were 240 cells with 70 per cent polymorphonuclears, and culture yielded *Bacillus proteus* for the last time. From June 20 there was steady clinical improvement, the patient was discharged from the ward July 28 without residual signs of any sort. Lumbar puncture July 21

The objection has been raised to many of the reported cases of recovery in pneumococcic meningitis that the organism was not properly identified. We were fully aware of the importance of careful bacteriologic studies. Repeated determinations were made of the typing, the bile solubility and the autolysis in salt solution of the organism isolated. There seemed to be no question that we were dealing with a pure culture of pneumococcus group IV.

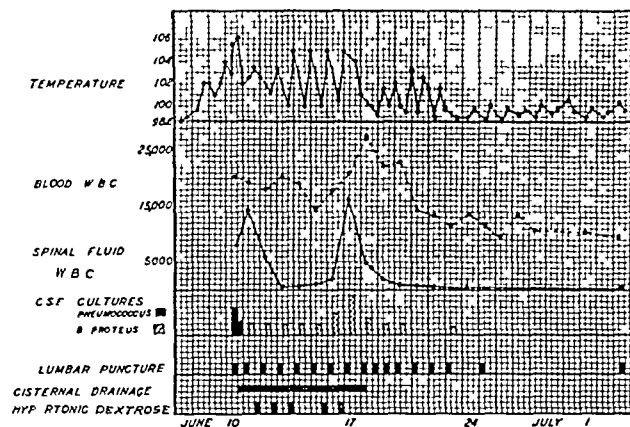
Pneumococci, while plentiful, were never found in overwhelming numbers in the spinal fluid. This suggests that early establishment of drainage and irrigation was effective in combating their rapid multiplication. It is, of course, impossible to say that the patient would not have recovered without surgical intervention. It seems unlikely, however, that the rapid progression of symptoms and abrupt rise of temperature to 106 during the hours of meningeal invasion would have spontaneously ceased, as occurred immediately after the operation.

Dandy⁴ indicates that the origin of the meningitis has definite bearing on the prognosis. He suggests that meningitis of otogenous origin is probably more grave than that following trauma or accidental inoculation of the cerebrospinal fluid. The present case may be allied to the latter group. There was a preceding sinusitis, which was never severe, in addition, the antrum wall was traumatized during irrigation. The sinusitis subsided spontaneously during hospitalization so that there was no focus continually feeding the meninges.

The secondary infection of the meninges with *Bacillus proteus*, an organism of low pathogenicity, is of considerable importance. The patient actually suffered from two attacks of acute meningitis occurring in quick succession. The cisternal drainage tube had been in place six days when the superinfection occurred, gram-positive cocci were still present in the smear of the spinal fluid sediment, chiefly intracellularly. Culture of the spinal fluid over a period of nine days yielded *Bacillus proteus*, thereafter the cultures were sterile. The *Bacillus proteus* infection produced a greater polymorphonuclear response in both blood and spinal fluid than had the pneumococcic infection alone, whether this outpouring of leukocytes could have been helpful in clearing up the residual pneumococcic infection is an interesting question. The exact mode of entry of the secondary invader could not be determined, but the occurrence is hardly surprising, since the catheter had been in place six days and had been subject to repeated manipulations, while the dressings about the open cervical wound had not been changed for fear of disturbing the functional efficiency of the drainage tube.

SUMMARY

In a case of pneumococcic meningitis, group IV, a drainage tube was inserted into the cisterna magna as soon as signs of meningeal invasion were observed. The tube remained in place for eight days, 200 cc of cerebrospinal fluid escaped daily by this route. Irrigations with physiologic solution of sodium chloride were carried out from the cisterna magna to the lumbar region. Periodic shrinkage of the brain volume was attempted by intravenous injections of hypertonic dextrose. The spinal fluid became secondarily infected with *Bacillus proteus* at the end of six days, producing a marked leukocytic response. There was progressive improvement, however, and the patient left the hospital completely recovered at the end of seven weeks.



The temperature, white blood cell count, cerebrospinal fluid cell count and cultures during the period of treatment. The temperature is shown during the invasion of the meninges from June 7 to June 10. The unblocked columns from June 11 to June 14 indicate the appearance of gram-positive diplococci in smears of the spinal fluid although cultures were sterile.

showed normal pressure, a negative Queckenstedt sign, 40 cells with 39 lymphocytes and 1 polymorphonuclear, and a negative culture and Wassermann reaction. A year later, June 20, 1933, neurologic examination was negative, lumbar puncture showed 7 mononuclear cells and normal pressure. Culture was negative.

COMMENT

It is probable that only early cases of pneumococcic meningitis would respond favorably to such a course of treatment, since it depends on free flow of cerebrospinal fluid from the ventriculosubarachnoid system. In such a fulminating disease it is only a matter of hours before the thickness of the meningeal exudate and the formation of adhesions would make this method of doubtful value. It is significant that 200 cc of cerebrospinal fluid escaped from the cisternal tube daily, far exceeding the amount usually obtained in cases of purulent meningitis drained by repeated lumbar punctures alone. The maintenance of approximately normal intracranial pressure throughout the course of the disease is desirable from the standpoint of minimizing intracranial lesions and for the general welfare of the patient.

SPLENECTOMY IN CHRONIC ARTHRITIS

ASSOCIATED WITH SPLENO-MEGALY AND LEUKO-
PENIA (FELTY'S SYNDROME)ERLE B CRAVEN, JR, MD
DURHAM, N C

Hanrahan and Miller¹ have recently called attention to an association of chronic arthritis, splenomegaly and leukopenia, first reported by Felty² in 1924. In the voluminous literature dealing with chronic arthritis, splenomegaly and leukopenia as separate entities, the simultaneous occurrence of the three abnormalities is not mentioned except in these two papers.

There was marked improvement following splenectomy in both the arthritic and the leukopenic features of the case reported by Hanrahan and Miller.¹ The present report is offered with additional observations on a similar case and with a description of the apparently transient effect of splenectomy.

REPORT OF CASE

L S, a white woman, aged 40 admitted to the medical service, Sept 20, 1932, complained of pain in the joints of four years' duration.

Except for a brother who suffers from arthritis, the details of which are unknown, the family history was irrelevant. There was nothing in the past history which was considered important.

The present illness began in November, 1927, with pain and stiffness in the lower part of the back beginning nine days after the spontaneous termination of a normal pregnancy. Three weeks later the left wrist and left ankle became swollen, hot, tender, and painful on motion. The swelling and most of the tenderness subsided after two or three days, but at intervals of two or three weeks throughout the next two years there were short periods of arthralgia associated with stiffness of the joints but without obvious deformity.

Two years after the onset there was a second acute phase, lasting about a week, during which there was simultaneous involvement of both shoulders, the right ankle, the right elbow and the right wrist.

Six months before admission the left knee became swollen, hot and tender and after the acute phase had passed the knee was stiff and was painful on motion. One month before admission the right knee was similarly affected, and two weeks before entry the right ankle became acutely swollen for the second time.

During the first three years of her illness there was no permanent disability following cessation of the attacks of acute inflammation, but as a result of the attacks of the past six months the patient has been obliged to use crutches.

The patient had lost from 40 to 50 pounds (from 18 to 22.7 kg) during the course of her illness.

A curious fact, voluntarily contributed by the patient was that during the menses the joint pains were markedly diminished.

The patient was poorly nourished and had a peculiar yellowish brown, blotchy pigmentation of the skin over the neck, face, forearms and tibiae. The tip of the nose was diffusely red and many dilated capillaries were visible. The epitrochlear and inguinal lymph nodes were moderately enlarged but not tender. There was dense scarring of the right cornea and internal strabismus with enophthalmos due to an old injury. The teeth were dirty and carious and the gums infected and recesive. The heart and lungs were normal. The thin smooth edge of the liver was felt 7 cm below the costal margin in the right midclavicular line. The large and hard spleen extended 4 cm below the costal margin. The edge was smooth, the median notch was not felt.

There was moderate tenderness and pain on motion of the metatarsophalangeal joints and both ankle joints but no local swelling, heat or limitation of motion. Slight pain on motion occurred in both hip joints. There was swelling, slightly increased local heat and moderate pain and limitation of motion but no redness, in the left knee. There was slight pain on motion in the right knee, but no swelling or local heat. The heads of the second and third metacarpals of both hands were enlarged and tender on motion. Subluxation of the left second metacarpophalangeal joint was observed. Both wrists were moderately tender and painful on motion, with definite limitation of motion on the right. There was marked atrophy of the interossei. Both shoulders were slightly tender and painful on motion, and abduction of both arms was moderately limited. No tenderness or limitation of motion of the vertebral column was noted. The temporomandibular and sternoclavicular joints were normal.

Examination of the blood showed red blood cells, 3,000,000, hemoglobin, 11 Gm per hundred cubic centimeters (Sahli), mean hemoglobin content, 36×10^{-12} Gm, white blood cells,

Blood Studies

Date	White Blood Cells	Polymorphonuclear Neutrophils	Eosinophils	Basophils	Small Lymphocytes	Large Lymphocytes	Monocytes	Red Blood Cells Millions	Hemoglobin, Gm per 100 Cc	Platelets per C Mm
Sept 20, 1932	2,500	52	12	0	32	0	4	3.0	11.0	
21	3,700	40	10	2	38	0	10	3.6	11.0	
Oct 10	4,300									
22	5,800	80	2	1	7	1	8	3.9	10.0	
24	3,520	69	3	1	15	5	7	4.1	11.1	
25	3,480	64	12	12	20	6	6			
26	2,720	60	1	3	20	7	9			200,000
27	Transfusion of 400 cc of citrated blood									
28	4,000	62	7	1	14	6	10	5.3	11.9	
30	3,600							4.8	11.7	
31	2,500	52	12		32		4		11.0	
Nov 4	Splenectomy									
8	8,500								11.2	
15	10,700	62	6	1	14	5	12	4.8	10.9	
17	10,300									
18	7,800							5.1	11.4	
19	8,450									230,000
20	8,600									
21	8,350									
22	8,450									
23	8,150									
24	9,550									
28	9,100									
Dec 1	9,150									
4	8,600									
7	10,350									
9	10,450									
10	11,000									
12	7,850									
1933										
July 7	5,750	42	6	2	29	12	9	4.2	11.6	
9	5,950	57	5	1	24	10	8			

2,500, differential count polymorphonuclear neutrophils, 52 per cent, polymorphonuclear eosinophils, 12 per cent, small lymphocytes, 32 per cent, monocytes, 4 per cent, reticulocytes, 3 per cent. The stained smear showed mild anisocytosis but no poikilocytes, macrocytes or parasites. Stool examination showed no abnormalities, and cultures for B hemolytic streptococci were negative. The urine showed urobilinogen to be present in a dilution of 1 to 3. No bilirubin was present. Blood chemistry showed van den Bergh reaction, negative, calcium 9.0 mg per hundred cubic centimeters phosphorus, 4.2 mg refractive index, 1.3493. A sugar tolerance test gave the following results: fasting 110 mg per hundred cubic centimeters, one-half hour, 210 mg per hundred cubic centimeters, one hour 263 mg, one and one-half hours 190 mg, and two hours, 115 mg. A repetition of the test gave exactly comparable results. A bromsulphalein test of the liver function showed a 45 per cent retention of the dye after thirty minutes and a 30 per cent retention after one hour. Roentgenograms of the accessory nasal sinuses showed slight haziness over both antrums, interpreted as thickened mucous membranes. The other sinuses were clear. There was moderate alveolar absorption about the

From the Department of Medicine, Duke Hospital.
1. Hanrahan, E. M., and Miller, S. R.: Effect of Splenectomy in Felty's Syndrome. *J. A. M. A.* 99: 124 (Oct 8) 1932.
2. Felty, A. R.: Chronic Arthritis in the Adult Associated with Splenomegaly and Leukopenia. *Bull. Johns Hopkins Hosp.* 35: 16 (Jan) 1924.

teeth but there were no apical abscesses. Roentgenograms of the right hand, wrist and knee showed a moderate grade of atrophic arthritis. The carpal bones were deformed about their margins, and the joint spaces, excepting the knee joint, were partially obliterated. Gastric analysis of the fasting contents showed free hydrochloric acid 4, total 20, after alcohol and ergamine, free hydrochloric acid 76, total 96. The Wassermann reaction of the blood was negative. A blood culture was negative.

There was an irregular fever ranging between 37 and 38 C (98.6 and 100.4 F), reaching in one instance 38.8 C (101.8 F), during the first three weeks in the hospital. The white blood cells ranged between 2,500 and 3,700 per cubic millimeter, as shown in the table. There was severe joint pain, particularly in the left hand and left knee which required frequent doses of amidopyrine and codeine for relief.

The patient was discharged, October 8 and readmitted, October 22. She had shown no improvement during the interval. A blood count revealed red blood cells 3,900,000, hemoglobin, 10.9 Gm per hundred cubic centimeters (Sahli), mean hemoglobin content 25×10^{-1} Gm, white blood cells 5,800, differential count polymorphonuclear neutrophils, 80 per cent, polymorphonuclear eosinophils 3 per cent, polymorphonuclear basophils, 1 per cent, small lymphocytes, 7 per cent, large lymphocytes 1 per cent and monocytes 8 per cent. The next day the white count had fallen to 3,500 and did not rise above 3,700 until October 27, when, following a transfusion of 400 cc of citrated blood, a count of 4,000 per cubic millimeter was obtained.

Splenectomy was performed October 31 and an epitrochlear lymph node was removed. The firm, dark, purple spleen weighed 620 Gm and measured 18 cm by 11 cm by 5.5 cm. There were a few dense adhesions overlying small scars in the splenic tissue. The cut surface was markedly swollen, but in spite of this the interstitial tissue and malpighian bodies stood out prominently. Microscopic sections showed the sinuses dilated and filled with red blood cells. The pulp was rich in cells, many of which appeared to be of the plasma cell type. Large pale phagocytes, some of which contained one, others two and three, nuclei occurred here and there. Occasionally, these large cells contained phagocytized red cells. A moderate number of adult eosinophils were scattered throughout the pulp. The malpighian bodies were unusually prominent and contained strikingly large germinal centers.

A green streptococcus was obtained from culture of the lymph node. Endermal injection of a formaldehyde treated broth culture showed moderate skin sensitivity.

The postoperative course was uneventful, but the patient continued to have daily fever, up to 38 and 38.6 C (100.4 and 101.5 F). Eight days after operation the white blood cells had reached 8,500 and thereafter until the day of discharge the count ranged between 7,800 and 11,000. There was a striking subjective improvement, the patient complaining of pain only at rare intervals. Objectively, three weeks after operation, there was increased mobility in the knees, shoulders and wrists and less swelling of the left knee. The red blood cells and hemoglobin continued to increase, reaching a level of 5,100,000 and 11.4 Gm per hundred cubic centimeters, respectively, twenty-two days after transfusion and eighteen days after operation. During this period of convalescence the patient received only a well balanced diet without additional iron or other medication.

The patient was discharged improved, December 16, and readmitted for further study, July 7, 1933, approximately eight months after splenectomy. The interval history was as follows. During her first week at home she was confined to bed because of pleuritic pains on the right side but during the following month there was gradual improvement in the condition of the joints, manifested by an increase in mobility and utility and an absence of acute swelling and tenderness. This period of improvement was succeeded by another stage of acute arthritis involving the shoulders and neck and accompanied by a crop of large tender subcutaneous nodules, which appeared about the shoulders and suboccipital region, and across the forehead. The acute swelling and pain subsided after a few weeks and the subcutaneous nodules slowly receded. Variable pain and stiffness remained, however, in the shoulders and

neck up until the time of her last admission to the hospital. Her body weight had increased from 43.8 Kg to 45 Kg.

Except for the complete disappearance of the blotchy yellow pigmentation of the skin noted before splenectomy and a moderate increase in mobility of the hands, elbows, knees and ankles, there was little in the physical examination that differed from the observations at the last examination. The patient was still undernourished, cachectic and irregularly febrile. There was moderate stiffness of the neck and shoulders and considerable pain on passive motion. The residuum of the subcutaneous nodules about the occiput could still be felt, but the nodules around the shoulders and across the forehead were no longer present. A large subcutaneous nodule was present opposite the right olecranon. The liver edge could still be palpated 7 cm below the costal margin.

Roentgenograms of the joints, when compared with previous films, showed little change except for a slightly greater degree of decalcification. The urine contained no urobilinogen and the van den Bergh reaction of the blood was negative. Blood calcium was 8.3 mg and phosphorus 4.9 mg per hundred cubic centimeters. Nonprotein nitrogen was 28 mg per hundred cubic centimeters, cholesterol was 188 mg. The refractive index (plasma) was 1.3499.

A repetition of the bromsulphalein test of the liver function showed 30 per cent retention after five minutes but no retention after half an hour. A galactose tolerance test showed no reducing substances in the urine collected for six hours after the ingestion of 40 Gm of galactose.

The blood studies showed a decided tendency toward a return to the condition that prevailed before splenectomy: a fall in the total white count and in the proportion of polymorphonuclears and a diminution of the total red cell count, shown in the accompanying table.

COMMENT

The essential features of the cases reported by Felty and by Hanrahan and Miller¹ are as follows. The complex of symptoms occurs in individuals of middle age and is associated with pronounced undernutrition, but in contrast to the chronicity of the joint affliction and severe joint pains there is surprisingly little objective evidence of widespread joint destruction or deformity. All of Felty's cases presented a mottled yellowish-brown pigmentation of the skin, confined to the exposed surfaces in four cases but generalized in one. Skin pigmentation is not mentioned as a feature of Hanrahan and Miller's case but occurred in the case reported here and disappeared some months after splenectomy. In three of Felty's cases there was definite enlargement of the axillary, inguinal and epitrochlear lymph nodes. In the present case the epitrochlear and inguinal nodes were moderately enlarged but were not tender. No lymph node enlargement was found in Hanrahan and Miller's case. Felty observed no subcutaneous nodules in his cases, but in the case of Hanrahan and Miller there were tender, red nodules at the bases of both first toes and a large painless nodule under the skin of the left arm near the elbow. Subcutaneous nodules appeared in my case approximately two months after splenectomy.

Splenic enlargement occurred in all cases and was often of considerable extent, in two of Felty's cases reaching to the level of the umbilicus and, in a third, to 5 cm below this level. The spleen removed from Hanrahan and Miller's patient weighed 525 Gm, and that removed in the case reported here weighed 620 Gm.

The microscopic picture as reported by Hanrahan and Miller shows unusually dilated splenic sinuses and thickening of the intersinusoidal spaces. They described many cells of different types, but especially great numbers of what appeared to be large plasma cells. Sections of the spleen removed in my case showed essentially the same picture. The sinuses are dilated

and filled with red blood cells. In the pulp there are great numbers of plasma cells, and, scattered here and there a few large mononuclear phagocytes. Occasionally, the larger cells have double and triple nuclei. In certain areas of sections in my case there were collections of eosinophil polymorphonuclears distributed

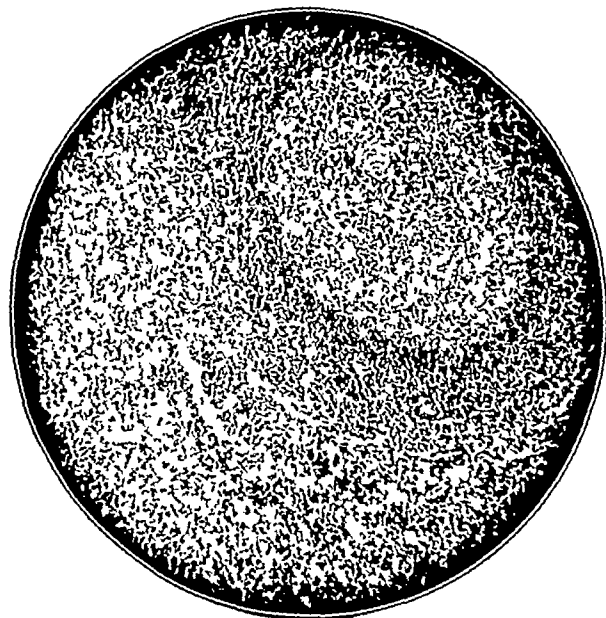


Fig 1—Appearance of spleen under low power showing the large malpighian body and the cellular nature of the pulp

irregularly. In both cases, the malpighian bodies are enlarged and contain unusually prominent germinal centers.

The question of liver involvement in the association of diseases under discussion is of considerable importance if an attempt is made to establish Felty's syndrome as a disease entity rather than as the chance simultaneous occurrence of arthritis with splenomegaly and leukopenia. In none of Felty's cases was there enlargement of the liver, but in one case urobilin was found in the urine. The presence of urobilin cannot, however, be interpreted as evidence of liver disease. The liver was moderately enlarged in Hanrahan and Miller's case and a block removed at operation showed fatty changes in the central spaces and moderate round cell infiltration along the portal vein radicles. As they point out, however, the block of tissue was removed from the free edge of the organ, where such changes are not uncommonly found. In the present case there was marked retention of bromsulphalein preceding splenectomy but only an insignificant retention eight months after the spleen had been removed. A galactose tolerance test gave normal results after splenectomy. The urine contained no bilirubin and no more than the normal amount of urobilinogen. The van den Bergh test of the blood was negative. Clinically there was no evidence of liver disease except for the moderate hepatic enlargement and the retention of bromsulphalein.

A mild secondary anemia occurs in all cases; the red cells varying from 3,000,000 to 4,800,000 and the hemoglobin from 70 to 91 per cent. The leukocyte count in Felty's cases varied from 1,000 to 4,200 in four cases being below 3,000. Hanrahan and Miller's patient had only 800 white blood cells per cubic millimeter on admission.

Felty did not consider the differential formula important, but in two of his three cases in which differential counts were reported there was a marked relative as well as an absolute neutropenia. Hanrahan and Miller's case also showed a pronounced relative and absolute neutropenia. The polymorphonuclear percentage of the total white blood cell count in my case was as low as 40 and as high as 80 preceding splenectomy.

A persistent, although variable, eosinophilia was a feature of the present case, the percentage of eosinophils varying from 12 to 1 in different counts and persisting after splenectomy. Hanrahan and Miller's case did not show more than 1 per cent of eosinophils, but in Felty's series two of the three cases in which differential counts were made showed an eosinophilia of 4 and 13 per cent, respectively. Splenomegaly with eosinophilia has been described by Harrison,³ who reported a case of his own and other cases culled from the literature. The clinical features in his reports consisted of splenomegaly and a moderate degree of lymphadenopathy associated with a leukocytosis of varying degree and a very high percentage of adult eosinophils. Harrison considered the cases to represent a distinct syndrome, but Drennan and Biggart⁴ and Hay and Evans⁵ were more impressed by the leukemic features of the disease and considered the eosinophilia merely a symptomatic bone marrow response. For an interesting discussion of the etiology and pathogenesis of the cases, one is referred to the paper of Hay and Evans.

Leukopenia and eosinophilia in chronic arthritis are not uncommon. In a study of the blood cell count in chronic arthritis, Eaton⁶ found a leukopenia in 22 per cent and a neutropenia (under 60 per cent) in 43 per cent of 250 patients. Schilling⁷ reported a case with

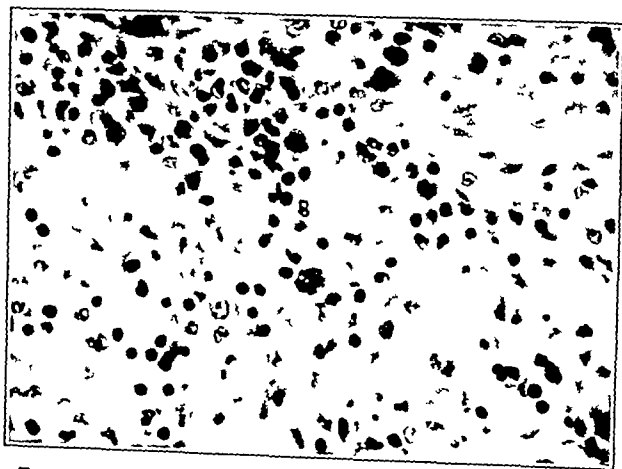


Fig 2—Section of spleen under high power showing several large mononuclear and multinuclear phagocytes and plasma cells

51 per cent of neutrophils and 7 per cent of eosinophils. Eaton cites the thirty-three cases of Barrow and Armstrong⁸ with an average of 50 per cent of poly-

3. Harrison F F. Eosinophilia with Splenomegaly. *Am J M Sc* 179 208 (Feb.) 1930
4. Drennan A M and Biggart J H. Persistent Eosinophilia. *J Path & Bact* 33 995 (Oct.) 1930
5. Hay John and Evans W H. Acute Eosinophilic Leukemia and Eosinophilic Frithroleukemia. *Quart J Med* 22 167 (Jan.) 1929
6. Eaton E R. Chronic Arthritis. A Report Based on the Blood Cell Count in Two Hundred and Fifty Cases. *J Am Inst Homeop* 27 125 (Feb.) 1932
7. Schilling Viktor. *The Blood Picture* translated by R B H Cradwohl. St Louis: C V Mosby Company, 1929. p 320
8. Barrow J A and Armstrong E J. The Etiology and Pathology of Chronic Deforming Arthritis. *Tr Sect Path & Physiol A M A* 1926 pp 59-67 cited by Eaton⁶

morphonuclear leukocytes Kahlmeter⁹ however, in a study of 169 cases of arthritis found a normal range of the leukocytes during the afebrile periods and a mild leukocytosis during fever. Almost 10 per cent of Eaton's cases exhibited an eosinophilia (5 per cent and over), the highest count being 9 per cent. Pemberton¹⁰ mentions an eosinophilia of from 5 to 8 per cent as a feature in several of his severe cases. Barrow and Armstrong⁸ reported no increase of eosinophils.

The occurrence of a lowered sugar tolerance or a delayed sugar removal¹⁰ in chronic arthritis has long been recognized.¹¹ In my case the curve of the blood sugar values, beginning with the fasting level and continuing at half hour intervals after the peroral administration of 100 Gm of dextrose, is similar to that observed in mild diabetes.

Whether the transient improvement in the arthritic features of the disease following splenectomy is due to the increased hemoglobin and red blood cells or to the increased number of leukocytes in the circulating blood or to other factors cannot be settled at the present time. The experience of my patient that the joint pains were always less severe during menstruation is exceedingly interesting but difficult to interpret. Peirce and Pemberton¹² and Crouter and Cajori¹³ have demonstrated the relatively low red cell counts in the peripheral blood in chronic arthritis. Pemberton¹⁰ and others have described the beneficial effect of measures used to improve the peripheral circulation. Presumably during menstruation any tendency toward anemia would be accentuated, and one would expect an exacerbation of symptoms rather than improvement. Since there does not occur an appreciable leukocytosis during menstruation,¹⁴ the improvement in my patient during the catamenia cannot be ascribed to this factor. Probably the increased oxygen capacity and leukocytic factors are jointly responsible.

Because of the paucity of knowledge concerning a causal relationship between the essential features of the small number of cases thus far reported, it is possible only to speculate about a probable common etiologic basis for the simultaneous occurrence of chronic arthritis, splenomegaly and leukopenia. The histologic changes in the spleen cannot be considered a pathologic entity since similar changes are commonly found in a variety of acute and chronic infections.

Splenectomy has not been shown to have more than a transiently beneficial effect on the arthritis or the leukopenia, although in the case here reported there was a disappearance of the abnormal skin pigmentation and an improved liver function as tested by the removal of bromsulphalein from the blood.

SUMMARY

1 A case that came under my observation corresponding in essential details with the cases reported by Felty in 1924 and the case reported by Hanrahan and Miller in 1933, was characterized by chronic arthritis, splenomegaly and leukopenia.

2 There was an apparently temporary effect of splenectomy, first performed in this syndrome by Hanrahan and Miller.

3 The gross and microscopic appearance of the spleen removed from my patient was similar to the picture described by Hanrahan and Miller.

4 A persistent although variable, eosinophilia occurred in the case reported here, and small groups of eosinophils were observed in the splenic pulp. In Felty's original description, two of his three cases in which differential counts were reported exhibited an eosinophilia. In the cases reported in the literature there is not uncommonly an association of neutropenia and eosinophilia with chronic arthritis and of eosinophilia with splenomegaly.

5 A diminished sugar tolerance, or delayed sugar removal was exhibited in my case.

Box 3703

SIMULTANEOUS, BILATERAL SPONTANEOUS PNEUMOTHORAX

REPORT OF A CASE, WITH A BRIEF DISCUSSION OF THE LITERATURE

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Bilateral spontaneous pneumothorax, occurring in the apparently healthy, is an extremely rare disease. Kjaergaard,¹ who reviewed the literature,² found only three such reported cases. McMahon,³ who recently added another case to the group, found less than fifty bilateral cases reported from all causes. The case to be presented here is therefore of unusual interest, as the bilateral spontaneous pneumothorax not only occurred in an apparently healthy young man but probably became bilateral within a few hours after the onset.

REPORT OF CASE

A young man aged 19, a tall thin athletic college student, walked into our office, July 7, 1933, in a condition on admission so critical that the following history had to be obtained from his mother, who accompanied him.

One of his maternal uncles had diabetes while a maternal uncle had asthma. A maternal uncle had died of diabetic coma, another maternal uncle had died suddenly of suffocation supposedly due to tuberculosis. His sister aged 20, had diabetes and a brother aged 12 had asthma.

He had not had any acute illness anteceding his present trouble nor had he had any chronic respiratory or other illness in the past outside of measles, chickenpox, whooping cough and scarlet fever. Since the age of 10 years he had not had a single day's illness, neither had he had any injuries or operations. In the latter part of June he completed a course in college, where he had been an exceptional student and had won two medals in major sports. As he had been a star athlete, his habits were excellent, he neither drank, smoked, used tea or coffee nor dissipated in any way, he averaged ten hours' sleep a night.

July 6, the patient had pitched a nine-inning game of baseball and felt physically fit after this strenuous exercise. He

⁹ Kahlmeter G. The Leukocyte Count in Arthritis. *Hygiea* **86** 449 (July 31) 1924.

¹⁰ Pemberton Ralph. Arthritis and Rheumatoid Conditions. Philadelphia Lea & Febiger 1929 pp 48 and 85.

¹¹ Pemberton Ralph and Foster G. L. Studies on Arthritis in the Army Based on Four Hundred Cases. *Arch Int Med* **25** 243 (March) 1920.

¹² Peirce E. G. and Pemberton Ralph. The Red Cell Count in Arthritis. *Arch Int Med* **39** 421 (March) 1927.

¹³ Crouter Caroline Y. and Cajori F. A. The Red Cell Count in Arthritis. *Arch Int Med* **39** 429 (March) 1927.

¹⁴ Smith Christianna and McDowell Anna Mary. Normal Rhythm of the White Blood Cells in Women. *Arch Int Med* **43** 68 (Jan) 1929.

¹ Kjaergaard Hans. Spontaneous Pneumothorax in the Apparently Healthy. *Acta med Scandnav* supp 43 1932.

² A More complete bibliography than that given may be found in the articles by Kjaergaard footnotes 1 and 9.

³ McMahon B. T. Spontaneous Bilateral Pneumothorax with Report of a Case and Review of the Literature. *Am J M Sc* **183** 165 (May) 1932.

retired that night feeling as usual. On finishing his bath the next morning at 10 o'clock, he noticed a severe left lumbar pain, which persisted and, in the course of an hour, was accompanied by dyspnea. By noon the dyspnea had become of such severity that his mother decided to bring him to our office, a distance of approximately a mile. The dyspnea increased steadily on the way, so that progress was made a few steps at a time. The severe constricting pain across the chest had become so intense that he felt he would die before reaching his destination. He perspired profusely, and his mother noticed a livid pallor of his face and lips. With desperate effort he finally reached our office at 4 p. m., having taken nearly two hours to complete the walk.

The patient was 69 inches (175 cm) tall and weighed 124 pounds (56.2 Kg). He was having a desperate struggle in his attempt to breathe. Respirations were carried out with tremendous effort by short jerky gasps, all the accessory muscles of respiration being used. He appeared apprehensive and perspired profusely, his face had a marked cyanosis, noticeable even under a sun tan. The distended thorax appeared to be fixed without any excursion except for the retracted intercostal spaces and suprasternal notch during inspiration. The infrasternal angle was obtuse, with diaphragmatic motion corresponding to the gasps that were made in an effort to breathe. There was no cardiac impulse visible. His pulse was 132, irregular, of poor volume and thready, his blood pressure was 100 systolic, 80 diastolic. The patient assumed a sitting up position leaning slightly forward. An attempt to place him in the recumbent position nearly ended in disaster, as his pulse became weak and thready, the cyanosis became intense and he began to expectorate a frothy mucus. The physical examination, therefore, was continued with the patient in the position described. The right lung was tympanic throughout, anteriorly and posteriorly, with the exception of an area extending from the fifth to the tenth dorsal vertebra about 3 inches in width along the spine, over which dullness was distinct. There were no breath sounds audible anteriorly or posteriorly over the right lung. The upper left thorax was tympanic above an area extending in an almost straight line from the fifth rib anteriorly to the sixth dorsal vertebra posteriorly. Another tympanic area could be percussed below a line running from the sixth rib to the tenth dorsal vertebra posteriorly. Over the intervening space there were dullness, harsh distant breath sounds and bubbling rales. The mediastinal area was tympanic, so that the heart dullness could not be outlined. The temperature was not taken at this time.

The patient was placed under the fluoroscope in the erect position for examination. The right lung was observed to be almost completely collapsed, approximately 80 per cent, and the left about 50 per cent. The left lung was represented as a triangular shadow with the base directed toward the

spine. The upper margin extended in a straight line across the thorax at the level of the fifth dorsal vertebra while a line extending from it diagonally toward the cardiophrenic angle constituted the lower border. The upper border could be seen moving within a narrow range while the lower border appeared fixed. On the upper margin toward the spine was a cystic appearing mass about 1 inch in diameter which moved with the lung and was apparently protruding from it. Figure 1, copied from Kjaergaard, is an identical picture of what was seen fluoroscopically. A few ounces of fluid was visible in the left base, which could be seen scattering with each slight diaphragmatic excursion. There was very little movement in the right diaphragm but a slight fluid level could be seen at the costo-phrenic sulcus. The mediastinum was displaced to the left and the heart shadow was partially obscured. The heart

appeared very much embarrassed, with limited excursions. The trachea appeared in the midline with very little displacement. A roentgenogram (fig. 2A) confirmed the fluoroscopic examination. At the level of the fifth dorsal vertebra and posterior to the fifth rib can be seen the mass described under the fluoroscopic examination.

The patient was given one-fourth grain (0.016 Gm) of morphine and taken to the Norwegian American Hospital, where he was immediately prepared for thoracentesis. Further examination at this time revealed a coin sound in the right side, but no succussion splash could be heard. With the patient

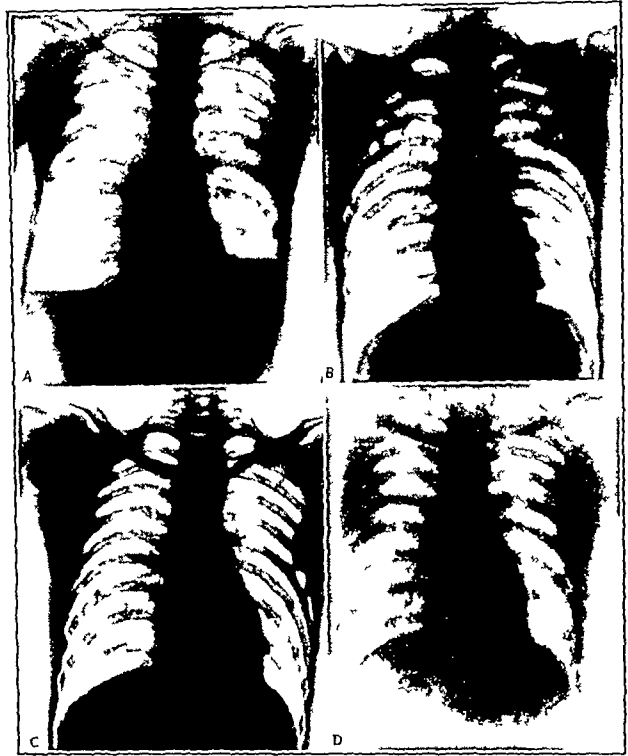


Fig. 2—Appearance of chest. A July 7, 1933 with bilateral spontaneous pneumothorax. B July 17 with lungs partially reexpanded. C August 8 with lungs still partially reexpanded and D August 31 with lungs fully reexpanded.

in a sitting position a trocar was inserted in the posterior axillary line, sixth interspace, and with a Luer-Locke type of Dieulafoy's aspirator approximately 3,000 cc of air was removed from the right pleural cavity. A like puncture was done on the left side, approximately 2,000 cc being removed. The result was quite dramatic, as the patient immediately began to breathe easy, his color changed to its normal hue, and he demanded to be left alone so that he could rest. He was placed in a fully recumbent position, lying on one pillow, and promptly went to sleep. His course from this point has been uneventful. A record of his temperature while in the hospital, eleven days, showed no elevation above 98.6 F after the first three days, 99.4 being the highest point reached. Following the aspiration, his pulse became regular and of full volume, the rate varying between 72 and 80. His respirations likewise decreased from 44 to 26 and, though shallow, were regular. The roentgenogram made July 17 (fig. 2B) shows the partially reexpanded lungs, while figure 2C illustrates the condition on August 8.

The laboratory data were as follows. Examination of the urine was negative. Examination of the blood showed red blood cells, 5,520,000, hemoglobin, 80 per cent, white blood cells, 10,200, differential: small lymphocytes, 24 per cent, large lymphocytes, 7 per cent, large mononuclears, 1 per cent, polymorphonuclears, 68 per cent. The Wassermann and Kahn reactions were negative. No tubercle bacilli were found on direct smear of the tracheal mucus or after concentration and digestion a guinea-pig that was injected intraperitoneally.



Fig. 1—Valve vesicle natural size (reproduction from Kjaergaard).

spine. The upper margin extended in a straight line across the thorax at the level of the fifth dorsal vertebra while a line extending from it diagonally toward the cardiophrenic angle constituted the lower border. The upper border could be seen moving within a narrow range while the lower border appeared fixed. On the upper margin toward the spine was a cystic appearing mass about 1 inch in diameter which moved with the lung and was apparently protruding from it. Figure 1, copied from Kjaergaard, is an identical picture of what was seen fluoroscopically. A few ounces of fluid was visible in the left base, which could be seen scattering with each slight diaphragmatic excursion. There was very little movement in the right diaphragm but a slight fluid level could be seen at the costo-phrenic sulcus. The mediastinum was displaced to the left and the heart shadow was partially obscured. The heart

with this sediment, July 29, was killed, August 31, and at post mortem showed no evidence of tuberculosis. An electrocardiogram taken on the third day of hospitalization showed low voltage in the first lead but was otherwise negative.

He was discharged from the hospital July 17, and was kept in bed at home for thirty-five days. He was given no medication in this rest period. A daily three-hourly temperature record showed no rise above 98.6 during this time. He had no cough nor was there any expectoration. An examination August 31, showed hyperresonance of the lungs anteriorly and posteriorly, with heart dulness within the range of normal. The breath sounds were normal and there were no rales. The roentgenogram (fig. 2D) made on this date shows the lungs fully reexpanded. Outside of the dense hilus markings, they appear quite normal, with no evidence of tuberculosis.

The patient was allowed to sit up, August 21, and his exercises were increased daily until on September 19 he was able to walk 2 miles without discomfort. He has apparently completely recovered but has not been permitted to engage in strenuous exercises. He was planning to reenter college in the autumn quarter.

COMMENT

The sudden onset of this disease in an apparently healthy youth, the afebrile course without complicating seropneumothorax or pyopneumothorax, the negative roentgenographic evidence of tuberculosis, as well as the absence of tubercle bacilli in the sputum either by direct smear or after concentration and digestion, and the absence of changes in the guinea-pig injected intraperitoneally, together with the rapid, uneventful recovery of the patient, clearly establish the diagnosis here of a simultaneous, bilateral spontaneous pneumothorax simplex.

A simultaneous pneumothorax is defined by Olbrechts⁴ as one in which an entrance of air takes place in the two pleural cavities at once or the second pleural cavity is filled with air while the other hemilateral pneumothorax is partially absorbed. Our case is probably of the latter type, as the pneumothorax undoubtedly occurred on the left side first and became bilateral in from four to six hours.

The remarkably short time in which the condition progressed establishes this case as one of exceptional rarity. In Elte's case, a youth, aged 19, a right-sided pneumothorax suddenly developed and three days later a left-sided pneumothorax. The lungs reexpanded gradually so that in four months recovery was complete. In Hayashi's⁶ fatal case there was a three weeks interval between the pneumothoraces. Watson and Robertson's⁷ case was of the alternating type, with fourteen distinct attacks of pneumothorax in two years, at one time there was a bilateral pneumothorax, extensive on the right side and partial on the left. McMahon's case became bilateral about four weeks after the onset of a left-sided pneumothorax, but recovery occurred in three months.

The prognosis for apparently healthy patients with pneumothorax is very good, and this is a characteristic feature of the disease. Kjaergaard's forty-nine patients with unilateral spontaneous pneumothorax have lived from three and one-half to twenty years. In one case, tuberculosis developed about three years after a unilateral pneumothorax, but this was considered a purely accidental infection. In bilateral cases, however, there

is danger of suffocation, and immediate attention is needed.

The procedure carried out in our case as was done by Elte, was a life-saving measure. Permanent aspiration by a water or electric suction pump may have to be instituted when the ordinary procedure fails. It is worthy of emphasis that these patients do not need institutional after-care, as recovery is rapid and spontaneous.

ETIOLOGY

Very little indeed is known about the supposedly idiopathic types of spontaneous pneumothorax. So few patients die from this disease that the pathologic-anatomic observations have been established through approximately ten cases.

Kjaergaard reviews this material and concludes that ruptured valve vesicle cysts, due either to scar tissue, emphysema or congenital malformation of the lung tissue, account for the cause in many cases of this disease. The origin of congenital lung cysts is quite unknown according to Koontz,⁸ who reviewed 108 cases. Some are considered as the fetal retention type, while others are regarded as developmental anomalies of the bronchial tree with the fetal structures still preserved. Congenital disposition to valve vesicle is suggested in Kjaergaard's⁹ supplementary review. He cites cases in which a spontaneous pneumothorax simplex developed in more than one member of the family. In our own case, the history of the sudden suffocation of a maternal uncle and the fluoroscopic and roentgenographic evidence of a left apical cyst point to a congenital cyst as the possible etiologic factor.

Emphysema is a rare cause, however, several fatal bilateral cases have been reported. Emerson's¹⁰ fatal case followed asthma.

Traumatic bilateral cases sometime run a benign course. Such cases have been reported by Mills,¹¹ Hawes,¹² Leclerc,¹³ Elte and Benedict.¹⁴

Kjaergaard states that "although pulmonary tuberculosis is the most frequent cause of spontaneous pneumothorax in the late stages of the disease, yet a minimal subpleural tuberculosis as a cause occurs rarely and takes the course of sero- or pyo-pneumothorax." Benign cases of spontaneous pneumothorax have been reported occurring in tuberculous patients. It is probable that in such cases a valve vesicle may have been the cause, the tuberculosis playing no role whatever.

SUMMARY

The case presented is of unusual interest because 1 The probable etiology of the bilateral pneumothorax is a congenital cyst. 2 We could not find a case on record with an interval of from four to six hours between the pneumothoraces. 3 In no other case reported was the recovery so rapid and uneventful. 4 This is probably one of the most clear-cut cases of simultaneous, bilateral spontaneous pneumothorax simplex on record.

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KERATODERMA BLENNORRHAGICUM

REPORT OF A CASE

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Keratoderma blennorrhagicum is an interesting dermatosis associated with gonorrheal arthritis and occurs almost exclusively in the male sex, although three cases have been reported in females by Lees¹ Issac² and Robert³. It occurs at all ages and probably more frequently than the literature shows because it is unrecognized in the very mild types. Up to the present time there have been about eighty-three cases reported in the literature nineteen of which have been described in America.

This disease has been described under various appellations, the most common being keratoderma blennorrhagicum with the occasional substitution of "keratoma," "dermatitis keratosis," "hyperkeratosis" or "exanthema" for the keratoderma part, and "gonorrheal" for the blennorrhagicum. Berman⁴ called it "dermatitis papillaris parakeratosis," while Rostenberg and Silver⁵ added the name "dermatitis rupioides arthropathica." From a study of the pathology, none of these names are entirely satisfactory since not one of them is either fully descriptive or in entire accord with the manifestations. There is no doubt at the present time that the condition is due to gonorrhea, the lesions show a definite inflammatory reaction in the epidermal and papillary layers, together with a pronounced parakeratosis not a hyperkeratosis. The term "keratodermatitis gonorrhoica" is suggested, therefore, not to add to the already burdensome list of descriptive names but to lead to the adoption of a simpler term both descriptive and showing the causative agent.

To Vidal,⁶ a French dermatologist, goes the credit of being the first to identify and describe this syndrome, in 1893. He considered it, however, a syphilitic manifestation and used antisyphilitic treatment without success. Following his report, twenty other cases found their way into the literature, but the first case in America was not reported until 1912, when Simpson's article⁷ appeared. This report was accompanied by a full bibliography. Roark's⁸ case followed in the same year and since then contributions have been made by Harse⁹ Simpson and Beeson¹⁰ Giger,¹¹ McDowell,¹² Kretschmer,¹³ Stillman and Zeisler,¹⁴ Keim,¹⁵ Willmott,¹⁶

Millis,¹⁷ Rostenberg and Silver,⁵ Scholtz,¹⁸ Barrett,¹⁹ Ronchese,²⁰ Sullivan, Rolnick and White²¹ and Chambers and Koetter.²² Rostenberg and Silver presented a thorough discussion of the many problems of the disease. Keim has an inclusive bibliography of the fifty-eight cases to that date.

REPORT OF CASE

W. K., a man aged 41, Lithuanian, a butcher, had had a chronic cough for the past two years, but otherwise the past history was irrelevant. He had had a discharge from the urethra for an uncertain length of time and pains in his back, right hip and knee joints for the past three months. Previous to that, he had more or less indefinite joint symptoms, with an eruption on the skin of the legs for which he was hospitalized one year before. The diagnosis on his discharge nine months before was infectious arthritis with early hypertrophic arthritis and a tubercle of the skin. At that time he was not seen by the dermatologic service.

The present illness began one week before admission, Jan. 23, 1930 when the patient noticed a discharge from the penis with some burning and frequency on micturition. Several days later while lifting a heavy load, he experienced a sharp pain in the region of the right hip. The pain was so severe and constant that he was admitted to the hospital with the diagnosis of acute urethritis and acute arthritis. The manifestations on admission were (1) a copious urethral discharge showing gram-negative extracellular and intracellular diplococci (2) great tenderness and pain on motion of the right hip joint and both knees (3) roentgenologically a chronic bronchitis with no pathologic changes in the joints (4) a moderate temperature.

During the following five weeks the patient had a septic temperature and suffered greatly from arthritic pains in the hip, knee and ankle joints. He was treated with urethral washes, salicylates and intravenous oxalates without relief, although the swelling of both knees subsided. Several weeks after the initial discharge, what were described as large blebs containing small amounts of bloody serum appeared on the soles of both feet and were treated with potassium permanganate. They continued to enlarge and were described as becoming very keratotic and septic. The patient was then seen by the skin service March 27. At that time he showed involvement of the soles of both feet, on which there were large, irregular crusted excrescences. The majority of the lesions were discrete and varied in size and thickness. On the palms were small keratotic areas, on the lower part of the back were numerous crusted lesions more or less varied in size and of a rupia-like nature surrounded with a fine zone of erythema. The general condition of the patient was fair, he had a mild elevation of temperature but the arthritic pains were quite severe. There was no urethral discharge but the seminal vesicles were greatly enlarged, fluctuant and tender. During the following three months the patient was treated with potassium permanganate soaks and a gonorrheal vaccine. Calcium gluconate was also injected intravenously, as recommended by Baer²³ for its use in arthritis. The injection of calcium gave no relief. The toe nails finally became exfoliated. The patient became more and more emaciated until he finally reached a point at which it seemed necessary for some further therapy. July 2 an operation was performed by Dr. Augustus Riley at which time a double vesiculectomy was performed and the prostate, which was swollen and boggy, was incised and drained at the same time. The patient had a stormy period of convalescence for a few days during which time he showed a veritable shower of new lesions on the skin but the tempera-

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16. Willmott C. B. Keratoderme Blennorrhagique (Vidal). *Arch. Dermat. & Syph.* 17: 17 (Jan.) 1926.

ture promptly dropped after forty-eight hours. Improvement from that time on was continuous and quite rapid. He gained in weight, was able to get up and around with the aid of a cane, and was finally discharged to the outpatient department, September 3.

COMMENT

Noteworthy in this case is the favorable effect of a vesiculectomy as contrasted with other forms of therapy. This case was shown at a meeting of the New England Dermatological Society April 16, 1930. At that time the patient was so emaciated and weak that it was necessary to carry him on a stretcher to the meeting. He was again shown at the meeting of the Atlantic Dermatological Conference in Boston November 10. The patient, at this time, had gained about 30 pounds (13.6 Kg.), showed no lesions, and was practically free from joint symptoms, although he still used a cane. After the operation the vaccine therapy was continued, and it seemed to be more beneficial than it was previous to the operation. It is possible that the mild eruption that he had on his first entrance to the hospital may have been a beginning keratoderma blennorrhagicum. It is likely that many eruptions associated with

reheal infection (single or repeated) or showed evidence of pathologic changes in the genito-urinary tract which was very probably gonorrhea.

Cases have been reported in which arthritis was absent,²⁵ but it is usually present and in the form of an acute polyarthritis with a predilection for the joints of the knees and the ankles. The eruption may be generalized or localized but usually affects the palms of the hands and the soles of the feet. In a series of cases the soles were effected in thirty-four, the toes in thirteen, the back in twelve, the legs below the knees in ten, the hands in eight and the penis in nine. Lesions of the mucosa of the mouth and of the penis have been reported by Berman,⁴ who cites four other cases.

Generalized eruptions begin with a red or white macule, which is closely followed by a vesicle and pustule that enlarges rapidly with resulting central crusting. This crust enlarges and becomes depressed until the lesions show an adherent depressed crust surrounded by a definite ring of pus and a fine, red erythematous zone. On the soles this crust becomes so large that it produces the "relief map" patches so well described by French authors. The generalized eruption is frequently ushered in by a rise in temperature, preceding by some hours a generalized shower of new lesions. Arthritis, in some cases, becomes chronic, and mental depression accompanies these cases. Suicide has been reported in one case.²⁶ The other gonorrheal complications of the visceral organs and the eye have been frequently reported. The same is true for relapse after a complete cure, which happened in the very first case described by Vidal.⁶ When the skin lesions resolve and the crusts described separate, a reddish moist surface remains with some pigmentation, which disappears entirely.



Fig. 1—Plantar keratosis showing relief map appearance

arthritis are frequently misdiagnosed on account of the rarity of the disease and the low index of suspicion.

There are various types of skin eruptions associated with gonorrhea. Buschke,²⁴ in 1899, classified all skin eruptions associated with gonorrhea into four main types: (1) erythematous type, (2) urticarial and erythema nodosum type, (3) bullous and hemorrhagic type, and (4) keratotic type. However, while gonorrheal infection may give rise to such a variety of types of skin lesions, the keratotic form represents a distinct clinical entity. The peculiarly distinct type of the lesions, the very definite course, the almost constant association with arthritis and the fact that transitional forms had never been observed militate against the conception that it stands in any relation to the other types except etiologically.

The clinical syndrome is usually a triad of urethritis, arthritis and dermatosis. The urethritis is either acute or subacute, with a history of previous attacks in almost all cases. The cases reported in which the arthritis and dermatosis occurred without an associated urethritis by Buschke,²⁴ Adamson,²⁵ Scholtz¹⁸ and Graham Little²⁶ have either had a definite history of previous gonor-

ETIOLOGY

There is no question that the syndrome of this dermatitis is gonorrheal. There was hardly any dispute about this until Adamson raised the contention that it was a form of arthropathic psoriasis. Falk²⁷ also was firm in his belief that keratoderma blennorrhagicum has nothing specific about itself, being only a typical form of psoriasis arthropathica. Adamson's arguments were based on the facts that

1 Cases of arthropathic psoriasis with lesions on the palms and soles strongly simulating keratoderma blennorrhagicum, are sometimes seen.

2 In many cases of keratoderma blennorrhagicum of the limbs and trunk, lesions arise which are indistinguishable from psoriasis.

3 The differential diagnosis between the two clinically is often impossible.

4 Histologically, the two diseases are similar.

However the apparent reasonableness of this contention is easily deflated by a more critical analysis of these factors. To begin with, Keim, after extensive study, came to the conclusion that there is no histogenic basis for believing that keratoderma blennorrhagicum and psoriasis are in any way related. The clinical similarity between a typical case of keratoderma blennorrhagicum and a typical case of psoriasis is no greater than between the latter and seborrheal dermatitis of

²⁴ Buschke Arch. Dermat. u. Syph. 48 181 385 1899
²⁵ Adamson H. G. Keratoderma Blennorrhagica Is It a Form of Psoriasis? Brit. J. Dermat. & Syph. 32 183 (June) 1920
²⁶ Little E. G. Keratoderma Blennorrhagicum Practitioner 97 331 (Dec) 1916

²⁷ Roth Zur Kasuistik der hyperkeratotischen Gonorrhoeischen Exanthema Munchen med. Wchnschr. 52 104 1905
²⁸ Falk A. Archiv f. Dermat. u. Syph. 129 299 1921

similar circumstances. The almost invariable association of a gonorrheal urethritis with keratoderma blennorrhagicum is something more than a coincidence, and even if this is so, the parallel onset and relief of the gonorrheal infection, the arthritis and the eruption is certainly not. The reported finding of gonococci in the lesions is at least suggestive, then again, the great preponderance of the localized type in keratoderma blennorrhagicum, which is not true of psoriasis, the characteristic course involuting after several months, the relatively infrequent recurrence, and the almost constant association of another attack of urethritis. The chronological relation—that is, the rash always following the gonorrheal infection, the frequency of the vesicles in the development of the lesions and the usual presence of a positive complement fixation test—all point definitely to the etiologic relation of keratoderma blennorrhagicum to gonorrheal infection.

PATHOGENESIS

Keratoderma blennorrhagicum is undoubtedly due to gonorrhea, but whether it is toxic, septic, metastatic or allergic is unknown. If the condition is due to hematogenic dissemination from some primary focus, then the organisms should be found in the lesions. However, only five reports have shown this to be true, and only one, that of Wadsack,²⁹ was a typical case of keratoderma blennorrhagicum. All the others occurred in gonorrheal infection associated with skin eruptions not of the keratoderma blennorrhagicum type. For instance, Scholtz³⁰ was able to make a culture of gonococci from the connective tissue abscesses in the case of gonorrheal urethritis, which, however, was associated

found gonococci in the smears from pustules, vesicles and abscesses. Dubois³¹ and Campbell³² have also published reports. Even if all these had been true cases of keratoderma blennorrhagicum, the percentage is still small. This theory may be acceptable only if one



Fig. 3—Confluent lesions between the toes of both feet

accepts Scmazzone's³³ opinion that it is an allergic expression of a sensitized skin and that consequently the gonococci are rapidly killed in this sensitized skin.

TREATMENT

Many forms of treatment have been used, and, as would be expected, they are focused at the causative agent. Rapid removal of the focus should be the main purpose regardless of the type of infection. If it is suspected that the vesicles and the prostate are involved, it would seem that the logical thing would be to drain these organs. With this focus removed, the skin lesions heal with little or no attention.

CONCLUSION

In a case of keratoderma blennorrhagicum a rapid recovery followed operative procedure of double vesiculectomy and prostatotomy.

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- 31 Dubois C. *Acta dermat venereol* 5 1 (June) 1924.
32 Campbell cited by Sutton. *Diseases of the Skin* St. Louis C. V. Mosby Company 1923 p. 438.
33 Scmazzone. *Gior ital di dermat e sif* 72 716 1931.



Fig. 2—Dorsum of the right foot showing keratoderma blennorrhagicum and edema from the arthritis.

only with skin lesions of the urticarial and erythema multiforme type. Gager¹¹ states that smears from the pustules of the skin as well as from the urethra contained extracellular gram-negative diplococci. Barrett¹⁹

²⁹ Wadsack. *Finn gonorrhoisches Exanthem*. Berl. Klin. Wochenschr. 17: 976, 1906.
³⁰ Scholtz M. *Blennorrhagische Keratosis*. Arch. f. Dermat. u. Syph. 49: 1899.

A Real Argyll Robertson Pupil—According to Wilbrand and Saenger, a true Argyll Robertson pupil must have the following characteristics: There must be loss of the direct and indirect light reactions. The convergence reaction must be increased and sustained. The pupillary diameter should be less than 3 mm. The size of the pupil does not vary from time to time. The psychic and sensory pupillary play is lost or lessened. It must be admitted at the outset that many writers on this subject do not subscribe to this definition of a true Argyll Robertson pupil, the question of miosis being the point of disagreement. Wilson stated that miosis is incidental and is not a necessary feature of an Argyll Robertson pupil. On the other hand, with equal assurance Behr, Lafon, Wilbrand and Saenger and many others asserted that miosis is as important as the loss of the light reaction. This is an important observation because on it depends the decision as to whether the pupil is a true or syphilitic or a false or nonsyphilitic Argyll Robertson pupil. McAndrews, L. F. *Argyll Robertson Pupil*, *Arch. Ophth.* 10: 520 (Oct) 1933.

SPONTANEOUS RENO-INGUINAL FISTULA

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Renal fistulas may be traumatic or spontaneous in origin, the traumatic type following accidental injuries to the kidney or operative procedures. In the present discussion the spontaneous type will be the only one considered.

Spontaneous renal fistula was known even to the ancients, Hippocrates having described it as a complication of renal calculus. Although it was always considered a rarity, the older medical literature contained a fair number of case reports. Rayer,¹ in his textbook on diseases of the kidney, published in 1839, discussed the subject at great length and cited a number of cases that came under his own observation. In 1889 Rollin² was able to collect thirteen contemporaneous cases, and Chazet³ in 1900 reported from the literature of the time twelve cases associated with renal tuberculosis. This is in marked contrast with the paucity of such reports in the more recent literature, only five cases having been cited in the last thirty years. Such a change is undoubtedly due to the earlier recognition and treatment of the pathologic changes underlying the formation of renal fistula by the more modern urologic methods.

ETIOLOGY

A lesion in the kidney itself is prerequisite to the formation of a fistulous tract from that organ. By far the most common is nephrolithiasis, which is the causative factor in the majority of cases. Thus, it was present in seven of the thirteen cases reported in Rollin's series and was found in four of the five cases reported in the last thirty years. Less common causes are pyonephrosis, pyelonephritis, renal tuberculosis and hydronephrosis. Rayer cited a unique case due to infestation of the renal pelvis by roundworms (*Strongylus gigas*).

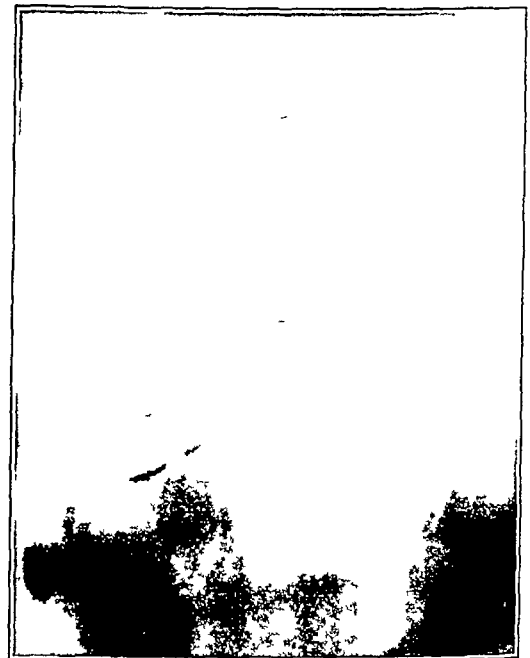
PATHOGENESIS

The formation of a renal fistula is directly traceable to a perforation either of the renal pelvis or of one of its calices, the former being more common and usually occurring on the posterior surface. In most instances only a single opening is found but there may be several. Rayer stated that the posterior surface of the pelvis may be so riddled with orifices as to resemble a sieve.

A perforation is usually the result of ulceration of the pelvis or calix from within. When the ulcerative process involves a calix or an intrarenal pelvis, the overlying renal parenchyma and even the kidney capsule may be ruptured. Infection plays the major role in bringing about these changes, the process often consisting of abscess formation with considerable destruction of kidney tissue. However in extensive hydronephrosis with a marked thinning out of the pelvis and calices, traumatism to the kidney, no matter how slight, is usually the direct cause of rupture. In the presence of calculi an additional factor is undoubtedly

involved, namely, pressure necrosis, with resultant thinning out of the pelvis, calices and overlying parenchyma. Rupture finally occurs at a point weakened by the destructive changes as a result of the infection that often accompanies calculous disease. In nephrolithiasis, trauma may be the exciting agent in producing the perforation, such a case having been reported by Guy.⁴

Extravasation of urine into the perirenal tissues develops at the site of rupture. When the ureter is patent, such extravasation is of slight degree and if the kidney is functionless there may be no urinary leakage whatever. If there is accompanying ureteral blockage, however, the extravasation is very extensive and results in a severe fulminating infection. This is well illustrated in the case reported by Henline,⁵ in which spontaneous rupture of the superior calix by three small calculi occurred in a patient who also presented a stricture in the upper ureter with a calculus



Outlining of fistulous tract by injection of iodized oil into inguinal opening of sinus. Communication of upper end with the right kidney and its relation to the nephrolithiasis.

just above it. A widespread extravasation developed into the retroperitoneal space, groin, scrotum and perineum and terminated fatally. Rarely, as occurred recently in one of our cases associated with a small renal calculus, the rupture of a calix may extend through the renal parenchyma to the periphery of the kidney but fails to perforate the fibrous capsule, resulting in a collection of urine between the kidney and its capsule. Dourmashkin⁶ has very aptly termed this condition "subcapsular extravasation."

As a result of the extravasation of urine and pus into the perinephric tissues, an extrarenal abscess of varying extent develops. The outcome of such a case depends on the path taken by the suppurative process.

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2 Rollin M. *Fistulae nephro-cutaneae*. Thèse de Paris 1889.
3 Chazet G. *Tuberculose rénale avec fistulae*. Thèse de Paris 1900.

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5 Henline R. B. Spontaneous Rupture of the Kidney. *J. A. M. A.* 83: 1411-1414 (Nov. 1) 1924.

6 Dourmashkin R. L. Stone in the Ureter Complicated by a Rupture of the Kidney and Subcapsular Extravasation of Urine. *Urol. & Cutan. Rev.* 36: 670-673 (Oct.) 1932.

Very rarely there is extension to neighboring viscera, followed by perforation into these organs with a resultant renovisceral fistula. Thus, as in another one of our cases a communication developed with the lung, eventuating in a renobronchial fistula. The left kidney may establish a fistulous tract with the stomach, in the case of the right kidney a renoduodenal fistula may develop. Either kidney may take part in the formation of a renocolonic fistula.⁷ A kidney situated in the pelvis has been known to perforate into the rectum. Through the fistulous channel urine and pus are carried into the invaded organ, and in cases of nephrolithiasis calculi may similarly be conveyed into the perforated viscus, later to be expelled from these organs. For example, calculi may be coughed up from a bronchus in renobronchial fistulas, be expelled in the vomitus in cases of renogastric fistulas, or be passed in the stools in renocolonic fistulas. At times a fistula may extend directly into the peritoneal cavity, followed by a usually fatal peritonitis.

A renovisceral fistula is very exceptional, the type ordinarily observed opens on the external surface of the body and may be called renocutaneous. All of Rollin's cases were of this variety. The inflammatory process that accompanies the perforation of the pelvis or calyx generally limits itself to the retroperitoneal space and forms a perinephric abscess, which usually presents itself as a tumefaction in the lumbar region, most commonly over Petit's triangle. Occasionally, however, the suppuration may extend along the plane of the iliopsoas muscle and point on the inner aspect of the thigh near the lesser trochanter or rarely may point in the inguinal region above Poupart's ligament. The abscess frequently opens spontaneously but more often is drained by incision. Although usually the discharge of pus is mixed with urine in cases in which the ureter is patent, the discharge may contain no urine whatever if the kidney is functionless. The chronicity of the fistula is noteworthy, drainage may continue for years, stopping in most instances only after removal of the offending kidney. In nephrolithiasis, fragments of calculi may be eliminated spontaneously through the fistula, occasionally followed by healing of the fistula and cure. At other times, surgical investigation of the cause for the persistence of the sinus will reveal a calculus in the depths of the sinus, removal of which may bring about rapid closure of the fistula. Such a case has been reported by Orr-Ewing⁸ in which the fistulous tract was opened wide and a large calculus found and removed, followed by rapid healing of the fistula.

Although Ravich and also Morris⁹ stated that spontaneous reno-inguinal fistulas do occur neither gave any case reports of this type of fistula. The only report actually cited in the older literature is that of Rollin, who described a case occurring in voluminous hydronephrosis which terminated in cure following nephrectomy. Since Rollin's report, the only other case recorded has been that by Barney and Mixer.¹⁰ In their patient an abscess in the left groin just above Poupart's ligament had been incised twenty-two months

before and much pus evacuated followed by healing of the wound in two weeks. The abscess recurred a year later and was again incised but this time failed to heal, and the wound continued to drain thin pus without the suggestion of any urinary content. A week prior to hospitalization, a progressive transverse myelitis developed. Operation revealed a tuberculous kidney containing a large calculus, and running parallel to the ureter they found a fistulous tract extending from the groin to the renal pelvis. Nephrectomy resulted in prompt healing of the inguinal sinus as well as disappearance of all evidence of the transverse myelitis.

In view of the rarity of such cases, we present the following interesting case, which recently came under our observation.

REPORT OF CASE

M. K., a man aged 48 married Austrian tailor was admitted to the medical service of the Jewish Hospital of Brooklyn Nov. 13, 1930, with the chief complaint of a progressive painless swelling in the right groin of four weeks' duration. For a year prior to admission there had been a constant dull pain in the right lumbar region and loin with occasional radiation down the right thigh. During the past six months the patient had noted slight diurnal frequency and burning on urination, but never any gross hematuria and a loss of 20 pounds (9 Kg.), with accompanying loss of strength. Except for hemorrhoidectomy eight years before the previous history was negative and the family history irrelevant. There was no history of venereal disease.

The patient was fairly well nourished and was not acutely ill. Examination of the head, neck, heart and lungs gave negative results. In the right groin an irregularly rounded mass about 3 inches in diameter was noted just above Poupart's ligament, lying between the anterior-superior spine of the ilium and the external inguinal ring. The mass was hard, fixed to the subjacent tissues as well as to the overlying skin, and was only slightly tender. There was no redness of the skin over the tumefaction. The liver, spleen and kidneys were not palpable. There was some tenderness over the right costovertebral angle but none along the spine. The external genitalia were normal, as were also the extremities. The reflexes were normal. On rectal palpation the prostate was found to be somewhat enlarged but of normal consistency and evidently not malignant. The expressed prostatic secretion was essentially negative microscopically.

On admission the temperature was 100 F., pulse 80, respiration rate 28. The blood pressure was 112 systolic and 70 diastolic. Blood count revealed 4,800,000 red cells, 80 per cent hemoglobin and 9,800 white cells with 61 per cent polymorphonuclears, 34 per cent lymphocytes, 4 per cent mononuclear and transitional cells and 1 per cent eosinophils. The specific gravity of the urine was 1.022, it was acid in reaction and showed no albumin nor sugar. Microscopic examination was negative. The Wassermann and Kahn reactions of the blood were negative. The blood sugar was 93 and the urea nitrogen 166 mg. per hundred cubic centimeters of blood. Roentgenograms of the pelvis revealed no evidence of inflammatory or neoplastic changes except for a slight degree of lumbar scoliosis to the left. The entire vertebral column was likewise normal. Roentgenograms of the urinary tract demonstrated the right kidney to be normal in size and position with a large coral shaped calculus filling the entire pelvis and calices. The left kidney was somewhat enlarged and slightly ptosed. Intravenous urography showed no function in the right kidney but a normal left renal pelvis and calices. At the time the pathologic condition of the right kidney was considered to be coincidental and of no significant relation to the mass in the groin. Although urinalysis on admission was apparently negative the urine two weeks later and on every subsequent examination showed many pus cells and several erythrocytes.

The swelling in the right inguinal region gradually increased and at the end of five weeks was about one and one-half times its original size, the extension occurring upward, laterally and

⁷ Barnes R. W. Acquired Renocolic Fistula. *J. Urol.* 20: 111-115 (Jan.) 1913.
⁸ Orr-Ewing H. J. Extrusion of a Renal Calculus Causing a Sinus in the Loins. *Lancet* 2: 230 (July 30) 1921.
⁹ Morris H. Surgical Diseases of the Kidney and Ureter. 1901.
¹⁰ Barney J. D. and Mixer W. J. Renal Tuberculosis Complicated by Inguinal Renal Fistula. Transverse Myelitis and Renal Calculus. *J. Urol.* 4: 391-397 (Aug.) 1920.

medially but still being limited inferiorly by Poupart's ligament. Accompanying this increase in tumefaction, the overlying skin became reddened and the mass quite tender. The temperature remained normal but a slight leukocytosis of 14,100 developed, with 70 per cent polymorphonuclears. Biopsy was decided on, and on Dec. 30, 1930, under local anesthesia the mass was accordingly incised and a large abscess containing several ounces of creamy yellow pus was found just below the skin. An irregular mass of soft jelly-like red and yellow tissue about 1 inch in diameter was found in the abscess cavity and removed for histologic examination. When the cavity was probed a tract was found leading upward into the retroperitoneal space. The wound was packed with iodoform gauze. Pathologic examination of the tissue removed for biopsy revealed that the specimen consisted of fat and fibrous tissue which were infiltrated with blood and polymorphonuclear leukocytes, indicative of acute suppurative inflammation. No specific pathologic condition was demonstrable. Culture of pus from the abscess was sterile.

Following incision the mass gradually disappeared and the patient was discharged from the hospital Jan. 14, 1931, with the wound still draining. He was treated in the surgical outpatient department where the sinus was treated with surgical solution of chlorinated soda several times a week but without any improvement. During this period the patient complained of intermittent dull pain in the right lumbar region and the urine constantly contained many pus cells. In spite of ultraviolet irradiation and other measures applied to the sinus the purulent discharge persisted for fifteen months. In an attempt to outline the course and source of the fistulous tract iodized poppy-seed oil was injected into the sinus and a roentgenogram taken, which is reproduced in the accompanying illustration. This revealed a tract leading upward to and surrounding the right kidney, clearly indicating that the cause of the sinus in the groin was a suppurative process originating in the right kidney. In view of the large stag horn calculus in the functionless right kidney demonstrated by intravenous urography, nephrectomy was decided on to clear up the discharging sinus.

The patient was accordingly admitted to the urologic service and operation performed by one of us (A. R.) March 24, 1932. Under spinal anesthesia a hockey stick incision was made in the right lumbar region. The kidney was exposed and found to be small and contracted and filled with several large irregular calculi. Overlying the region of the middle calyx and extending through the fatty capsule and into the perinephric tissues a perforation was found through which part of the calculus could easily be felt. The overlying perinephric tissue was the site of very extensive adhesions, cartilaginous in consistency, firmly binding the kidney to the lumbar fascia and muscles and peritoneum. Because of these dense adhesions, extracapsular removal of the kidney was deemed too hazardous and intracapsular nephrectomy was accordingly performed and the cavity drained with iodoform gauze. The pathologic examination of the kidney showed "chronic suppurative nephritis with nephrolithiasis, the calices were markedly dilated forming cystlike cavities, and the parenchyma was the site of extensive necrosis."

The postoperative course was smooth and uneventful, the kidney wound healing by primary union except at the site of drainage. Following nephrectomy the amount of discharge from the inguinal sinus diminished materially. To corroborate further the connection between the latter and the perinephric tissues mercuriochrome was injected into the kidney wound and appeared immediately in small amounts from the existing sinus in the groin. The patient was discharged from the hospital, April 29, with a moderate amount of seropurulent drainage from the kidney wound and a scanty purulent discharge from the inguinal sinus. He was subsequently observed in the urologic outpatient department. The kidney wound gradually closed being entirely healed by September 22. The sinus in the groin continued to show a seropurulent discharge until October 18, when it also closed completely. The intracapsular nephrectomy had made it necessary to leave behind a large mass of inflammatory perinephric tissue, and this no doubt accounted for the rather prolonged period of drainage from the kidney wound. The patient was last seen Feb. 25, 1933, at

which time his general condition was excellent. Since nephrectomy he had gained 30 pounds (13.6 Kg.), the operative scars were well healed, and the urine was crystal clear.

SUMMARY

Spontaneous renal fistula has become a distinct rarity since the advent of modern urology, only four cases having been reported during the past thirty years. Nephrolithiasis is the most common etiologic factor. The fistula always begins as a perforation through the kidney parenchyma, causing extravasation of urine and pus, which either gradually finds its way into some viscus or presents itself subcutaneously. The case reported here is the only recorded case of spontaneous reno-inguinal fistula with nephrolithiasis as the causative factor, the only other case similar to it presenting tuberculosis as a concomitant lesion.

The case under discussion first came under observation at the hospital for a swelling in the right groin. Roentgen examination revealed a right nephrolithiasis, which was at first considered incidental. However, when after incision and persistent drainage for fifteen months the fistula was outlined with iodized oil, it was found to communicate directly with a perforation in the right kidney, which was filled with a large coral shaped calculus. The patient was then admitted to the urologic service of the hospital and at operation a densely adherent kidney filled with a friable stag horn calculus was found. The latter had perforated through the kidney cortex and capsule and by extravasation had caused such a cartilaginous-like perinephritis that intracapsular nephrectomy was considered the only safe procedure. The sinus did not close completely until seven months after nephrectomy, owing to the large amount of perinephric tissue necessarily left behind. Uneventful recovery, however, was the end result.

COMMENT

The formation of a spontaneous renal fistula should be considered inexcusable in this age of modern urologic perfection. If the practitioner were to become more urologically minded, kidney lesions of all kinds, including nephrolithiasis and tumors, would not lead to such dire results as now occasionally occur. With proper urinalysis, roentgen examination, cystoscopy and pyelography available, there is no excuse for failure to diagnose nephrolithiasis at an early stage and to institute corrective measures long before the initiation of extensive destruction.

101 Lafayette Avenue—967 Ocean Avenue

Measles, Influenza and Pneumonia—The experiences during the Great War taught the importance of measles and influenza in rendering conditions suitable for infection of the lung with streptococci, staphylococci, pneumococci or other organisms. Careful investigation shows that even in the absence of epidemics such as those mentioned above, many patients with pneumonia exhibit symptoms referable to the upper respiratory tract for a longer or shorter period before the onset of the disease itself. These symptoms may be those of a simple coryza or common cold, a pharyngitis, disease of the antrum, etc. In over half of a large series of cases at the Hospital of the Rockefeller Institute, the histories mention that one or other of these conditions preceded the pneumonia. The old textbook description of lobar pneumonia arising with great suddenness becoming manifest by a chill in a previously perfectly well individual must be revised. Pneumonia may arise in this manner but in my experience only rarely.—Cole Rufus. *The Outlook for Overcoming Pneumonia*, *Canad. M. A. J.* 30:257 (March) 1934.

CONTAGION AS A FACTOR IN CERTAIN HEART AND JOINT DISEASES

JOHN J. CARDEN, M.D.
SAN FRANCISCO

CASE 1—A woman aged 35, seen in January 1928, had an acute exacerbation of a chronic bilateral parotitis of five years' duration. Between acute recurrences (four), the parotids had remained at the size of half an orange. In each acute attack their size doubled; the patient had a high temperature and there were signs of septic infection until drainage through the parotid ducts was instituted.

During this period of five years varying transient attacks of rheumatoid arthritis were frequent and a mild atrophic arthritis of both hands and feet had developed.

With drainage of the parotids established, this present acute attack subsided. Culture of the parotid secretions revealed a short-lived streptococcus, *Staphylococcus albus* and *aureus* and *Micrococcus catarrhalis*.

Autogenous vaccines and an antirheumatic regimen were continued through August 1928 with a steady, though not marked improvement of both parotid and joint conditions. (The subsequent course of this case will be presented in a later paragraph.)

CASE 2—The sister and room-mate of patient 1, aged 25, seen in January 1928, showed a rheumatoid arthritis of the dorsal spine of four years' duration and of gradually increasing severity until a spinal brace had been necessary for a year. During vacations, however, she had been free from symptoms. No focus of infection was present.

Following removal from home for three months and a long course of the "autogenous" vaccine of patient 1, she remained practically free from rheumatoid arthritis for the next two years. (The subsequent course will be given in a later paragraph.)

CASE 1 (continued)—From December 1928 to March 26, 1930, patient 1 received nearsphenamine intravenously for its antistreptococcal effect. Under this treatment the parotids decreased in size until they were hardly, though somewhat, palpable. The rheumatoid arthritis also improved, with occasional flare-ups as various parotid nodules drained.

In June 1930 the patient developed signs of hyperthyroid activity (basal metabolic rate +28). By July 1930 she was induced to go to the mountains to counteract this and be away from patient 2. She remained away until July 25, 1930, with marked improvement. (The later course will be narrated in a subsequent paragraph.)

CASE 2 (continued)—In March 1930, as patient 1 improved, patient 2 showed a return to rheumatoid arthritis. First a transient subdeltoid bursitis developed, to be followed in a month by a return of the rheumatoid arthritis of the dorsal spine. Vaccine treatment proved useless.

July 16, 1930, cardiac pains were complained of with negative observations.

July 26, 1930, following a four day syndrome of a transient macular rash, headache, backache and a mild rise of temperature ending in hyperpyrexia, the patient became comatose and died in convulsions. Blood cultures, blood chemistry and spinal fluid were all negative. The blood count was low, with a tendency to mononucleosis.

The diagnosis was either (a) the cerebral form of malignant endocarditis or (b) the meningeal form of rheumatic fever.

CASE 3—The mother of patient 1, aged 62, seen, Aug. 24, 1930, had a small though almost fatal coronary embolus. For six months she had noted a shortness of breath on exertion and a villous arthritis of the left knee. The course subsequently has been that of a chronic endocarditis and myocarditis with the occurrence of small emboli during exacerbations.

Whenever patient 1 is worse or away, the mother shows marked improvement with a relapse shortly after the return of her daughter. Recurrent attacks of neuritis of the right arm have ceased with her avoidance of patient 1.

CASE 4—In September 1930 the Japanese occasional house-boy developed an acute prepatellar bursitis. He was referred to his own physician, and full recovery ensued.

CASE 5—In May 1931, an aunt of patient 1 moved into the house. At this time she showed a failing myocardium, with chronic passive congestion of the liver. Her past history was of gastro-intestinal disturbances for the past two years. The cardiac and gastro-intestinal symptoms responded to digitalization but in two months a severe rheumatoid arthritis of the right sacro-iliac joint developed, followed in a month by a similar condition of the left hip. October 20, after an unauthorized shopping tour, the patient was found dead in bed with the signs of an acutely dilated heart.

CASE 6—An aunt of patient 1, aged 58, and a daily visitor, seen, Sept. 20, 1931, had an acutely dilated heart. Her history revealed a mild heart attack six months previously, since which time edema of the ankles had persisted. She was kept alive for a month, when she suddenly sat up in bed, had an attack of jacksonian epilepsy in her right arm (nurse's report) and died with an acutely dilated heart.

CASE 7—The husband of patient 6, aged 58, moved into the house of patient 1 in October 1931. In January 1932 a gradual bilateral parotid swelling developed. Ten days later, following a chill, he showed an acute extensive bilateral parotitis with a temperature of 104°. Next day a pseudo-erysipelas of the face appeared. Following drainage, both parotids returned to normal in ten days and have since remained normal. Two weeks later a mitral insufficiency developed. Since then he has been subjected to occasional attacks of spinal rheumatoid arthritis and infarcts of the spleen.

CASE 8—The uncle of patient 1, aged 55 and a fairly frequent visitor, was seen, Feb. 21, 1932, suffering from a sudden transient left hemiplegia of embolic origin. His course was that of a mild endocarditis and myocarditis, with frequent though small, embolic manifestations. The blood and spinal fluid Wassermann reactions were negative. He was kept in bed until August 8, with steady improvement. September 9, he overexerted and died of an acutely dilated heart.

CASE 9—An aunt of patient 1 had moved into the house in October 1931. She was seen in January 1932 with edema of the legs and a failing myocardium. She responded to digitalization, though later developing rheumatoid arthritic attacks. In December 1932, following the extraction of two abscessed teeth, a mild mitral insufficiency developed. She still responds satisfactorily to digitals.

CASE 1 (continued)—In December 1932, following the extraction of two abscessed teeth, a subacute mitral endocarditis developed, with a tendency to small emboli following any unusual strain. The myocardium is clinically undamaged to date, and between recurrent exacerbations of endocarditis the heart valves appear normal. Yearly roentgenograms of the patient's teeth have always shown a newly abscessed tooth.

CASE 10—A brother of patient 1, aged 40, seen in July 1933, had a transient suprapatellar bursitis and a past history of occasional neuritic pains. His heart was not examined.

SUMMARY

Nine cardiac and rheumatoid arthritic cases occurred in one family group. In this group, only one patient has a definite and constant focus of infection. Since June 1930, from which time this focus of infection has been better drained and varying members of the group have come into more intimate contact with this patient, four have died of cardiac disease, one is practically bedridden with cardiac disease, two are up but with serious cardiac conditions, one is still able to work but has a pronounced cardiac lesion, and seven have had varying attacks of rheumatoid arthritis.

Furthermore, when patient 1 is away or in bed, all the others have shown marked improvement until her return.

CONCLUSIONS

1. In rheumatoid arthritis, (a) the causative focus of infection in certain cases is not in the individual but

As this paper deals with contagion within a family group, all cases have been arranged in their relation to the infective member, patient 1.

Flood Building

BLOOMFIELD HILLS, MICH

These boys had come from homes provided with ample well prepared and properly balanced meals, yet they had not gained at a normal rate. Gaining diets and weight changes could be further studied only by expressing the diet in terms of carefully estimated calory values.

[illegible]

The gaining follows a curve, first rising rapidly, then gradually approaching the horizontal line. This curve

2 Miss Dorothy Waller University of Michigan

might even possibly be expressed in an algebraic formula. This weight gain is swift and not to be confused with the weight any boy gains at a normal rate. The average weight gain is one-fifth pound (90 Gm) a day.

The value to the individual boy of a gain in weight varies, occasionally the general improvement is startling. The benefit, of course, can be only a clinical impression. Not uncommonly with a substantial gain in weight in very thin boys there appeared an interesting change of mood toward a more quiet and receptive quality. The amount of gaining varies also widely

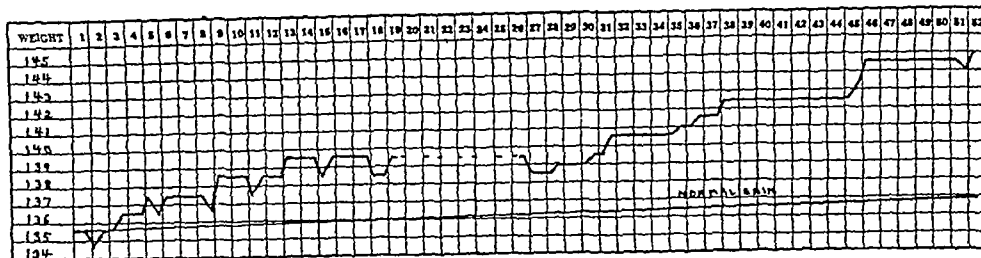


Chart 2—Cream and butter diet, J D S aged 17, height 74½ inches (189 cm), heavy line weight broken line away from diet table

among individuals on the same diet. This fact, however, does not affect the curve mentioned previously.

The weight acquired at the diet table was subsequently held when the boys left the table, and normal gaining began at the newly acquired level. The weight lost in reducing diets is usually replaced by the youngsters after they are released from the table. In no instance was the diet carried beyond the amount desired, whether a thin boy can be made a fat boy is not revealed in this series.

During the current year, for purposes of economy and because there were no pronounced instances of underweight in the school, this elaborate diet table was replaced by a simple cream and butter diet, the cream

THE PSYCHOLOGY OF THE DIET TABLE

The most intriguing and interesting part of the diet is causing the boys to eat the food. A long, heavy oak table is placed in a large room with colorful, descriptive wall paintings, there is an adjoining separate diet kitchen. The chief conversation is food. There is interest and curiosity over each course. Table manners do not interfere with a full enjoyment and easy transportation of food from plate to mouth. The model is the feast in an old medieval castle.

The foods that are prepared are not made unduly attractive, and the food conglomerations (of which adults are so fond) are never served. The choice of foods that boys like is wide, and certain alleged distastes soon become nonexistent (e.g., the vegetable group, beets and spinach). (A hunger strike occurred twice during the trial week—a dramatic gesture not arising in a

distaste for food, the failure of glamor to accompany this ended each strike in three days.) There are, however, certain well established food antipathies, e.g., creamed cauliflower, tomatoes and fish.

The psychologic methods are listed:

- 1 The use of the rare dish—strawberries in January.
- 2 The establishment of an ego, which formerly has been on the basis of an odd or unusual appetite, e.g., "I haven't eaten a creamed potato for five years," to one in which the boy becomes famous as a big, nondiscriminating eater. This is especially possible with the dramatic change to a high caloric diet.
- 3 An approach through a scientific explanation. These foods have been accurately weighed and the caloric value of each is known. "It is not the food that maintains the weight,

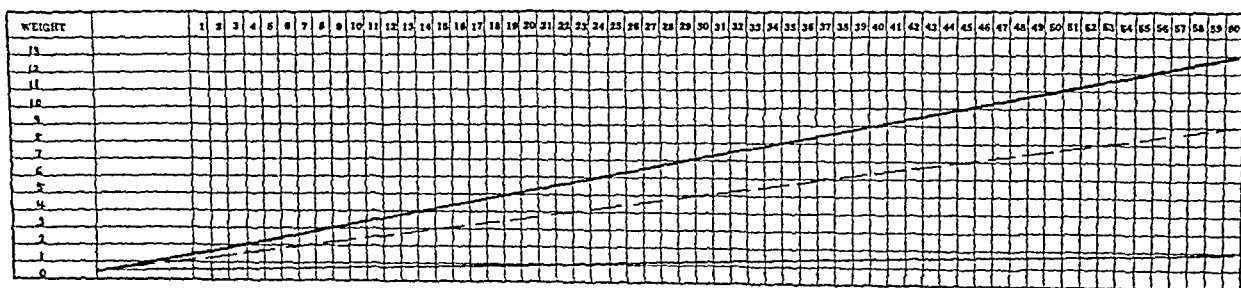


Chart 3—Summary showing the relative values of special gaining diets. Heavy line weighed high caloric diet broken line cream and butter diet light line normal gain without special diet

(20 per cent) was given in the form of half and half (milk and cream), two glasses at each meal, and the butter was used generously on potatoes, bread and vegetables. This provided about 900 surplus calories a day and resulted in an average gain of one-seventh pound (65 Gm) daily. This rate of gaining is quite variable, some failing to respond, others increasing their weight one-half pound (226 Gm) daily (chart 2). Tables of normal gaining prepared at the school show an average monthly gain in the winter of 1½ pounds (544 Gm). This is distributed in age groups as follows: 12 years, ½ pound, 13 years, ¾ pound, 14 years, 1½ pounds, 15 years, 1¼ pounds, 16 years, 1½ pounds, 17 years, ½ pound, 18 years, ¾ pound.

that is important in gaining, but the added 1,000 calories, which will theoretically and actually cause an increase in the weight of the body." The boy considers food with an understanding of its caloric value and is familiar roughly with the calories in the common foods. This is a logic and inducement to eat which proves effective over a period of many weeks.

4 A featuring of reasons for desiring a weight gain. "It will improve you!"—a blend of vanity and ambition. A boy will often wish to gain to make football material.

5 A cultivation of the sense of taste similar to the change from a fondness for the plain music of drums to a more complicated score, to a symphony which is compared to a well balanced diet. (This argument will appeal to a boy of 11 years.)

It is to be observed that all these methods are directed at one boy, there is no group psychology, great care

is taken not to compare one boy with another or with any standard. It is purely a single-boy appeal. The diets were never explained, even to a group of two fat boys and lean and normal boys, and boys on other special diets, placed side by side, were unmindful of each other. (It is remarkable that a fat boy on 900 calories will sit next to a lean boy on 4,200 calories without comment.)

Finally, when it had been definitely established that any normal boy could be made to gain or lose significant poundage, group psychology was employed.

1 The boys were assigned to a table and told that they were on a special diet. No explanations were proffered, and the assumption was that they, like the other boys at the table would eat. This is the most simple and a very effective method.

2 Another aspect of this group reaction was the placing of a particularly overactive highly conversational boy in a tranquil corner of the diet table where the conversation was slow, the moods were level and new ideas were rare—sending them out to pasture—where thoughts sent out were driven back on themselves, and on the business of eating.

From these descriptions it appears that gaining depends not on the selection in the diet, the preparation of the food, or, particularly on the use of high calory foods but rather on the creation of the mind to eat!

CAUSES OF UNDERWRIGHT IN OLDER CHILDREN

The causes of underweight as they have appeared at the diet table and elsewhere during the past two years are as follows:

1 There is a fundamental, unexplained taste for food low in calory value, a fondness for dainty dishes and an avoidance or even repulsion to fats, e.g., a thin boy eating a chop will take only the lean portion, leaving the margin of fat. Similarly, boys having a low hemoglobin and red blood count may not by choice take foods rich in iron. For example, an apple pie containing raisins will be eaten completely except for the raisins, which are high in iron content.

2 There has been an absence of instruction and training in overcoming this changed taste in the selection of foods when it passes normal limits and produces a state of underweight.

3 Anatomic anomalies (e.g., a short small intestine) and altered absorptive and assimilative processes are theoretical causes of underweight.

4 Overactivity (in football, basket ball and track) is often a cause.

5 One chronic disease, a very important cause of underweight, is appendicitis with recurring subacute attacks.

6 There appears to be a relationship between poor posture lordosis and underweight.

OTHER OBSERVATIONS

1 The use of high calory diets in convalescence, in addition to restoring the normal weight, appears to accelerate all phases of convalescence.

2 Basal rates taken on the boys showed no relationship between the basal metabolic rate and the weight, there are no unusual readings. Pituitary substance has no influence on weight, thyroid substance was not given in order to control better this experiment in diet.

3 Among girls, food choices, eating habits and responses to diet were similar to those observed in boys. No striking dietary caprices were observed (the girls did show an inclination to omit the breakfast meal).

SUMMARY

A diet that is well balanced, prepared and served under excellent conditions and properly controlled has been carried out for several years at Cranbrook School. The actual dieting is preceded by a period of relative fasting, followed by a rapid increase in food to as high as 5,000 calories. Various devices and logic are employed to persuade the boys to eat. The selection of individuals who will show clinical improvement on a gaining diet requires, first attention to the causes of underweight and, secondly, recognition of the wide range in normal weights and understanding of the various types of body build. Individuals placed on a gaining diet who are definitely below their normal weight will show a prompt and favorable response.

Clinical Notes, Suggestions and New Instruments

AN EAR COMPLICATION FROM DINITROPHENOL MEDICATION

HENRY DINTENFASS, M.D., PHILADELPHIA

This case is presented because it demonstrates the possibility of the untoward action of dinitrophenol on the otologic apparatus in the treatment of obesity.

A M., a white woman aged 28 who weighed 150 pounds (68 Kg.), was given dinitrophenol for weight reduction in June 1933. The dose consisted of a 5 grain (0.3 Gm.) capsule of alpha-dinitrophenol administered orally once a day. Immediately following the first capsule a burning sensation at the back of the throat was experienced which lasted ten minutes. During the next few hours profuse perspiration, a dull headache and general bodily weakness occurred. At the end of four days, after 20 grains (1.3 Gm.) of the drug had been taken the symptoms increased. There was severe exhaustion accompanied by a rash over the chest and extreme dizziness and a sensation of fullness and pain in both ears.

The dinitrophenol was then discontinued, the rash cleared and the headache, weakness and dizziness disappeared. The pain and fullness of the ears however became aggravated and impairment of hearing developed. After an interval of a month during which time the ear disturbance had partly worn off the drug was again given in similar doses. There was a recurrence of the symptoms noted previously. Three days later after 15 grains (1 Gm.) of dinitrophenol had been administered it was again necessary to discontinue its use. In a week all ill effects of the drug abated with the exception of the otalgia and the impairment of hearing. There was no appreciable loss in weight at any time.

The patient was referred to me early in September 1933 two months after the discontinuance of the drug. She still complained of pain and fullness in both ears. The ear examination disclosed bulged and reddened drumheads with obliteration of landmarks on both sides and a definite diminution in hearing (about 30 per cent) catarrhal in nature. There was no doubt that this condition was brought on by congestion and inflammation of the pharynx and eustachian tubes incident to the administration of the drug. In the treatment an effort was made at first to bring relief by the use of mild antiseptic nasal sprays and gargles. No benefit however, ensued from these conservative measures. Later catheterization and bouginage of the eustachian tubes was employed and resulted in some amelioration of the symptoms.

At the present writing, February 1934, seven months after the discontinuance of the dinitrophenol although the pain and discomfort in the ears have disappeared and the redness and bulging of the drumheads have subsided there is still considerable impairment of hearing. The patient states that her hearing had always been acute prior to the use of this drug.

1305 Spruce Street

A QUICK EASY EFFICIENT TREATMENT OF
BARTHOLIN CYST AND ABSCESS

GODDRICH C. SCHAUFFLER, M.D., PORTLAND, ORE

Any one who has operated on a sufficient number of Bartholin cysts has found reason to dislike the routine procedure of surgical enucleation. There is often technical difficulty in complete enucleation, nearly always primary hemorrhage, frequently severe secondary hemorrhage, always postoperative discomfort, edema and relatively prolonged disability, and too frequently a recurrence.

The routine practice of simply incising and draining the abscessed Bartholin area frequently proves to be ineffectual because of recurrence of the abscess or the later development of a cyst.

I now use the technic described in the illustrations to the exclusion of any other for both abscess and cyst. I have treated sixteen cysts and ten abscesses in this manner. During an observation period varying from three months to two and one half years, I have noted no recurrence of cyst and only one recurrence of abscess.¹

As the electrode follows a spiral path outward from the center (fig 3a), the cavity lining will be seen to shrink and retract centrally, leaving at the end of the coagulating process a clean dry core of bloodless cooked cavity wall (fig 3). The

Nitrous oxide and oxygen, ethylene, or caudal block will give ideal anesthesia. Local infiltration of procaine hydrochloride is unsatisfactory.

If surgical diathermy is not available, a surgical cautery with a blunt tip heated to cherry red may be substituted.

CONCLUSION

Because of a long and frequently unpleasant experience with other methods, I am convinced that this method for the management of Bartholin cyst and abscess is in comparison highly satisfactory.

548 Medical Arts Building

SUPERIOR MESENTERIC THROMBOSIS WITH
RECOVERY

G. J. CURRY, M.D. AND G. R. BACKUS, M.D., FLINT MICH.

A man, aged 60, a retired farmer, entered Hurley Hospital, Jan 7, 1933, because of severe epigastric pain, associated with nausea and vomiting, of sudden onset four hours before. The pain was sharp and colicky and did not radiate. The patient was apparently well and had been for a number of years up to the occurrence of the present trouble.

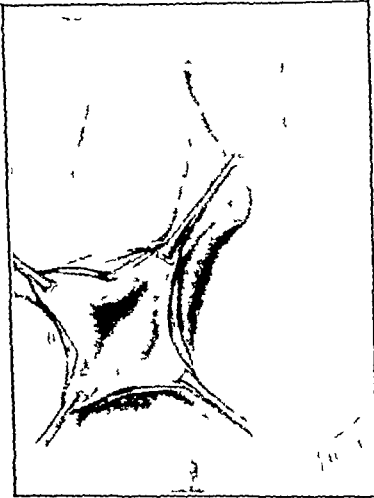


Fig 2—The cyst (or abscess) is opened the incision carried widely to allow complete flattening and exposure of the cavity wall by tension on the tabs of the crucial incision. The floor is carefully explored for diverticula or communicating pus sacs.

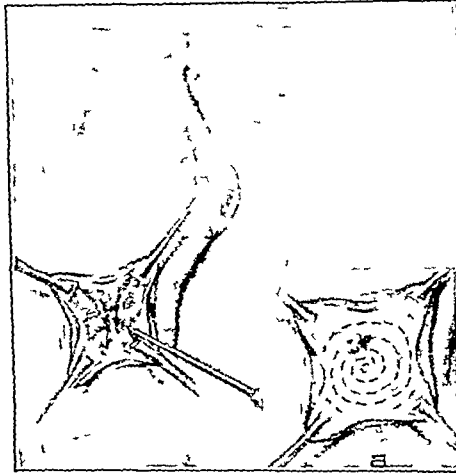


Fig 3—The pointed applicator attached to a surgical diathermy outfit is now applied to the center of the exposed lining which has been carefully sponged dry. A coagulating current with a penetration of about 2 mm is turned on and the entire lining of the cavity is destroyed by an outward spiral or snail like progression with the coagulating tip as at a. Care must be taken to cover every bit of the base of the lining including possible diverticula. A shrinkage of the cyst wall area will be noted.



Fig 5—Healing crater from seven to ten days after operation. Healing has taken place from the base by clean granulations. Very little tenderness, pain or disability.

extent of the exposed wall will have receded to about one-half its original size. Instead of a gaping hemorrhaging cavity there is a clean dry shallow pit with a solid core, which later forms a clean slough. The edges of the incision may be approximated or not. Packing is desirable to prevent premature skin closure. On subsequent visits the pit should be probed to facilitate healing from the base.

The total operative time is from five to ten minutes. The patient may go home a few hours after operation, as a rule. I have never had a hemorrhage early or late, notable postoperative infection, or edema. The postoperative course has been mild following both abscess and cyst.

Figures 1 and 4 which have been omitted from THE JOURNAL because of lack of space will appear in the author's reprints.

From the Department of Gynecology of the University of Oregon Medical School and the Multnomah County Hospital.

Presented as a clinical demonstration before the annual meeting of the Pacific Coast Society of Obstetrics and Gynecology at Portland Ore. Oct. 20, 1933.

¹ A patient developed a Bartholin abscess behind a broken down cyst four days post-partum. A secondary repair was done on the cyst, and the abscess cavity was treated rather conservatively. A cyst recurred in the Bartholin area two years later.

The remaining history was irrelevant so far as the present illness was concerned.

The patient was well developed in a state of partial collapse, and complaining of severe abdominal pain. The abdomen showed no distention, and no masses were seen or felt, tympany was present throughout, tenderness was localized to the epigastrium, and all muscles were in a boardlike spasm. All examinations were essentially negative in connection with other systems. The temperature was 100, pulse 90, respiration 24. Blood pressure was 160 systolic and 80 diastolic. Urinalysis was negative. The white blood count was 13,000, with polymorphonuclears 90 per cent, lymphocytes 10 per cent.

The entire symptomatology would lead one to associate it with the gastro intestinal tract. On the strength of these observations a diagnosis of perforated gastric or duodenal ulcer was made and the patient was prepared for immediate exploratory laparotomy.

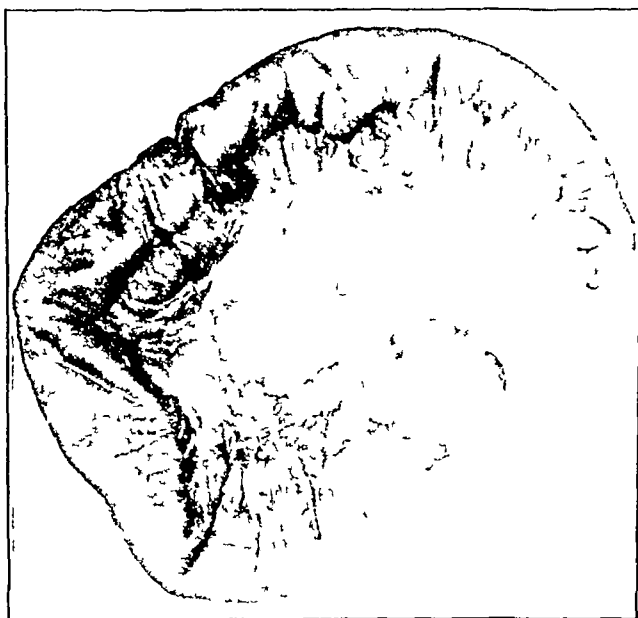
Operation was performed under nitrous oxide anesthesia supplemented with ether, through a midline incision in the upper part of the abdomen. No perforations were found in the

From the Department of Surgery and the Department of Pathology of Hurley Hospital.

stomach or duodenum, and the gallbladder was nonpathologic. On examination of the intestine, an area of gangrene was found in the midportion of the jejunum, from 9 to 12 inches (23 to 30 cm) in length, more marked in the center and fading out at the ends. The corresponding V-shaped area marked the beginning of a much darkened area in the mesentery, for a distance of several inches. A diagnosis of mesenteric thrombosis was made and intestinal resection of about 2½ feet (76 cm) was done. This was followed by a lateral anastomosis. The abdomen was closed in layers without drainage, and the patient returned to bed in a satisfactory condition. His convalescence was uneventful and the bowels moved normally on the fifth day. The temperature, pulse and respiration remained within normal limits. The wound healed by primary union. The patient sat up on the thirteenth day and was discharged on the fifteenth.

PATHOLOGIC REPORT

Gross Examination—The specimen was a gangrenous G shaped portion of jejunum 46 cm in length, the color of which was diffuse, glossy, velvety and purplish black. At one extremity the line of demarcation from the more normal bowel



Resected jejunum showing area of infarction and gangrene. Healthy tissue may be noted at the periphery.

was sharp and distinct. The other end showed a more gradual change from gangrenous to normal. Both changes are demonstrated in the accompanying illustration. It was inelastic and doughy, the surface was friable and tore easily. The mesentery had been clipped close to the bowel and the two edges were separated from 1 to 2 cm. The enclosed vessels and adipose tissue appeared tarry, spongy and necrotic. The whole structure was filled with blood. The lumen contained thick tarry, coagulated bloody material and the mucosa would fall into the lumen with the slightest manipulation.

Microscopic Examination—Section 1. The mesentery exhibited extravasated blood throughout the adipose tissue, obscuring the fatty architecture. The veins were massively engorged and distended.

Section 2. The intestinal wall exhibited a massive widespread extravasation of blood into the wall and mucosa, causing marked distortion of the tissue. The mucosa was filled with blood and exhibited diffuse edema, maceration and sloughing.

Diagnosis—Mesenteric thrombosis with gangrene of an infarcted area.

COMMENT

This case is reported as a satisfactory result from a condition that is very serious and dramatic the results of which are ordinarily very poor, death occurring in 90 per cent of the

cases. Obstruction of the superior mesenteric artery and vein, whether by embolism or by thrombosis, produces, if of sufficient extent and suddenness, a hemorrhagic infarction of the intestine with resulting gangrene. Occlusion of inferior mesenteric vessels rarely occurs. Etiologic factors are embolism from the left heart or aorta and arteriosclerosis of the superior mesenteric artery, predisposing to roughening and thrombosis. While reestablishment of the circulation through the collaterals is possible, the usual picture is occlusion, infarction and death.

This condition is the most fatal of all abdominal emergencies. Secondary thromboses are common. The treatment is surgical, with resection of the involved intestine, such resection including a wide margin of healthy tissue.

CONCLUSION

At the present time the patient is well and healthy, with no subjective or objective complaints. According to the records investigated at Hurley Hospital for the past ten years, this is the only recovery. It is to be noted that this patient was operated on early (five hours after the onset of symptoms), which probably accounts for the favorable result.

401 Genesee Bank Building

PROPHYLAXIS OF IMPETIGO NEONATORUM

W. H. GUY, M.D. AND F. M. JACOB, M.D. PITTSBURGH

In 1928 Chadwell¹ reported three years of extraordinary success in the prevention of impetigo among the new born in a large maternity service. The method hinged on a singleunction of each infant with 5 per cent ointment of ammoniated mercury following an initial soap and water bath. On the following days sterile cottonseed oil was applied to impregnate all follicles completely with the drug. While numerous other institutions have adopted the plan we feel that the success of the method in our hands merits a report urging a more widespread adoption of this simple and inexpensive procedure.

At the Elizabeth Steel Magee Hospital there are between two and three thousand births annually. Impetigo has been present intermittently and at times in epidemic form in the nurseries since the opening of the institution. From reports and observation of other large maternity services we feel that the incidence of impetigo mentioned approximates the general experience. It is true that we have heard physicians state that in some hundreds of deliveries they have never seen examples of impetigo of the new-born. Either their experience is unique or they are not recognizing their cases. Some are diagnosing spreading bullous eruptions of the new born as pemphigus neonatorum. It must be remembered that true pemphigus of infants is an extremely rare disease and that practically all cases of this type are examples of the rather common bullous impetigo.

In 1929 there were 2,344 births in the Elizabeth Steel Magee Hospital. During 1929 thirty-four cases of impetigo were seen, the disease reaching its height during August, with twenty cases. This was the largest incidence of the disease seen for any one year. All the usual procedures of isolation and individualized treatment were carried out with meticulous care, but new cases continued to appear. Early in 1930 we instituted routine prophylactic care according to Chadwell, with a resulting prompt disappearance of impetigo from the nurseries. During 1930, with 2,363 births, two cases of impetigo were seen—one secondary to a breast abscess in the mother, and the other a questionable eruption surrounding an abscess on the scalp of the infant. During 1931, with 2,884 deliveries we saw one frank case of impetigo but in this case the prophylaxis was not given. Delivery occurred on the outside and the condition was discovered after admittance for medical attention. In 1932, with 2,522 births we saw one case of bullous impetigo for which we have no explanation. One other case was a questionable eruption surrounding an abscess

From the Department of Dermatology, University of Pittsburgh School of Medicine.
1. Chadwell, O. R. Impetigo Neonatorum: Control and Treatment, New England J. Med. 199:983-985 (Nov. 15) 1928.

on the scalp and the diagnosis was an acute infectious eczema-toid dermatitis. During 1933 no cases have been seen.

POSSIBLE DELETERIOUS EFFECTS

During the first few months after the routine prophylactic technic was begun, several cases of more or less generalized chemical dermatitis were encountered. This occurred while the 5 per cent ammoniated mercury ointment recommended by Chadwell was being used. When the ointment was reduced to a strength of 2 per cent this complication disappeared.

The urine was examined repeatedly to determine any possible kidney irritation, with negative results. Careful observation and investigation developed no contraindication for the procedure.

TECHNIC

The following is a brief outline of the technic in use at the Elizabeth Steel Magee Hospital since early in 1930.

A Delivery Room—1 As soon as possible after birth, babies are cleansed thoroughly with sterile liquid petrolatum.

2 Each baby is thoroughly rubbed from the top of the head to the soles of the feet with 2 per cent ointment of ammoniated mercury before it leaves the delivery room.

B Nursery—1 Daily cleansing is accomplished with sterile cottonseed oil.

2 The buttocks and anus are cleansed with cotton balls and cottonseed oil.

3 Soap and water and powder are not used.

7026 Jenkins Arcade

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
H. A. CARTER, Secretary

AN APPRECIATION

The Council on Physical Therapy takes this opportunity to express its appreciation for the valuable advice and assistance of men trained in special fields who have offered their services in the investigation of certain devices and apparatus that have been presented to the Council for consideration. For the past year the Council has received valuable assistance from Drs. Fred L. Adair, Frederick Balmer, M. Herbert Barker, H. C. Bazett, William Bierman, Walter M. Boothby, George E. Brown, E. R. Clark, John D. Ellis, Geza De Takats, F. H. Ewerhardt, Hart Fisher, Harry Goldblatt, S. Goldschmidt, K. G. Hansson, E. H. Hatton, John S. Hibben, Allan Hemingway, Disraeli Kobak, Richard Kovacs, Frank H. Krusen, Eugene Landis, Henry Laurens, C. L. Lowman, Edgar Mayer, C. O. Molander, Tell Nesson, Nathan Palmer, Earle B. Phelps, Sidney Portis, Ellison Ross, Kellogg Speed, K. W. Stenstrom, E. V. Swenson, Grant E. Ward, Prof. Fred A. Rogers, Mr. Ralph Allison and Mr. C. S. Bierwag.

REGULATIONS TO GOVERN ADVERTISING OF ULTRAVIOLET GENERATORS TO THE MEDICAL PROFESSION ONLY

Therapeutic claims in advertising matter and descriptive literature in publications intended for the medical profession are limited to conform to the following statements based on the best available evidence.

The evidence available in January 1934 indicates that ultraviolet rays have a prophylactic and curative effect on rickets, infantile tetany or spasmophilia and osteomalacia.

Prenatal irradiation of the mother and also irradiation of the nursing mother appear to have a definite and specific preventive influence on rickets. This however requires general exposure of the bare body. Mere exposure of the head and face could not be expected to yield the same result.

Irradiation may also exert a beneficial action on other disorders of calcium metabolism but the limits of such action the conditions under which it may best be produced and the specific action of the rays have not yet been fully explored.

The benefit derived by patients suffering from tuberculosis of the bones, articulations, peritoneum, intestine, larynx and lymph nodes, or from tuberculous sinuses, when the entire body is exposed to carefully graded doses of natural sunlight or of radiation emitted by certain artificial sources of ultraviolet rays, cannot be doubted. The beneficial results of such irradiation appear to be partly due to ultraviolet radiation, but it is probable that visible and infra-red rays, as well as the conditions of the atmosphere, also play a certain ill defined part in the therapeutic effect.

As far as tuberculosis of the bones and articulations is concerned the majority of those who have had extended experience with heliotherapy agree that suitable, graded exposure to natural sunlight is most effective and that exposure to artificial sources of radiation is second best. Nevertheless, under conditions that make natural heliotherapy impracticable, artificial heliotherapy has been shown to be of distinct value. Of the different types of artificial generators employed when sunlight is not available the majority of authorities express a distinct preference for the type of generator the spectral emission of which is relatively continuous and approximates most closely the solar spectrum. The same appears to be true in tuberculosis of the larynx and lymph nodes¹ whereas in tuberculosis of the peritoneum¹ and intestine a distinct preference has not been evinced.

Local exposure to ultraviolet rays of circumscribed tuberculous lesions of the urinary bladder has been shown to yield distinctly favorable results, but the method requires special applicators which are not generally available and, above all, special skill and experience in the cystoscopic diagnosis and treatment of bladder lesions.

On sluggish, indolent wounds that do not heal or that are abnormally slow in healing, local or general irradiation may have a beneficial effect. However, it is not clear that this is a specific effect of ultraviolet rays.

Exposure of the lesions of erysipelas and a wide area of surrounding tissue has been shown to have a favorable effect but whether the results of ultraviolet irradiation are superior to, or even as good as, those obtainable by proper exposure to roentgen rays has not yet been established.

Numerous claims that ultraviolet irradiation exerts a valuable therapeutic effect in secondary anemia have been advanced. The evidence supports the conclusion that while in some cases ultraviolet rays may have a slight therapeutic influence in this condition, such influence appears to be limited and, at most, irradiation is to be regarded as an adjuvant to established methods.

The notion that exposure of the body to ultraviolet rays reduces blood pressure does not receive much support from the majority of those who have had prolonged experience with natural or artificial heliotherapy. Most of them feel that, while exposure of the entire body to ultraviolet rays may induce a slight reduction in blood pressure in some individuals, such reduction cannot be depended on and, at any rate, is too slight and inconstant to be of clinical value.

Among the diseases of the skin, on lupus vulgaris alone can ultraviolet rays be said to act specifically. In other dermatoses (scrofuloderma, erythema induratum, eczema, psoriasis, pustular folliculitis, indolent ulcers, furunculosis, acne vulgaris, angioma, serpigmosum, parapsoriasis, pityriasis rosea) local or general exposure to ultraviolet radiation may have a favorable action but the improvement that may result cannot be regarded as a specific effect of the rays. In some cutaneous disorders (eczema, psoriasis, lupus erythematosus, herpes simplex, xeroderma pigmentosum, farmer's skin, prematurely senile skin) exposure to such rays may cause an exacerbation, provoke an attack, or produce other injurious effects.

Of repeated exposures to ultraviolet radiation over long periods in persons, especially children, who have a low tolerance (idiosyncrasy) to ultraviolet rays may lead to degenerative

¹ This is not intended to imply that natural or artificial heliotherapy should be used to the exclusion of other methods. In fact especially in tuberculosis of the lymph nodes and the larynx heliotherapy combined with roentgen therapy in expert hands seems to yield the best results. When tuberculosis of the lymph nodes, bones, articulations or other structures is complicated by pulmonary tuberculosis or when the tuberculous process is confined to the lungs ultraviolet irradiation must be used with caution because in some cases it may cause quiescent pulmonary foci to become active.

changes in the skin, such as atrophy, anomalies in pigmentation, keratoses and even cancer

Grossly excessive exposure of the entire body may, in certain cases cause serious illness or even death. Grossly excessive exposure to a local area may, in some cases, lead to permanent, deleterious changes in the skin.

As far as normal persons are concerned, the claim that exposure to ultraviolet rays increases or improves the tone of the tissues or of the body as a whole, stimulates metabolism or tends to prevent colds has not been conclusively substantiated.

New uses of ultraviolet and other forms of artificial radiation will be brought to the attention of the profession if and when, in the opinion of the Council on Physical Therapy, the therapeutic value of such use becomes established.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

SCARLET FEVER IMMUNITY TEST (See New and Nonofficial Remedies, 1934 p 406)

The National Drug Co., Philadelphia

Scarlet Fever Streptococcus Toxin for the Dick Test (National) (See New and Nonofficial Remedies 1934 p 406)—Also marketed in packages of one vial containing sufficient toxin for fifty tests.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1934 p 398)

The National Drug Co., Philadelphia

Typhoid Paratyphoid A Vaccine (See New and Nonofficial Remedies 1934 p 401)—Also marketed in packages of thirty 1 cc ampule vials containing 750 million killed typhoid bacilli and 250 million killed paratyphoid A bacilli per cubic centimeter.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

PAUL NICHOLAS LEECH, Secretary

PULVULES AMYTAL COMPOUND (LILLY) NOT ACCEPTABLE FOR N N R

The Council recently directed the secretary to inform manufacturers of barbitol products that the Council is prepared to consider with the view of inclusion in New and Nonofficial Remedies mixtures containing barbitol (or barbitol derivative) and amidopyrine, under the descriptive name 'Tablets (name of barbitol derivative)—Amidopyrine.'

When Eli Lilly and Co. was informed of the Council's decision the firm stated that it markets a compound of amytal and amidopyrine under the name 'Pulvules Amytal Compound' and asked the Council to consider the acceptability of the name.

'Pulvules Amytal and Amidopyrine Compound' for this product. It was pointed out to the firm that this designation is contrary to the terminology adopted by the Council. As all familiar with pharmacy know, the use of the word "compound" in a title implies the presence of other constituents than those named in the title. The firm was then informed that the name 'Pulvules Amytal and Amidopyrine' would be acceptable. At one time the firm indicated acceptance of the Council's name by submitting copy for cartons and labels revised to bear the designation 'Pulvules Amytal and Amidopyrine.' However after some correspondence the firm informed the Council of its conclusion that the future of the product would be jeopardized if the name were changed. The Council therefore declared "Pulvules Amytal Compound" unacceptable for New and Nonofficial Remedies because the product is marketed under a name that is uninformative of the composition of the product.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMOTION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION. RAYMOND HERTWIG, Secretary.



VAN CAMPS PURLED PEAS (ADDED SALT)

Manufacturer—Van Camp's, Inc., Indianapolis

Description—Sieved peas slightly seasoned with salt. Largely retains the natural minerals and vitamins.

Manufacture—Fresh peas, harvested at their height of development while still in the tender succulent stage, are shelled, thoroughly washed, inspected to eliminate any defective peas, and graded; the selected peas are given a minimum blanch in hot water, removed from the water and steamed in a closed kettle until soft. The softened peas, protected from air by a steam atmosphere, are sieved through a screen with openings of a size to produce the desired fineness and texture. The sieved material is adjusted with hot water to the desired consistency, salt is added, it is heated as rapidly as possible to near boiling, immediately withdrawn from the kettle again sieved, and filled into enamel lined cans, which are sealed and processed.

Analysis (submitted by manufacturer) —

	per cent
Moisture	86.6
Total solids	13.4
Ash	1.1
Sodium chloride	0.7
Fat (ether extract)	0.4
Protein (N x 6.25)	3.5
Reducing sugars as dextrose	0.2
Sucrose (copper reduction method)	2.3
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	7.6
Alkalinity of ash (cc of normal acid per gram ash)	4.1
pH	5.6

Calories—0.5 per gram 14 per ounce

Vitamins—The method of preparation efficiently protects the natural vitamins.

Claims of Manufacturer—Easily digestible has a smooth consistency and supplies bulk without roughness.

QUAKER WHOLE WHEAT BISCUITS—MUFFETS CONTAINS VITAMIN D

Manufacturer—The Quaker Oats Company, Chicago

Description—Ultraviolet irradiated cooked and toasted shredded whole wheat biscuits contain 5 U S P X (Revised 1934) vitamin D units per ounce.

Manufacture—Cleaned, whole, soft wheat is cooked in a stream of continuously flowing water (99 C.), partially air dried, stored for a short period in tanks spread out in thin layers on endless belts irradiated with ultraviolet rays for a definite period to develop vitamin D effects, shredded, pressed into lacelike ribbons 1 inch wide by shredding rolls, coiled by machinery into biscuits 3 inches in diameter, toasted in a traveling oven, dried and packed in cartons.

Analysis (submitted by manufacturer) —

	per cent
Moisture	5.8
Ash	1.6
Fat (method I baked products)	2.2
Protein (N x 5.7)	10.9
Crude fiber	2.2
Carbohydrates other than crude fiber (by difference)	77.3

Calories—3.7 per gram 105 per ounce

Vitamins—Biologic assay shows the presence of 5 U S P X (Revised, 1934) vitamin D units per ounce.

Claims of Manufacturer—Provides essentially the nutritional values of whole wheat enhanced by a small amount of vitamin D by irradiation with ultraviolet rays.

BEWLEY'S BLUE RIBBON CREAM CORN MEAL*Manufacturer*—Bewley Mills Fort Worth, Texas*Description*—White corn meal practically free from germ and corn bran*Manufacture*—White corn is cleaned by the usual grain cleaning methods to remove foreign material and is broken between rolls and the bran and germ are largely removed. The separated endosperm or corn grits are ground, sifted and graded any remaining bran or germ is removed and endosperm of a uniform fine granular size is packed in sacks

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	13.5
Ash	0.5
Fat (ether extraction method)	0.8
Protein (N \times 6.25)	8.0
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	76.5
<i>Calories</i> —3.5 per gram	99 per ounce

MCCORMICK'S BEE BRAND MIXED PICKLE SPICE*Manufacturer*—McCormick and Company Inc, Baltimore*Description*—Spice mixture for pickling including allspice, cassia, coriander, ginger, laurel leaves, mustard seed, cayenne pepper, cloves, black pepper, mace and cardamom*Manufacture*—Definite proportions of the spice ingredients prepared as described for McCormick's Bee Brand Allspice (THE JOURNAL, Oct 28 1933, p 1393), are mixed and automatically packed in tins

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	7.6
Total ash	4.7
Acid insoluble ash	0.3
Volatile ether extract	3.6
Nonvolatile ether extract	9.3
Protein (N \times 6.25)	8.9
Starch (diastase method)	6.7
Crude fiber	19.8
Carbohydrates other than crude fiber (by difference)	46.1

Claims of Manufacturer—All ingredients conform to the definitions and standards of the United States Department of Agriculture**VIM WHEAT BREAKFAST FOOD***Manufacturer*—The Light Grain & Milling Company, Liberal Kan*Description*—Sifted coarsely ground hard winter wheat free from fine particles and flour*Manufacture*—Hard winter wheat is cleaned, scoured, tempered, ground and sifted. The coarse particles, free from fine particles and flour, are automatically packed in cellophane packages

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	10.0
Ash	2.0
Fat (ether extraction method)	1.8
Protein (N \times 5.7)	12.6
Reducing sugars as invert sugar	0.1
Sucrose (copper reduction method)	1.5
Crude fiber	2.9
Carbohydrates other than crude fiber (by difference)	70.7
<i>Calories</i> —3.5 per gram	99 per ounce

VAN CAMPS PUREED CARROTS WITH PUREED TOMATOES BEEF BROTH AND BARLEY

(SLIGHTLY SALTED AND SWEETENED)

Manufacturer—Van Camps Inc, Indianapolis*Description*—Mixture of sieved carrots and tomatoes, beef broth and barley flour slightly salted and sweetened with sugar largely retaining the natural minerals and vitamins*Manufacture*—Selected fresh carrots are washed, peeled, steamed in a closed kettle and sieved in a steam atmosphere through a screen with openings of a size to produce the desired fineness and texture. The sieved tomatoes are similarly prepared. The beef broth contains per pint the extractives of a

pound of lean beef and a portion of bone. The beef broth, sieved carrots and tomatoes and small quantities of salt, sugar and barley flour are mixed in definite proportions, and filled into enamel lined cans, which are sealed and processed

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	85.7
Total solids	14.3
Ash	1.2
Sodium chloride	0.7
Fat (ether extract)	0.1
Protein (N \times 6.25)	2.4
Reducing sugars as dextrose	2.6
Sucrose (copper reduction method)	2.1
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	9.9
Alkalinity of ash (cc of normal acid per gram ash)	2.8
pH	4.7

Calories—0.5 per gram 14 per ounce*Vitamins*—The method of preparation efficiently protects the natural vitamins*Claims of Manufacturer*—An easily digestible food for supplementing the infant milk diet, has a smooth consistency and supplies bulk without roughness**HERSHEY'S BREAKFAST COCOA***Distributor*—Chocolate Sales Corporation, Hershey, Pa*Manufacturer*—Hershey Chocolate Corporation, Hershey, Pa*Description*—Powdered cocoa*Manufacture*—Chocolate liquor prepared as described for Hershey's Baking and Drinking Chocolate (THE JOURNAL, March 10, 1934, page 769) is partially defatted in hydraulic presses to a fat content of 23 per cent. The resulting cocoa cake is ground fine, sifted and automatically packed in cans

<i>Analysis</i> (submitted by manufacturer) —	per cent	moisture and fat free basis per cent
Moisture	3.2	
Ash	4.8	6.5
Ash insoluble in water	2.5	
Ash insoluble in acid	0.14	0.2
Fat (cacao butter)	23.9	
Total nitrogen	3.5	
Protein (noncaffeine and nontheobromine N \times 6.25)	21.9	
Sucrose	none	
Crude fiber	4.5	6.2
Carbohydrates other than crude fiber (by difference)	39.5	
*Theobromine	2.08	
*Caffeine	0.17	

* By Prochnow's modification of the Beckurts-Fromme method. Arch. d. Pharmaz. 247: 698, 1910

Calories—4.6 per gram 131 per ounce*Claims of Manufacturer*—Complies with the United States Department of Agriculture definition and standard**GOLDEN CROWN BRAND TABLE SYRUP***Manufacturer*—Stewart, Son and Company, Baltimore*Description*—A table syrup, corn syrup flavored with refiners' syrup*Manufacture*—Corn syrup and refiners' syrup are mixed in definite proportions, heated to 74 C, filtered, and automatically packed in cans

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	23.7
Ash	1.0
Fat (ether extract)	0.0
Protein (N \times 6.25)	0.2
Reducing sugars as dextrose before inversion	31.1
*Dextrose (by fermentation method)	9.4
Sucrose (estimated from reducing sugars before and after inversion)	6.5
*Maltose (by fermentation method)	18.8
Invert sugar	2.9
Dextrins (by difference)	37.5
Acidity as HCl	0.0
Sulphur dioxide	0.0007

* Indust. & Engin. Chem. 25: 98, 1913

(No methods are available for accurately determining the composition of syrups of this nature; therefore the foregoing analysis is roughly approximate.)

Calories—3 per gram, 85 per ounce*Claims of Manufacturer*—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 17, 1934

THE ARGYLL ROBERTSON PUPIL

For many years the curious pupillary phenomena first described by Argyll Robertson in 1869, and which have since borne his name, were regarded as pathognomonic of syphilis of the central nervous system. More recently, descriptions of so-called Argyll Robertson pupils in other diseases have appeared frequently, thus throwing grave doubt on the pathognomonic character of the sign.

Merritt and Moore,¹ in a review of the subject, subscribe to the conclusion formulated by Adie that "the true Argyll Robertson pupil is as near as may be, in an imperfect world, an infallible sign of syphilis of the nervous system." These authors point out that confusion has arisen from two causes: first, through failure to adhere to the strict criteria of the true Argyll Robertson pupil and, second, to the lack of a clear conception of the anatomic-pathologic basis of the sign.

The Argyll Robertson pupil as originally described has five characteristics:

- 1 The retina must be sensitive to light
- 2 The pupils remain constant in size, regardless of the intensity of the illumination ("fixed pupils," owing to a break in the light-reflex arc)
- 3 They are small, though not necessarily equal in size (because of the intrinsically greater power of the constrictor pupillae muscles, therefore when both constrictor and dilator muscles are paretic, the constrictor action predominates and the pupils are more or less myotic. Myosis is a frequent though not an essential part of the Argyll Robertson sign)
- 4 They dilate imperfectly on the instillation of atropine (paresis of sympathetically innervated dilator pupillae muscles)
- 5 They contract actively on convergence accommodation (focusing the eyes for near vision is a voluntary act in which the constrictors of the pupils and ciliary muscles participate "reflexly." It is assumed on logical grounds that the pathway is from cerebral cortex to oculomotor nucleus. The lesion that produces the

Argyll Robertson pupil does not affect this pathway and consequently the pupils contract normally on accommodation)

Only one additional feature has been added to Robertson's original criteria, namely, (6) absence of dilatation of the pupils when painful stimuli are applied to the skin (absence of sympathetic ciliospinal reflex). These phenomena are obviously due to injury somewhere along the light reflex pathway (retina to third nerve nucleus to iris) and injury to the sympathetic pupillodilator fibers (midbrain to cervical sympathetic ganglions to iris). That is to say, two separate and distinct pathways of iris innervation are injured by (presumably) a single lesion. This statement cannot be emphasized too strongly, it is the crux of the matter. Failure to appreciate that the true Argyll Robertson pupil is due to a break in the light reflex arc and to an injury to sympathetic pupillodilator fibers is the cause of the rather astonishing confusion that exists in the minds of many in regard to this venerable and important sign.

Where could a single lesion be so situated that it would produce with constancy such a double injury? The exact answer to this question has had to await more perfect knowledge of the two pathways, though Kinnier Wilson in 1921, in a closely reasoned paper, arrived at a conclusion which subsequent investigation has confirmed. Largely through the experimental investigations of Karplus and Kreidl and of Randon, together with the anatomic studies of Lenz, it now seems reasonably certain that the pupillary light reflex fibers (which are probably distinct from the true visual fibers of the optic nerve) pass from the retina by way of the optic nerve, decussate partially in the chiasma, and pass backward in the optic tract to the superior colliculus, whence "part of the fibers cross in the dorsal position of the superior commissure while the remainder arch ventrally toward the oculomotor nuclei." Those light reflex fibers which decussate in the optic chiasma recross in the posterior commissure, thus affording an anatomic explanation for the occasionally observed unilateral Argyll Robertson pupil.

Beattie and his associates have shown that the nucleus of the true sympathetic center is located in the posterior part of the hypothalamus and that a portion of the fibers originating there arch ventrally to the mediolateral portion of the midbrain, thence descending uncrossed to the cervical sympathetic center. In their course from hypothalamic center to cord, the sympathetic fibers run for a short distance very close to the pupillary light reflex fibers. A lesion at this point in the midbrain (around the aqueduct of Sylvius) would affect both systems of fibers, producing the true Argyll Robertson phenomena. And Merritt and Moore state that, with the exception of a few cases of glomatous invasion of this region, "the only incontrovertible cases heretofore reported were associated with syphilis of the nervous system." This is probably too dogmatic. It is

¹ Merritt H. H. and Moore Merrill. The Argyll Robertson Pupil, Arch. Neurol. & Psychiat. 30: 357 (Aug.) 1933.

fairer to say that any lesion affecting the subependymal region of the aqueduct of Sylvius may injure the light reflex and sympathetic fibers, thus producing the Argyll Robertson pupil. The syphilitic toxin vastly predominates as an etiologic factor.

Signs that are truly pathognomonic are all too rare in medicine, those iconoclasts who attack their validity should adhere strictly to the accepted criteria of the sign. This has not been done by many who have reported reflex iridoplegia (which is only one part of the true Argyll Robertson sign) in conditions other than syphilis and tumors of the midbrain. The integrity of the Argyll Robertson pupil as a practically pathognomonic sign of syphilis seems to rest on a secure anatomic and pathologic basis.

ETIOLOGY OF MUMPS

The etiology of mumps, though investigated perhaps less thoroughly than some of the other contagious diseases, has long proved elusive. Technical difficulties of experimental investigation, combined with the infrequent availability of the earliest and probably most contagious stage of mumps, have probably delayed solution of a problem not inherently more difficult than others already solved.

Johnson and Goodpasture¹ have recently reported studies calculated to throw new light on the etiology of mumps. In their experiments, fresh saliva from six patients with epidemic parotitis was used for inoculation into monkeys (*Macacus rhesus*). In two of these instances and in two in which saliva from normal persons was used, introduction of 2 cc of saliva directly into Stenson's duct caused an immediate enlargement of the glands from volume of fluid. This was followed by a rapid and persistent return to normal in from forty-eight to ninety-six hours. In the other four monkeys the early reaction was similar but was followed six or eight days later by enlargement, tenderness, edema of the soft tissues over the glands, and fever. Preceding these local changes of the parotid gland there was an early leukocytosis followed by a progressive fall to a definite leukopenia with true and relative monocytosis, relative lymphocytosis and fall in the polymorphonuclear leukocyte percentage.

Histologic examination of the parotid glands of the monkeys at the stage of secondary inflammation revealed destructive changes in the parenchyma. The essential lesion was focal with degeneration and necrosis of a single acinus or groups of acini. In practically all cases the glands were bacteriologically sterile. Emulsions and Berkefeld filtrates prepared from the glands produced similar changes when reinjected into monkeys by way of Stenson's duct. The passage from monkey to monkey was carried through seven generations. Though the histologic changes of

the parotitis of mumps are undetermined, the lesions of the experimental disease are comparable to those found in the specific orchitis of mumps, except for the neutrophilic leukocytic response in the latter.

The Nashville observers further found that the filtrable agent in question is resistant to freezing, drying and glycerinization. Attempts to reinoculate animals previously having the experimental parotitis failed to produce any specific response. The use of convalescent serum as a means of inhibiting the action of the specific filtrable agent was inconclusive. They therefore believe that the etiologic agent in mumps is a virus and appears to be distinct from the viruses of herpes simplex and vaccinia.

The filtrability of the causative agent of mumps is in accord with the earlier work of Granata, Gordon, Wollstein and others. In view of the recent advance in knowledge of the viruses, the virus explanation seems to conform well with the known facts about the etiology of mumps, though the possibility of filtrable stages of bacteria or spirochetes cannot as yet be finally eliminated.

FORGOTTEN CALORIES

Scarcely more than a year has elapsed since the first total ablation of the normal thyroid gland for chronic heart disease of nonthyrogenous origin was performed by Berlin in December 1932.¹ Subtotal thyroidectomies had previously been undertaken, but the results in disabling heart disease proved to be disappointing. A recent commentator on the new relief procedures has remarked that heroic measures of this sort must be approached with great caution, and it is obvious that there must be a careful selection of the patients combined with great operative skill. If this method is applied indiscriminately there will be a high mortality. Almost equally important is a clear understanding of the metabolic factors that are involved, in fact, they represent the crux of the matter. Du Bois² has noted that the whole problem of management of heart disease seems to depend on the relationship of the demands of the total metabolism and the needed cardiac output with the capacity of the organism to meet these demands. The total metabolism must be adjusted in the best manner to the changing efficiency of the circulation.

In recent years there has been a rapidly growing appreciation of what is termed the basal metabolism or basal metabolic rate. Physicians have become accustomed to the frequent measurement of the expenditure of energy at complete rest. They understand, as F. G. Benedict, pioneer investigator in this field, has expressed it, that the body is a living machine which is obliged to expend a measure of energy simply in keeping alive.

¹ Johnson, C. D. and Goodpasture, E. W. *Etiology of Mumps*. J. Amer. Med. Soc. 59:1 (Jan.) 1934.

² The details are given by Friedman, H. I. and Blumgart, H. I. *Treatment of Chronic Heart Disease by Lowering the Metabolic Rate*. J. A. M. A. 102:17 (Jan. 6) 1934. The literature of the subject is recorded in this paper.

² Du Bois, E. F. *Total Exchange in Relation to Clinical Medicine*. Bull. New York Acad. Med. 9:680 (Dec.) 1933.

The heart, for example, never pauses in its task of maintaining a head of pressure in the blood conduits of the body.³ The respiratory mechanism is constantly supplying the oxygen that is needed and removing the useless and harmful products of combustion. The thermostatic devices by which the temperature of the body is regulated and held constant are always functioning. The white corpuscles of the blood, "scavenger cells" so called, are forever wandering about, ameba fashion, searching for infected tissues and clearing them of bacteria. Then whether one is asleep or awake, glands are secreting their products, visceral muscles are rhythmically contracting, the nervous system, the master tissue that controls all the functions of the body, is being kept "in tone."

Du Bois has lately pointed out that physicians have perhaps concentrated too much on the basal metabolism and have neglected the total. The basal metabolism is important in diagnosis, but basal conditions are found during only a small fraction of the day, usually only four or five hours out of the twenty-four. The stimulating effect of food, the so-called specific dynamic action, is measurable, though not of major importance. Richardson and Mason⁴ were able to reduce the stimulating effect of food to as low as 2.6 per cent by giving small meals at frequent intervals, thus supplying to the body the foodstuffs at just the rate at which they were being metabolized. The most important elevating factor is muscular exercise. It is this that the physician is more likely to underestimate. An illustration of the mounting "cost of work" is afforded by some of Benedict's observations on women. When they were standing, their metabolism was 9 per cent above the basal, simple sewing increased heat production 13 per cent, dusting 134 per cent, sweeping 150 per cent. He found that when a woman climbed an average flight of stairs she expended two calories. For the same expenditure of energy she could walk down three flights of stairs or could walk about 45 yards on the level. Du Bois has well stated the problem as it should appeal to the physician. From the clinical standpoint, he remarks, the basal metabolism must be considered as a plateau of expenditure on which are superimposed wavelike increases from the specific dynamic action of food and sharp peaks from muscular exercise. Fortunately, he adds, the body does not have to pay its caloric debts for severe muscular exercise immediately but distributes the load over a period of recovery. Fear and apprehension may so increase the cost of work that a given muscular task which would require only one calory from a normal person would require several calories from the patient. Forgotten calories have come into the foreground of interest again through the modern necessities of controlling metabolism.

HEALTH IN THE ARMY

When the progress of medicine as a whole is surveyed, certain broad questions naturally present themselves. What success has been attained in controlling important infectious diseases? How are the advent and adoption of advances in technique reflected in more favorable vital statistics? Do modern modes of transportation increase the danger to life in the population? An approach to these and other questions is afforded by the data contained in the Annual Report of the Surgeon General to the Secretary of War. In view of the accuracy of the statistics made possible by the army organization, the observations are of particular value. The average daily strength of the army, not including nurses, was 131,925 for the year ended June 30, 1933. During this interval the loss in time due to sickness and injury was 1,471,147 days. Although venereal diseases are definitely decreasing as a cause of loss of time and the rate in 1932-1933 was the lowest in army history, gonorrhea heads the list and syphilis is third in the list of causes of loss of time in the past year. Tuberculosis was second in importance and influenza fourth. External injuries, notably those connected with automobiles, are accounting for an increasing amount of loss of time.

There has been a marked reduction in the death rate exclusive of battle injuries in the army during the last thirty-five years, and in the last hundred years the rate has been reduced 88 per cent. The rate in 1932-1933 was 4.27 per thousand. It is more or less surprising that during the past year, as in the two preceding years, automobiles accounted for the largest number of deaths among officers and enlisted men. In 1932-1933, deaths from external causes exceeded those from all classes of diseases combined, there were more suicides than in any of the last five years. During 1932-1933, influenza accounted for the largest number of admissions to hospitals, with bronchitis next and athletic exercises third. It is of especial interest that during the years 1853 to 1862 489 of each thousand admissions were for treatment of the gastro-intestinal group of diseases, whereas in the last ten years the rate from this particular cause has fallen to 2.9. The rate of discharge from the service for disability was much lower than usual. A review of the causes for discharge shows that more than a third were in the group of nervous and mental diseases, with dementia præcox conspicuous.

The total regular army represents in numbers the population of a fairly large city. However, it is a young and healthy group, on which as a result of military discipline there have been imposed restrictions resulting in more or less regular and uniform habits of life. Furthermore, attention to sanitation and nutrition in the light of modern concepts has produced environmental conditions conducive to good health. It should represent, in general, the optimum of health that can be produced in large groups under especially favorable circumstances.

³ Energy Consumption in Physical and Mental Effort. Carnegie Institution of Washington. News Service Bull. Staff Ed. 3:79 (Jan. 14) 1934.

⁴ Richardson H. B. and Mason E. H. Clinical Calorimetry. 33. The Effect of Fasting in Diabetes as Compared with a Diet Designed to Replace the Foodstuffs Oxidized During a Fast. J. Biol. Chem. 57:587 (Sept.) 1923.

Current Comment

"GROWING PAINS"

Who among the older practitioners of medicine is not familiar with the expression "growing pains"? These words offered solace to disturbed parents, they supplied a comforting subterfuge for the confused physician, they presented a challenge to the thoughtful investigator. It is said that the expression was coined about a century ago by Duchamp, who observed that a large number of children during puberty suffer from various muscular aches and pains. "Growing pains" thus became the synonym most commonly used for designating vague recurrent, afebrile muscular pains. The theory that growth actually is responsible for pains was by no means the mere figment of obscure observers. It was championed by representative writers. Even as late as 1908 the distinguished psychologist G. Stanley Hall wrote in his widely read book on adolescence:

There are two kinds of so-called growing pains: first that located in the epiphyses and growing centers of the bones which are supplied with nerves and may become the seats of inflammation. These pains may seem seated in the bones, limbs and perhaps most often near the neck of the femur and the tibia, although almost no part of the body is entirely exempt from them. Adolescent tarsalgia and arthralgia have been described. The rapid bone growth following fever may be attended with painful though mild osteitis, periostitis, especially in boys between 11 and 22. Secondly, the bones may grow faster than the muscles or the skin, the latter then suffer from abnormal tension and are stretched and perhaps bloodless, especially in the thighs. This too is often acutely painful.

After all, the standing of "growing pains" is not widely different from that of the more formal expressions "myalgia," "fibrositis," "myositis," "myofibrositis," "rheumatische schwiele," "lumbago" and "neuralgia." In an elaborate review of the subject, Seham and Hilbert¹ have pointed out that in this country the pioneer Jacobi gave the theory of growing pains the strongest blow when in 1884, he announced that these vague, ambiguous pains in children are probably associated with rheumatism. He clearly saw the clinical relationship between growing pains and articular rheumatism and even endocarditis. He noted that uncomplicated muscular rheumatism is rare in young children and at that time he wrote: "'Growing pains' are not infrequently inflammatory rheumatism, and endocarditis of later years may be traced back to the growing pains which are but dimly remembered." There is no real evidence to substantiate the old idea that normal growth causes chronic muscular pains. There is timeliness in the contention of Seham and Hilbert that the term growing pains is a misnomer and should be discarded. Chronic pains in the muscles which can be differentiated from chronic fatigue and definite orthopedic disorders are probably the result of a chronic infection. Many of the muscular pains may properly be classified as the muscular rheumatism of childhood.

¹ Seham, Max and Hilbert, Eunice H. Muscular Rheumatism in Childhood. *Am. J. Dis. Child.* 46: 826 (Oct.) 1933.

Association News

MEDICAL BROADCASTS

National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15, Central standard time (5 o'clock Eastern standard time, 3 o'clock Mountain standard time and 2 o'clock Pacific standard time). The next three broadcasts will be as follows:

March 19 Mechanization of Medicine Morris Fishbein M.D.
March 26 Why Pasteurize? W. W. Bauer M.D.
April 2 What Is Health? W. W. Bauer M.D.

Columbia Broadcasting System

The Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central standard time. The next three broadcasts will be as follows:

March 22 Progress of Surgery Morris Fishbein M.D.
March 29 Flowers That Bloom in the Spring W. W. Bauer, M.D.
April 5 Smog, W. W. Bauer M.D.

THE CLEVELAND SESSION

Annual Tournament of the American Medical Golfing Association

The American Medical Golfing Association will hold its twentieth annual tournament at the Mayfield Country Club in Cleveland on Monday, June 11.

Thirty-six holes of golf will be played in competition for the fifty trophies and prizes in the eight events. The trophies include the Association Championship for thirty-six holes gross, the Association Handicap Championship for thirty-six holes net, the Choice Score Handicap Championship for thirty-six holes gross, the low gross Eighteen Hole Championship, the low net Eighteen Hole Handicap Championship, the Maturity Event limited to Fellows over 60 years of age, the Oldguard Championship limited to competition of past presidents, and the Kickers Handicap. Other prizes and events will be announced at the first tee.

Dr. Homer K. Nicoll of Chicago is president and Dr. Charles Lukens of Toledo and Dr. John W. Powers of Milwaukee are vice presidents of the American Medical Golfing Association which was organized in 1915 by Dr. Will Walter, Dr. Wendell Phillips and Dr. Gene Lewis. The living past presidents include Dr. Wendell Phillips of New York, Dr. Thomas Hubbard of Toledo, Dr. Fred Bailey of St. Louis, Dr. Edward Martin of Philadelphia, Dr. Robert Moss of San Antonio, Dr. Charlton Wallace of New York, Dr. Will Walter of Charlottesville, Va., Dr. James Eaves of San Francisco, Dr. Chester Brown of Danbury, Conn., Dr. Samuel Childs of Denver, Dr. W. D. Shelden of Rochester, Minn., Dr. Walter Schaller of San Francisco, Dr. Edwin Zabriske of New York, Dr. Frank Kelley of Detroit and Dr. John Welsh Croskey, Philadelphia.

The Cleveland Committee is under the chairmanship of Dr. John B. Morgan, 1301 Medical Arts Building, Cleveland, Ohio. He will be assisted by Drs. R. H. Birge, A. V. Bosen, E. F. Freedman, F. T. Gallagher, Secord Large, E. P. McNamee, J. J. Marek, Theodore Miller, U. V. Portman and M. A. Thomas.

The Mayfield Country Club of Cleveland is described by Dr. Morgan as "probably the finest course in the district, and certainly one of the most interesting. Many championships have been held on this course," he says, "and I am sure the visiting doctors will be delighted with it in every sense of the word. This country club has a most beautiful club house."

APPLICATION FOR MEMBERSHIP

Membership in the A. M. G. A. is open to any male Fellow of the American Medical Association. Write the Executive Secretary, Bill Burns, 4421 Woodward Avenue, Detroit, for an application blank. Participants in the A. M. G. A. tourna-

ment are required to furnish their home club handicap, signed by the secretary. No handicap over 25 is allowed.

The twentieth tournament of the American Medical Golfing Association promises to be a gay affair, attended by some two hundred medical golfers from all parts of the United States.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Society News—The Tuscaloosa County Medical Society was addressed in March by Drs. Lloyd Noland, Fairfield, on surgical aspects of amebiasis, and Groesbeck F. Walsh, Fairfield, pneumonia and massive atelectasis. The society was addressed in February by Drs. Marye Y. Dabney and Gilbert F. Douglas, Birmingham, on lesions of the breast and pelvic infections in the female, respectively.

Health and Reemployment Projects—A malaria blood index of school children in fourteen counties will be inaugurated by the state department of health in cooperation with the U. S. Public Health Service, to serve as a base line for measuring the results of several malaria control projects. Five thousand examinations will be made; it is anticipated and will form a scientific base for measuring the future incidence of malaria in Alabama. Other health projects, undertaken as a part of the federal government's plan for reemployment, are community and school sanitation, the closing of abandoned mines, ecto-parasite surveys in three areas, and a rat extermination campaign in twenty-one counties. The latter two projects are aimed at the control of typhus fever, which has shown an alarming increase during the past two years; it was stated. The reduction of illness and deaths from intestinal conditions is the factor in the sanitation program, while the sealing of abandoned mines is intended to protect public water supplies. This can be accomplished by preventing chemical action so that the acid wastes will not enter streams used or available for use as public water supplies.

COLORADO

Society News—The Medical Society of the City and County of Denver devoted its meeting, February 20, to a presentation of case reports: probable cirrhosis of the liver, Dr. Thomas D. Cunningham, syphilis, Dr. Osgood S. Philpott, carcinoma of the breast, Dr. Frank E. Rogers, and cicatricial ectropion, Dr. William M. Bane. Dr. Henry F. Helmholz, Rochester, Minn., addressed the El Paso County Medical Society, February 7, in El Paso, on "Convulsive Seizures in Children." At a meeting of the Larimer County Medical Society in Fort Collins, February 7, Dr. Gerrit Heusinkveld, Denver, discussed "The Disorders of Menstruation." Speakers before the Northwestern Colorado Medical Society at Steamboat Springs, January 25, were Drs. Maurice H. Rees and Philip Work, Denver, on "Modern Medical Education" and "Diagnosis and Treatment of Head Injuries from the Neurological Point of View," respectively. A symposium on normal physiology of the gastro-intestinal tract constituted the meeting of the Pueblo County Medical Society in February; the speakers were Drs. George W. Bancroft, Colorado Springs, and Josephine N. Dunlop and George A. Unfug, Pueblo. A symposium on exophthalmic goiter constituted the meeting of the Boulder County Medical Society in Longmont, February 8, with Drs. Jack D. Bartholomew, Louisville, John D. Gillaspie, Harry A. Alexander and Claude D. Bonham as speakers.

CONNECTICUT

Personal—Dr. Harvey Cushing, Sterling professor of neurology, Yale University School of Medicine, New Haven, was recently elected president of the History of Science Society.

Health in Connecticut—The lowest birth rate (134 per thousand of population) ever recorded in the state was reached in 1933, according to provisional figures of the state health department. A new low rate was also obtained for tuberculosis, 47.2 per hundred thousand. The general death rate was 10.1 per thousand, the same rate recorded in 1932. The rate

reached in 1932 for infant mortality was also recorded in 1933, 48.2 per thousand live births.

Alumni Day—A general meeting was a feature of the exercises on Alumni Day at Yale University School of Medicine, New Haven, February 22, with the following speakers:

George H. Smith, Ph.D., professor of immunology, The Place of the Yale Journal of Biology and Medicine in the Educational Program of the School of Medicine.

Dr. Joannes Gregorius Dussier de Barenne, Sterling professor of physiology, Some Studies on the Junction of the Layers of the Motor Cortex.

Edgar Allen, Ph.D., professor of anatomy, The Life Span of Reproductive Cells.

Walter R. Miles, Ph.D., professor of psychology, Psychology in Relation to Medicine.

DISTRICT OF COLUMBIA

Major General Gilchrist Honored—Fifty members of the medical corps gave a luncheon at the Army and Navy Club, January 31, in honor of Major General Harry L. Gilchrist, former chief of the chemical warfare service of the U. S. Army, on the occasion of his retirement. Major General Robert L. Patterson, surgeon general of the army, reviewed the career of General Gilchrist, who was in charge of the first unit to join the American Expeditionary Forces in France in the World War.

Society News—The Medical Society of the District of Columbia was addressed March 14, by Dr. Prentiss Willson, president, on "Medievalism in Modern Medicine." Speakers before the Washington Medical and Surgical Society in January were Drs. Cyril Burbank and Boyce R. Bolton on blood pressure and hemolytic streptococcal meningitis with recovery, respectively. Dr. William C. White has been reelected president of the District of Columbia Tuberculosis Association.

GEORGIA

Graduate Lectures—Dr. Richard Schatzski, Leipzig, Germany, delivered a five-day series of lectures before the Fulton County Medical Society, Atlanta, beginning February 5. This was the society's first presentation of graduate lectures. Dr. Schatzski lectured on "The Relief Method of Examination in Gastro-Intestinal Tract Disease" and conducted clinics demonstrating particularly the relief method under fluoroscopic examination on live subjects.

Portrait of Dr. Block—A portrait of Dr. E. Bates Block, late professor of neurology and psychiatry, was presented to Emory University School of Medicine, Atlanta, February 9. Dr. Charles N. B. Camac made the presentation address on Dr. Block's life work and influence, and Julia Lowry Block and Bates Block, Jr., unveiled the portrait. Dr. Russell H. Oppenheimer accepted the portrait on behalf of the medical school. Other speakers included Dr. Lewis M. Gaines, I. Sprole, Lyons, LL.D., and Dr. Richard B. Wilson. Dr. Block died Oct. 25, 1932.

Typhus Fever Control—A concentrated program for the control of typhus fever has been inaugurated in Georgia. This disease is now recognized as one of the major public health problems of the state, having increased from forty-eight cases in 1928 to 618 in 1933. It is pointed out that the disease is not only increasing but rapidly spreading. Mobile units for typhus control are now being organized as a part of the program, the foci of infection to be determined through epidemiologic study. A program of trapping and poisoning with red squill in seventy-one counties in southern Georgia, where the disease is most prevalent, is under way by the Biological Survey and the U. S. Public Health Service, and the state department of health are cooperating in rodent and ectoparasite surveys of rats in Savannah, Brunswick and Atlanta.

ILLINOIS

Cases of Amebiasis—One hundred and seventeen cases of amebiasis were reported in Illinois during the first seven weeks of 1934, according to the state health department.

Personal—Dr. James C. Stewart has resigned as managing officer of the Alton State Hospital and Dr. Dudley T. Dawson, Danville, has been named to succeed him. Dr. Robert E. Miltenberger has been appointed health officer of Spring Valley, succeeding the late Dr. Frank B. Schurtz. Dr. Frank A. Stubblefield, for twenty years superintendent of the Chester State Hospital, Menard, has resigned, and Dr. James M. McManus, Cairo, has been named acting manager to succeed him.

Health in Illinois—A mortality rate of 10.5 per thousand population was reached for the state in 1933, according to final

provisional figures from the state department of health. This is a slight decrease over the rate for the previous year, 107. The infant mortality rate for the year was 506 deaths per thousand births as compared with 52 per thousand in 1932. With 104,587 births for the year, the rate was 134 per thousand as against 144 in 1932. The maternal mortality rate was 54 deaths as compared with 52 in 1932. This is attributed to the unusually low birth rate rather than to the greater loss of mothers. New low figures were also attained for diphtheria with 134 deaths, typhoid, 111, and tuberculosis, 4,173.

Chicago

University News—Dr Max Cutler addressed the faculty and students of the University of Illinois College of Medicine, February 28 on "Radium—Its Physical Properties, Biological Aspects and Uses in the Treatment of Cancer."

Society News—At a meeting of the Chicago Orthopedic Club, March 9 Dr Stanton K. Livingston among others spoke on "Bony Changes Due to Parathyroid Disease." Speakers at the meeting of the club, February 16 included Drs Jerome T. Jerome on "Tuberculous Spines in Young Children" and Cly H. Hatcher, "Longitudinal Growth of Bone and Rate of Growth from Various Epiphyses." Speakers before the Chicago Pathological Society, March 12, included Drs Francis D. Gunn and Walter H. Nadler on "Osteomalacia in the Male."—Dr Carlo S. Scuderi, among others spoke before a joint meeting of the Institute of Traumatic Surgery and the Chicago Roentgen Society, March 8, his subject was "Ambulatory Treatment of Fractures of the Spine."—Speakers before the Chicago Neurological Society, March 15 were Drs Charles N. Pease, on "Injuries to the Vertebrae and Intervertebral Disks Following Lumbar Punctures," Harry A. Paskind, "Parosmia in Tumorous Involvement of the Olfactory Bulbs," and Paul M. Levin "Neurological Symptoms of Uveoparotid Fever."—Dr Florimond J. LeBlanc, Elgin, Ill., addressed the McDonagh Society for Clinical Research, March 16 on "Constitution as a Guide in Therapy."—Among others, Dr Elias Selinger spoke before the Chicago Ophthalmological Society, March 19, on "Studies in Albumin Content of the Aqueous."—Dr Lathan A. Crandall, among others, will speak before the Chicago Society of Allergy, March 19, on "Recent Developments in the Migraine Problem."—The Chicago Pediatric Society will be addressed, among others, March 20 by Dr Robert A. Black on "The Management of the Rheumatic Child."

KANSAS

Society News—Dr Edward R. Hays, Falls City, Neb., discussed "Economic Changes in the Practice of Medicine" before the Brown County Medical Society, January 19, and Mr E. S. Parsons, manager of the Pioneer Service Company, Hiawatha, spoke on "The Doctor and Collections."—At a meeting of the Butler-Greenwood County Medical Society in Eureka, January 12, a professional council of the promotion of public health was inaugurated in an attempt to combine medicine, dentistry and pharmacy for the consideration of problems common to the allied professions. C. A. Northcutt, D.D.S., Ponca City, Oklahoma, addressed the meeting on "The Interrelationship of Dentistry and Medicine."—Dr William H. Algie spoke on tularemia before the Clay County Medical Society in Clay Center, January 10 and Dr Warren R. Morton Green, a paper on "Pain Simulating Angina Pectoris."—The Harvey County Medical Society was addressed January 8 by Drs Alfred S. Hawke and James A. Wheeler, both of Newton who discussed placenta praevia and the Cope land bill, respectively.—Dr Henry N. Tihen, Wichita, discussed medical practice in Europe and Old Grecian History" before the Shawnee County Medical Society, January 8.—At a meeting of the Washington County Medical Society in Greenleaf, January 9 Drs Z. Hosea Snyder and Lynn J. L'Ecuyer, Greenleaf spoke on "Seminal Vesicle Troubles" and Sinuses.—Their Location and Drainage," respectively.

KENTUCKY

Bill Introduced—H. 750 proposes to require both parties to a prospective marriage as a condition precedent to obtaining a license to marry to present certificates from physicians, made within ten days from the date of application for a license, showing that both parties are free from contagious or infectious venereal disease, tuberculosis, hereditary insanity, feeble-mindedness or epilepsy.

Eyesight Swindlers—A physician of Russellville has recently reported the appearance of eyesight swindlers in Logan County, using methods that are familiar in reports from other

states. A pair of representatives of "Dr Miles, C. cord and Grove Avenues, Chicago"—there is no such person nor any such place—approach a man of some means whose vision is impaired. They propose to treat his eyes and collect large sums of money (\$300 in two cases) with a promise to refund it if the patient is not cured within a specified time. Some time later another pair comes along, informing the victim that the first "doctor" has been killed in an automobile accident. They then offer to rent him a "radium belt" to complete the treatment of his eyes. This belt is so valuable that it is not for sale and in order to guarantee its safe return the fakers induce the victim to give them a negotiable bond (in one instance \$1,000) which they cash promptly. During the early part of February, two men making the second visit were arrested when they appeared, a friend of the victim having notified the sheriff. One giving the name E. J. Mandell or Mendell and the address 1417 Grand Avenue, Chicago, was about 45 years old, 5 feet 4 inches tall, weighed 158 pounds and wore glasses. The other gave the name S. Bernstein, was 40 years old and weighed 175 pounds. For want of proof they were released on condition that they would refund the \$300 in this case. Through the tracing of their telephone calls, it was found that the money was wired to them by a man in New Orleans who gave the name Greenburg.

LOUISIANA

Gift to Touro Infirmary—As a memorial to his wife, Augustine Mr. Lazare Bloch, New Orleans, donated \$200,000 to Touro Infirmary to reconstruct the public wards and to establish a memorial fund, the income of which will be used to broaden the institution's charitable work. The gift also makes possible the construction of a new building.

Society News—Dr Theodore Diller, Pittsburgh, addressed the annual installation meeting of the Orleans Parish Medical Society, January 8, on "Human Credulity as Illustrated by Witchcraft." Dr Waldemar R. Metz is now president. Dr Kendall Emerson, New York, spoke before the society, January 22 on "Relationship Between the General Practitioner and the Tuberculosis Movement."—The Seventh District Medical Society was addressed in Crowley, December 14, among others, by Drs Daniel N. Silverman and Roy E. Delahoussaye, New Orleans, on diagnosis and treatment of certain forms of dysentery and the thymus gland, respectively.—The Acyelles Parish Medical Society observed "President's night," March 14, in Cottonport. Dr Albert M. Abramson, Marksville, was the speaker.

MAINE

Society News—The Portland Medical Club was addressed in Portland, January 2, by Dr Eugene H. Drake on "Paroxysmal Tachycardia."—At a meeting of the Hancock County Medical Society in Ellsworth, Dec. 13, 1933, Dr Harold E. Pressey, Bangor, discussed "Common Skin Affections," and Henry C. Knowlton, Bangor, "Use of Insulin in Malnutrition in Nondiabetics."—The Kennebec County Medical Association devoted its meeting, January 18, to a discussion of cancer and tumors.—Speakers before the York County Medical Society in Kennebunk, January 10, were Drs Gilbert E. Haggart, Boston, on "Treatment of Fractures of Both Bones of the Legs," and Harry Archibald Nissen, Boston, arthritis.

MARYLAND

Society News—A symposium on tumors of the bronchi and lungs was presented before the Baltimore City Medical Society, January 19 by Drs Charles R. Austrian, Edwin N. Broyles, John W. Pierson and William F. Rienhoff.—Medical problems incident to the depression were discussed at a meeting of the Baltimore County Medical Association in Baltimore, January 17, by Drs Arthur J. Lomas, Huntington, Williams, George H. Preston and Grace Baker.

Dr Frost Retires as Dean—Dr Freeman Appointed.—The retirement of Dr. Wade Hampton Frost as dean of Johns Hopkins School of Hygiene and Public Health, effective in July when his term expires, is announced in the *New York Times*, March 11. Dr. Allen Weir Freeman, professor of public health administration at the school since 1923, has been named to succeed him. Dr. Frost who is 54 years of age, was born in Marshall, Va. He received his degree of doctor of medicine at the University of Virginia in 1903. From 1905 to 1929 he was associated with the U. S. Public Health Service. From 1919 to 1921 he was resident lecturer in epidemiology at the school of hygiene and public health since which time he has been professor. He was appointed dean in 1931. Dr. Frost

plans to devote his entire time to his duties as professor of epidemiology. Born in Virginia in 1881, Dr. Freeman graduated in medicine at Johns Hopkins University School of Medicine. During his career he has been medical inspector of the Richmond Health Department, epidemiologist with the U. S. Public Health Service and state health commissioner of Ohio, a position he resigned in 1921 to go to Johns Hopkins School of Hygiene and Public Health as resident lecturer in public health administration. He was appointed professor in 1923.

MASSACHUSETTS

Bill Introduced—S. 252 proposes to authorize the commissioner of insurance to require an insurance company to pay such fees as the commissioner deems proper to a physician who has treated a person injured by an automobile to the owner of which the company has issued a public liability policy.

MICHIGAN

Campaign Against Marijuana Cigaretts—The Wayne County Medical Society is cooperating in a campaign against the sale of marijuana cigarettes to Detroit children between the ages of 15 and 20. Dr. Don W. Gudakunst, director of the school health service of the Detroit Health Department and chairman of the narcotic committee of the medical society, called a special meeting to decide what action the society would take. More than 100 peddlers are said to be selling these cigarettes in Detroit.

Society News—Dr. William J. Stapleton, Jr., Detroit, will address the Bay County Medical Society in Bay City, March 28, on malpractice. The women's auxiliary of the Wayne County Medical Society held an art exhibit in the society's headquarters, March 11-15. At the society's "Past Presidents' Night," February 12, the guests of honor were Drs. Oscar S. Armstrong, 1892-1893, the oldest living past president; James E. Davis, 1921-1922, and James H. Dempster, 1926-1927. Dr. Louis J. Hirschman, Detroit, addressed the Oakland County Medical Society, February 21, on "The Physician Looks at the Orient." As a part of the national child health recovery program, a survey of the nutritional status is being conducted in Oakland County. The Detroit Bar Association will hold a joint meeting with the Wayne County Medical Society, March 19. In addition to a talk by Judge Robert Toms of the circuit court, a symposium on appendicitis will be presented by Drs. Louis J. Morand, William J. Cassidy, and Angus McLean. The annual meeting of the Northern Tri-State Medical Society (Michigan, Indiana, Ohio) will be held at the Hurley Hospital, Flint, April 10. Included among the speakers will be:

- Dr. Carl A. Hedblom, Chicago, Selective Surgical Treatment of Pulmonary Tuberculosis
- Dr. Clifford G. Grulee, Chicago, Some Interesting Conditions in Newly Born Infants
- Dr. George C. Hale, London, Ont., Sleep
- Dr. Frank Smithies, Chicago, Regional Infectious Ulcerative Colitis
- Dr. Herman L. Kretschmer, Chicago, Changing Trends in the Treatment of Prostatic Obstructions
- Dr. Wilder Groves Penfield, Montreal, Canada, Epilepsy: Classification and Management of Cases
- Dr. Frank H. Lahey, Boston, will deliver the banquet address on "Management of Gout."

MISSISSIPPI

Bills Introduced—S. 366 proposes to grant to physicians, hospitals or nurses treating persons injured through the fault of other persons, liens on all rights of action, claims, judgments, settlements or compromises accruing to the injured persons by reason of their injuries. H. 603, to supplement the dental practice act, proposes to make it unlawful for dentists to use handbills, posters, circulars and other advertising devices and means other than such professional cards or announcements as are permitted in the bill.

NEW JERSEY

Health at Trenton—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended March 3, indicate that the highest mortality rate (23.4) appears for Trenton and the rate for the group of cities as a whole 12.8. The mortality rate for Trenton for the corresponding week of 1933 was 15.1 and for the group of cities 11.5. The annual rate for eighty-six cities for the nine weeks of 1934 was 12.7, as against a rate of 12.5 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures as they fluctuate widely. The fact that

some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Society News—Dr. Louis H. Clerf, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, February 9, on "Diagnosis and Treatment of Bronchiectasis." A symposium on treatment of pneumonia was presented before the Passaic County Medical Society, Paterson, January 11, by Drs. Charles J. Murn and Louis G. Shapiro. Dr. David W. Kramer, Philadelphia, addressed the Gloucester County Medical Society, Pitman, January 18, on "Diseases of the Arteries and How to Recognize Them." Dr. Richard D. Freeman, South Orange, was recently elected president of the Society of Surgeons of New Jersey. Dr. Clay Ray Murray, New York, among others, addressed the Bergen County Medical Society, January 9, on fractures. Dr. Arthur M. Fishberg, New York, addressed the society, February 13, on hypertension and allied conditions. Dr. William H. Ross, Brentwood, N. Y., addressed the Essex County Medical Society, Newark, January 11, on "Medicine and a Health Conscious Public." A symposium on diseases of the biliary tract was presented by members of the staff of St. Francis Hospital, Jersey City, at the meeting of the Hudson County Medical Society, February 6, as follows: Drs. James F. Norton, Thomas J. White, Earl J. Halligan, William Wallace Mayer and Frank J. McLoughlin.

NEW YORK

Annual Hobby Show—Physicians of Rochester held their second annual hobby show in January at the Rochester Academy of Medicine, opening with an address on "Art in Medicine" by Dr. Robert Tait McKenzie, Philadelphia, well known as a sculptor. Among the exhibitors were Drs. Edward Parrell who displayed wood carvings, Stearns S. Bullen, hammered copper, Clarence P. Thomas and Elmer J. Wendel, ship models, Gilbert H. Welch, bows and arrows, John R. Wilkins and Henry B. Crawford, crayon sketches, Istvan Gaspar, oil paintings, Joseph R. Mayer, collection of pistols, Eldred W. Kennedy, stamps, and Roy W. Kimball, geological specimens.

Bills Introduced—S. 1084 to amend the medical practice act proposes to define the practice of medicine so as to include the administration of anesthetics. It is not to apply to licensed dentists who administer anesthetics in connection with the practice of dentistry. A. 1268 proposes to make it unlawful for any person willfully and by or through any false statement to ask for assistance from any physician or hospital. A. 1304 to amend the medical practice act proposes to make it unlawful for any one other than a licensed physician to conduct direct supervise or control the work or reports of a clinical laboratory. The bill defines a 'clinical laboratory' as a 'laboratory in which tests are made on individual persons, their secretions, excretions, blood and tissues to aid in the diagnosis, prognosis or treatment of the individual's physical or mental state or states.' A. 1377 proposes to prohibit a corporation from using the word 'Doctor' or 'Dr.' as a part of its corporate name. A. 1513 proposes to require every person who compounds or manufactures any drug, medicine, chemical, dental, pharmaceutical or cosmetic preparation to register with the state department of health as a condition precedent to his right to sell his product the exact proportions of all ingredients used in it. The department is authorized to refuse to grant registration to any applicant whose compound or preparation it deems deleterious or injurious to public health.

New York City

Summer Course on Tumors—Columbia University announces that Dr. William H. Woglom will give a course in the pathology and diagnosis of tumors at the Institute of Cancer Research in connection with the summer session. The course will begin in July and last six weeks. The fee will be \$37.

Academy Meetings—The New York Academy of Medicine in cooperation with the Society for Experimental Biology and Medicine presented a symposium on 'The Present Status of the Rheumatic Fever Problem' at a joint meeting, February 1, with the following speakers: Drs. William C. Von Glahn, Thomas Duckett Jones, Boston, and Homer F. Swift, March 1, the meeting of the academy was devoted to a symposium on 'The Problem of Cavitation in Pulmonary Tuberculosis,' with the following speakers: Drs. Edward S. Welles, Edgar Mayer, Saranac Lake, and Ross Golden.

Personal—Dr. Ernest H. Gruening, a graduate of Harvard University Medical School, has been appointed editor of the New York *Evening Post*. Dr. Gruening went into newspaper work immediately after graduation. Dr. Francis Carter

Wood, director of the Institute for Cancer Research, Columbia University, has been made an honorary member of the Norwegian Society for Medical Radiology.—Dr Samuel Weiss has been elected a corresponding member of the Society of Gastro-Enterology of Paris.—Dr William H Best has been appointed deputy commissioner of health he has been associated with the health department for eighteen years.—Dr Walter R Loewe was recently elected president of the Tufts Medical Club of New York, and Dr Maurice Coleman Harris, secretary.—Dr George Gray Ward, Jr., was recently made an honorary fellow of the Edinburgh Obstetrical Society

OHIO

State Board Officers Elected—Dr J Fred Wurst, Dayton, was elected president of the Ohio State Medical Board at a meeting in January. Drs James G Blower, Akron, and Floyd S Meek, Cleveland, were elected vice president and treasurer, respectively, and Dr Herbert M Platter, Columbus, reelected secretary

Honorary Degrees—At the centennial celebration of Ohio State University College of Medicine in Columbus, March 1-3, honorary degrees were conferred on Drs Torald H Sollmann, dean Western Reserve University School of Medicine, Cleveland, William S McCann, director, department of medicine, University of Rochester School of Medicine, Rochester, N Y, and Henry S Houghton, director, University Clinics, University of Chicago. Drs Houghton and McCann are graduates of the college of arts and sciences of the university

Academy Asks Changes in Operation of General Hospital—The Cincinnati Academy of Medicine recently adopted resolutions protesting against various conditions at the Cincinnati General Hospital. The resolution asked that members of the staff of the hospital and of the faculty of the University of Cincinnati College of Medicine be forbidden to practice privately except under the same conditions as other physicians of the city. This point related to the fact that staff members are supplied with offices, telephones and secretaries at public expense for conduct of private practice it was explained. The academy also asked that laboratory services be confined to the needy poor and that the hospital should not give service to persons living outside the corporate limits of Cincinnati. Other changes recommended concerned improvement of teaching of interns and limitation of duties of interns and residents to patients in the city hospital establishment of contracts between the salaried members of the staff and of the university and definition of the status of the Christian R Holmes Memorial Hospital. Finally the resolution asked that policies concerning the care of the needy be adopted only after consultation with a committee of the academy, as some 200 physicians are giving their time and services without compensation to the general hospital and the university

PENNSYLVANIA

Society News—Drs Elliott B Edie, Uniontown, and Arthur D Hunger Point Marion, addressed the Fayette County Medical Society, Uniontown, March 1 on "Spontaneous Hyperinsulinism and Intravenous Use of Dilute Hydrochloric Acid," respectively.—Speakers before the Allegheny County Medical Society, Pittsburgh, February 20 were Drs Edward J McCague on "Surgical Kidney—Clinical Manifestations and Management," Charles H Henninger "Effects of the Economic Depression on Mental Health," and Ralph Lynch, "Albuminuria."—Dr William H Mayer, Pittsburgh addressed the Beaver County Medical Society, Rochester in February, on "Newer Treatment of Neurological Conditions as Applied to General Practice."—Drs Alexander Randall Philadelphia and Roscoe G Leland director, Bureau of Medical Economics American Medical Association, Chicago, addressed the Leocoming County Medical Society, Williamsport January 12 on "The Obstructive Uropathies and The Insurance Principle in the Practice of Medicine," respectively. Dr Randall also spoke at an evening meeting on "The Medical Profession of the Present Day" and Dr Leland on "The Emergency Medical Relief Program."—Drs John A Kolmer Philadelphia and John B McAneney Johnstown addressed the Cambria County Medical Society, Johnstown March 8 on "Present Status of Biological Therapy in the Prophylaxis and Treatment of Disease and Treatment of a Case of Carbon Monoxide Poisoning with Methylene Blue," respectively.—Dr Alexander H Stewart Indiana addressed the Armstrong County Medical Society, Kittanning January 9 on "The Social and Economic Life of the Physician."—Dr James G Koshland Lewistown addressed the Mifflin County Medical Society, Lewistown February 1 on "Otitis Media"

Personal—Dr Esmond R Long, director, Henry Phipps Institute, University of Pennsylvania, sailed for Puerto Rico February 22, to give a series of lectures at the School of Tropical Medicine. He will also join in a tuberculosis survey started in February in two of the important industries of the island needle workers and tobacco strippers

Hospital Ship Used as Shelter—Under an agreement with the Philadelphia County Relief Board, the U S Navy has lent to the board the U S S *Meicy* to be used as quarters for destitute persons. The board will spend about \$10,000 reconditioning the ship, which has been out of commission in the Philadelphia Navy Yard. The *Meicy* was converted into a hospital ship in 1917 and made many trips between Brest, France and New York, with sick and wounded soldiers

Society News—Dr Edward L Keyes, New York addressed the Philadelphia County Medical Society, February 28, on "Treatment of Gonorrhea in the Male."—Among speakers before the Physiological Society of Philadelphia, February 19, were Drs Bernard J Alpers and Webb E Haymaker, on "Participation of the Neuroglia in Myelin Deposit in the Prenatal Human Brain," and J F Hughes and Herbert S Gasser, New York "Spinal Cord Potentials Following One and Two Afferent Volleys"

RHODE ISLAND

Tuberculosis and Diphtheria Reduced—The Rhode Island Public Health Commission announces that the death rate from tuberculosis in 1933 was 49.5 per hundred thousand of population, the lowest rate ever recorded in the state. In the four years 1920-1924 the average annual rate was 104.1. A similarly striking reduction has been achieved through a campaign for diphtheria immunization begun in 1922. In the ten years preceding 1922 the average death rate was 20.4 per hundred thousand, in 1933 it was 1.1. The latter rate was a reduction from 4.1 in 1932

TEXAS

The Dallas Clinical Conference—The sixth spring conference sponsored by the Dallas Southern Clinical Society will be held, March 26-30, at the Baker Hotel, Dallas. Fourteen guest speakers will make addresses and conduct clinics and round table discussions. General assemblies will be held each morning the first four days followed by two-hour courses on numerous subjects. Luncheon periods will include round table discussions led by guest speakers and the afternoons will be devoted to clinics at Dallas hospitals. A public meeting will be held the first evening with the following program

Dr Edward H Cary Dallas "What Medicine Has Done for the Public"
Judge C T Freeman Sherman, "The Relation of the Doctor to the Public"
Dr Harvey J Howard St Louis "An American Ophthalmologist in the Orient"
Dr Charles H Best Toronto "The Story of Insulin"

Tuesday and Wednesday evenings will be given over to symposiums in which the subjects will be presented by Dallas physicians and summarized by visiting physicians, as follows: the anemias summarized by Dr Cyrus C Sturgis, Ann Arbor Mich., diagnosis of intracranial neoplasms, Dr Percival Bailey Chicago, abnormal uterine bleeding, Dr Arthur H Curtis, and digestion in the infant, Dr A Graeme Mitchell, Cincinnati. Speakers at the general assemblies will be

Dr William F Braasch Rochester Minn., "Value of Excretory Urography"
Dr Sturgis Diet "Digitalis Diuretics in Heart Failure"
Dr Curtis Etiology "Diagnosis Nonsurgical Treatment of Carcinoma of the Cervix"
Dr Mitchell Indications for Tonsillectomy
Dr Edward C Sewall San Francisco "Curability of Sinus Disease"
Dr Best Role of Liver in Metabolism of Carbohydrate and Fat
Dr James R McCord Atlanta "Conservative Treatment of Eclampsia"
Dr Howard Syphilis of the Eye
Dr John H Stokes Philadelphia, "Management of Syphilis Disease"
Dr John C Meakins Montreal Que., "Prognosis in Cardiovascular Disease"
Dr Fred Rankin Lexington Ky., "Surgery of Nonmalignant Diseases of the Colon"
Dr Bailey "Tumors of the Nervous System in Infants"

A new feature this year will be two clinicophysiology conferences. One on "Diseases of the Liver, Gallbladder and Pancreas," with Dr Lyarts A Graham St Louis discussing the clinical phases and Dr Best the physiologic phase, and one on "Disorders of the Heart and Circulation," with Drs Meakins and Best as speakers. Another feature will be a fracture clinic conducted by Dr George E Bennett associate professor of orthopedic surgery, Johns Hopkins University School of Medicine, Baltimore

UTAH

Annual Registration Due April 1—All practitioners of medicine and surgery holding licenses in Utah are required to register annually on or before April 1, with the Department of Registration, and to pay a fee of \$3. If a licensee neglects to reregister within from ninety days to six months after April 1, his license can be revoked and will be reinstated thereafter only on his paying the delinquent registration fees and an additional year's fee as a penalty.

VIRGINIA

Bill Enacted—H 94 has become a law repealing the laws relating to narcotic drugs and enacting the uniform narcotic drug act.

Correction—The statement appearing in the February 17 issue of THE JOURNAL that Virginia House bill 23 if enacted apparently would make it unlawful for physicians to prescribe lenses or ocular exercises for the correction or relief of any ocular refractive deficiency or deformity or visual or muscular anomaly of the human eye, is in error. This bill has been enacted but it in no way operates to limit the activities of any licensed physician.

WEST VIRGINIA

Bill Enacted—H 337 authorizing the town of Hundred in Wetzel County to levy an annual occupational tax on all physicians practicing within the limits of said town became a law without the governor's approval, March 7. The tax to be imposed may not exceed 2 per cent of gross professional income.

WYOMING

Annual Registration Due April 1—All practitioners of medicine and surgery licensed to practice in Wyoming are required by law to register on or before April 1 with the secretary of the Board of Medical Examiners and to pay a fee of \$2.50. If a licensee fails to pay the fee within three months after April 1, his license can be annulled and it annulled it will be restored to him only on his paying the stated fee, plus \$5 as a penalty.

Society News—Dr. Russell H. Kanable, Bism., was elected president of the Northwest Wyoming Medical Association at a meeting at Lovell in December, and Dr. R. Carlton Trueblood, Cody, was made secretary. At a meeting of the Sheridan County Medical Society in Sheridan, January 9, Dr. William A. Steffen spoke on "Acute Infectious Endocarditis." The Wyoming State Medical Society has selected Casper as its convention city for this year. The meeting will be held July 16-17.

GENERAL

Study of Neoplastic Diseases—The American Association for the Study of Neoplastic Diseases will convene in Baltimore at the Johns Hopkins Hospital March 28-30. This organization is the outgrowth of and will supplant the microscopic, oral cavity and bone diagnostic demonstrations which have been conducted for the last four years under the auspices of Dr. Joseph Colt Bloodgood, clinical professor of surgery, Johns Hopkins University School of Medicine, and his associates in the Surgical Pathology Laboratories of the school's hospital. It was created at one of these demonstrations at the Mayflower Hotel, Sept. 18, 1933, in Washington, D. C. All physicians who have attended one or more demonstrations in the past are eligible for active membership, those in allied professions for associate membership. Annual dues are \$5 and, in addition, there will be an assessment of about \$3 at each of the meetings, four of which are planned annually. Officers elected are president, Dr. Max Cutler, Chicago, vice president, Dr. James F. Kelly, Omaha; secretary, Dr. Eugene R. Whitmore, Washington, D. C., and treasurer, Dr. Janvier W. Lindsay, Washington. Dr. Bloodgood will continue his activities in an advisory capacity.

Academy of Tropical Medicine Organized—Announcement is made of the organization of the American Academy of Tropical Medicine at a conference in Washington, D. C., February 5-6, under the auspices of the National Research Council. Officers elected were Drs. Theobald Smith, Princeton, N. J., president, Charles F. Craig, New Orleans, vice president, Earl B. McKinley, Washington, secretary, and Prof. William W. Cort, Ph.D., Baltimore, treasurer. It is the aim of the new academy to stimulate interest in all phases of tropical medicine, to provide current surveys of work in progress, to coordinate

American work to prevent duplication, to function as a central source of information for investigators, to cooperate with other agencies in the same field and to receive and administer funds through grants for specific projects. At the close of the conference President Cloyd H. Marvin of George Washington University tendered to the academy a gold medal to be awarded at appropriate intervals for distinguished work in the field, in tribute to members of the faculty of the school of medicine who have become prominent in tropical medicine. The names of charter members, not more than fifty, will be announced three months from the date of the conference.

Medical Bills in Congress—*Changes in Status* S 822 has been reported to the Senate, with recommendation that it pass (S Rept. 406). The bill would authorize the Postmaster General to permit the transmission in the mails of poisonous drugs and medicines to cosmetologists and barbers. S 2101 to prohibit the sending of unsolicited merchandise through the mails has been reported to the Senate with recommendation that it pass (S Rept. 385). H. J. Res. 257 has been favorably reported to the House of Representatives (H Rept. 864). The bill authorizes the Secretary of Interior to arrange with the several states for the education, medical attention, relief of distress, and social welfare of the Indians. H. R. 7059 has been favorably reported to the House (H Rept. 861). The bill provides for the further development of vocational education in the several states and territories. H. R. 7295, the Treasury Department appropriation bill, has passed the House and Senate. It authorizes an appropriation of \$23,032 for special studies of, and demonstration work in rural sanitation. *Bills Introduced* S 2985 introduced by Senator Davis, Pennsylvania, proposes to authorize the acceptance of radium in payment of war debts from Belgium, and for the donation of such radium to hospitals, medical clinics and medical research organizations in the United States. H. R. 7959, introduced by Representative Grisque, South Carolina, proposes to grant uniform pensions and benefits to veterans, their widows and dependents. It would authorize the furnishing of hospital treatment to veterans of any war who suffer with disease or injuries requiring treatment which incapacitate them from earning a living, and who have no adequate means of support. H. R. 8056, introduced by Representative Lundeen, Minnesota, proposes to grant pensions and increases of pensions to certain soldiers, sailors and female nurses of the war with Spain, the Philippine insurrection and the China relief expedition and others. Pensions for contract nurses are provided for under existing law. No pension is provided under existing law or in the proposed bill for contract surgeons. H. R. 8242, introduced by Representative Dunn, Pennsylvania, proposes to grant pensions to certain blind persons. H. R. 8283, introduced by Representative Disney, Oklahoma, proposes, among other things, that any World War veteran, not dishonorably discharged, suffering from disability, disease or defect, who is in need of hospitalization or domiciliary care and unable to defray the necessary expenses therefor, shall be furnished necessary hospitalization or domiciliary care in any veterans' administration facility, within the limitation of such facilities, irrespective of whether the disease, disability or defect was due to service. A statement by the veteran on such form as may be prescribed by the Administrator of Veterans Affairs shall be accepted as sufficient evidence of inability to defray necessary expenses. H. R. 8399, introduced by Representative Buckbee, Illinois, provides for the payment of old age pensions. H. R. 8458, introduced by Representative Hoeppel, California, would authorize the furnishing of hospital treatment and domiciliary care to the retired personnel of the Army, Navy, Marine Corps and Coast Guard and to all individuals transferred to the Fleet Naval Reserve and Marine Corps Reserve after sixteen or twenty years of service. H. R. 7977, introduced by Representative Guver, Kansas, would authorize the Reconstruction Finance Corporation to grant loans to publicly and privately controlled colleges, universities and other institutions of higher learning. H. R. 8037, introduced by Representative Stokes, Pennsylvania, proposes to grant military status to "civilian clerks, engineer service at large," who served overseas in the Engineer Corps of the United States. H. R. 8206, introduced by Representative Bulwinkle, North Carolina, would authorize medical and hospital treatment for veterans of any war who have no adequate means of support and who are suffering with permanent disabilities or tuberculosis or neuropsychiatric ailments, or such other conditions requiring emergency or extensive hospital treatment as may be prescribed by the Administrator of Veterans Affairs, which incapacitate them from earning a living. S 2839, introduced by Senator Capper, Kansas, proposes to provide old age compensation for citizens of the United States.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb 17, 1934

Bill to Restrict the Sale of Contraceptives

In the house of lords, Lord Dawson, president of the Royal College of Physicians, moved the second reading of his bill to restrict the sale, display and advertisement of contraceptives. He said that birth control was here to stay but children and young persons should be protected from having contraceptives pushed at them either by means of automatic machines in public streets or by lurid display in shops. General condemnation of the trade in contraceptives only did harm by driving the sale into underground channels. A wider acceptance of birth control in theory as it was already accepted in practice would turn the sale into normal channels. The same was true of propaganda. If clinics were supported where sane information could be given lurid publications would cease to be profitable. The sale of contraceptives in this country had gone up by leaps and bounds. One firm turned out 8500 000 a year and another 72 000 a week and that was reinforced by importations from abroad. Those who opposed birth control belonged almost exclusively to middle aged and late life, whereas the younger generation of parents practiced it and scarcely discussed it. Human nature had not changed since the forties of the last century, when large families were produced. No one would be rash enough to advise them today. Celibacy in marriage was impossible. There had to be either contraceptives and small families or no contraceptives and large families. He gave it as his solemn medical opinion that for young people to have to practice what amounted to celibacy in marriage was impossible and would destroy their health. The whole foundation of Western nations was based on that personal intimacy which involved periodic physical expression of love. In 1847 the infant death rate was 172, sufficiently high to act as a safety valve for the too many children born. Today it was down to 65. The purpose of the bill was to protect immature youth by preventing the obtrusive display of contraceptives. In the debate the bill received general approval, but Lord Dawson's views on the necessity for contraception aroused a good deal of protest, particularly from the bishops.

The Danger of Carbon Tetrachloride in Fire Extinguishers

At the Royal Society of Medicine Sir William Willcox, the government toxicologist, discussed the toxic effects of substances of the carbon tetrachloride group, which are coming into increased commercial use. He said that they were all anesthetics, had a toxic action on the brain were fat soluble and were quickly absorbed. In 1909 a young woman fell dead while having her hair shampooed at a London store. The shampoo contained 4 or 5 per cent of carbon tetrachloride, inhalation of which would give high percentage in the blood. Death was due to the action of the poison on the heart muscle. Recently he had seen three cases of patients in a hospital who had been subjected to the vapor of carbon tetrachloride, which had been used for extinguishing fires on board ship. In all these cases the blow of the poison fell not as he expected on the liver and brain but on the kidney. All showed great impairment of renal function. In one of the most remarkable cases of its kind he had ever seen the urine was completely suppressed for ten days but there was complete recovery. Captain T. Dudley, a naval surgeon, described the cases due to the fire extinguisher that were under his care. In the first case vomiting and gastric disturbance were followed in a few

days by mild jaundice. After ten days epileptiform convulsions with a blood pressure of 220 and blood urea over 300 suddenly began. Edema of the lungs developed and death seemed inevitable but the man made a remarkable recovery. The only change in the urine was mild albuminuria. The patient had only five minutes' exposure to the vapor of carbon tetrachloride. Captain Dudley referred to a more recent fire in an electrical workshop in the dockyard. Thirty cylinders of fire extinguisher were employed and fifteen men were exposed to the vapor varying from five minutes to half an hour. But it was a big well ventilated workshop. One man had nausea and vomiting, but he attributed this to sickly fumes from burning electrical installations. Examination of the men showed nothing abnormal except a trace of albuminuria in one. Captain Dudley suggested that slight cases of poisoning from extinguisher vapors were common and easily missed.

State Aid for the Feeding of Children

The question of the minimum diet necessary for health is exciting much controversy in this period of industrial depression. The conflict between two expert committees, who calculate the minimum as 3000 and 3400 calories daily for a man has been mentioned before, but the feeding of children is a separate problem and some anxiety has been expressed as to undernutrition in the families of the unemployed living on state aid. A committee of members of the house of commons has been formed to bring together those who are concerned with every child obtaining at least a minimum standard of healthy living. The committee has issued a manifesto stating that a first charge on the returning prosperity of the nation should be the health of its children. The committee urges that the government provide a daily ration of fresh milk for all children attending state-aided schools and for younger children through the public health department. Also that the government make compulsory instead of optional the powers of local authorities to provide school meals for children who by reason of the poverty of their parents, are inadequately fed, that the government substantially increase the allowance of the children of the unemployed, and that it encourage the extension of municipal housing and schemes of rent rebates when the family income is insufficient. Mr. Boothby, a member of parliament, said that the present allowance under the unemployment insurance act of 50 cents a week per child was insufficient. A pint of milk a day was essential, and this alone would cost 42 cents a week. The British Medical Association scale for the cost of maintenance of children varied from a little over 50 cents to \$1.25. It was proposed to ask the prime minister to receive a deputation on the subject.

Precautions Against Electrical Shocks in X-Ray Rooms

The X-Ray and Radium Protection Committee which consists of experts with Sir Humphry Rolleston chairman, has issued revised recommendations on the precautions to be taken against shocks in x-ray rooms. 1 The floor covering should be of insulated material, such as wood, rubber or linoleum. 2 When permanent overhead conductors are employed they should be not less than 9 feet from the floor. They should consist of stout metal tubing or other coronaless type of conductor. The associated connecting leads should be of coronaless wire kept taut by suitable rheophores. 3 Whenever possible earthed guards or earthed sheaths should be provided to shield the more adjacent parts of the high tension system. Unshielded leads to the x-ray tube should be as remote as possible from the operators and patients. Shock-proof x-ray equipment in which the high tension circuit is completely enclosed in earthed conductors is particularly recommended. Unless there are reasons to the contrary, the metal parts of the apparatus and

room should be efficiently earthed. 4 Main and supply switches should be easily accessible and distinctly indicated. They should not be in the proximity of the high tension system, nor should it be possible for them to close accidentally. The use of quick acting double pole circuit breakers is recommended. Overpowered fuses should not be used. If more than one apparatus is operated from a common generator suitable high tension multisway switches should be provided. In the case of some of the constant potential generators a residual charge is held by the condensers after shutting down. A suitable discharge device should therefore be fitted. 5 A kilovoltmeter should be provided to measure the voltage operating the x-ray tube. Whenever possible a safety spark gap should be provided. 6 Special electrical precautions should be taken in rooms where anesthetics of low flash point are used.

The committee emphasizes the great importance of these precautions. Every step possible should be taken to prevent accidental contact with any part of the high tension system including the tube, the leads and the associated measuring instruments. While shock proof x-ray equipment in which the high tension circuit is completely enclosed in earthed conductors is especially recommended, much can be done with existing apparatus in the way of providing simple devices such as earthed guards to shield the more adjacent parts. Mobile units in particular should be carefully examined before use in every case. Schemes of illuminated warning notices that function when the equipment is 'alive' are useful. Printed first aid instructions for dealing with electrical shock should be available, and the staff should be trained in their use.

The Royal College of Surgeons

The annual report of the Royal College of Surgeons shows that 400 additions have been made to the museum, the greatest pathologic collection in the world. They illustrate normal and pathologic anatomy, human and comparative pathology, surgical instruments and forensic medicine. Among the pathologic specimens are several illustrating favorable results after excision of carcinoma of the larynx, a rare specimen of cirrhotic aneurysm of the coronary vessels, a series illustrating disease of the gallbladder, and specimens of endometritis, polypus and "tarry cyst" of the ovary. Mr. R. H. Burne, curator of the physiologic department, has made some beautiful preparations showing ossification of the skeleton in the embryo. Nine casts of the skeletal remains of Pleistocene man from Peiping caves have been added.

PARIS

(From Our Regular Correspondent)

Jan 31, 1934

Some Disadvantages of Prolonged Sun Baths

In a series of experiments some years ago, H. Bordier, A. Morel and T. Nogier found that ultraviolet rays transform the hemoglobin of the blood into methemoglobin, a more stable compound. From these experiments *in vitro*, Mr. Bordier now endeavors to explain certain general effects produced by prolonged and too intense sun baths, namely fatigue, asthenia and nervous disturbances. The passage of ultraviolet rays into the capillaries of the skin, whereby they come to act on the hemoglobin, appears to be demonstrated. Their absorption furthermore, is facilitated by the fact that at the same time the infra-red rays of sunlight produce by means of heat a cutaneous hyperemia and the dilatation of the capillaries. In the sun bath the skin surface presented to the rays amounts on an average, to 15,000 square centimeters and the exposure continues for several hours, at the beaches of fashionable resorts during the summer. The formation of pigment does not prevent the penetration of the rays but merely modifies the sensitivity of the skin. Bordier, in a paper read before the Academy of Medi-

cine emphasizes that great prudence must be exercised in the application of sun baths, the employment of which should always be regulated by the physician, for there are certain dangers to which the attention of the public should be called.

Mr. Hartman presented before the same academy the substance of a report by Professor Roffo, on the effects of sunlight on the development of skin cancers, which appear solely on the exposed areas of the skin. Such cancers are preceded by a local hypercholesterolemia, as has been definitely shown by chemical analysis. Roffo was able to produce in rats such cancers experimentally by prolonged exposure to ultraviolet rays. The malignant tumors thus developed are sometimes sarcomas and sometimes epitheliomas.

Conditions for Good Bread Making

Since the World War there has been much complaint in France, over the poor quality of bread on the market, due to it is alleged to an inferior quality of flour. Many physicians have observed that attacks of dyspepsia are cured solely by eliminating bread from the diet. The question was reopened last year, the bakers having introduced generally the use of chemical products in order to secure a dough that will give to the bread a better appearance. But the Academy of Medicine had an order issued prohibiting the use of chemicals, on the ground that they produced harmful effects. Mr. Andre Klum, director of the laboratory of the prefecture of police in Paris, presented recently to the Academy of Sciences in collaboration with Froidevaux and Dubois a communication that sheds new light on the subject. He points out that the baking values of flours depend to a great extent on the properties of the fatty matter, which amounts to about 1 per cent of the whole grain. This fact had been overlooked. This fatty substance opposes the absorption of water in the dough making process. Products that facilitate such absorption improve the flours. The speakers found that in flours produced from foreign wheats the proportion of fatty substances in relation to a unit of weight of gluten was less than in the flours produced from French wheats, especially varieties that yield a high percentage of flour but produce flour of mediocre baking values. It is these varieties that the French farmer has developed to a great extent because they produce a larger number of grains and without requiring a large quantity of nitrogenous fertilizer, which are necessary for the formation of the gluten.

Convulsions in Children

The general assembly of the physicians of France held in January considered as its main topic 'Convulsions in Children'. The practitioners of the departments of France were requested to bring to the assembly all the evidence derived from their clientele. This sort of national inquiry, inaugurated two years ago, has been found to be a much more accurate method than studying the statistics and it is regarded with great favor by the medical profession. It has also the advantage of bringing to the assembly a large number of rural practitioners who have a wide experience. A mass of documents was thus collected, being first sifted by the departmental medical societies and then compared at the general assembly, held in Paris under the chairmanship, this year, of Professor Luzziere of Montpellier. One fact brought out by the discussions is that convulsions in children occur much less frequently than formerly, particularly in the regions of the South and the Center. A result that is commonly ascribed to the health propaganda carried on by the practitioners, with respect to prophylaxis and the crusade against alcoholism. Practitioners are no longer content to accept the idea of convulsions of an 'essential' type that is to say, with no cause outside itself. Most commonly eclampsia in the child is found in connection with various types of fever and particularly in association with adenoiditis and otitis. Arising at the

beginning of a hyperthermia, infantile eclampsia is much less grave than when it appears toward the end of the illness, for then encephalitis is to be feared. It is always grave in pertussis. Especially grave are likewise the convulsions that appear in acute gastro intestinal infections, particularly in connection with epidemics of dysentery as was pointed out by several departments of France. As to convulsions due to dentition and helminthiasis, opinions differed. In any event, they are of a reflex order and benign. More frequently one should seek the influence of alcoholism and of syphilis in the parents. Hereditary influences are very important. One often observes tendencies to convulsions in the same family for several generations. Also obstetric traumas play a part in the etiology. Meningeal hemorrhages of this nature were reported as more frequent than formerly. Spasmophilia is unquestionably a causal factor, but calcemia is unequally distributed throughout France. Convulsions appear before the age of 3 months, and after age 3 (years) the attacks are more serious than those that appear up to that time. The number of fatal cases is relatively small. Lumbar puncture in the grave cases has given excellent results. Hemotherapy, the blood of the mother being utilized is favorably regarded. Epilepsy which was much discussed is, on the whole, infrequent in subjects who have had convulsions in their childhood (from 1 to 10 per cent, at the most). But in adults who have epilepsy, one often finds references to convulsions, which were probably only masked epileptic attacks. The conclusion unanimously adopted was "Convulsions do not constitute a disease but only a group of symptoms. The prognosis is that of the condition that caused it."

BERLIN

(From Our Regular Correspondent)

Jan 29, 1934

Organization of the Kassenärztliche Vereinigung

The organization of the Kassenärztliche Vereinigung Deutschlands is now an accomplished fact with headquarters in Berlin. The Vereinigung is a corporation legally recognized and is under the supervision of the federal minister of labor. It is the only qualified representative of the medical profession in connection with the regulation of medical affairs in social insurance, the ersatzkassen, and the care of the war injured. It draws up the general contracts with the krankenkassen. As the representative of the relations of the physicians to the communes and the social aid leagues, it can enter into agreements concerning the medical care of persons receiving social aid. It can decide on the details and the regulations for the application of medical care. It regulates particularly the admission of physicians to medical attendance and the termination of such privilege, it determines the details affecting economic methods of treatment and the testing of medical performances, including the system of arbitration and it arranges the distribution of the sums collected as compensation. It can make arrangements concerning compensation for the rendering of expert opinions as to the degrees of disability in the service of the insurance companies for special examinations or for the application of treatments by physicians in bath and health resorts. It regulates likewise the relations of physicians to one another.

The membership of the Kassenärztliche Vereinigung Deutschlands is composed of physicians listed in the official register of physicians and the physicians who are admitted for the treatment of the war injured entitled to medical care. Other categories of physicians may become members of the Kassenärztliche Vereinigung. Such physicians may announce at the end of any calendar year that they wish to sever their connections with the Vereinigung. Such notice will take effect at the end of six months. The chairman of the Verband der Aerzte Deutschlands will serve as the federal director of the Kassen-

ärztliche Vereinigung. He will represent the Vereinigung in court and out of court. The authority of the federal director is emphasized in these terms: "The will of the federal director is the sole final authority. It will be the duty of the official aids to carry out his will and to make it plain to every member that only his will has authority. The 'leader idea' can be realized only through absolute subordination of individual views." The federal director may create an advisory board, the members of which may be appointed and dismissed by the federal director. They would serve the federal director as aids advising and supporting him in all administrative matters. For the execution of their tasks, provincial and district centers may be established as needed. The Vereinigung will collect dues from the physicians who are admitted to the medical care of patients. The dues will consist of a fixed amount payable by each member so participating or of a certain percentage of physicians' receipts or of both. These dues may vary in amount and in kind with the various groups of physicians.

The physicians are under obligations to the Kassenärztliche Vereinigung for the fulfilment of their tasks. If a physician does not fulfil his obligations properly action may be taken against him in the form of a warning, a fine, or through temporary or permanent exclusion from medical activity, unless permanent exclusion from certain medical activities is governed by a special procedure. More than one of these penalties may be imposed at the same time. Exclusion from medical activity may, on the basis of the existing regulations or agreements, be limited to certain fields, for example practice in the krankenkassen, in the ersatzkrankenkassen, and the like. The restriction will be in force for two years. The penalty will be fixed by the official director of the district center and must be communicated to the physician in writing, with an explanatory statement setting forth the reasons therefor. Within two weeks, the physician may file objections. The federal director will decide the further details of the procedure. He is empowered to change or nullify the decision rendered.

These statutes effect a thorough and strict regulation of all matters pertaining to the panel physicians. The Kassenärztliche Vereinigung Deutschlands is to be regarded as the precursor of the contemplated reorganization of the medical profession, some of the essential principles of which it has already realized. It will become also an important link in the anticipated federal chamber of physicians (reichsärztekammer).

Concerning the fees of panel physicians, an important agreement has been reached. Beginning Jan 1, 1934, the krankenkassen remit the fees for the services of panel physicians directly to the Kassenärztliche Vereinigung Deutschlands, which in turn distributes the fees among the panel physicians. As already stated, the arrangement gives the Kassenärztliche Vereinigung an opportunity to consider social and demographic points of view in determining the exact nature of the distribution. It makes it possible for the federated leagues of the krankenkassen to introduce much simpler methods of administration. For example, the medical press of recent months has contained arguments for and against the admission of childless physicians to panel practice, some have gone so far as to suggest that childless physicians who have been admitted to practice be dismissed. However, it does not seem likely, to judge from the plans so far worked out that it is the intention of the authorities to exclude from panel practice physicians (either men or women) whose marriage has resulted in no offspring or to dismiss such as have already been admitted to practice. However, with respect to new admissions married persons will be given preference over single persons, and physicians with several children will be favored as against those with few children.

New boards of directors for the "chambers of physicians" have been appointed. The Prussian state ministry has passed legislation whereby the jurisdiction of the general assemblies

of the "chambers of physicians" has been transferred to the boards of directors of the various "chambers." The chairman of the "chamber of physicians" can call a meeting of the members for the discussion of business affairs of the "chambers of physicians," but the membership will pass no motions or resolutions. Since January 1, the board of directors of the "chamber of physicians" has consisted of the chairman and from four to eight members. The chairman and vice chairman are appointed by the minister of the interior, and the other members of the board are selected by the chairman. One member of the board and his substitute must be federal health officers.

Opposition to the Preparation by Laymen of Medicines Prescribed

The Prussian minister of the interior has raised objections to the practice of certain physicians who as a result of demands to exercise economy, place in the hands of patients potent medicines that will accomplish the desired therapeutic effect only when prepared by experts, requesting such patients to prepare their own medicines. By such unsuitable preparation not only is the therapeutic effect endangered but severe damage to health may be produced. One common source of error in the preparation of medicines by laymen lies in the subdivision of ready made products, for example, the division of small sleep-inducing tablets into eight or more portions for administration to young children. The physician often acts under the influence of the *Artenkassen* and public welfare boards which place booklets published by themselves dealing with the preparation of prescriptions in the hands of physicians and urge them for the sake of economy, to resort to this method of prescribing. In the future, such institutions will be held liable for any damage that arises from such preparation of medical remedies if such damage is traceable to any compulsion leading to the improper preparation of individual prescriptions.

The Breslau Institute for Neurologic Research

A new institute for neurologic research was opened in Breslau, January 31, under the direction of Prof. Otfried Foerster. The funds for the erection of the institute were derived mainly from a \$50,000 gift from American friends and pupils of Professor Foerster. The institute has a department of physiology and a department of cerebral anatomy and histology. The institute houses also Foerster's valuable pathologic-anatomic collection.

ITALY

(From Our Regular Correspondent)

Dec 15, 1933

National Congress of Psychiatry

The Società Italiana di psichiatria held at Siena its twentieth national congress, under the presidency of Professor Donaggio.

BRAIN DISORDERS IN INFANTS

Professor Balduzzi, assistant physician in the Clinica neurologica in Genoa, discussed the "Diagnosis of Brain Disorders in Infants." He described how to make a neurologic examination of infants, which, in his opinion, should never be omitted. The diagnosis of the seat and nature of the lesion in the brain is difficult. The speaker called attention to certain symptoms, such as insomnia, convulsions, muscular paralysis and tonic reactions. A physiologic spasmophilia in children has not been spoken of, but thus far the problem of convulsions has not been solved. If an attack is capable of producing anatomic lesions in the brain (sclerosis in the cornu ammonis) theoretically every attack of convulsions in the child is an expression of a brain disorder. But that does not solve the problem as to whether the child will be a normal person or a psychopath. The speaker showed how frequently paralysis escapes the atten-

tion of physicians and explained the value of examining the tonic reactions in studying the development of the nervous system. The kinds of tonic reactions in the child are manifold: reaction of distention, of fixation and of adaptation, reflexes of the neck, reflexes of contralateral extension of the limbs, reaction of support, labyrinthine reflexes of posture, statokinetic reflexes. By making repeated examination of the tonic reactions, one can determine the degree of development of children and ascertain whether it is regular, retarded or pathologic. These examinations require a special personnel and a wide statistical basis, hence the speaker proposed a resolution in which might be submitted to the government and to the Opera pro maternità e infanzia the need of a specialized institute for the study of brain disorders in infants, from the standpoint of neuropsychiatric prophylaxis.

PSYCHASTHENIA

The official paper on the second topic "Course and Outcome of Psychasthenia," was presented by Professor Puca, director of the Ospedale psichiatrico in Reggio Calabria. The modern trend is to include all psychiatry under one head—that of mental dissociation. According to the speaker, the fundamental difference between psychasthenia and obsessive neurosis consists in the fact that the former constitutes the basis—the constitutional and permanent modification of the mental state, on which may develop without any necessary reason the obsession as a provisional manifestation. At the basis of every obsession there is an emotional trauma through which the emotional energy, fixed to a painful experience, creates a nucleus of sensitization—a modification in the organic structure. Every time that the painful experience is repeated, the whole psychosomatic organism feels a reaction which gradually becomes more extensive. The speaker studied 140 cases and found evidence of a potent hereditary influence. The course of these types may be occasional, periodic, remittent, progressive or chronic. Some patients recover under conditions which may be interpreted as stimulative factors, which reflect the psychic reaction to the immediate contacts of reality. These are of a psychologic and of an organic character. Normal outcomes are delirium, schizophrenia, the Cotard syndrome and real or moral suicide.

ADVANCES IN PSYCHIATRIC AID

The third topic, "Accomplishments in the Form of Psychiatric Aid," was discussed by Prof. Bruno Manzoni who considered chiefly what is being done in foreign countries. The criteria for the admission and the dismissal of cases are now characterized by greater generosity and breadth of views. An attempt is being made to facilitate hospitalization, freeing it from excessive bureaucratic practices especially of the coercive character which serve to maintain the distrust shown by Italian public opinion toward psychiatric institutions. Early dismissals as recommended by Bleuler have been found to have practical value, particularly in the schizophrenic types that have scarcely passed the acute stage. Their purpose is to prevent the atmosphere of a psychopathic hospital from influencing the patient harmfully and from creating those secondary manifestations to which Kraepelin has called attention.

These modern psychiatric ideas encounter frequent opposition in the form of the legal requirements, although some recent enactments denote real progress. For example, the English law and the Swedish law of 1931. Bratz, for instance, has established at Wittenau near Berlin, a graduated system of aid. The psychiatric hospital constitutes the central structure, around which are grouped various independent departments designed to meet the needs of the different classes of patients. Independent departments for nervous patients exist also in other psychiatric hospitals of Germany. In Switzerland at Mandrisio a separate pavilion for alcohol addicts has recently been created. In France where the law of 1837 is still in force, Toulouse

has sought to introduce a modern touch by the creation of a hospital admission to which is voluntary.

In the methods of treatment now used in psychiatric hospitals, one observes trends that are in sharp contrast with older methods for example abolition of systematic isolation and less frequent application of the protracted bath and of bedside treatment. These new trends are the results of the "more active treatment" of Simon which constitutes the most important advance of recent years. This method of treatment may be regarded as a form of pedagogy applied to mental diseases. Its purpose is to socialize the patient with respect to his surroundings and it has as its basis order and tranquility at any cost.

In the general discussion it developed that the Simon method has two defects, namely, the exaggerated emphasis on work and the small number of dismissals. The congress approved the idea that the work performed in the psychiatric hospital should be of a purely manual type and not machine work.

Naples was chosen as the next meeting place. The main topics on the program will be (1) Circumscribed Cerebral Atrophies, chief speakers Bonfiglio and Challiol (2) Psychoses Due to Diseases of Metabolism Penta and De Mares, and (3) Ergotherapy in Psychiatric Hospitals Fattovich.

PRAGUE

(From Our Regular Correspondent)

Jan 27, 1934

Medical Activities in 1933

The final statistical returns are not yet available for 1933 but according to preliminary data the health record was satisfactory. The only unfavorable event was the epidemic of influenza, which continued in the early part of 1933 from the previous year and brought also an increased tuberculosis and infant mortality rate during that period. The results for the second and third quarters of the year however, neutralize the unfavorable effect of the influenza outbreak. The natural increase of the population will again be lower than in the previous year because of the low birth rate. The tuberculosis mortality will show a further decline, even though the year of 1933 saw the highest rate of unemployment ever recorded in Czechoslovakia. The government does continued to be paid almost to the same extent as in previous years, which meant that nowhere was there actually want. Attention was paid especially to the feeding of school children.

The economic depression has had a profound influence on public health and medical activities. But the organization of public health in Czechoslovakia has always been conservative, even in prosperous times, and no material reduction in the public health budget was effected in 1933. Through the financial help of insurance bodies it was possible to maintain most of the public health institutions such as dispensaries and preventoria. Hospitals have been able to operate on a normal scale.

On the other hand considerable pressure was felt in medical practice owing to shrinkage of sickness insurance funds. A scheme for the reorganization of sickness benefit was worked out which curtails only the financial benefits but leaves actual medical aid untouched. In spite of that young physicians found it increasingly difficult to obtain employment with insurance bodies which try to maintain the salaries of physicians who were in their service previous to the depression. The uncertain outlook has led even older physicians to urge the adoption of some pension scheme for physicians engaged chiefly in insurance practice. The Savings Bank of Czechoslovakian Physicians has saved many of them from serious losses from the fluctuation of values during the depression.

The times have forced physicians into a closer organization. They are now on a sounder legal basis and have worked out strict statutes on ethical standards. The medical organizations

studied the conditions of medical practice and opportunities for new medical work and there was a discussion opposing the holding of several offices by one individual in medical practice.

The sickness insurance bodies tried to reduce their expenses by eliminating all possible waste, especially in the field of pharmaceutical products. Most of the imported pharmaceuticals have been eliminated from insurance practice. Another important development in sickness insurance is the increased interest of medical practitioners in the administration of sickness insurance bodies. The conviction is growing that physicians will be able to improve their situation in insurance only through active cooperation. This tendency has manifested itself in the formation of mixed committees, with an equal representation of physicians, by which important questions pertaining to medical practice are being decided.

The general dissatisfaction with medical practice in Czechoslovakia has led also to a deeper interest in problems of reform in medical education. Not only the medical faculties but also private groups of practitioners have been studying the possibilities of a better preparation of students for the practice of medicine. Limitation of the free admission of students into the faculties was foremost in this discussion. An almost complete elimination of foreigners from faculties of medicine was effected through the exchange regulations of surrounding countries which do not permit students to export the necessary funds for study abroad.

The faculties of medicine appointed committees to investigate the possibilities of economizing in the conduct of medical education. The only addition to the equipment of the faculties in Czechoslovakia during 1933 was the new orthopedic department of the Brno faculty of medicine. The Prague faculty of medicine lost two members in the deaths of Dr. Vladimír Slavík, professor of legal medicine, and Dr. Václav Rubeska, professor of gynecology. The German medical faculty of Prague lost also two of its members, Dr. Karl Kreibich, professor of dermatology, and Dr. Arthur Biedl, professor of experimental pathology.

Only two important additions to medical institutions can be recorded for the year: a new surgical hospital of the accident insurance was opened in Brno, in which city also foundations were laid for an institute for research in cancer.

In 1933 only two important international congresses were held in Prague: the cardiologic congress in June and the international congress of otorhinolaryngologists in July. The congress of Slavic physicians in Posen was a convincing demonstration of closer cooperation among the Slavic physicians of Europe.

Mendel's Garden Identified

The fiftieth anniversary of the death of the biologist John Gregor Mendel was celebrated in Brno, January 6, in assemblies held by all biologic societies. Mendel's work was reviewed and a further attempt made to trace the physical reminders of his investigations. The garden in the college was identified where he carried out his experiments in the crossing of plants at the time he was a professor. It was learned that he continued his experiments later when he became influential in the Brno convent. No traces of his work at this time could be discovered because all his private correspondence and archives were burned shortly after his death when no one suspected what an enormous influence his work would have on the development of the science of biology. The efforts for the erection of a Mendel institute in Brno have been renewed.

Introduction of Home Nursing Service by Insurance Societies

Attempts are being made to introduce nursing into the homes as an economy measure in the care of the sick. Skilled home nursing is almost unknown in Czechoslovakia among the lower classes. The Central Invalidity Insurance Agency was first

to set aside funds for home nursing for the destitute. Hospital care could not be afforded by such patients, as they do not have any right to hospital benefits under the insurance scheme. The difficulties encountered are twofold. As physicians under the insurance system are paid usually for a single performance, such as a visit or an injection, most physicians have been reluctant to call for the assistance of nurses in the care of patients, seeing in them possible competition for their services. The patients themselves did not welcome the nurses in their homes as they saw in them agents of the insurance bodies, in which they have but little confidence and whom they suspect of spying on them. The insurance bodies see in this nursing service an important possibility for curtailing their expenses for hospital care, and so they are putting through more and more the remuneration of physicians on a per capita basis. At the same time an attempt is being made through educational measures to inspire faith in the nurses.

"Dental Technicians" and Politics

According to the present laws, only physicians having a special qualification in dentistry (one year postgraduate education after a medical diploma) are allowed to perform dental operations. But in addition a limited number of so called dental technicians are admitted to practice dentistry. Dental technicians" who were in practice when the law of 1920 became effective were allowed to continue their vocation but no others were to be admitted to this profession. Dental technicians in previous times did not have any medical qualification. They acquired skill only through apprenticeship and then passed a state examination. Through political influence, an attempt was made to open further possibilities to new apprentices in the offices of dental technicians to establish themselves independently in the practice of dentistry. The medical profession is combating this project vigorously on the ground that only medical qualification guarantees proper work in operative dentistry. The candidates for the diploma of 'dental technician' have more political influence than the physicians, so the proposal has already been presented to parliament. The dental surgeons however have the backing of the medical faculties and scientific associations. Mass meetings of students, physicians and medical faculties have been held and delegations have been sent to the minister of health and to representatives in parliament. The daily press also became interested in the dangers of dental work done by those not properly qualified. This pressure resulted finally in withdrawing this project from the program of parliament, where it had already been placed among the urgent measures.

Marriages

GEORGE GEORGIJEFF EBANDJIEFF, Nanty Glo, Pa., to Miss Elizabeth Borsella of Washington, D. C., February 1.

WILLIAM KAULL JACOBY to Miss Irma Stumbo Reynolds, both of Evanston, Wyo., at Butte, Neb., Dec. 15, 1933.

ADOLPH WILLIAM VERHOFF, Columbus, Ohio, to Miss Ruth Mary Spangler of Portsmouth, Nov. 6, 1933.

MURL JOHN ROBERTSON to Miss Mary Jane Mertens, both of Bayfield, Wis., at Minneapolis, January 3.

CHRISTOPHER M. REYHER to Miss Clara Keller, both of Gary, Ind., at Jeffersonville, January 10.

WALDO FAIRFIELD DESMOND, Newton, Conn., to Miss Miriam Wales at Monroe, January 19.

FLOYD W. CRAIG, Coshocton, Ohio, to Miss Florence Emily Folev of Youngstown, February 10.

GEORGE MARWOOD HOFFMAN to Miss Ruth Behnke, both of Manitowoc, Wis., January 3.

ERLING SVERRE FUGELSO, Mystic, S. D., to Miss Fanny Gardner of Omaha recently.

JOSEPH A. BODVAR to Miss Mildred Mlazonvsky, both of Cleveland recently.

Deaths

Roger Sylvester Morris ☉ Cincinnati, University of Michigan Medical School, Ann Arbor, 1902, instructor in medicine at his alma mater, 1903-1906, associate in medicine, Johns Hopkins University School of Medicine, Baltimore, 1906-1911, associate professor of medicine, Washington University School of Medicine St. Louis 1911-1913. Gordon and Helen Hughes Taylor professor of medicine, University of Cincinnati College of Medicine, member of the Association of American Physicians, and the American Society of Clinical Investigation, fellow of the American College of Physicians, served during the World War, since 1915 director of the medical clinic, Cincinnati General Hospital, author of "Clinical Laboratory Methods," and "Clinical Laboratory Diagnosis", aged 56, died, March 1.

Abraham Lincoln Blesh ☉ Oklahoma City, Chicago Medical College, 1889, professor of clinical surgery, University of Oklahoma School of Medicine, one of the founders, district governor and fellow of the American College of Surgeons, past president of the Oklahoma State Medical Association, Medical Association of the Southwest and the Logan County Medical Society, member of the Western Surgical Association, served during the World War, chief of staff and chief surgeon to the Wesley Hospital, attending surgeon to the University Hospital and chief of the Oklahoma City Clinic, aged 68, died February 20, of carcinoma of the lung.

William Victor Levy ☉ Colon, Republic of Panama, George Washington University Medical School, Washington, D. C. 1907, member of the Medical Association of Isthmian Canal Zone, on the staff of the Samaritan Hospital, formerly chief of the medical service at the Colon Hospital, aged 54, was found dead February 13 while en route to the United States on board the *S. S. Cristobal*.

Maurice Paxton Jones, Youngstown, Ohio, University of Michigan Medical School, Ann Arbor, 1907, member of the Ohio State Medical Association, fellow of the American College of Surgeons, past president of the Mahoning County Medical Society, served during the World War on the staff of the Youngstown Hospital, aged 49, died suddenly, February 13, of heart disease.

Henry Walker Clouchek, Twin Falls, Idaho, University of Michigan Medical School, Ann Arbor, 1900, member of the Idaho State Medical Association, formerly member of the state board of medical examiners, past president of the South Side Medical Society, on the staff of the Twin Falls County General Hospital, aged 56, died, February 19, of cerebral hemorrhage.

Rufus Hansom Hagood, Jr., Honolulu, Hawaii, Jefferson Medical College of Philadelphia, 1911, member of the Hawaii Territorial Medical Association, fellow of the American College of Surgeons, served during the World War, attending eye, ear, nose and throat surgeon to the Queen's and Kauaikealani Children's hospitals, aged 46, died, February 1, of angina pectoris.

Walter Webster Harrington, Kansas City, Mo., Kansas City (Mo.) Hahnemann Medical College, 1907, member of the Missouri State Medical Association and the Associated Anesthetists of the United States and Canada, served during the World War, aged 54, died, February 9, in the Research Hospital, of chronic cholecystitis and uremia.

Frank William Keating, Owings Mills, Md., University of Maryland School of Medicine, Baltimore, 1896, member of the Medical and Surgical Faculty of Maryland, and the American Psychiatric Association, superintendent of the Rosewood State Training School, aged 64, died, February 18, of acute dilatation of the heart.

Adrian Hansford Grigg ☉ Beckley, W. Va., Jefferson Medical College of Philadelphia, 1912, fellow of the American College of Physicians, past president of the Raleigh County Medical Society, served during the World War, aged 45, on the staff of the Beckley Hospital, where he died, January 6, of lobar pneumonia.

James Joseph Brown, Buffalo, University of Buffalo School of Medicine, 1902, member of the Medical Society of the State of New York, on the staffs of Our Lady of Victory Hospital and the Mercy Hospital, aged 64, died, February 23, of cerebral thrombosis, hemiplegia and hypertension.

Joseph Dimock Howe ☉ Pittsfield, Mass., Tufts College Medical School, Boston, 1898, assistant district medical

examiner formerly member of the school board, veteran of the Spanish-American War on the staff of St Luke's Hospital, aged 64, died, January 30, of heart disease

Robert John Mercer Carter * Saginaw, Mich., Trinity Medical College, Toronto, Ont., Canada, 1899, past president of the Saginaw County Medical Society, aged 58, for many years on the staffs of St Luke's Hospital and St Mary's Hospital, where he died, February 9

Boyd Henderson Pope * Kingman, Kan., Washington University School of Medicine, St Louis, 1906, president of the Kingman County Medical Society, aged 57, on the staff of the Kingman Hospital, where he died, January 7, of injuries received in an automobile accident

Edwin Lawrence Kendig * Victoria, Va., Medical College of Virginia, Richmond 1905, secretary of Lunenburg County Medical Society, formerly member of the state senate fellow of the American College of Surgeons, aged 52, died, January 15, of heart disease

Franklin Beverly Kirby, Harrison Ark., Washington University School of Medicine, St Louis, 1904 member of the Arkansas Medical Society, formerly secretary of the Boone County Medical Society, aged 56, died, January 20, of heart disease

Charles H. Furnee, Kittanning, Pa., Vanderbilt University School of Medicine Nashville, Tenn 1898, member of the Medical Society of the State of Pennsylvania, veteran of the Spanish-American and World wars, aged 55, died, February 2

Mieczyslaus Boleslaus Hazinski * East Chicago, Ind., Loyola University School of Medicine Chicago, 1926, deputy coroner, aged 39, on the staff of St Margaret's Hospital, Hammond, where he died, February 17, of septicemia

William Francis Kelley * New York, Columbia University College of Physicians and Surgeons, New York, 1928 aged 41, on the staffs of the Harlem Hospital and the French Hospital, where he died, February 2, of pneumonia

Jonas Samuel Gilbert, Allais, Ky., University of Louisville School of Medicine 1898 member of the Kentucky State Medical Association, served during the World War, aged 59 died suddenly, February 9, of heart disease

John Francis Dooling, Brooklyn Long Island College Hospital, Brooklyn, 1903, member of the Medical Society of the State of New York served during the World War, aged 52, died, February 23, of pneumonia

Jere Augustus Allis, Basking Ridge, N. J. College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889 member of the Medical Society of New Jersey aged 70, died, February 3

Alfred Graham, Los Angeles, Hahnemann Medical College and Hospital of Philadelphia, 1885, aged 84 died, January 20 in the Glendale (Calif) Sanitarium and Hospital of arteriosclerosis and chronic myocarditis

John S. Borneman * Boyertown Pa., University of Pennsylvania School of Medicine Philadelphia, 1878, past president of the Berks County Medical Society, aged 82, died, February 10, of uremia and influenza

John Worthington Jeffries, Philadelphia, University of Pennsylvania School of Medicine, Philadelphia 1928, member of the Medical Society of the State of Pennsylvania, aged 30 died, January 21, of a brain abscess

Charles Lawrence Nay * Jersey City, N. J. Baltimore Medical College 1897, on the staffs of the Christ Hospital and the Margaret Hague Maternity Hospital, aged 65, died, January 31, of cerebral hemorrhage

Edward Meeker Beach, West Long Branch, N. J. University of Maryland School of Medicine Baltimore 1885, aged 80, died suddenly February 9 in Hollywood, Fla., of acute myocarditis and arteriosclerosis

Robert Glenn Grose, Harmony N. C., University of Maryland School of Medicine Baltimore 1924, member of the Medical Society of the State of North Carolina aged 36 died, February 1 of angina pectoris

James Archibald Nydegger * Surgeon U. S. Public Health Service University of Maryland School of Medicine, Baltimore 1892 aged 69 died February 18 in the Union Memorial Hospital Baltimore

Walter S. Downham London Ont., Canada Western University Faculty of Medicine London 1912 lecturer in public health at his alma mater, medical officer of health, aged 53 died Dec. 28 1933

A. Lincoln Leatherman Indianapolis College of Physicians and Surgeons in the City of New York, medical depart-

ment of Columbia University, 1893, aged 69, died January 19, of heart disease

David C. Loewenstine, Rye, N. Y., Cincinnati College of Medicine and Surgery, 1881, formerly health officer of Rye, aged 75, died, January 26, of cerebral hemorrhage and hypostatic pneumonia

Nels Andrew Biorn, Jackson Minn., Minneapolis College of Physicians and Surgeons medical department of Hamline University, 1901, county coroner, aged 59, died, February 4, of heart disease

Randolph Frederick Hunter, Palm Springs, Calif., Willamette University Medical Department Salem Ore., 1906 served during the World War, aged 52 died February 3 of angina pectoris

John Willis Adair, Kenosha, Wis., Homeopathic Hospital College, Cleveland, 1887, served during the World War, aged 69, died February 14, in St Catherine's Hospital, of coronary thrombosis

Richard Elliott Lee, Lincolnton, N. C., University of Maryland School of Medicine, Baltimore 1896, veteran of the Spanish-American War, aged 60, died February 15, of pneumonia

Thomas Frank Liddy, Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1889, aged 70, died, January 11, in Ocala, Fla., of uremia

John Moffatt Leslie, Chillicothe, Ohio Medical College of Ohio, Cincinnati, 1876, member of the Ohio State Medical Association, aged 83, died, February 20, of senility

Lewis Henry Fackler * York, Pa. Jefferson Medical College of Philadelphia, 1886, formerly member of the school board, aged 75, died, February 12, of heart disease

Thomas McNamara Leahy * Newfane, N. Y., University of Buffalo School of Medicine, 1930, aged 29, died, January 16, in a hospital at Lockport, of pneumonia

Alton Paul Gorman, Columbus, Ohio, Eclectic Medical College, Columbus, 1928, aged 29, died, January 31, in the White Cross Hospital, of heart disease

Samuel Eden, Brooklyn Hahnemann Medical College of Philadelphia, 1876, aged 82, died, February 8 of burns received while attempting to light a fire

Frederick M. Kremer, Holton, Ind., Central College of Physicians and Surgeons, Indianapolis, 1897, aged 63, died, February 13, of heart disease

Harry Calvert Iles, Prague, Okla. (registered in Oklahoma under the Act of 1908), aged 69, died, January 6, of acute nephritis and uremia

John M. Barthmaier, Philadelphia Hahnemann Medical College and Hospital of Philadelphia, 1890, served during the World War, aged 77, died, February 17, of arteriosclerosis

Edward Payson Geary, Portland, Ore., Jefferson Medical College of Philadelphia, 1882, formerly mayor of Medford, aged 74, died January 14, in the Good Samaritan Hospital

James Samuel Jackson, Belzoni, Miss., Memphis (Tenn) Hospital Medical College 1893 aged 69, died, in October, 1933, of a self-inflicted wound and hypostatic pneumonia

Winfred Merritte Johnston * Johnson Creek Wis. Ohio Medical University Columbus 1898, served during the World War aged 62, died, February 13, of angina pectoris

Ralph Jonathan Goodenow, Detroit, Detroit College of Medicine, 1907 aged 54, on the staff of the East Side Hospital where he died, February 10, of heart disease

George William McPherson, Los Angeles, University of Michigan Medical School, Ann Arbor 1866, aged 92, died, February 2, of cerebral hemorrhage and myocarditis

John Nathaniel Childs, Ideal Ga., University of Georgia Medical Department Augusta 1893 member of the Medical Association of Georgia, aged 73, died in January

James A. Crow, Round Knob Ill., St. Louis College of Physicians and Surgeons 1892 member of the Illinois State Medical Society, aged 71, died February 8

James Bancroft Hallam, Albertson, N. Y. New York Homeopathic Medical College and Flower Hospital, 1914, aged 67 died January 13, of chronic myocarditis

Edward Ames Robinson, Philadelphia Hahnemann Medical College and Hospital of Philadelphia 1893, aged 62, died, February 15 of carcinoma of the esophagus

George Layton Pearson * Youngstown, Ohio, Western Pennsylvania Medical College, Pittsburgh, 1897, aged 64, died, February 11, of carcinoma of the pancreas

Theodrick M. Johnson, Lima, Ohio, Hahnemann Medical College and Hospital, Chicago, 1884, aged 76, died, January 31, in the Memorial Hospital, of uremia

John Berton Allen ☉ Bloomville, N. Y., University of the City of New York Medical Department, 1891, aged 68, was found dead, February 4, of heart disease

Merle Theron Adkins ☉ Durham, N. C., Johns Hopkins University School of Medicine, Baltimore, 1907, aged 58, died, February 21, of coronary thrombosis

James Andrew King, Forest Miss., Tulane University of Louisiana Medical Department, New Orleans, 1911, aged 60, died, Dec. 3, 1933, of angina pectoris

Willis Leroy Hasty, Norway, Maine, Maine Medical School of Maine, Portland, 1908, member of the Maine Medical Association, aged 57, died, January 30

Alvin A. Francis, Knoxville, Tenn., University of Tennessee Medical Department, Nashville, 1885, aged 77, died, Dec. 19, 1933, of lobar pneumonia

George W. Goss, Pawhuska, Okla., Kansas City (Mo.) Medical College, 1889, aged 73, died, January 10, of heart disease and nephritis

William David Bacon, Philadelphia, Baltimore University School of Medicine, 1900, aged 58, died, February 14, in the Presbyterian Hospital

Charles Coleman Jones, Canton, Ohio, Ohio Medical University, Columbus, 1898, aged 60, died, January 5, of cerebral hemorrhage

Zed Vanderman Luke, Columbus, Ohio, Ohio Medical University, Columbus, 1896, aged 67, died suddenly, January 10, of heart disease

John William Crumbaugh, Huntingdon, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1878, aged 78, died, in January

Allan Moore Kimbrough ☉ Norfolk, Va., Medical College of Virginia, Richmond, 1921, aged 37, died, January 15, of heart disease

James J. Dewey, St. Paul, Rush Medical College, Chicago, 1878, aged 78, died, January 2, of cerebral hemorrhage and arteriosclerosis

Benjamin Franklin Simon ☉ St. Paul, Rush Medical College, Chicago, 1900, health officer of St. Paul, aged 63, died, January 15

Charles B. Chidester, Erie, Pa., College of Physicians and Surgeons, Baltimore, 1881, aged 75, died, February 10, of pneumonia

Robert Stephen Reid, Savannah, Ga., University of Pennsylvania School of Medicine, Philadelphia, 1898, aged 62, died, January 4

Harry Wilson Trimmer, South Gibson, Pa., Medico-Chirurgical College of Philadelphia, 1888, aged 70, died, January 15

Jenny M. Morgan, Santa Cruz, Calif., Hahnemann Medical College and Hospital, Chicago, 1884, aged 87, died, January 28

S. B. W. Courtney, Lake City, S. C., Baltimore Medical College, 1902, aged 58, died, February 12, of coronary thrombosis

Jeremiah Edward Black, Chicago, Bennett Medical College, Chicago, 1913, aged 49, died, February 15, of pneumonia

Thomas Colmer Rowe, Coal Bluff, Ind., Long Island College Hospital, Brooklyn, 1866, aged 80, died, January 13

Charles Schwartz, New York, Baltimore University School of Medicine, 1898, aged 63, died, January 18, of angina pectoris

William H. Lester, Dublin, Ky., Eclectic Medical Institute Cincinnati, 1888, aged 69, died, February 16, of pneumonia

Edgar F. Stewart, Indianapolis, Eclectic Medical College of Indiana, Indianapolis, 1908, aged 60, died, January 31

George Henry Coffin, Malden, Mass., Boston University School of Medicine, 1903, aged 82, died, February 8

Joseph W. Jones, Stockdale, Texas, American Medical College, St. Louis, 1894, aged 70, died, January 8

Benjamin F. Evans, Clarks Green, Pa., Albany (N. Y.) Medical College, 1875, aged 82, died, January 30

Harley S. Norton, Troy, Mo., St. Louis University School of Medicine, 1904, aged 55, died, January 19

Robert G. Carter, Chetopa, Kan. (licensed Kansas 1901) Civil War veteran, aged 87, died, February 1

Lasell W. Lyon, Detroit, Rush Medical College, Chicago, 1885, aged 72, died, January 16, in Pontiac

Bureau of Investigation

LIQUID ARVON

A "Dandruff Remover" with Irritating Qualities


The R. L. Watkins Company of Cleveland, Ohio, has for some time had on the market a preparation known as "Liquid Arvon" and sold as a cure for dandruff. Not, of course, that the product is crudely labeled a "cure", "patent medicine" concerns and cosmetic manufacturers are not that frank. Liquid Arvon has been advertised under the slogan "A Sure Way to Get Rid of Dandruff" and as a "Sure Way to Get Rid of Dandruff". Not even this direct statement appears on the trade package, where the claim might come within the purview of the National Food and Drugs Act. According to the trade package, Liquid Arvon is "For Removing Dandruff". No claim that it will remove dandruff appears on the trade package.

No information appears on the label or carton of Liquid Arvon regarding the composition of the product other than that which our present inadequate law requires, "Alcohol, 5 per cent." Under the present Food and Drugs Act there are only eleven drugs and the derivatives of those drugs that have to be

Sure Way to Get Rid of Dandruff

There is one sure way that never fails to remove dandruff completely and that is to dissolve it. Then you destroy it entirely. To do this just get about four ounces of plain ordinary liquid Arvon. Apply it at night when retiring. Use enough to moisten the scalp and rub it in gently with the finger tips. By morning most, if not all, of your dandruff will be gone and two or three more applications will completely dissolve and entirely destroy every single sign and trace of it, no matter how much dandruff you may have.

You will find, too, that all itching and digging of the scalp will stop instantly and your hair will be lustrous, glossy, silky and soft, and look and feel a hundred times better.



You can get liquid Arvon at any drug store and four ounces are all you will need. This simple remedy has never been known to fail.

THE R. L. WATKINS CO., CLEVELAND O

declared in presence and quantity on the label. Some of the most dangerous poisons known are not among the eleven. For instance, arsenic, aconite, carbolic acid, prussic acid, bichloride of mercury, strychnine—to name a few potent substances—do not have to be declared either in presence or in quantity under the present law.

In the past few years a number of cases of more or less severe dermatitis or other untoward effects have been reported following the use of Liquid Arvon. A Massachusetts physician has just written:

I have a patient with an extensive chemical dermatitis with edema and bleb formation of the scalp forehead and lids of one eye following the use of a liquid sold for treatment of dandruff and called Liquid Arvon. sold labeled as such with the name of the manufacturer R. L. Watkins Co. Cleveland Ohio U. S. A.

A New York attorney writes

I have been retained as attorney for a client of mine who has suffered a dermatitis of the scalp due to the use of a hair lotion called Liquid Arvon. Would you please send me a report giving the chemical constituents of this lotion and also advise me whether or not there have been similar cases such as described above either medical or legal or both.

A physician in New York State reported

I have a patient with severe dermatitis from its [Liquid Arvon] use.

A dermatologist in New York City wrote

I had under observation and treatment a patient with an acute dermatitis of the scalp following the use of Liquid Arvon. I wrote to the manufacturers asking them for a list of the ingredients in the preparation but they failed to reply.

From Oklahoma a physician wrote

I have a patient that used Liquid Arvon a hair tonic. He had a severe rash that covered the entire body.

From Idaho came this note from a physician

A patient came in suffering with quite an extensive dermatitis following apparently, the use of a preparation for the hair called Liquid Arvon. Is there any injurious ingredient in this stuff?

There have been other cases reported, but these are typical

As long ago as 1914 the state chemists of Connecticut published in the report of the Connecticut Agricultural Experiment Station the statement that Liquid Arvon "is an extremely dilute alcohol-glycerine solution containing salicylic acid, potassium carbonate and possibly resorcin." In 1930 a chemist connected with an educational institution in New York City reported that he analyzed Liquid Arvon and found it to contain among other things "sodium and potassium arsenites." In view of that, it seemed desirable at that time to have the A M A Chemical Laboratory test the preparation for the absence or presence of arsenic. The Laboratory report follows

LABORATORY REPORT

"An original bottle of Liquid Arvon (the R L Watkins Company, Cleveland, Ohio) was submitted by the Bureau of Investigation to the A M A Chemical Laboratory for a preliminary examination for presence of arsenic. The bottle contained approximately four liquid ounces of a green colored, perfumed liquid, which was alkaline in reaction to litmus. Qualitative tests indicated the absence of heavy metals and phosphates and the presence of an arsenic compound, potassium, one or more phenolic substances such as resorcin and salicylic acid. Five per cent alcohol was declared on the label. Quantitative determinations were as follows

Specific Gravity at 25 C	1.042
Arsenic (calculated as arsenous oxide)	17 per cent

'In terms of Solution of Potassium arsenite this is equivalent to approximately 17 cc of Solution of Potassium arsenite U S P (Fowler's solution) in 100 cc of Liquid Arvon."

Following three reports of more or less severe dermatitis following the use of Liquid Arvon that have come in since January 1, 1934 the A M A Chemical Laboratory was asked again to test Liquid Arvon, purchased in February, 1934 for the presence or absence of arsenic. The Laboratory reported that arsenic was again found

Correspondence

MENSTRUATION AND THE SAFE PERIOD

To the Editor—In connection with Dr Novak's article "Two Important Biologic Factors in Fertility and Sterility" (THE JOURNAL, February 10), kindly allow me a remark or two.

Births can be controlled in a natural or biologic way by complete abstinence (continence) or by observing the periods of sterility and fertility in women. Births can be controlled in an artificial way by making use of chemicals or mechanical devices and by coitus interruptus. In the one case births are avoided and in the other case births are prevented. This distinction is of great importance not only from an ethical point of view but also from a scientific point of view. Hence the expression 'biologic contraception' to indicate natural or biologic birth control does not seem a very happy one. The word 'contraception' should be used only in connection with artificial methods of preventing conception because *contra* connotes prevention rather than avoidance and prevention is not biologic.

Dr Novak remarks that Ogino admits the possibility of fertilization in the five day period preceding the span indicated but considers it very remote. Owing to more precise observations, Ogino has abandoned that position and no longer requires the extra five days.

Dr Novak refers to opponents of the Ogino Knaus theory, such as Grosser Bolaffio and Niedermeyer. Refutation of their arguments as proposed by Ogino Knaus De Guchtencere, Smulders and others is summed up by Latz in his discussion of the Ogino Knaus theories 'The Rhythm' in these words:

They speak in terms of weeks while Ogino and Knaus speak more accurately in terms of days. They did not ascertain the

variations in the menstruation cycles with sufficient accuracy, they tell the situation with reference to the previous menstruation instead of with reference to the subsequent menstruation.

The last point applies especially to the cases adduced by Grosser, to whom Novak appeals.

Taking up the possibility of extraordinary ovulation brought on by coitus, Latz sums up the position of the opponents by saying "So far no proof has ever been given to establish the contention that such ovulations occur in the case of women. Spontaneous ovulation is the rule with all mammals, except three species, and there is no evidence indicating that human beings do not fall into the general rule. Much evidence points in the opposite direction, namely, that ovulation is not brought on by intercourse. The regularity of the menstrual cycle in spite of intercourse when conception does not take place (as for instance after the use of contraceptives), the yellow-body theory, observed facts in overwhelming numbers, to be mentioned later (Q 43), etc.

'In this connection we might quote Dr Hartman (Carnegie Institution), 'the prevailing gynecological notion—namely, that a woman may ovulate and therefore conceive on any day of the menstrual cycle, is based in part upon uncontrolled evidence, in part upon incorrect observations'."

PAUL E. LAWLER, M.D., Chicago

To the Editor—In THE JOURNAL, February 10, Dr Emil Novak, in discussing the safe period, bottom of second column, page 452, states "the nondangerous span being that embraced between the twelfth and nineteenth days, inclusive." This seems to be the direct opposite of his statement earlier in the same paragraph. It does not fit with the observations you make in your editorial in the same issue. If the word dangerous instead of "undangerous" were used or the word "inclusive" construed as meaning from the nineteenth day of the menstrual cycle, through to the twelfth day after, this passage would be obvious. I am pointing to this apparent error because the statement, as it stands, is in entire accord with my previous knowledge and is the teaching that the clergy in my locality are advising in regard to the "safe period." The newer knowledge of the time of ovulation, the life of the ovum and of the spermatozoa make those views untenable. If the passage, as quoted, is correct, I would appreciate a more detailed explanation of these intricacies of the menstrual cycle.

IVAN I. YODER, M.D., Cleveland

[The communication of Dr Yoder was sent to Dr Novak, who replies.]

To the Editor—Your correspondent is perfectly right in his first comment, but not in his second. While the context makes my real meaning clear enough, I regret exceedingly that the slip in words escaped me in reading the proof of my paper. The word 'nondangerous' should, of course, have been 'dangerous.' As for the intricacies of which the correspondent speaks, I believe that these apply only to the case of women with irregular cycles, in whom, as I stated in the paper, there is a greater element of fallibility in the determination of the "safe period" than there is in women with regular four-weekly cycles. In the latter, since menstruation recurs every twenty-ninth day, there is no difference between the Knaus plan of counting forward ten to seventeen days from the first day of the preceding period to derive the safe span and the Ogino method of counting back twelve to nineteen days from the first day of the next period ($10 + 19 = 29$ $12 + 17 = 29$). It is the Ogino plan that is used in the case of women with irregular cycles, based on this author's idea that the fixed portion of the irregular cycle is the postovulatory span and that the time of ovulation cannot be even approximately determined in very irregular cycles by counting forward from the last period.

EMIL NOVAK, M.D., Baltimore

A PLEA FOR UNIFORMITY IN THE BIOLOGIC STANDARDIZATION OF COMMERCIAL PREPARATIONS OF DIGITALIS

To the Editor—The chemistry of the digitalis glucosides is as yet but imperfectly understood. Chemical assay is therefore not feasible and it is necessary to resort to the technique of biologic standardization. Most of the digitalis products now marketed in America are so standardized.

The present situation with respect to the biologic assay of digitalis is unsatisfactory both to practitioners of medicine and to the manufacturing drug firms. The various factors that lead to confusion are as follows:

1 The one-hour frog method is official in the Pharmacopoeia of the United States.

2 Other methods of assay have been devised, and one or another of these is employed for the standardization of commercial products, e. g. the cat method of Hatcher and Brody, the guinea-pig method of Vanderkleed and the Magnus modification of the Hatcher-Brody technique. The establishment of an international unit has also been attempted, and at least one firm markets a preparation said to be assayed in terms of this unit.

3 There is abundant evidence which indicates that the cat method of Hatcher and Brody yields uniform and reliable results and that the relative potencies of different preparations as determined by this method, apply to human dosage. When a specimen is found to be twice as active as another by this method it is also twice as active in man.

4 No standard of potency has been established for preparations that are assayed by the cat method. Thus 1 cc. of a given tincture may contain the equivalent of one-half cat unit, 1 cc. of another tincture may contain 2 cat units. Tablets, pills and capsules vary in like fashion.

When the physician prescribes digitalis, he is entitled to receive a dependable and uniform product. The drug manufacturer requires and is anxious for guidance and support from the medical profession. He is confronted on the one hand by the U. S. Pharmacopoeia which sets its stamp of approval on the frog unit, and on the other hand by a majority of competent cardiologists and pharmacologists, who favor the use of the cat unit.

The Heart Committee of the New York Tuberculosis and Health Association has for a number of years distributed to its constituent cardiac clinics tablets of digitalis leaf standardized by the cat method of Hatcher and Brody. The tablets have been made up to the strength of 1 cat unit, one-half cat unit and 2 cat units. The experience with this preparation has been entirely satisfactory.

On the basis of the facts cited, the following recommendations are made by the Heart Committee of the New York Tuberculosis and Health Association:

1 For the present and until further knowledge may necessitate a change in point of view, digitalis preparations should be standardized by the cat method of Hatcher and Brody. For convenience the exact procedure now followed in Dr. Hatcher's laboratory is appended.

2 In marketing commercial products, liquid preparations of digitalis should be put up so that 1 cc. (15 minims) contains the equivalent of 1 cat unit.

3 In marketing tablets, pills or capsules of digitalis, each of these should contain the equivalent of 1 cat unit. Tablets, pills or capsules containing stated fractions or multiples of 1 cat unit may be dispensed if desired.

It is hoped that the manufacturing drug firms will adopt these simple suggestions, for by so doing they will be rendering

a real service to the members of the medical profession and their patients.

These recommendations have been approved by the Executive Committee of the American Heart Association.

CAT METHOD OF HATCHER AND BRODY

The cat method of Hatcher and Brody, as carried out in the Department of Pharmacology of the Cornell University Medical College, is as follows:

The digitalis leaf to be assayed is first made up into a tincture, in accordance with the directions given in the U. S. Pharmacopoeia. The tincture is then diluted twenty times with physiologic solution of sodium chloride. The diluted tincture is injected slowly and continuously from a buret into the saphenous vein of the cat until death results from ventricular fibrillation. The rate of injection is such that the total dose is injected in about ninety minutes. The test may be made during light ether anesthesia or only local anesthesia may be employed, 1 per cent procaine hydrochloride being injected or 10 per cent phenol being rubbed into the skin for the exposure of the vein. Six cats are usually employed for one test. Pregnant, lactating or excessively fat animals are not used.

The cat unit potency of the preparation is the average of the results obtained with the group of animals and is expressed as the volume, in cubic centimeters, of undiluted tincture per kilogram of the animal required to cause death under the conditions described. The amount of leaf contained in this unit of tincture is readily calculated.

DIGITALIS COMMITTEE

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APPENDICITIS

To the Editor—The excessive death rate from appendicitis is at last attracting nation-wide attention and the question is being seriously raised as to whether many of the operations for appendicitis are justified and necessary. As a statement of fact I submit the following tabulation of appendicitis admissions and operations for seventy-five leading hospitals in this country.

Appendicitis in Seventy-Five American Hospitals, 1923-1932

Year	Cases Treated	Number of Operations	Per Cent
1923	18,194	16,700	92.3
1924	19,197	17,893	93.2
1925	21,298	19,899	93.4
1926	21,916	20,706	94.7
1927	23,673	22,461	94.9
1928	24,162	22,686	93.9
1929	25,495	24,883	97.6
1930	26,094	24,576	94.2
1931	25,271	24,886	98.5
1932*	26,261	24,642	93.8
Total	231,561	217,237	93.8

Total for 142 hospitals during 1923-48,000 cases and 46,848 operations

during the decade ended with 1932, numbering in the aggregate 231,561 cases and 217,237 operations, or 93.4 per cent. This figure is slightly impaired in absolute accuracy by the inclusion of operations for appendicitis that were found necessary in the surgical treatment of patients admitted and treated for other ailments. But this error would not very seriously impair the accuracy of the conclusion that on the average over 90 per cent of the patients with appendicitis are operated on.

The percentage of operations shows no pronounced upward tendency, but the actual number of patients treated increased from 18,194 in 1923 to 26,261 in 1932, while the actual operations

increased from 16790 to 24,642. The highest proportion of operations, 947 per cent, was reported for the year 1925.

Many of the statements regarding appendicitis in this country are, however, grossly misleading. In the November 1933 issue of the *New Health Magazine*, London, for example, is an editorial in which Dr. Ochsner is quoted to the effect that "appendicitis was now causing more deaths than cancer, with one person in the United States dying every twenty-nine minutes from appendicitis." This report is inaccurate for the total number of deaths from appendicitis in the United States registration area in 1932 was 16,978, while the number of deaths from cancer in the same area and for the same year was 122,339.

In several cities, particularly Philadelphia, in recent years various efforts have been made to study the appendicitis mortality from a new standpoint. The work in Philadelphia is especially encouraging and a decided improvement is noticeable in the returns. According to my own appendicitis review, the death rate for appendicitis in sixty American cities with an aggregate population of 29,000,000, was 157 per hundred thousand in 1932 against a rate of 133 in 1910. The rate reached a maximum of 18 per hundred thousand in 1929 and maintained the same figure in 1930, declining to 174 in 1931 and 157 in 1932. The increased attention to appendicitis on the part of the medical and surgical professions is therefore apparently producing encouraging results. In Philadelphia, as I have said before, a special effort has been made to study and reduce the mortality from appendicitis, the rate having declined from 139 per hundred thousand in 1931 to 113 in 1932, against a rate of 148 for New York and 145 for Chicago.

FREDERICK L. HOFFMAN, LL.D., Philadelphia

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

ASCHHEIM-ZONDEK TEST FOR PREGNANCY

To the Editor—I am writing to get some specific information on the Aschheim-Zondek test for pregnancy. The particular information I wish is with regard to the following two cases: 1. A married woman aged 25 who has severe diabetes has had two attacks of diabetic coma that were nearly fatal and her life was saved only by heroic treatment. She has skipped her last period and is about two or three weeks overdue. (a) I should like to know the earliest date on which the Aschheim-Zondek test might be expected to be positive in case she is pregnant. (b) She is receiving large doses of insulin. Would that influence the test? 2. A married woman aged 21 has suffered from irregular menstruations ever since menstruation began. Usually she goes over her periods rather than under them. She has also had a low grade secondary anemia but the menstrual disturbance probably has an endocrine basis. She has been taking anterior pituitary gland and corpus luteum. She is now two weeks overdue but states that there is no chance of pregnancy. (a) In such a case how early would the Aschheim-Zondek test be positive? (b) Would the administration of pituitary and corpus luteum affect the reaction in any way of the Aschheim-Zondek test? What is your experience with the reliability of this test? What is the percentage of false reactions? What if any conditions will produce a false reaction? J. CORVIN MABEY, M.D., Montclair, N. J.

ANSWER—1 (a) Positive Aschheim-Zondek reactions are reported as being obtained as early as two or three days "before the appearance of the next anticipated menstruation." Five days after the first missed period or three weeks after conception is usually regarded as about the earliest that the test can be expected to show positively.

(b) Baumerstein (*THE JOURNAL*, Sept. 30, 1933, p. 1095) has observed that urine of diabetic patients in two instances has caused sudden death of the rabbits used for the test, but nothing has been found in the literature to indicate that the test proper is interfered with by the urine from a diabetic patient receiving insulin.

2 (a) If the cessation of menstruation is the result of pregnancy the Aschheim-Zondek test can be expected to reveal a positive reaction by the time the menstrual period is two weeks overdue.

(b) Medication with pituitary and corpus luteum preparations would tend to cause a positive Aschheim-Zondek reaction and workers advise that it should be discontinued before the test is performed.

The original Aschheim-Zondek test and its later modification by Friedman and by Schneider, in which rabbits are used in place of mice, has given excellent results in the hands of careful workers. Aschheim reported 98.6 per cent accuracy (The Early Diagnosis of Pregnancy, Chorionepithelioma and Hydatidiform Mole by the Aschheim-Zondek test, *Am J Obst & Gynec* 18:335 [March] 1930). The test is strongly positive in hydatidiform mole and in chorionepithelioma. Retained placental tissue, as long as vital vascular contact remains, will give a positive test.

Ziserman (*Am J Obst & Gynec* 26:204 [Aug] 1933) in a review of the incidence of false positives and reports on 356 tests covering a series of problem cases states that 178 patients were pregnant and that 93.7 per cent gave positive Aschheim-Zondek tests. A modification of the Friedman test was used. Of the patients, 178 were not pregnant and 94.4 per cent gave negative Aschheim-Zondek reactions, 5.6 per cent gave falsely positive results. The climacteric, primary ovarian hypofunction, ovarian cysts with amenorrhea, and hyperthyroidism were some of the conditions found in the falsely positive group.

Genital carcinoma may give a falsely positive Aschheim-Zondek reaction and to this class belongs the teratoma and seminoma of the testis in the male.

Bishop (*Gyn & Hosp Rep* 83:308 [July] 1933) states that disorders of the pituitary may cause an excess of prolactin (anterior pituitary-like factor) in the urine.

STERILITY AND ARTIFICIAL INSEMINATION

To the Editor—A healthy woman aged 39 is desirous of another pregnancy. She has three healthy children: two girls and one boy aged 10, 8 and 4. Prior to the birth of the youngest child one miscarriage occurred at 2 months; the cause is stated to be running fast for a considerable distance. Prior to the first pregnancy the woman was told by a renowned obstetrician that it must have been difficult to conceive because of the position of the cervix. The menses occur from twenty-six to thirty days regularly and are of three to four days duration. Beginning about ten days to two weeks prior to their occurrence there is pronounced aching in the thighs followed by discomfort and soreness in both breasts. The woman is subject to severe migraine headaches. For the last six months no precautions against conception have been practiced. Squibb's Follutein two 5 cc vials were given intramuscularly with failure of pregnancy. The last injection was followed by a severe reaction: chills, fever and vomiting. The knee-chest position has been resorted to in coitus during the last two months on numerous occasions in the hope of increasing the possibility of conception with failure. Elevation of the hips on pillows and prone coitus also have resulted in failure to conceive. The cervix is in a healthy condition but with a pronounced rectocele and relaxed perineum. The uterus is in good position. Motile spermatozoa are found in the semen of the husband who is in good health and presents no venereal history. Would a rectocele and a bulging anterior to the cervix be the cause of failure? The vagina is long and deep. Would artificial insemination with a syringe be advisable and safe? If so please give suggestions as to technique. Would getting out of bed following coitus and losing some of the seminal fluid be a factor or preventive to conception? The woman states that in the prone position much of the seminal fluid is lost following coitus but not in the knee-chest position. What would be the most likely time to conceive and what is the likelihood of having another boy? Males predominate in both sides of the family. She hopes to avoid surgery if possible though she is willing to submit to dilation but wishes to avoid curettage if possible. She is needed at home because of the children. Please omit name and address. M. D. Idaho.

ANSWER—A rectocele and cystocele rarely ever interfere with conception. Even women with a partial prolapse of the uterus can conceive. The loss of seminal fluid does not usually result in sterility because in most instances, enough semen is deposited on the cervix during ejaculation to permit impregnation. However, when the cervix is not in the line of ejaculation, the loss of semen immediately after coitus may play a part in sterility. Nevertheless, even in these cases, enough semen remains in the vagina to permit fertilization. As a precaution however in cases of sterility when there is a tendency to the loss of semen the patient should remain in bed for at least half an hour after intercourse with her hips elevated on a pillow or stay in the knee chest or Sims position for ten or fifteen minutes.

Before insemination or even a dilation is resorted to, the contents of the cervical canal should be aspirated immediately after coitus and examined to see whether motile spermatozoa are present in this medium. A Rubin test should be performed to make certain that the fallopian tubes are patent, even though the patient has had three children. Not infrequently pregnancy

follows such a test, even when the tubes are permeable. If no gestation follows such a test, it may be advisable to perform a dilation and a mild curettement, because conception occasionally occurs after this procedure. The last resort is artificial insemination. Both husband and wife must be told that attempts to impregnate the woman artificially will most likely have to be carried out many times over a period of months. Even then there may not be a successful result. The most favorable time to carry out this procedure is the ten days that occur midway between the first day of one menstrual period and the first day of the next expected menses. The ideal time for conception to take place is at the time of ovulation, which usually occurs about midway between menstrual periods. Since ovulation may occur any time from the tenth to the eighteenth day of the cycle it is advisable to inseminate three, four or five times during these ten days. The husband should be instructed to wash the penis with soap and water before coitus and the wife should take a sodium bicarbonate or salt water douche. There are four methods of procuring semen—masturbation, coitus interruptus with ejaculation into a small jar, coitus condomatus, and natural coitus followed by aspiration from the vagina. The most aseptic method and the one that is not too obnoxious is to have a small sterilized jar at hand before intercourse. At the time of the orgasm the semen should be ejaculated into this jar. The latter should be immediately brought to the doctor's office. The patient is placed in the lithotomy position as for a vaginal examination and the vagina carefully cleansed. The cervix is exposed with a bivalve speculum and the external os is further cleansed. However, it is not advisable to apply any antiseptic because this may destroy the spermatozoa that are to be injected. The cervix is grasped with a tenaculum and a uterine cannula is gently inserted into the uterine cavity. The semen in the jar is drawn up into a luer syringe and 1 or 2 cc of it deposited in the uterine cavity, very slowly. If the semen is injected too quickly, it will be expelled by uterine contractions. After the injection is performed, the cannula should be removed slowly and the patient should lie quiet on the examining table for about thirty minutes. It is best to examine some of the semen just before each insemination, to make certain that it is satisfactory.

At present there is no dependable way of selecting the sex of offspring in human beings. However, Unterberger maintains that if sodium bicarbonate is applied to the penis and in the vagina before intercourse a boy will result from the impregnation. Thus far no one has verified Unterberger's contention.

DIAGNOSIS AND TREATMENT OF ASPERMIA

To the Editor—A young couple married four years want a baby. The man has never had a seminal emission. After intercourse his urine appears milky and contains numerous spermatozoa. My diagnosis is congenital absolute aspermia, probably due to faulty direction of the ejaculatory canal. Is there a way for him to have a child of his own? Can one obtain semen by aspirating the testicle? What is the technique of that procedure and of artificial fertilization in detail? Has it been done before? Please omit name. M D

ANSWER—The diagnosis of aspermia, absence of ejaculation of semen, may be made by a complete genito-urinary examination. The appearance of the ejaculatory duct openings can be determined by a posterior urethroscopy, and with proper technique the ducts themselves may be catheterized. In some cases a tight urethral stricture may be the cause of the condition. In other cases the fault lies in the sexual centers themselves. In some cases the condition has been artificially acquired by the patient holding back his ejaculation during coitus or masturbation. In some of these cases fluid containing live spermatozoa may be obtained by vigorous massage of the prostate combined with expression or stripping of the seminal vesicles at the same time. This procedure is best done when the bladder is full. In other cases a nocturnal pollution will be found to contain numerous live spermatozoa.

Before resorting to more radical procedures an attempt should be made to correct or cure the aspermia. In the absence of some of the pathologic conditions mentioned, a cure may at times be brought about by prostatic massage and weak silver nitrate solutions (from 1,000 to 1,500) into the prostatic urethra. Of course if the posterior urethroscopy reveals some severe pathologic condition, especially in the neighborhood of the ejaculatory duct openings, this should be treated locally.

If the aspermia itself cannot be relieved, and spermatozoa can be obtained from the seminal vesicles and prostate by expression, this fluid aseptically collected, may be put just within the cervical os care being taken not to inject it into the fundus uteri, as severe cramps or even a serious reaction may result.

The same may be done with the fluid obtained from a pollution with the aid of a condom. If spermatozoa cannot be obtained from any of these sources, one may administer to the patient enough sodium bicarbonate to render the urine mildly alkaline and collect the urine under aseptic precautions after a coitus, and procure some of the sediment which contains the spermatozoa and deposit this about the external os. Either of these procedures should be done shortly after the cessation of menstruation.

It is possible to obtain a few spermatozoa by aspiration of the testicle. The technique is quite simple and is described in detail by Hühner (Aspiration of the Testicle in the Diagnosis and Prognosis of Sterility, *J Urol* 19 31 [Jan] 1928). Briefly, the skin over the testicle is painted with iodine, and a rather large bore hypodermic needle, attached to an ordinary hypodermic syringe, is plunged through the skin at this point and into the testicle, and suction is maintained throughout the withdrawing of the needle. No anesthetic is used or is of any use, as whatever pain is caused is testicular in character and quickly disappears. A small amount of collodion may be applied to the puncture site after removal of the needle. Unfortunately, the number of spermatozoa obtained is so small that the procedure for this purpose has been found useless. The aspirated fluid thus obtained has been injected into the female cervix, both pure as well as mixed with a weak sodium bicarbonate solution and also mixed with some of the patient's own prostatic secretion. Various attempts in this direction have been made by Hühner as well as others, but so far there has been only one successful case briefly reported by Kenneth Walker in his book 'Male Disorders of Sex' on page 177.

INJECTION TREATMENT OF VARICOSE VEINS

To the Editor—About 5 cc of sodium morrhuate solution was injected into a varicose vein Aug. 15, 1933. None of the solution escaped into the surrounding tissues. The tortuous vein has remained hard and has absorbed scarcely at all. The usual tests for deep circulation were carried out before the injection. The patient has since complained of pain in the leg and swelling of the ankle. October 21 the patient complained of an intensely irritating rash over the entire body, and especially in the region of the varicose veins. The rash was punctate and raised confluent over the arms and in circinate arrangement over the other parts of the body. She complained of severe irritation which has only recently been entirely alleviated. This rash has never been of the weeping type. I felt at the time that the rash was due to ingestion of some food and could not reconcile myself to the idea that it could possibly be due to the injection given. Is it possible that the latter could be the cause? If so what might have been done to help the condition? What can be done to hasten absorption of the mass of veins?

ARTHUR S. LEAVITT, M.D., Los Angeles

ANSWER—The reaction should be discussed under two heads.

1 The thrombosis of the vein giving the firm hard cord is what is desired but probably is more painful and has more tissue reaction about it than usual, because of the large dose injected. 5 cc of 5 per cent sodium morrhuate being too large a dose to inject into any vein through one needle puncture. Just this reaction will often follow excessive doses of this solution.

2 The rash is very annoying and is also seen only in those cases in which a massive dose has been used and seems to be more prone to occur if a large dose is used in one injection. The rash greatly resembles an anaphylactic reaction. Its termination may sometimes be hastened by highly alkalinizing the patient and forcing fluids.

TREATMENT OF TABES

To the Editor—I have a patient who has severe symptoms of tabes. During the past ten years he has been through several courses of treatment and his blood Wassermann reaction at present is negative. However his symptoms are rapidly becoming worse so that at present he is almost unable to walk. Please give me a brief summary of the newest method for treating a case of spinal syphilis of this type. Please do not publish my name. M D, Illinois

ANSWER—Much depends on what one finds in the examination of the cerebrospinal fluid. If this is completely negative as is examination of the blood, one would feel that the lesion is of a late degenerative type, for which little, if anything, can be done. If, on the other hand, one finds evidences of an active inflammatory process in the examination of the fluid, there is some possibility of improvement by the use of trypanasamide or fever. The latter can be produced either by malaria or by diathermy, the electrical blanket, or intravenous injections of typhoid serum. When tabetic ataxia has reached the stage at which walking is impossible, one may assume that a great deal of destruction has taken place and that there is only a relatively small chance of any improvement.

HEREDITARY IN CANCER

To the Editor—My husband's mother died at 47 years of age of carcinoma of the liver. His father died in his late fifties as a result of metastasis of a prostatic cancer. Four years ago a half sister (same mother) died at 47 years of age of carcinoma of the liver diagnosed at the University of Michigan Hospital. Operation was begun but the condition proved to be too far advanced to be benefited by surgery. My husband was healthy as a child with the usual childhood diseases including scarlet fever. During 1921-1922 while teaching in Japan he had an eye infection diagnosed trachoma which was overtreated; he suffered a nervous breakdown and returned to this country where he recovered. When he married in 1925 he had been suffering from severe sick head aches which have since been eliminated by diet and exercise only an occasional one appearing under severe nervous strain. He has an occasional cold and the hearing in the left ear is slightly impaired. At 36 years of age somewhat overweight he is apparently in excellent health. What tests or examinations can be made what mode of life can be outlined to anticipate the fate of his immediate relatives? Any light on this problem will be appreciated. Please omit name. M D Ohio

ANSWER—The first thing to consider is the fact that the existence of the cases of cancer in this man's family do not necessarily, or even probably, mean that he will suffer from the same disease. He undoubtedly has many other relatives who did not die of cancer, and so while it may well be that he has a somewhat greater possibility of eventually acquiring cancer than another individual who did not have so many close relatives with the disease, as far as general experience goes this chance is not much worse than with the average run of mankind. He should take the same precautions that any one should of having periodic physical examinations to disclose any abnormalities that are not producing symptoms, and to seek competent medical advice whenever any unexplained symptoms of any kind manifest themselves. He should be assured that, as far as is now known of the genetics of cancer inheritance, he has no great cause for fear but he has excellent reason for more than ordinary care in seeing that his physical condition is checked up frequently.

EFFECTS OF RAYS ON TESTIS—SEXUAL NEUROSIS

To the Editor—About nine months ago a patient of mine, a man aged 32, was treated by a dermatologist for a lichen planus which failing to respond to ordinary treatment was eventually cleared up by roentgen therapy, a total of fifteen exposures at weekly intervals to the site of the eruption, the upper thighs being required to effect a cure. Three months ago the patient came to me stating that from about the time of the last exposure he had noticed that the testicles and penis were becoming smaller and that the scrotum seemed to be looser and more flabby than before he had received the roentgen treatments. A recent examination of the semen shows normal and active spermatozoa. He does not complain of any change in desire for sexual intercourse but finds that the orgasm is delayed in its completion. There are no evidences of any glandular disturbances and repeated examinations fail to show any abnormal physical changes. There is no history of venereal infection. Could his complaints be attributable to exposure to x-rays? Has there been any recent work done in the field of glandular therapy that might help the patient? What can be done to bring the genitalia back to normal? Please omit name. M D New York

ANSWER—The patient's statement that there has been organic change in the testicles since exposure to x-rays is contradictory to the fact that his physician finds a normal concentration and activity of the spermatozoa in the semen. On the other hand the statement that this observation by the patient coincides with disturbances of sexual function (delayed orgasm) completes the familiar picture of sexual neurosis. The decision whether this is a sexual neurosis can be made only by the physician in charge. There are apparently no recorded effects of x-rays on the genitals other than destruction of spermatogenesis, which has not occurred in this case. One would suppose that the effect of "glandular therapy" in such a case would be psychic, if any. One would also suppose that the genitalia are normal. At least the physician does not say that they are not so. To convince the patient that they are normal will require psychotherapy, formal or informal.

BRONCHIAL ASTHMA IN CHILD

To the Editor—I should like to know the prognosis in the case of a boy, aged 12 years, suffering from bronchial asthma since the age of 6 months. He has had his entire system gone over by numerous specialists in this city and Calgary. At the age of 4 his tonsils and adenoids were removed with no improvement in his condition. During the past six years he has resided in Edmonton and has had numerous skin tests, about eighty in the series and he reacts to most of them. What is the best treatment in this case? He has tried Felsol (an Anglo-French preparation), asthma powders by various pharmaceutical houses and ephedrine. He gets the best relief from ephedrine tablets by mouth. Please omit name and address. M D Canada

ANSWER—The prognosis in children suffering with bronchial asthma is usually good. This is especially true when the disease has been present for only a short time. The prognosis becomes

less hopeful as attack follows attack. This is because emphysema commonly sets in and adds its symptoms to those of the original uncomplicated bronchial asthma. Deformity of the chest is a frequent result of repeated attacks of dyspnea. Emphysema and chest deformity are not curable; the original asthma is curable in many cases even in those who have had it for many years.

As to treatment, it would seem that good care has been rendered. However, there are several hundred skin tests to be made; intracutaneous tests sometimes reveal clues not obtained by cutaneous tests. Diet tests often are of aid.

Failure may also be due to leniency on the part of the parents or the physician. Asthmatic persons must be shielded, as far as is possible, from all possible causes of attacks. Foods that give positive tests should not be given. If egg, for example, gives a positive reaction, the boy should not be allowed egg in any form. In addition, he should be protected against feathers and he should not be allowed to play with dogs, cats or other animals.

Finally, if these measures do not help he should be retested completely with the several hundred different antigens now available. Repeated tests frequently yield interesting information.

It is needless to add that general hygienic measures are of great importance.

TREATMENT OF NEUROSIS

To the Editor—A man aged 24 was given a thorough physical examination about six weeks ago. Everything was normal except the metabolism test which gave a reading of minus 19. He has an oily skin and is taking roentgen treatments for acne. He is underweight (his height is about 5 feet 10 1/2 inches or 178 cm and weighs between 125 and 130 pounds or 56.7-59 Kg) but has a good appetite. He had pulmonary tuberculosis when 6 years old from which he recovered. He sleeps from ten to twelve hours. He has never had duties to do around the house but is a good worker when given work to do. He recognizes that he must work and for this reason wants a job but just cannot bear the thought of it especially if he must leave home. His disposition has always been disagreeable—the kind one has in mind in saying he hates himself. He never has entered into sports but is pleasant enough when he wants to be so if he tries. He recognizes this and says that he just lacks nerve—no ambition but he wants ambition. I fear to have a psychoanalyst see him because he is far from being dull and might get the wrong slant as to its reason. Please comment on this—such as how frequent the metabolism test ought to be made and whether this thyroid extract is enough. Please omit name and address.

M D Michigan

ANSWER—A great deal more would have to be known of the mental and emotional attitudes of the patient before sound advice could be given. An inquiry into and examination of these fields does not necessitate the technical and prolonged procedure of orthodox psychoanalysis. A good psychiatrist with tact and judgment is accustomed to meeting this type of patient and securing cooperation. Certain questions at once occur, such as: Why can't he bear the thought of a job or of leaving home? What has balked the development of normal ambition? Is he worrying about masturbation? Has the low metabolic rate been checked by a second test? What is the pulse rate? The correspondent might be asked how much thyroid the patient has received.

TREATMENT OF GLYCOSURIA AND DIABETES

To the Editor—About three years ago I tested the urine of a friend (who then weighed 250 pounds or 113 Kg) and found a marked sugar reaction. I put him on a diet which promptly cleared up the glycosuria and reduced his weight to 200 pounds (93 Kg), which weight he has since maintained (he is 6 feet [183 cm] tall and 40 years of age). Although he has greatly restricted his carbohydrates when I examined the urine about a month ago there was another strong sugar reaction. He has since restricted his diet still further so that he now weighs 195 pounds (88.5 Kg) and the urine is sugar free. At present if he inadvertently eats a bunch of grapes or a few handfuls of popcorn a glycosuria appears. Aside from this there were no symptoms whatever. Is there anything to be done aside from rigid dieting? Is this a case for insulin? Is it enough that he keep the urine sugar free? M D

ANSWER—From the description of the case, a strict adherence to proper diet would seem to be the correct treatment. Insulin is necessary only when the patient is unable to take a diet that is adequate to maintain normal weight and physical activity, without glycosuria or appreciable hyperglycemia. Since the patient is still above average weight for his height and age (180 pounds, or 81.6 Kg) and since he has no symptoms or signs except for glycosuria following dietary indiscretions, insulin is not indicated.

Ordinarily it is sufficient to keep the urine sugar free but one should determine the blood sugar level from time to time to ascertain whether the urine examinations continue to be an adequate check on the patient's condition. In certain cases the

threshold of sugar excretion in the kidneys may rise above normal, so that a high blood sugar exists while the urine is sugar free. In such cases the treatment must be directed toward the lowering of the blood sugar to the normal range, and the physician must necessarily be guided by more frequent analyses of the blood sugar.

INJECTION OF QUININE AND UREA IN VASOMOTOR RHINITIS—REMOVAL OF UVULA

To the Editor—1 Since the injection of quinine and urea hydrochloride is used in the treatment of hemorrhoids to cause a shrinkage of the tissues could the same treatment be used in vasomotor rhinitis? The patient has had skin tests for pollens and has been treated with autogenous vaccine and calcium with a salt free diet. 2 An article in *North West Medicine* November 1933 gave the author's experience with staphelectomy in the prevention of colds. Is there any proved disadvantage in removing the soft palate? Kindly omit name.

M D Washington

ANSWER—1 Quinine and urea hydrochloride not only has been used in the treatment of hemorrhoids but also was rather extensively employed some years ago for the purpose of producing local anesthesia for tonsillectomy. It was observed, however, that when used by infiltration there was considerable edema of the tissues and sloughing at times occurred. It does not seem logical to use quinine and urea hydrochloride for hyperesthesia, as there is the possibility of edema and sloughing and, furthermore, the essential etiologic factors of the hyperesthesia are not eliminated by injecting substances into or beneath the nasal mucous membrane.

2 There is no particular disadvantage in removal of the uvula but removal of the actual tissues of the soft palate will in many instances lead to changes in the voice. If the uvula is removed flush with the edge of the soft palate there will be no difficulty either with the voice or with the act of swallowing. It is difficult to visualize beneficial effects so far as the prevention of colds is concerned, by the mere removal of the uvula. Unless a large number of cases under control could be observed for several seasons, it would be difficult to arrive at any conclusion regarding the possible benefits from staphelectomy or removal of the uvula.

UNUSUAL DISEASE REPORTED FROM MEXICO

To the Editor—The following item appeared in *El Siglo de Torreón* for Nov. 22 1933 (My own crude translation from the Spanish). Mexico Nov. 21—The health department has received reports from numerous towns and ranches of Sinaloa where it is causing great mortality of the presence of so-called spotted fever, a fever accompanied by excessively high temperature, hemorrhages and black spots over the entire body. The spotted parts decompose and fall in pieces causing the death of the victim in a few hours. Cases have been reported of entire families consisting of from seven to ten persons who died in less than one week. From those places they are asking for physicians to combat the evil which is most highly contagious. I am anxious to know whether this disease is a new entity or whether it has been epidemiologically investigated and reported. If so I would appreciate some report as to its alleged identity. A L MANN M D, Elgin Ill.

ANSWER—In some ways the description given resembles that of Rocky Mountain spotted fever in virulent form. The statement about spotted parts decomposing and falling in pieces does not fit into that picture, because such changes do not occur in rapidly fatal cases. Sloughing may occur in cases of spotted fever after several weeks. If it is true that the disease is actually contagious, it could not be Rocky Mountain spotted fever. It will be necessary for competent investigators to study the disease where it exists to determine its exact nature.

SULPHARSPIRANAMINE IN SYPHILIS

To the Editor—Will you kindly outline (dosage and frequency of dosage) treatment for congenital and acquired syphilis in children from 5 to 20 years with sulpharspiranamine (DePree)?

WILLIAM J JOHNSON, M D Wrentham Mass

ANSWER—Sulpharspiranamine is not to be commended for general use in persons from 5 to 20 years of age, on account of the marked tendency that it shows toward the production of exfoliative dermatitis and aplastic anemia. It is, however, quite well tolerated by very young children in whom a dose of from 15 to 20 mg per kilogram is allowable, the initial dose being 10 mg per kilogram and the highest individual dose not to exceed 0.4 Gm weekly. Courses may consist of from eight to ten injections at weekly intervals given either alone or in conjunction with a bismuth compound. It is inadvisable and in general unnecessary to use the drug after the tenth year of age when an intravenous injection technic becomes easily available. Jeans gives 20 mg per kilogram without any statement as to maximum dosage and Schamberg and Wright give 20 mg per kilogram, no individual dose to exceed 0.4 Gm.

PLANTAR WARTS

To the Editor—I should like some information concerning the infectious or noninfectious nature of so-called papillomas of the foot (plantar warts). At this institution we have had a number of cases of these wartlike tender and painful foot ailments appearing in the course of several weeks and successfully eradicated by repeated applications of dichloroacetic acid. I have been unable to find any opinion concerning this etiology. Please omit name and address. M D New Jersey

ANSWER—The infectivity of warts has long been known, having been demonstrated experimentally by several investigators. U J Wile and L B Kingery (*The Etiology of Common Warts* *THE JOURNAL*, Sept 27, 1919, p 970) demonstrated that the virus of warts is one of the filtrable viruses. They made a mash of the curettings of warts, filtered it through a Berkefeld filter and made cultures on agar. No growth was obtained. They then injected it endermically in a number of cases, obtaining a growth of warts at the sites of many of the inoculations. A filtrate of the juice of these experimentally produced warts also produced warts on endermic injection. It is generally agreed that the smooth topped juvenile warts and plantar warts are examples of verruca vulgaris, all caused by the same virus.

PROGNOSIS OF FRACTURES INTO JOINTS

To the Editor—Would you please give me information as to the prognosis of joint fractures and especially baseball fingers in which a fracture is near the joint? I have a case in which joint is threatened and I should like data on the situation. I want especially data on the likelihood of stiffness. J O HELM M D New Florence Va.

ANSWER—The prognosis of fractures into and near joints depends on several factors including the presence of traumatic synovitis, traumatic arthritis, bony irregularity or bony block. It also involves the degree of reduction, splinting, early active motion, delayed passive motion, and appropriate physical therapy.

In regard to baseball finger, the prognosis depends to a considerable degree on whether there is a chip fracture into the joint or rupture of the extensor tendon.

THE TREATMENT OF GONORRHEAL PROCTITIS

To the Editor—In *Queries and Minor Notes* in *THE JOURNAL* Dec 23 1933 page 2069 a pint of 1:4000 potassium permanganate as a retention enema was recommended for the treatment of rectal gonorrhea. I believe that this is inadequate and unsatisfactory because the majority of patients cannot retain it long enough for it to be of any value. I therefore suggest the following treatment. While the patient is lying on the left side with the right knee flexed 1 ounce (30 cc.) of 10 per cent mild silver protein should be instilled by rubber catheter into the rectum for fifteen minutes. This is performed every second day for three weeks and then followed with 1 ounce of 1:4000 acriflavine base for two weeks. This treatment should be alternated for about three months. The patient is instructed to insert a 10 per cent mild silver protein suppository in the morning and before retiring to take 1 ounce of liquid petrolatum daily by mouth and to maintain a bland diet. All foci of infection in the urogenital tract should receive immediate attention. This method of treatment has three distinct advantages: retention of the medication, prevention of injury to the rectal mucosa and a better ultimate result. HERMAN FEINBERG M D San Francisco

VIABILITY OF SPERM IN FEMALE GENITAL TRACT

To the Editor—In your answer on identification of sperm and seminal fluid in the vagina you state that the sperms disappear from the vagina in two days because of the acidity but live two weeks or so in the uterus or tubes. This is not correct.

In my experiments made from 1925 to 1928 and later reports of which have been published since I have shown definitely that the vaginal acidity is not an important factor but that the body temperature alone other factors remaining the same will kill all sperms in twenty-four hours or so. The limit is certainly not more than from thirty-six to forty-eight hours. It has been expressed very wittily by the statement: The presence of living sperms in the female genital tract two weeks after alleged intercourse is no longer a scientific question but a moral issue. G L MOENCH M D New York.

DUOCHROME METHOD OF REFRACTION

To the Editor—Recently there was brought to my attention a query and minor note in the Nov. 25 1933 issue page 1748 of *THE JOURNAL* regarding the duochrome method of refraction. Some months earlier there appeared a similar query and minor note. In both the text of the answer was mainly condemnation of the method chiefly on the ground that the method is an attempt to do away with the use of cycloplegia. I feel that this is unfortunate for the procedure of duochrome refraction is of value but really is not to displace the use of cycloplegia. May I give as a reference my editorial in the *American Journal of Ophthalmology* for November 1932 in which I have discussed the subject from the standpoint of physiologic optics.

H ROMMEL HILDRETH M D St Louis

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Cleveland, June Sec Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Written (Group B Candidates) The examinations will be held in various cities of the United States and Canada April 7 Oral (all candidates), Cleveland June 12 Sec Dr Paul Titus 1015 Highland Bldg, Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY Cleveland June 11 and Butte Mont July 16 Application must be filed at least 60 days prior to date of examination Sec Dr William H Wilder 122 S Michigan Blvd, Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

COLORADO Denver April 3 Sec Dr William Whitridge Williams 422 State Office Bldg Denver

CONNECTICUT Endorsement Hartford March 27 Sec Dr Thomas P Murdock 147 W Main St, Meriden

IDaho Boise, April 3 Commissioner of Law Enforcement Hon Emmitt Post 205 State House Boise

ILLINOIS Chicago April 10 12 Supt of Regis Dept of Regis and Edu Mr Eugene R Schwartz Springfield

MINNESOTA Basic Science Minneapolis April 3 4 Sec Dr J Charnley McKinley 126 Millard Hall University of Minnesota Minneapolis Medical Minneapolis April 17 19 Sec Dr E J Engberg 350 St Peter St St Paul

MONTANA Helena April 3 Sec Dr S A Cooney 7 W 6th Ave Helena

NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates May 7 9 (limited to a few centers) June 25 27 and Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

NEW MEXICO Santa Fe April 9 10 Sec Dr P G Cornish Jr 221 W Central Ave Albuquerque

RHODE ISLAND Providence April 5 6 Dir Dr Lester A Round 319 State Office Bldg Providence

TENNESSEE Memphis March 26 27 Sec Dr H W Qualls 130 Madison Ave Memphis

WISCONSIN Basic Science Madison March 24 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee Reciprocity Milwaukee April 5 Sec Dr Robert E Flynn 401 Main Street LaCrosse

National Board of Medical Examiners

The National Board of Medical Examiners reports that its certificate was awarded to 82 candidates who passed the final examination held in January 1934 at Chicago, Minneapolis and New York. The following schools were represented

School	Year Grad
University of Colorado School of Medicine	(1931) (1932)
Yale University School of Medicine	(1932) 4
Georgetown University School of Medicine	(1932)
Loyola University School of Medicine	(1933) 2
Northwestern University Medical School	(1933) 3
Rush Medical College	(1915) (1930) (1932) (1933) 2
University of Illinois College of Medicine	(1933)
University of Louisville School of Medicine	(1932)
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932)
Harvard University Medical School	(1929) (1930) (1931) 8 (1932) 2
Tufts College Medical School	(1930) (1931), (1932) (1933)
University of Michigan Medical School	(1932) 2
University of Minnesota Medical School	(1932) (1933) 6
St Louis University School of Medicine	(1931)
Washington University School of Medicine	(1930)
Columbia Univ College of Physicians and Surgeons	(1931) 4 (1932) 12
Cornell University Medical College	(1930) (1931) (1932) 6
New York Homeopathic Medical College and Flower Hospital	(1932)
New York University Univ and Bellevue Hosp Medical College	(1932)
Syracuse University College of Medicine	(1932)
University of Buffalo School of Medicine	(1931) (1932)
University of Pennsylvania School of Medicine	(1932)
Medical College of the State of South Carolina	(1932)
University of Vermont College of Medicine	(1931)
University of Toronto Faculty of Medicine	(1927) (1932)

Virginia December Examination

Dr J W Preston Virginia State Board of Medical Examiners reports the written examination held in Richmond, Dec 6 8 1933. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Six candidates were examined all of whom passed. The following schools were represented

School	PASSED	Year Grad	Per Cent
Georgetown University School of Medicine	(1932)	81	
University of Maryland School of Medicine and College of Physicians and Surgeons	(1933)	87	
Meharry Medical College	(1932)	76	
Medical College of Virginia	(1931)	83	
University of Virginia Department of Medicine	(1932)	84	

Eight physicians were licensed by reciprocity and 5 by endorsement from July 13 to December 16. The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
George Washington University School of Medicine	(1930)	Dist Colum	
Atlanta Medical College	(1914)	Georgia	
Kentucky School of Medicine	(1908)	W Virginia	
Louisville and Hospital Medical College	(1908)	Kentucky	
Johns Hopkins University School of Medicine	(1927)	Maryland	
University of Minnesota Medical School	(1921)	Minnesota	
Medical College of Virginia	(1916)	W Virginia	
(1932) N Carolina			
School	LICENSED BY ENDORSEMENT	Year Endorsement Grad	of
George Washington University School of Medicine	(1929)	N B M Ex	
Howard University College of Medicine	(1932)	N B M Ex	
University of Virginia Department of Medicine	(1915)	U S Army	
(1928) 2	N B M Ex		

Alabama Reciprocity and Endorsement Report

Dr J N Baker, secretary, Alabama State Board of Medical Examiners, reports 7 physicians licensed by reciprocity and 4 by endorsement from July 24 to Dec 8, 1933. The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Colorado School of Medicine	(1929)	Colorado	
Tulane University of Louisiana School of Medicine	(1920)	Louisiana	
Meharry Medical College	(1932)	Tennessee	
Vanderbilt University School of Medicine	(1929)	Tennessee	
Medical College of Virginia	(1900)	(1931)	Virginia
School	LICENSED BY ENDORSEMENT	Year Endorsement Grad	of
College of Medical Evangelists	(1932)	N B M Ex	
Howard University College of Medicine	(1932)	N B M Ex	
Tulane University of Louisiana School of Medicine	(1932)	N B M Ex	
Harvard University Medical School	(1930)	N B M Ex	

Arkansas Reciprocity Report

Dr A S Buchanan, secretary, State Medical Board of the Arkansas Medical Society reports 11 physicians licensed by reciprocity from June 16 to Dec 11, 1933. The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Rush Medical College	(1932)	California	Louisiana
State University of Iowa College of Medicine	(1930)	Iowa	
University of Kansas School of Medicine	(1925)	(1932)	Kansas
Washington University School of Medicine	(1928)	(1931)	Missouri
Univ of Tenn Coll of Medicine	(1928)	(1931)	Tennessee
Vanderbilt Univ School of Med	(1907)	Oklahoma	(1928) Mississippi

Washington July Report

Mr Harry C Huse, director, Department of Licenses, reports the oral and written examination held in Seattle, July 17-18, 1933. The examination covered 8 subjects. At least 60 per cent in each subject was required to pass. Twenty-five candidates were examined, all of whom passed. Sixteen physicians were licensed by reciprocity and 6 by endorsement. The following schools were represented

School	PASSED	Year Grad	Per Cent
College of Medical Evangelists	(1933)	80	82
Denver College of Medicine	(1894)	80	
University of Colorado School of Medicine	(1932)	78, 78	
Northwestern University Medical School	79, 79, 81, 81*	(1933)	70
Harvard University Medical School	(1911)	79	
University of Michigan Medical School	(1932)	77	
St Louis University School of Medicine	(1928)	74	
University of Nebraska College of Medicine	(1933)	76*	
University of Oregon Medical School	(1932)	75	
77 78 81 81 82 83			
Hahnemann Med College and Hosp of Philadelphia	(1932)	76	
University of Pennsylvania School of Medicine	(1931)	77	
University of Alberta Faculty of Medicine	(1932)	83	

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
College of Medical Evangelists	(1922)*	(1931)	California
(1932) Oregon			
University of Colorado School of Medicine	(1931)	(1932) 2	Colorado
University of Illinois College of Medicine	(1932)	(1932)	S Dakota
State University of Iowa College of Medicine	(1932)	(1932)	Iowa
Washington University School of Medicine	(1932)	(1932)	Montana
University of Minnesota Medical School	(1927)	(1927)	Minnesota
National University of Arts and Sciences Medical Department Missouri	(1915)†	(1915)	Wyoming
John A Creighton Medical College	(1912)	(1912)	Nebraska

University of Oregon Medical School (1932) Utah	(1932, 2)	Oregon (1928) Penna.,
School	LICENSED BY ENDORSEMENT	Year Endorsement Grade of
College of Medical Evangelists	(1933, 2),	(1933) N B M Ex
Rush Medical College		(1931) N B M Ex
Harvard University Medical School		(1932) N B M Ex
University of Oregon Medical School		(1932) N B M Ex

* License withheld

† License issued by order of court

Book Notices

Children's Sleep A Series of Studies on the Influence of Motion Pictures Normal Age Sex and Seasonal Variations in Motility Experimental Insomnia the Effects of Coffee and the Visual Flicker Limens of Children By Samuel Henshaw Professor of Experimental Psychology Ohio State University Vernon J. Miller Instructor in Psychology Bowdoin College and Dorothy P. Marquis Cloth 11c \$2 1p 212 with 31 Illustrations New York The Macmillan Company 1933

This monograph offers extensive quantitative data on the sleeping habits of children from 6 to 18 years of age. The work represents a part of a larger and related group of investigations of the influence of motion pictures on children sponsored by the Payne Fund of New York. During 347 nights, 170 children of both sexes were observed. These children in groups of twenty, slept in single beds each fitted with an electrical device which recorded the changes in posture made by the sleeper minute by minute throughout the nine hours stay in bed each night. Each group of twenty children remained in the experimental beds about fifty consecutive nights. The records include 6650 child nights of sleep. It represents the most comprehensive study of this nature thus far reported.

First a satisfactory norm or standard sleep pattern for the various ages, sex groups and seasons of the year was determined. This was compared with the sleep patterns obtained after the children saw various types of motion pictures in a typical neighborhood theater. Data also illustrate the variations in sleep motility with the season, the effect of drinking coffee and coffee substitutes at the evening meal, the effect of loss of sleep and impending illness, and a study of the limens of critical frequency for visual flicker in children of various ages. Enough of the observations are tabulated or given in graphic form to indicate the manner of arriving at conclusions. The monograph includes a summary of previous work on the problem of sleep in childhood and a bibliography of 255 titles on the general aspects of the problem.

Some of the conclusions are as follows: Temperature and relative humidity are not important factors in influencing hourly sleep motility. Younger children are quieter sleepers than older ones. The least motile and most recuperative sleep is indulged in during the first half of the stay in bed especially from thirty minutes to one and one half hours after retiring. Seeing some movie films does induce a disturbance of relaxed recuperative sleep, especially in the first half of the night in children, to a degree which if indulged in with sufficient frequency, can be regarded as detrimental to normal health and growth. For certain highly sensitive or weak and unstable children the best hygienic policy would be to recommend very infrequent attendance at carefully selected films. Children below 10 years of age show relatively less influence. The maximal effects seem to occur at about the age of puberty. The movie influence is not always limited to the night immediately following the viewing of the film.

The effects of the loss of sleep in children extend into several nights following the deprivation period and are reflected in the postdeprivation curves, whereas practically all investigators report that a single night is sufficient for complete recovery from the effects of insomnia periods lasting as many as 115 hours in the case of adults. All children show significant reductions in mean hourly motility as a result of the loss of a third of the usual night's sleep over a period of from three to five nights. This effect is comparable to the effect of a certain soporific drug (phenobarbital).

Frequent loss of sleep in amounts equivalent to one third of the normal ration occasioned particularly by late retiring, will almost certainly lead to disturbances in conduct and to physical conditions detrimental to health in children. Younger

children and children of weak constitution or nervous temperament will show these effects in the greatest degree.

So far as motility may be taken as an index of recuperative sleep, coffee does not have the consistently detrimental effect on the sleep of all children that it is generally assumed to have. Individual differences in susceptibility to the influence of coffee are so great that it is impossible to generalize regarding the extent or direction of its effects on children of the same sex or the same age. For some children coffee affects sleep motility during the first one to three hours of sleep for others during the middle of the night, and for a few children it seems to raise or lower the general level of the motility curve throughout the night. The fact that Kaffee Hag seems to produce a greater increase in motility than coffee for some individuals, would indicate that the extent of the effect is not a direct function of the amount of caffeine in the two beverages. For some individuals there can be little doubt that coffee causes increased motility in sleep to a considerable extent (in some cases doubled for the first part of the night), while in other children of about the same age and weight no appreciable difference is noted. Parents who would strongly protest against their young children ingesting from 0.25 to 0.4 Gm of caffeine between the hours of 6 and 9 p. m. nevertheless permit attendance at motion pictures whose effects on sleep motility may be as great as or greater than that of coffee and possibly more lasting in influence.

The critical frequency limen for both sexes of all ages is sufficiently low, so that the present rate of motion picture projections should not result in the perception of flicker and should therefore not be taken to indicate that children suffer distress from flicker in the motion picture theater or that the restlessness in sleep following the motion pictures was induced by this form of visual stimulation.

L'exploration fonctionnelle de la rate. Diagnostic et traitement des syndromes spléniques. Par Ed. Benhamou, médecin des hôpitaux d'Alger. 14p. 11c \$0 francs. Pp 215 with 10 illustrations. Paris. Masson & Co. 1933.

The author approaches the study of the various diseases associated with splenomegaly as one who has had much experience in tropical diseases. He calls attention to the fact that the work of contemporary physiologists and clinicians has enlarged the scope of investigation concerning the functions of the spleen and he devotes much attention to the application of physiologic methods to clinical diagnosis. He classifies diseases of the spleen according to three syndromes: those in which there is a disturbance of the reservoir function; those in which there is an abnormal degree of hemolysis; and those in which there is abnormal destruction of platelets. After calling attention to the conception of a closed circulation through the venous sinuses of the spleen and an open circulation by way of the reticulo endothelial tissue of the splenic pulp, he sets forth his own and reported experiences with respect to the value of injecting epinephrine in the demonstration of alterations of the reservoir function of the spleen. Roentgenograms, and erythrocyte and platelet counts made before and after the injection of 1 cc of 1:1000 solution of epinephrine, he believes give information that is valuable in diagnosis. Following the injection of epinephrine the platelets were found to increase in number within five minutes and the erythrocytes in ten or fifteen minutes. In hemolytic icterus an increase in the number of reticulocytes was noted. He believes that accurate results can be obtained only by having the patient at absolute rest for one hour preceding the test with epinephrine. Normal contractility of the spleen usually is lost in cases of splenic anemia and of Banti's disease, whereas it is present in hemorrhagic purpura, hemolytic icterus and certain other diseases. The author pays considerable attention to the value of ligation of the splenic artery in cases in which splenectomy might be associated with excessive risk. The spleen undergoes atrophy after ligation of the splenic artery, but adhesions are likely to become more dense, consequently he advises that ligation of the splenic artery should not be done when splenectomy may be necessary later. He believes that there are certain cases of hemorrhagic purpura in which operation must be performed during the acute stage and in which ligation of the splenic artery may be preferable to splenectomy. The author's discussion of the diagnosis and treatment of diseases associated with splenomegaly

does not differ greatly from treatises that have been published in English. Probably because of his experience the discussion of malarial splenomegaly is extensive and the existence of parasitic disease is always under consideration in connection with the diagnosis in any given case. The subject matter is logically arranged, illustrations are plentiful, there are many excellent tables of differential diagnosis and a bibliography of 299 references and an index are appended.

Dynamo Biology By Arthur O. Baker. John Adams High School, Cleveland and Lewis H. Mills, Glenville High School, Cleveland. Edited by William L. Connor, Chief, Bureau of Educational Research, Cleveland Public Schools. Cloth. Price \$1.72. Pp. 722 with illustrations. Chicago: Rand McNally & Company, 1933.

If the prime purpose of education is to fit the individual to meet the problems of life, this high school textbook should be useful. In comparison to the massed accumulation of details and facts combined with moralistic interpretations, which an older generation was required to study under the guise of biology, this book reads almost like a novel. The various phases of biologic phenomena are interpreted in terms of everyday living, whether in the plant or the animal kingdom. For instance, in the discussion of microscopic forms of life, the opportunity is taken to present pertinent facts concerning the spread and control of pathogenic bacteria, personal and community hygiene and the part played by the family physician in maintaining health. Several playlets are given, one of which deals with quackery and patent medicines. The information concerning digestion and nutrition is concise and accurate and for clarity might well be recommended to those groups of our population who are inclined to follow visional dietary fads. The chapters on reproduction escape the prudishness so often found in textbooks of this nature, yet are sufficiently conservative as not to offend the most sensitive individuals. Numerous photographic reproductions, drawings and diagrams accompany the text, and at the end there is an extensive glossary.

Some Thoughts of Asthma By A. I. D. Cameron, M.B., Ch.B., Physician to the Sherwood Park Clinic and Spa, Tunbridge Wells. With a foreword by Kenneth Playfair, M.A., M.B., B.Ch. Cloth. Price \$2.75. Pp. 178 with 12 illustrations. Bristol: John Wright & Sons Ltd., 1933.

This small monograph dealing with asthma of the bronchial type is apparently based on fifteen comparatively recent cases, in thirteen of which recovery had occurred at the time the book was written. It enthusiastically advocates the method of treatment championed by Haseltine and LaForge in the United States. Asthma is looked on as due to a combination of intestinal autointoxication, disease of the ethmoid sinuses and an irritable nervous system. The treatment is by repeated colonic flushings and diets for the intoxication and Dowling's mild silver protein packs (with or without surgery) for the ethmoid disease. No special mention is made of treatment of the irritable nervous system. The book is full of assertions with no experimental data to support them. It condemns the studies of the large majority of specialists in this field as being unnecessary and practically useless. The book praises the work of Barber and Oriel, work that has been condemned by leading American and British investigators. The book adds nothing to present knowledge. It would be interesting to know how these fifteen patients after five years of treatment have fared.

Physiology and Anatomy By Estlin M. Crelshelmer, B.S., in Education, M.A., Ph.D., Associate Professor of Physiology, the University of Minnesota, Minneapolis and Raymond F. Blount, B.S., M.S., Ph.D., Instructor of Anatomy, the University of Minnesota, Minneapolis. Second edition. Cloth. Price \$3. Pp. 697 with 401 illustrations. Philadelphia & London: J. B. Lippincott Company, 1933.

This volume occupies a prominent place in the extensive series of nursing manuals sponsored by the publisher. The task the authors have set themselves is a pretentious one indeed, that of encompassing in a little over 600 pages of text the essential features of the fields of anatomy and physiology. Considering the limitations of space and style necessarily imposed in a manual of this sort, the result is commendable to a surprising degree. The faults and errors are largely those of detail. Repeated excursions have been made into the realms of therapeutics of immunology and even of diagnosis, often thus appearing to detract from the work chiefly because it is fre-

quently not evident that such material is intended to be merely illustrative. The comparison of bodily organization to that of a high school is but a variant of the many hackneyed similes so commonly, and unnecessarily, employed by popular writers. The statement that the reaction of muscle is neutral to litmus does not make it clear that litmus is of little value in measuring the range of hydrogen ion concentration in normal tissue. Caput medusae is indicated as a sign of portal obstruction, while hemorrhoids are not mentioned in this connection. Water loss from the body is emphasized as occurring by insensible perspiration and by urination; the roles of expired air and feces are neglected. The section on endocrinology is far from adequate, particularly that dealing with the pituitary and with the sex hormones. The choice of the trade name 'pituitrin' for the 'hormone of posterior pituitary' when there is a pharmacopoeial name for the identical extract, is particularly poor, similarly the arbitrary choice of one of the many appellations (i.e. "cortine") that have been applied to the active principle of the suprarenal cortex is hardly warranted in a textbook, particularly when the name here adopted has received no general recognition. While these shortcomings detract considerably from the work, this is nevertheless a significant addition to the educational armamentarium.

Over cylinders en eiwit in urine [Casts and Albumin in the Urine] Proefschrift ter verkrijging van den graad van doctor in de geneeskunde aan de Rijksuniversiteit te Groningen op gezag van den rector magnificus Dr. A. G. Roos, hoogleraar in de faculteit der letteren en wijsbegeerte tegen de bedenkingen der faculteit der geneeskunde in het openbaar te verdedigen op vrijdag 8 Juli 1932 des namiddags te 4 uur door Leopold Veyler. Paper. Pp. 114. Assen: Van Gorcum & Comp. N.V. [n.d.]

The author has studied clinical conditions that are associated with cylindruria and albuminuria and has attempted to determine the mode of origin of these products in the urine. He has observed albuminuria and casts in such diverse clinical conditions as diabetic coma, chronic nephritis, hunger acidosis, icterus, epileptic seizures, physical exertion in sports, cardiac asthma and after the ingestion of ammonium chloride, calcium chloride and sodium salicylate. He finds that the hydrogen ion concentration factor is the common denominator in all these conditions, when the pH falls below 5 there is an increase in the albuminuria and cylindruria. The granular casts are not fragments of degenerated renal epithelium, as has been previously supposed, but consist of coagulated albumin with uric acid crystals. Whenever the urine becomes acid, the hydrogen ion concentration of the kidney cells is increased and globulins as well as albumins pass into the urine. Globulins have the property of flocculation at their iso electric point. In the urine this point is reached with a pH of 4.8. This is precisely the pH of the urine in which occurred the greatest amount of albumin and casts. The author concluded that the excretion of a very acid urine is associated with albuminuria and cylindruria. The presence of casts is no indication of renal damage.

Post Operative Treatment By George Sanford Foster, M.D., Surgeon to the Lucy Hastings Hospital, Manchester, N.H. Forewords by Horace Binney, M.D., Professor of Surgery, Tufts College, and John C. Rommel. Cloth. Price \$5. Pp. 323 with 18 illustrations. Boston: Christopher Publishing House, 1933.

In writing this book the author has reviewed his notes on the postoperative care of his patients. He has placed emphasis on the daily attention to details by the surgeon. This seems somewhat at variance with the routine treatment as outlined, since daily observation should permit a wider flexibility in the care of such conditions. The care needed after most of the standard operations in the different regions of the body is discussed in separate chapters. There is considerable repetition which may be excusable. Most surgeons will disagree with the routine confinement of almost all operative patients in bed for twenty-three days. The exceptions are the prostatectomy patients, who are up on the fourth day. One would expect that the advantages of being up early might also apply to other patients in advanced years after other operations. The routine use of gauze and rubber tube drains is not adopted in most hospitals. Gauze is now rarely used except for hemostasis. Rubber tubes are usually now split or covered as in the cigaret drains in order to lessen pressure rather than having free gauze around them. The routine use of cathartics such as mild mer-

curous chloride and castor oil, on the third day after operation, has been abandoned for a long time in most hospitals. No doubt exists that many useful hints have been made in the postoperative comfort of the patient. However, it is doubtful whether the routine adoption of all the author's practices in his own hospital would be equally desirable in others.

Le sinus carotidien et la zone homologue cardio aortique. Physiologie, pharmacologie, pathologie clinique. Par C. Heymans, professeur de pharmacologie et de pharmacodynamie à l'Université de Gand, J. J. Bouckaert, professeur de thérapeutique générale à l'Université de Gand et P. Regniers, agrégé de l'Université de Gand. Papier. Prix 50 francs. Pp. 334 with 127 illustrations. Paris: G. Dolin & Cie, 1933.

In 1932 THE JOURNAL (February 27, p. 761) reviewed a brochure in German by Eberhard Koch on the same subject matter. The present volume, in French, by leading experimenters in this interesting field, correlates the observations of all workers, the literature of which since 1923 alone covers twenty-five pages. Koch's monograph did not contain as large sections on the pharmacologic, clinical and pathologic aspects of the subject. Many clinicians probably are not yet familiar with the automatic regulation of blood pressure, respiration and other physiologic processes of the body by sensory impulses arising from intra-arterial pressure changes in the carotid sinus region, aortic arch and most probably also in blood vessels of other parts of the body. The thinking physician will want to know about these physiologic mechanisms because of their interest and because of the possible clinical states arising from malfunction of these mechanisms. In short, the clinician will find this book [also] of practical interest and significance in his daily work.

Oral Surgery. By Sterling A. Mead, D.D.S., M.S., B.S., Professor of Oral Surgery and Diseases of the Mouth and Director of Research, Georgetown University Dental School. Cloth. Price \$12.00. Pp. 1087 with 463 illustrations. St. Louis: C. V. Mosby Company, 1933.

This is a large volume covering many subjects, and probably it is admirably suited to the author's intended purpose. He states that there appears to be a need for a book on oral surgery containing subject matter especially selected and arranged for instruction of the undergraduate dental student yet sufficiently concise and systematized as to permit of accommodation to the limited time of the college curriculum. The importance of minor oral surgery is not always sufficiently recognized in our dental schools, in many cases an attempt is made to teach major studies to those who would do well to grasp the minor ones, also this field of minor oral surgery is the only one into which the average dental practitioner will enter. A somewhat less general title might have been used.

Prophylaxie de la tuberculose. Applications en Europe. Par Etienne Burnet, de l'Institut Pasteur. Papier. Prix 65 francs. Pp. 375 with 25 illustrations. Paris: Masson & Cie, 1933.

This is a thoughtful work based on an abundance of investigation. While the data, except for occasional pertinent references to this country, have been collected only in Europe and the recommendations are for European application, the assemblage will prove of great value to American physicians and public health workers. The author is to be commended for the balance he has preserved. It would not be surprising if a French author discussing the prophylaxis of tuberculosis emphasized preventive vaccination with BCG above everything else. Burnet, however, devotes but eight pages to this, and while his comments are entirely favorable they are also conservative. The monograph is divided into two parts, the principles underlying the prophylaxis of tuberculosis and a summary of the organization of the antituberculosis campaign in different European countries. The historical consideration devoted to the decline of tuberculosis will be found of much interest. Burnet points out the well known fact that the decline in tuberculosis mortality in general began long before the modern period of bacteriology and hygiene. The curve of decline varies for different countries and for individual groups in a single country. In some countries the decline has barely commenced. Others are well down the curve. Industrialization, which initiated the original rise, favors the decline 'when it reaches the stage of social hygiene.' Up to a certain point general social trends may be expected

to depress the tuberculosis rate, but there is a critical point, which Burnet fixes at a tuberculosis mortality rate of 80 per hundred thousand where spontaneous decline ceases and specific antituberculosis measures are necessary to continue the rate of fall. The key structure for antituberculosis control Burnet repeatedly emphasizes is the dispensary. The methods used in the dispensary and the adjuncts employed, such as sanatoriums, preventoriums and special schools, will vary with the local problem but the campaign must center in the dispensary. Emphasis should be laid on removing the bacillus carrier from opportunity to infect others, and as has been stressed in this country in recent years, this should be the chief function of the sanatorium. In this connection attention is called to the possibilities of mass application of pneumothorax, a procedure long valued as an individual therapeutic measure but now recognized as an epidemiologic weapon of great possibilities. Part II will be found useful as a source of knowledge of the specific measures employed in the different European countries.

Studies on Blood Sugar and Glycosuria in Exophthalmic Goiter. By William Thune Andersen. Paper. Pp. 206 with 16 illustrations. Copenhagen: Levin & Munksgaard, 1933.

The much discussed question of hyperglycemia and glycosuria in exophthalmic goiter and the relation between this disease and diabetes mellitus is the subject of this small monograph translated from the Danish. The author reviews the literature and reports his detailed observations on thirty-one patients with exophthalmic goiter and two patients with diabetes one with exophthalmic goiter and the other with myxedema. Although there was little difference from the normal in the fasting blood sugar levels, most of the patients gave sugar tolerance tests slightly higher and more prolonged than normal. The sugar excretion thresholds were slightly lower than normal, though no cases of typical renal glycosuria were found. After thyroidectomy, the sugar tolerance test was usually unchanged, while the kidney threshold rose slightly. The relatively frequent occurrence of glycosuria in exophthalmic goiter is therefore attributable to the tendency to alimentary hyperglycemia coupled with the slightly lowered kidney threshold. The text is fully illustrated by tables and graphs and detailed case reports of all the material are appended. The bibliography is international in character. The volume should be of interest to the specialist in this field.

The Mechanism of Nervous Action. Electrical Studies of the Neurons. By E. D. Adrian, M.D., D.Sc., F.R.S., Foulerton Research Professor of the Royal Society. The Eldridge Reeves Johnson Foundation for Medical Physics. Cloth. Price \$2. Pp. 103 with 35 illustrations. Philadelphia: University of Pennsylvania Press. London: Oxford University Press, 1932.

This constitutes the Eldridge Reeves Johnson Foundation lectures for 1931. Its author, a Nobel prize winner with Sherrington, presents in simple language much of his own research and that of his associates on the physiology of nervous action. After an outline of the history of electrophysiology, two chapters are devoted to the action of the sense organs and to Discharges in motor nerve fibers are next discussed and the book closes with an account of the activity of nerve cells. Although the book contains results of fundamental research on nerve action, it will probably cause a ripple of enthusiasm in but 1 per cent of busy practitioners into whose hands it might fall.

Trois fondateurs de la médecine moderne. Pasteur, Lister, Koch. Derniers écrits. Par Elie Metchnikoff. Préface de M. le Dr. Et. Burnet, directeur adjoint de l'Institut Pasteur de Tunis. Papier. Prix 10 francs. Pp. 196. Paris: Librairie Félix Alcan, 1933.

The main part of this book consists of the essay Metchnikoff wrote in Russian in 1915 about the work and personalities of Pasteur, Lister and Koch, whom he regards as the founders of modern medicine. Here are interesting personal reminiscences. This essay, a model of luminous exposition gives a stirring introduction to the microbic era and its great pioneers. The rest of the book contains Metchnikoff's last writings (1) his answer to Roux's letter (also reproduced) on his seventieth birthday, and in this answer he discusses his then favorite topic, old age (2) his article on the death of the mulberry butterfly, a chapter in thanatology, from the *Annales*

de l'Institut Pasteur 29 477 1915, and (3) a chapter on the sexual function prepared for a projected book on the sexual question. These writings illustrate well Metchnikoff's views and ideals, which are discussed understandingly in the preface by Etienne Burnet of the Pasteur institute in Tunis

Medicolegal

Malpractice Implied Partnership, Liability of Individual Partners—The Northern Pacific Hospital, at Missoula, Mont., is operated principally for the benefit of members of the Northern Pacific Beneficial Association. Other patients are admitted, however as pay patients. The medical staff of the hospital consists of Dr George T Jennings, Dr T Haas and Dr A R Foss. Each physician has a private office in the hospital, where he is permitted to treat private patients. Each is entitled to use all the equipment of the hospital, including the services of the nurses, for which privilege the three physicians pay jointly \$60 a month.

The plaintiff in this case, who was not a member of the benefit association, called on Dr Haas for treatment and he referred her to Dr Foss. After examining her, Dr Foss directed her to go to the "surgery" of the hospital, for irrigations of the bladder with a solution of boric acid, on each of three successive days. The nurse in charge of the "surgery" was instructed by Dr Foss to do these irrigations. On the third day, by mistake, she irrigated with a solution of bichloride of mercury. For resulting injuries, the plaintiff sued the Northern Pacific Railway Company, the Northern Pacific Beneficial Association, and the three physicians named above. The trial court directed verdicts in favor of every defendant, and the plaintiff appealed to the Supreme Court of Montana.

In directing a verdict for the Northern Pacific Railway Company and for the Northern Pacific Beneficial Association, said the Supreme Court the trial court did not err. The physicians in this case constituted the staff of the hospital, but they were also private practitioners, and in their private practice they were independent of the beneficial association and the railroad company. Their arrangement for the use of the hospital, with its equipment and nurses, was no more and no less than a leasing of the hospital, fully equipped, for their private practice.

If Dr Foss or the physicians associated with him are liable for an act or omission of a nurse, continued the court, it is under the doctrine of respondeat superior. The physicians contended that nursing is a profession in itself and that the ordinary principles governing the relationship between master and servant do not apply. But the mere fact that an assistant to a physician is a member of the same or of a similar profession, the court pointed out does not take the employer and employee out of the operation of the rule of respondeat superior. If a physician sends another physician to treat a patient and the substitute is accepted by the patient, the physician is not liable for the independent acts of the substitute. But when a physician retains complete control and renounces no part of his functions as sole physician, and delegates to another only the manual administration of the prescribed treatment, the relation of principal and agent exists, whether the person administering the treatment is a layman, a physician or a nurse. In this case it is clear, said the court that the nurse was the agent of Dr Foss, in irrigating the plaintiff's bladder and for the nurse's negligence he may be held liable.

The liability attributed by the plaintiff to Drs Jennings and Haas was predicated on the contention that they and Dr Foss were operating as a partnership and that the act of one within the scope of the partnership business was the act of each and all. That there was any such partnership was denied by the physicians. The existence or nonexistence of a partnership said the Supreme Court, is a question of fact, to be determined by an examination of the relationship among the parties. If the facts bring the arrangement within the definition of a partnership the parties cannot escape liability incident to that relationship by saying that no partnership exists.

These three physicians were drawn together in the same building by common employment as the staff of the Northern Pacific Hospital. Not having all their time taken up, they agreed, either expressly or impliedly, to treat as patients of the firm all persons who came to any one of them and whose condition was such as to require attention in the hospital for a day or more, and to divide the fees equally. Each was permitted to represent himself as a member of the firm of "Jennings, Haas & Foss." For services rendered, bills were submitted on a billhead bearing the legend "Doctors Jennings, Haas & Foss." By a secret, informal agreement, it was understood, however, that if a patient did not require hospitalization he became the individual patient of the physician receiving the patient and that the fee was his. A partnership agreement, continued the court, need not be in writing and may be express or implied. To prove the existence of a partnership, it is not necessary to prove its elements by direct evidence, a billhead, such as was used in the present case, purporting to show the names of the partners, is competent evidence on this question. To hold two or more persons liable as partners, it must be shown that they consented to become partners, acted as such in carrying on the business, divided the profits, and occupied the interchangeable position of principal and agent. Where the business is such as to require the use of property, there must be a community of title. The evidence was sufficient, said the court, to warrant the finding that the three physicians were partners.

The plaintiff testified that she called on Dr Haas because he was a member of the firm, and she expected to receive the benefit and experience of the firm. If the jury accepted this uncontradicted testimony, said the Supreme Court they might well find that the plaintiff did in fact employ, and was a patient of, the firm. Any secret limits on the authority of one of the firm or on the division of compensation, not known to the plaintiff, could not affect her right to look for damages for her injuries, to those in whom she placed her trust. Secret limitations on the authority of a partner are valid as between the partners, but a third party, if such limitations are not made known to the public, may deal with the firm on the presumption that any act within the general scope of a partner is within the authority of the partner with whom he deals.

The question whether the plaintiff was the patient of the firm or of Dr Foss alone was for the jury to determine, said the Supreme Court. If she was the patient of the firm, then the nurse was the agent and employee of the firm and all the physicians were responsible for the injuries caused by her negligence, though no one of them was himself negligent. The court therefore reversed the action of the trial court in directing a verdict for the three defendant-physicians and remanded the case for a new trial.—*Simons v Northern Pac Ry Co (Mont)*, 22 P (2d) 609.

Libel Distribution of Articles from Medical Journals

—The plaintiff, Julia La Salle Stevenson, is described in the record as a "professional teacher of educational psychology" and a lecturer on personality, beauty and charm. She lectured on such subjects as "The Cause of Old Age," "How to Stay Young," "Rejuvenation Through Autosuggestion," "Eating Your Way Back to Health," "Forces Within You and How to Use Them" and other subjects of like nature. The defendant, as editor of *Southern Medicine and Surgery*, the official organ of the Tri-State Medical Association, published articles concerning the plaintiff wherein she was charged with being a faker, a teacher of fantastic isms and a member of fantastic cults. The articles charged also that the plaintiff advertised in "McFerrin's" health bulletin, whose columns, it was stated, "were patronized by either quacks or faddists, and doubtless 'Dr' Stevens [sic] feels at home among this class." Subsequently, the defendant sent copies of these articles to the president of the Asheville Normal and Teachers' College and as a result the plaintiff lost the opportunity of delivering lectures before the student body of that institution. Lecturer Stevenson then sued the defendant for libel. The trial court held that the original publication of the alleged defamatory articles in *Southern Medicine and Surgery* was privileged, but for the subsequent publication—the mailing of the articles to the president of the college—a judgment was rendered for the plaintiff.

The superior court of Buncombe county upheld this judgment and the defendant appealed to the Supreme Court of North Carolina.

The defendant contended that the subsequent publication was at least qualifiedly privileged and therefore both falsity and actual or express malice must be shown to establish liability. In actions for libel said the Supreme Court, it is not necessary that particular ill will or malice should exist toward the plaintiff. Malice in this connection is defined as any indirect and wicked motive which induces the defendant to defame the plaintiff. If malice be proved, the privilege attaching to the occasion is lost at once. The privilege attaching to the occasion in the present case continued the court and the court doubted if any attached was at once lost on the showing of malice. The plaintiff contended that in mailing the letter the defendant was not actuated by any desire to protect the public but was possessed of a spirit of unkindness and sent the letter "with intent to injure her." On the other hand, the defendant contended that he was merely interested in the medical profession, that he acted in good faith with no ulterior motive and that he mailed the letter only in the interest of the public good. These contentions, the court said were fully given to the jury and it was for them to say which contention the evidence supported. The jury was instructed that if the subsequent distribution was in good faith why then that would end the case. The jury must have found said the court that the articles were false and that they were distributed maliciously or for no good purpose. The court considered it unnecessary to decide whether the occasion was in fact unprivileged as the plaintiff contended or qualifiedly privileged as the defendant asserted. Undoubtedly the publication was actionable continued the court it untrue and not privileged for it tended to expose the plaintiff to ridicule or scorn and was calculated to injure her in her calling or profession. The evidence in this case was quite sufficient concluded the court to carry the case to the jury. The judgment against the defendant was therefore affirmed.—*Stevenson v. Northington* (N. C.) 169 S. L. 622.

Faith Healing as the Practice of Medicine—Royal Miller, an Iowa farmer, undertook to cure the sick who desired his services. For years his neighbors and friends called him "Doc." For a time he carried the designation "Dr." in front of his name in the telephone directory but on being advised that the use of that appellation was improper, he discontinued it.

Section 2538 of the Code of Iowa 1931, declares who shall be deemed to be engaged in the practice of medicine and surgery, namely:

1. Persons who publicly profess to be physicians or surgeons or who publicly profess to assume the duties incident to the practice of medicine and surgery.

2. Persons who prescribe or prescribe and furnish medicine for human ailments or treat the same by surgery.

3. Persons who act as representatives of any person in doing any of the things mentioned in this section.

The laws of Iowa do not exempt a faith healer from the operation of the laws regulating the practice of medicine, requiring a license as a condition precedent to practice.

The state brought an action to enjoin Miller from practicing, alleging that he had been and was engaging in the practice of medicine and surgery without a license that he had assumed and was assuming the duties of a physician and surgeon, that he had been and was diagnosing, prescribing for and treating diseases, and that he had assumed other incidental duties of a physician and surgeon and was maintaining an office and had advertised as "Dr. Royal Miller." The district court Cerro Gordo county denied the injunction and the state appealed to the Supreme Court of Iowa.

The Supreme Court attached no weight to the fact that Miller was called "Doc." by his friends and neighbors. There are many kinds of doctors. Besides, it is a common practice to use nicknames. Often druggists clerks are called doctors, often some well known town character not versed in the law is called "Judge" and some county school teachers are called professors. Miller said the court, did not publicly assume the duties of a physician and surgeon. At no time did he make physical examinations or diagnose the ills of his patients or prescribe medicine. He told his patients not that he would

cure them but that he would help them if he could. His treatment was the laying on of his hands or at most a slight massage at the back of the neck and head. He made no charge but accepted voluntary offerings. He had no office but met his patients by private arrangement at his home or at a room at a hotel. He had no advertisement on his door and published no advertisements in the newspapers. He had no cards. He never claimed privately or publicly that he was a physician and surgeon. He told his patients that he did not know where he got his power, unless he got it from the Savior and that through faith one could be healed. Frequently when he saw that he was doing no particular good he would send his patient to a physician and surgeon.

There are said the Supreme Court a great many people who believe, and certain churches that teach that through faith one can be cured. Certainly there is nothing in the statutes of this state that would permit the courts by injunction, to bar the exercise of that power. The court affirmed therefore the judgment of the court below refusing to grant the injunction.—*State v. Miller* (Iowa) 249 N. W. 141.

Society Proceedings

COMING MEETINGS

- Alabama Medical Association of the State of Birmingham April 1-19 Dr. D. I. Cannon 519 Dexter Avenue Montgomery Secretary
- American Association for the Study of Neoplastic Diseases Baltimore March 24-30 Dr. F. R. Whitmore 2139 Wyoming Avenue N.W., Washington D. C. Secretary
- American Association of Anatomists Philadelphia March 29-31 Dr. George W. Corner, University of Rochester School of Medicine Rochester N. Y. Secretary
- American Association of Pathologists and Bacteriologists Toronto Canada March 29-30 Dr. Howard T. Karsner 2085 Adelbert Road Cleveland Secretary
- American College of Physicians Chicago April 16-20 Mr. E. R. Love Fund 113 South 36th Street Philadelphia Executive Secretary
- American Gastroenterological Association Atlantic City April 30-May 1 Dr. Russell S. Boles The Rittenhouse Plaza Philadelphia Secretary
- American Laryngological Rhinological and Otolological Society Charleston S. C. April 15 Dr. Robert I. Loughran Bridgewater Conn. Secretary
- American Otolological Society Atlantic City April 6-7 Dr. Thomas J. Harris 104 East 40th Street New York Secretary
- American Physiological Society New York March 28-31 Dr. Frank C. Mann Mayo Clinic Rochester Minn. Secretary
- American Society for Clinical Investigation Atlantic City April 30 Dr. H. L. Blumgart 330 Brookline Avenue Boston Secretary
- American Society for Experimental Pathology New York March 28-31 Dr. C. Phillip Miller Jr. 950 East 59th Street Chicago Secretary
- American Society for Pharmacology and Experimental Therapeutics New York March 27-31 Dr. V. E. Henderson Medical Building University of Toronto Toronto Canada Secretary
- American Society of Biological Chemistry New York March 28-31 Dr. H. A. Mattill Chemistry Building State University of Iowa Iowa City Secretary
- Arkansas Medical Society Little Rock April 16-18 Dr. W. R. Brooksher 603 Garrison Avenue Fort Smith Secretary
- Association of American Physicians Atlantic City May 1-2 Dr. James H. Means Massachusetts General Hospital Boston Secretary
- California Medical Association Riverside April 30-May 3 Dr. Emma W. Pope 450 Sutter Street San Francisco Secretary
- District of Columbia Medical Society of the Washington May 2 Dr. C. B. Conklin 1718 M Street N.W. Washington Secretary
- Federation of American Societies for Experimental Biology New York March 28-31 Dr. Frank C. Mann Mayo Clinic Rochester Minn. Secretary
- Florida Medical Association Jacksonville April 30-May 2 Dr. Shaler Richardson 111 West Adams Street Jacksonville Secretary
- Georgia Medical Association of Augusta May 8-11 Dr. Allen H. Bunce 119 Forrest Avenue N.E. Atlanta Secretary
- Iowa State Medical Society Des Moines May 9-11 Dr. Robert L. Parker 3510 Sixth Avenue Des Moines Secretary
- Kansas Medical Society Wichita May 9-11 Dr. J. I. Hassig 804 Huron Building Kansas City Secretary
- Louisiana State Medical Society Shreveport April 9-12 Dr. P. T. Talbot 1430 Tulane Avenue New Orleans Secretary
- Maryland Medical and Chirurgical Faculty of Baltimore April 24-26 Dr. Walter Dent Wise 1211 Cathedral Street Baltimore Secretary
- Mississippi State Medical Association Natchez May 8-10 Dr. T. M. Dye McWilliams Building Clarksville Secretary
- Missouri State Medical Association St. Joseph May 7-10 Dr. E. J. Goodwin 634 North Grand Boulevard St. Louis Secretary
- North Carolina Medical Society of the State of Pinehurst April 30-May 2 Dr. I. B. McBrayer Southern Pines Secretary
- South Carolina Medical Association Charleston May 1-3 Dr. E. A. Hines Seneca Secretary
- Tennessee State Medical Association Chattanooga April 10-12 Dr. H. H. Shoulters 706 Church Street Nashville Secretary
- Texas State Medical Association of San Antonio May 7-10 Dr. Holman Taylor Medical Arts Building Fort Worth Secretary
- Western Branch Society American Urological Association Los Angeles April 27-29 Dr. George W. Hartman 999 Sutter Street San Francisco Secretary

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

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- Mortality, Prosperity and Urbanization in United States Counties C K Wu and C E A Winslow New Haven Conn.—p 491
- Studies of Endamoeba Histolytica and Other Intestinal Protozoa in Tennessee VI Influence of Bacterial Flora in Cultures of E. Histolytica on the Pathogenicity of the Amoebae W W Frye and H E Meloney Nashville Tenn.—p 543
- Yellow Fever Without Aedes Aegypti Study of Rural Epidemic in Valle Do Chanaan Espirito Santo Brazil 1932 F L Soper H Penna E Cardoso J Serafim Jr M Frohisher Jr and J Pinheiro Bahia Brazil—p 555
- Studies of Distribution of Immunity to Yellow Fever in Brazil II Disproportion Between Immunity Distribution as Revealed by Complement Fixation and Mouse Protection Tests and History of Yellow Fever Attack at Cambuvi Rio de Janeiro F L Soper Rio de Janeiro Bahia Brazil and A de Andrade Santa Thereza Espirito Santo Brazil—p 588
- Two Years Experience with Intraperitoneal Protection Test in Mice in Epidemiologic Studies of Yellow Fever A T Mahaffy W Lloyd and H A Penna Bahia Brazil—p 618
- Origin of Immunity to Diphtheria in Central and Polar Eskimos I Study of Throat Flora J R Wells St Louis—p 629
- Id II Epidemiologic and Serologic Studies J R Wells St Louis—p 656
- Genetic Constitution in Mice as Differentiated by Two Diseases Pseudotuberculosis and Mouse Typhoid J W Gowen and R G Schott—p 674
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- Stability of Resistance to Common Cold with a Check List of Publications from the John J. Abel Fund for Research on the Common Cold W M Gaffner Baltimore and J A Doull Cleveland—p 712
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American Journal of Medical Sciences, Philadelphia

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- Studies in Diabetes Mellitus I Characteristics and Trends of Diabetes Mortality Throughout the World E P Joslin L I Dublin and H H Marks New York—p 753
- Presence of Gastric Acidity in Multiple Sclerosis O H P Pepper and G Wilson Philadelphia—p 771
- Structure and Function of Filaments Produced by Living Red Corpuscles J Auer St Louis—p 776
- New Jersey Outbreak of Trichinosis Report of Case Complicated by Femoral Thrombosis R A Kilduffe S Barbash and A C Merendino Atlantic City N J—p 794
- Bachman Intradermal Reaction in Human Trichinosis R A Kilduffe Atlantic City N J—p 802
- Serum Proteins in Diseases Not Primarily Affecting Cardiovascular System or Kidneys J P Peters and Anna J Eisenman New Haven Conn.—p 808
- Rheumatic Heart Disease with Especial Reference to Cause of Death Clinical Notes C I Laws Atlanta Ga. and S A Levine Boston—p 833
- Peroral Pulmonary Drainage Natural and Therapeutic with Especial Reference to Fussie Squeeze C Jackson and C I Jackson Philadelphia—p 849
- Effect of Pituitrin Injections on Blood Pressure in Man W M Moffat Santa Barbara Calif.—p 854
- Stenosis of Pulmonary Conus at Lower Bulbar Orifice (Conus a Separate Chamber) and Closed Interventricular Septum with Two Illustrative Cases Case I Dextroposition of Aorta and Aneurysm of Interventricular Septum All Fetal Passages Closed Case II Patent Foramen Ovale and Subacute Infective Endocarditis W W Eskin and Maude F Abbott Montreal—p 860

Bachman Intradermal Reaction in Human Trichinosis

Kilduffe utilized the Bachman skin test in the study of thirty-three persons exposed to trichinosis from which he concludes that 1 The demonstration of eosinophilia is not only technically simpler than the demonstration of the skin test but always feasible whereas the skin test requiring an antigen difficult to prepare is feasible only when the antigen is available 2 In point of delicacy and constancy of appearance eosinophilia serves as a reliable index of trichinosis in the

human being 3 The Bachman skin test in the study of human trichinosis presents no practical advantages over the demonstration of eosinophilia

Effect of Injections of Solution of Pituitary on Blood Pressure—Moffat gave 1 cc of solution of pituitary by intramuscular injection to sixty-two persons and observed the blood pressure at nine intervals in from two to sixty minutes. No constant changes in blood pressure were observed. In a few persons there was a marked change in the blood pressure, but this was as often downward as upward. In the majority there was little or no change. The general trend of the blood pressure was except for a slight transient rise immediately following the injection downward rather than upward. This downward trend was more marked in the systolic than in the diastolic pressure and resulted in a slight but constant decrease in pulse pressure. In general, the higher the initial pressure, the greater was the fall following the injection of solution of pituitary.

American Journal of Ophthalmology, St. Louis

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- Mechanism of Senile Cataract D B Kirby New York—p 1041
- Biochemistry of the Lens II Study of Cataracta Nigra and Cataracta Brunescent S R Gifford and I Puntenny Chicago—p 1040
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- Changes in Refraction with Hyperglycemia Report of Case R N Berke Hackensack N J—p 1087
- Detachment of Retina Its Present Operative Treatment D K Fischel San Francisco—p 1091

American Journal of Psychiatry, Baltimore

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- Relation of Menstruation to Personality Disorders E B Allen and G W Henry White Plains N Y—p 259
- Regulations on Eugenics and Mental Hygiene in the State of Vera Cruz (Mexico) S Mendoza—p 277
- Considerations for Evaluating the Galvanic Skin Reflex C W Darrow Chicago—p 285
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- Bancroft's Theory of Anesthesia Sleep and Insanity A E Henderson Toronto—p 311
- *Studies of Blood Sugar Curves in Mental Disorders S Katzenbogen and E Friedman Buchman Baltimore—p 321
- Postinfluenza Recovery from Depression M Levin Harrisburg Pa.—p 345
- Dynamics of Psychiatric Reaction Type Determination W Malamud and E Lindemann Iowa City—p 347
- Cerebrospinal Fluid Sugar in Uncomplicated and Untreated Neurosyphilis P G Schube Boston and R C Lewis Denver—p 369

Blood Sugar Curves in Mental Disorders—Katzenbogen and Friedman-Buchman studied the carbohydrate metabolism in 116 psychotic patients as tested by the blood sugar tolerance curves. These included thirty-one cases of merergasia (psychoneurosis) fifty of thimerergasia (manic-depressive psychosis) six of which were in the manic state) twenty-eight of parergasia (schizophrenia) and seven of anergasia (organic psychosis). The blood sugar curves were evaluated by the intensity of the alimentary hyperglycemia (following the ingestion of 50 Gm of dextrose), by the extension of the glycemic reaction over a period of two hours (hyperglycemic index) and by both the height and the extension of the curve combined (hyperglycemic area). Abnormal curves were obtained in each psychotic group in merergasia, 64 per cent in hypothimerergasia 72.9 per cent and in parergasia 60.7 per cent when the curves were evaluated by the climax of the hyperglycemia. When estimated by the hyperglycemic area, the values were 62.5 per cent 79.2 per cent and 72.7 per cent, respectively, but in anergasia 100 per cent judged by both methods of evaluation. The abnormal curves show similar characteristics in the four psychotic reaction types. In each of them high and broad curves in which the hyperglycemic peak is moderately high but the glycemia remains above the fasting level two hours after dextrose was taken and curves in which the markedly high hyperglycemic reaction goes together with the return of the glycemia to the fasting level at the end of the period

of two hours after the administration of dextrose were found to be representative. The authors believe that the apparently similar disturbance of the carbohydrate metabolism in the different psychotic reaction types may be related to a common denominator, that is, affective disorder. Thus the abnormal blood sugar curves in their patients are considered as physiologic accompaniments of psychobiologic reactions.

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- A Thousand Cases of Attempted Suicide. I. C. Tondrum. Rochester, Minn.—p. 479.
Social Psychiatric Aspects of the Minor Delinquent. A. Myerson. Boston.—p. 501.
Rorschach Method and Personality Organization. Balance in Personality. S. J. Beck. Boston.—p. 519.
Medical Clinical Clerkships and Psychiatry. G. F. Daniels. New York.—p. 533.
Experiential Aspects of Dementia Praecox. A. T. Boisen. Chicago.—p. 543.
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Experiments on Imagination After Images and Hallucinations. P. Schilder. New York.—p. 597.
Method to Objectively Demonstrate Thinking Difficulties. M. F. Hausmann. Baltimore.—p. 613.
Trends in Psychiatry as Disclosed in State Hospital Records. S. Stone. Concord, N. H.—p. 627.
Bromide Intoxication. Its Relation to Content of Bromide in Blood and Barrier Permeability to Bromide. S. Katzenelbogen, H. Goldsmith and P. I. White. Baltimore.—p. 637.
Constitutional Schizophrenia. K. M. Bowman. Boston and J. Kanner. Howard, R. I.—p. 645.
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Organization of Psychotherapy. R. W. Hall. Washington, D. C.—p. 671.
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Am J Roentgenol & Rad Therapy, Springfield, Ill

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- Parathyroidism. Its Clinical Symptomatology. M. Ballin. Detroit.—p. 571.
Id. Its Pathologic and Etiologic Classification. P. F. Morse. Detroit.—p. 578.
Rickets. R. S. Bromer. Bryn Mawr, Pa.—p. 582.
Osteomalacia. Brief Review of Modern Conception of the Disease. P. C. Hodges and A. C. Ledoux. Chicago.—p. 590.
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*Relation of Thyroid, Adrenals and Islands of Langerhans to Malacic Diseases of Bone. R. Golden and H. Abbott. New York.—p. 641.
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Roentgen Irradiation of Parathyroid Region in Cystic Disease of Bones and in Osteitis Deformans. E. A. Merritt. Washington, D. C.—p. 668.
Foreign Body Removal with the Aid of the Double Plane Roentgenoscope. W. F. Manges. Philadelphia.—p. 674.

Relation of Thyroid, Suprarenals and Islands of Langerhans to Malacic Diseases of Bone.—Golden and Abbott examined the roentgenograms in 110 cases of hyperthyroidism, fifty-one of hypothyroidism and fourteen of Addison's disease, and sixty roentgenograms of adult diabetic patients. They conclude that hyperthyroidism produces an abnormal elimination of calcium, the mechanism of which is not understood. It seems to be frequently associated with a decalcification of the bones demonstrable on the roentgenogram by suitable comparison with the normal, which is so slight as to be of little if any importance. In rare cases the decalcification of the bones may be extreme. Its appearance, however, is not characteristic of thyrotoxicosis. In cretinism and infantile myxedema there is a widening of the cortex of the long bones without loss of calcium. Hypothyroidism in adults is apparently associated with no greater incidence of decalcification of bones than that which might be encountered in any group of patients of the same age. Although suprarenal secretion directly or indirectly influences calcium metabolism and although the suprarenals may

be indirectly involved in a pluriglandular imbalance in certain cases of osteomalacia, the evidence does not seem to justify the assumption that decalcification of the bones results directly from disease of the suprarenals or dysfunction. Calcium metabolism is intimately linked with carbohydrate metabolism. The available evidence indicates that a calcium loss may take place in diabetes especially with acidosis. In children the disease may be associated with a decrease in the density of the bones on the roentgenogram, which in one case was so marked as to suggest osteomalacia. The question may be raised as to how much of this is of endocrine and how much of nutritional origin. Roentgen evidence of definite important skeletal decalcification in diabetic adults which can be attributed directly to the disease is lacking.

American Journal of Tropical Medicine, Baltimore

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- Survival of Yellow Fever Virus in Ticks. N. C. Davis. Bahia, Brazil.—p. 547.
Observations on Defense Mechanism in *Trypanosoma Equiperdum* and *Trypanosoma Lewisii* Infections in Guinea Pigs and Rats. H. A. Fox. New York.—p. 555.
Familial Infection by *Endamoeba Histolytica* in New York City. Preliminary Report. T. T. Mackie and R. W. Nauss. New York.—p. 577.
Effects of Freezing on Larvae of *Aedes Aegypti*. A. R. Bliss Jr. and Jessie May. (Ill.) Memphis, Tenn.—p. 583.
Breeding of *Aedes (Taeniorhynchus) Fluviatilis* Lutz in Artificial Water Deposits. F. J. Soper. Rio de Janeiro, Brazil, and J. Serafini. Curitiba, Bahia, Brazil.—p. 589.
Use of Fecal Extracts in Cultivation of *Endamoeba Histolytica*. J. Andrews, C. M. Johnson and S. C. Schwartz. Baltimore.—p. 591.
Rosenthal Test (Microprecipitation) in Syphilis and Yaws. E. C. Smith and B. G. T. Elmes. Lagos, Nigeria, Africa.—p. 595.

Familial Infection by *Endamoeba Histolytica*.—Mackie and Nauss present the history of a family of six of which four members were infected with *Endamoeba histolytica*. The source of the infection seems to have been the mother, who has had the direct care of the children and of the preparation of food. The children have not at any time been out of New York City. The history given by the father of constipation associated with mucus in the stools five years ago is suggestive of amebiasis and the negative examination cannot be accepted as indicating freedom from infection until more prolonged studies have been carried out. This is especially true in view of the demonstration of *Endamoeba coli* in his intestinal tract. If the father is eliminated as the original source, it is probable that the mother acquired her infection in the summer of 1931 when both parents visited in a small village where flies had easy access to human dejecta. The fact that the children have not been out of the sanitary area of New York City indicates that the spread through the family occurred probably as a person to person transmission.

Annals of Internal Medicine, Lancaster, Pa

7 687 798 (Dec.) 1933

- Pathologic Anatomy of the Liver in Exophthalmic Goiter. D. C. Beaver and J. deJ. Pemberton. Rochester, Minn.—p. 687.
*Bromide Psychoses. Diagnosis, Treatment and Prevention. M. Levin. Harrisburg, Pa.—p. 709.
Subacute Bacterial Endocarditis. J. H. Musser. New Orleans.—p. 713.
Role of Desensitization in Recovery from Bacterial Infection. W. B. Wherry. Cincinnati.—p. 728.
Familial Incidence of Peptic Ulcer. H. H. Riecker. Ann Arbor, Mich.—p. 732.
Toxicology and Assay of Methylene Blue. D. I. Macht and W. C. Harden. Baltimore.—p. 738.
Conservatism. Keynote in Treatment of Tuberculosis. C. H. Cooke. Asheville, N. C.—p. 746.
*Effect of Pilocarpine on Volume Free and Combined Acid Total Chlorides and Pepsin of Gastric Secretion and Comparison with Effects of Histamine Stimulation. L. J. Meinenberg and C. L. Brown. Ann Arbor, Mich.—p. 762.
Incidence and Significance of Sick Cell Trait. L. W. Diggs. C. F. Ahmann and Juanita Bibb. Memphis, Tenn.—p. 769.
Heart Block in the Young. I. I. Lemann. New Orleans.—p. 779.

Bromide Psychoses.—Levin establishes the diagnosis of a bromide psychosis on the following criteria: 1. The existence of a bromide intoxication as shown by the Walter-Hauptmann test. 2. The fact that the psychosis began after the patient had become intoxicated. 3. The fact that the psychosis clears up within a short time—generally from two to six weeks—after the discontinuance of bromides. The patient should be kept in bed until the intoxication has subsided. Fluids should be

forced If there is no nephritis, 4 Gm of sodium chloride should be given three times a day, the chloride ion facilitating the excretion of the bromide ion Patients who are restless should be given continuous baths The need of using only the least toxic hypnotics is especially urgent in bromide intoxication, poisoned as the patients already are, paraldehyde will suffice for the majority of them Cardiac stimulants should be given when indicated The author urges the following suggestions for the prevention of bromide psychosis 1 When contemplating the administration of bromides, the physician should seek to ascertain whether the patient is already getting bromides from another source 2 He should know whether the patient takes much or little table salt In the latter case he should be doubly cautious 3 He should not relax his vigilance just because the dosage he is giving is one that has proved harmless in the majority of his patients 4 When a nervous patient getting bromides grows worse the physician should promptly discontinue the drug unless he has good reason to believe that it bears no responsibility for the aggravation 5 When a patient has been taking bromides for a month or more, it is wise to discontinue them occasionally for a week or two An occasional Walter-Hauptmann test is the best way to make sure that the patient is not becoming intoxicated

Effect of Pilocarpine on Gastric Secretion—Meienberg and Brown studied the effect of pilocarpine on the various constituents of the gastric juice and compared the results with those obtained following histamine stimulation They observed that pilocarpine is a true stimulant of gastric secretion, its chief effect being an increased volume of gastric juice, the acid and pepsin secretions, however are also stimulated Histamine also stimulates the secretion of pepsin, and the values obtained are not explained by a process of washing out of the gastric crypts as suggested by some workers No definite evidence is obtained to support the opinion expressed by some experimenters that pilocarpine is a better stimulant of enzyme secretion than histamine The results are not sufficiently conclusive to say that either is a better stimulant for enzyme secretion than the other This also seems to be true in regard to the secretion of acid There is no appreciable difference in the effect of these two drugs on the secretion of total chlorides No untoward symptoms were noted from the use of pilocarpine in the doses given (0.5 mg for each 10 Kg of body weight), with the exception of slight nausea, which was experienced by one patient A definite increase in salivation was noted in practically all cases The estimation of total peptic activity during a given period would seem to be a better quantitative index of peptic secretion than a determination of the concentration of pepsin

Archives of Internal Medicine, Chicago

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- Production of Reticulocytes Erythrocytes and Hemoglobin in Anemia Their Response to Certain Types of Therapy W P Murphy Boston —p 829
- Microcytic Anemia in Disease of the Liver J Van Duyn 2d Syracuse N Y —p 839
- Leukemic Myelosis C W Baldrige and W M Fowler Iowa City —p 852
- Peripheral Vascular Phenomena III Peripheral Pulse Volume in Occlusive Arterial Diseases G W Scupham and C A Johnson Chicago —p 877
- Lobar Atelectasis as a Cause of Triangular Roentgen Shadows in Bronchiectasis W P Warner and D Graham Toronto —p 888
- Intra Uterine Rheumatic Heart Disease R W Kissane and R A Koon Columbus Ohio —p 905
- Adiposity of the Heart Clinical and Pathologic Study of One Hundred and Thirty Six Obese Patients H L Smith and F A Willis Rochester Minn —p 911
- Insulin Resistance in Diabetes Mellitus C M MacBryde St Louis —p 932
- Skin Lesions of Pellagra Experimental Study T D Spies Cleveland —p 945
- Changes in Blood Pressure of Young Men Over a Seven Year Period H S Diehl and M B Hesdorffer Minneapolis —p 948
- Heredity in Hypertension Statistical Study W Allan Charlotte N C —p 954
- Polyporous Enteronitis (Acute Infectious Gastro-Enteritis Spencer's Disease) Is It a Form of Influenza? H A Wildman Imlay City Mich —p 959
- Uncomplicated Syphilitic Aortitis Diagnosis Prognosis and Treatment J E Moore Baltimore and P F Metildi Rochester N Y —p 978

Lobar Atelectasis as a Cause of Triangular Roentgen Shadows in Bronchiectasis—In their study of bronchiectasis particularly in reference to triangular basal shadows Warner

and Graham endeavored to determine the significance and cause of the shadows and have them produced experimentally They found that triangular basal shadows as seen in roentgenograms of the chest are diagnostic of bronchiectasis Their presence should always be taken as an indication for the injection of iodized oil to confirm this diagnosis They occurred in about 6 per cent of all cases of bronchiectasis The authors report two cases of bilateral triangular basal shadows Triangular basal shadows are caused in some cases at least and probably in all cases initially, by a lobar atelectasis of the bronchiectatic lobe They believe that the cause of this lobar atelectasis is the plugging of the terminal bronchioles by the swelling of the bronchial wall with an inflammatory exudate Lobar atelectasis produced in dogs by completely occluding the bronchi of the lower lobes caused typical triangular shadows due to the atelectatic lower lobe Atelectatic bronchiectatic lobes may occasionally be found on physical examination, such physical signs are diagnostic of bronchiectasis Bronchiectasis may occur in the absence of both fibrosis of the pulmonary parenchyma and pleural adhesions

Skin Lesions of Pellagra—Spies chose ten patients presenting the characteristic dermatitis of pellagra for his experiment and exercised extreme care to select those without neurologic involvement Each patient remained in bed throughout the experiment and was given a diet of corn starch and lactose amounting to 2,000 or 3,000 calories a day Two of six persons having stomatitis were unable to tolerate this diet and vomited frequently, the stomatitis and glossitis became worse rapidly, so the diet was discontinued As soon as the dermatitis of the eight remaining patients healed, they were given a high caloric, high vitamin diet In order to test this diet still further it was fed to six young albino rats The author found that persons having pellagra and tolerating a diet of lactose and corn starch show improvement of their cutaneous lesions This confirms and somewhat extends his previous observation that the dermatitis of pellagra improves while the patients receive a so called pellagra-producing diet He recommends that improvement in dermatitis be interpreted with great care before accepting it as an index either of efficacious treatment or of favorable prognosis It appears possible that the specific chemical substance related to the development of the dermatitis is not the same as that affecting manifestations of the disease in the gastro-intestinal or central nervous system

Archives of Otolaryngology, Chicago

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- Involvement of Esophagus in Acute and in Chronic Infection H P Mosher Boston —p 563
- Fundamental Principles of Functional Hearing Tests with Recent Developments in Tuning Forks and Sounding Rods R Sonnenstein, Chicago —p 599
- *Routes of Infection in Orogenous Meningitis Fulminant Case of Hematogenous Origin Through Anomalous Vascular Anastomoses W L Gatewood and N Settel, New York —p 614
- Etiology and Nature of Chronic Hyperplastic Sinusitis R C Grove and R A Cooke New York —p 622
- Suppuration of Temporal Bone Accompanied by Infection in Blood Stream Clinical Study H I Lillie Rochester Minn —p 630
- *Diagnosis and Treatment of Primary Malignant Neoplasms of Maxillary Sinus K M Houser Philadelphia —p 643

Otogenous Meningitis—Gatewood and Settel describe a case of fulminant meningitis in which the primary otitis media had regressed and was apparently well on the way to resolution when, with a sudden onset, signs of fulminating meningitis appeared, with recurrence of the pain in the ear and development of the characteristic stiffness in the back of the neck The patient died within twenty-four hours The markedly increased pressure of the cerebrospinal fluid, together with the opacity and the greatly increased cell count of the fluid, could mean only well established meningitis When one adds to this the presence in large numbers of *Streptococcus viridans* in the fluid, there is additional evidence of generalized septic leptomeningitis From their observations the authors conclude that various pathways exist by which infection may pass from the middle ear to the brain Extension by way of the blood vessels or lymph canals leads rapidly to a diffused meningitis Positive blood cultures are indicative of a hematogenous infection of the brain Their observations in their case pointed to the blood stream as the route by which the meninges were infected

Primary Malignant Neoplasms of Maxillary Sinus — Houser states that an absolute diagnosis cannot be obtained without securing a biopsy specimen. The method of choice is to perform a Caldwell-Luc operation under local anesthesia in cases in which the observations are suggestive of antral tumor. This permits inspection of the sinus, and the securing of biopsy material. If the interior of the sinus is negative for tumor, immediate closure is performed. In case the interior of the sinus has a suggestive but not definitely positive appearance, the wound is packed wide open. When the positive diagnosis is obtained, the patient receives roentgen therapy over the antrum and the cervical lymphatic channels as a preliminary procedure. In his series of twenty-one cases the author carried the dosage to the limit of cutaneous tolerance with high or low voltage roentgen therapy. The doses given to patients treated with high voltage therapy varied from 800 to 1600 roentgens per portal. The factors were 200 kilovolts, a distance of 50 cm., 4 milliamperes and a 0.5 mm. filter of copper. Some of the patients received in addition an erythema dose of radium delivered through a 3 cm. radium pack, the filter being equivalent to 3 mm. of lead. After operation radium was placed in the maxillary sinus; the dosage in this series ranged from 300 to 4,000 milligram hours. Four of these patients, or 19 per cent., are now living, one for thirteen years without signs of recurrence, one, five years, one, two years, and the other one one and one-half years. The treatment followed depended largely on the status of the lesion. Six growths when first seen, were so far advanced as to be considered inoperable. All the patients, however, regardless of the condition existing when they were first seen, were treated with roentgen radiation and radium. When pain was marked, avulsion of the sensory root of the trigeminal nerve was performed or if this operation was not considered proper, alcohol was injected into the second and third divisions. Radical removal of the upper jaw was performed in three; all had a recurrence and died within a year. In ten patients radical operation was performed on the maxillary sinus involved. Three of the patients operated on received electrocoagulation of the lesion at the time of operation.

Arkansas Medical Society Journal, Fort Smith

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- Tumors of Small Intestine H. W. Hundling Little Rock — p. 143
Value of Correctly Fitted Lenses in Modern Ophthalmic Practice I. H. Ianier Texarkana Texas — p. 149

Canadian Medical Association Journal, Montreal

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- Some Aspects of Menopause B. Whitehouse Birmingham England — p. 585
Immunity and Susceptibility After Diphtheria D. I. Klein H. B. Cushing A. Goldbloom and E. V. Murphy Montreal — p. 593
Evipan Preliminary Report on New Intravenous Anesthetic C. Miller Montreal — p. 596
Some Newer Tests of Renal Function H. C. Jamieson Edmonton Alta — p. 598
Treatment of Diabetes in Children by Means of a Normal Type of Diet H. Medovy Winnipeg Minn. — p. 605
*Angio-Endothelioma of Bone with Hemothorax Due to Pleural Metastases Case W. P. Warner and A. C. Singleton Toronto — p. 610
Hereditary and Polycystic Disease of the Kidneys C. H. Reason London Ont. — p. 612
Reasons Why Radiation of Larynx with Radium Should Prove More Effectual Presentation of a Radium Laryngeal Applicator R. H. Craig, Montreal — p. 615
Tuberculous Peritonitis Report of Twenty One Cases Treated at St. Michael's Hospital During the Past Five Years H. McPhedran and G. Peacock Toronto — p. 617
Radiation in Carcinoma of Cervix Uteri W. P. Healy and J. A. Kelly New York — p. 621
Nasal Sinusitis as It Presents Itself to the General Practitioner L. DeV. Chipman St. John N. B. — p. 626
The General Practitioner and Convergent Concomitant Strabismus J. A. Darche and L. Darche Sherbrooke Que. — p. 630
Inversion of the Uterus W. Bethune Hamilton Ont. — p. 631
Recent Advances in Anesthesia H. R. Griffith Montreal — p. 634
Present Status of Gas in Modern Warfare P. A. T. Sneath Toronto — p. 640

Angio-Endothelioma of Bone with Hemothorax Due to Pleural Metastases — Warner and Singleton report a case of angio endothelioma of bone in which the symptoms were present for only five months prior to death from metastases arising from the primary malignant bone tumor. During illness the symptoms referable to the primary tumor were not severe; the whole picture was overshadowed by symptoms due to pleural

metastases which bled producing hemothorax and resulting in death from hemorrhage. The vascular character of the angioma was undoubtedly the cause of the massive hemorrhage. Therefore, in hemothorax due to tumor one should suspect some vascular tumor, such as angioma. However, this massive hemothorax obscured the underlying pathologic process and only after replacement pneumothorax could the metastatic sarcomatous nodules on the pleura be shown roentgenologically. Whether the patient's injury, a fall from a bicycle was the exciting cause of the primary tumor or merely called attention to a preexisting tumor is speculative. The onset of pain immediately after the injury would be in favor of a preexisting tumor. The presence of hemothorax from pleural metastases of a sarcomatous type accompanied by the presence of a primary malignant tumor of the bone led to the diagnosis of angio endothelioma of bone. It would seem from the necropsy confirmation of this diagnosis that in cases of true hemothorax from secondary sarcoma the possibility of a primary malignant bone tumor should be borne in mind.

Colorado Medicine, Denver

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- Surgical Indications in Head Injuries J. J. Keegan Omaha — p. 447
Improved Surgical Prognosis in Simple Glaucoma W. H. Crisp Denver — p. 450
The Denver Sewage Problem I. C. Hall Denver — p. 456

Florida Medical Association Journal, Jacksonville

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- Cranuloma Inguinale R. B. Harkness Lake City — p. 197
Fractures of Cervical Spine Below the Atlas and Axis Report of Two Cases C. I. W. Hardy Tampa — p. 199
Intensive Ringworm Infection Disabling Factor in Warm Climate J. I. Kirby Smith Jacksonville — p. 204
Sloughing of Cluteus Maximus in Todd Following Injury to Buttock Case Report I. W. Martin Sebring — p. 208
Fractures of Cervical Vertebrae J. S. McEwan Orlando — p. 209
Eye Burn of Eyes (Optical Iridectomy) Case Report S. B. Forbes Tampa — p. 212

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- Observation of Five Hundred Fractures J. Halton Sarasota — p. 241
Fractures at the Ankle and Wrist W. M. Shaw Jacksonville — p. 244
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Varicose Veins and Varicose Ulcers of the Lower Extremities A. E. Drexel Palatka — p. 254
Our Part in the New Deal N. I. Spengler Tampa — p. 257

Johns Hopkins Hospital Bulletin, Baltimore

57 297 400 (Dec.) 1933

- Progress in Autopharmacology Survey of Present Knowledge of Chemical Regulation of Certain Functions by Natural Constituents of the Tissues H. H. Dale London England — p. 297
Calcium and Phosphorus Studies VII Effects of Variations in Dose of Parathormone and of Calcium and Phosphorus in Diet on Concentrations of Calcium and Inorganic Phosphorus in Serum and Histology and Chemical Composition of Bones of Rats D. H. Shell and Dorothy I. Asher and Deborah A. Jackson Baltimore — p. 348
Pneumonecstomy Preliminary Report of Operative Technique in Two Successful Cases W. F. Riehoff Jr. Baltimore — p. 390

Pneumonecstomy — Riehoff describes an operative procedure that has been successfully employed in two cases in which complete removal of the entire left lung was found to be necessary because of a benign and a malignant tumor, respectively of the left primary bronchus. For two weeks previous to operation the left lung was compressed by a gradually induced artificial pneumothorax, which finally brought about a complete collapse of that lung. Tribrom ethanol, 70 mg. per kilogram of body weight was given by rectum thirty minutes before operation, and nitrous oxide and oxygen was administered as a supplementary anesthetic. The position of the patient on the operating table was semirecumbent with the right side down. The trunk was rotated toward the right, to an angle of about 45 degrees; the left arm was raised over the head and the head of the table elevated to 45 degrees. An incision was made in the third interspace parallel to the third and fourth ribs and extending from the costal cartilages to the anterior axillary line. The fibers of the pectoralis major muscle were divided along their course. The internal intercostal muscles were cut directly across. The parietal pleura herniated up between the ribs as a result of the increased intrathoracic pressure and when it was incised the escaping air gave off a hissing sound. The third and fourth ribs were spread apart with a self retaining

retractor. The anterior approach was used. The pulmonary artery and veins were ligated. The pulmonary artery running in front was isolated by blunt dissection and clamped just midway between the reflection of the pericardium and the primary division of the artery. The proximal arterial stump was then ligated with oiled braided silk and the mouth of the vessel transfixed with medium waved silk. The superior and inferior pulmonary veins were then isolated in turn and transfixed with medium waved silk. In the first case the left primary bronchus was cut across with the scalpel and the lung removed from the chest. The cartilaginous rings of the bronchial stump were cut at various points in their circumference in order to do away with their springlike action which normally tends to maintain the patency of the bronchus. The bronchus was sutured with interrupted medium silk sutures, and the mucous membrane was approximated just as one would do in the suture of mucous membrane elsewhere. In the second case the technic was as described, but owing to the location of the tumor it was possible to cut across the first ventral or superior branch and then incise the primary bronchus diagonally. This left to be closed two openings somewhat smaller than if the primary bronchus had been cut across perpendicularly. There was but little loss of blood during the course of the operation. The pulse rate and blood pressure were unaltered. The ribs, which had been spread apart were reapproximated with number 2 silver wire and the pectoral muscles, subcutaneous tissue and skin were sutured with interrupted fine silk sutures. In both cases the chest was closed without drainage. The first patient had an afebrile and uneventful convalescence. The second patient has also had an uneventful convalescence with primary healing throughout. It is not necessary to perform a thoracoplasty at the same time as a pneumonectomy because the remaining lung will in uninfected clean cases obliterate the ensuing dead space. To prevent infection mass ligatures and cauterization of the bronchus should be abandoned. Individual ligation of the vessels and the minimal amount of injury to the bronchus in suturing permit primary healing of the bronchial mucous membranes.

Journal of Biological Chemistry, Baltimore

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- Action of Nitrous Acid and Nitrosyl Chloride on β -Phenylpropylamine. Method of Separating Primary Secondary and Tertiary Phenyl Chlorides and Phenylcarbinols. P. A. Levene and R. E. Marker. New York—p. 373.
- Forms of Magnesium in Serum and Milk. Helen Rivkin Benjamin. A. F. Hess and J. Gros. New York—p. 383.
- Micro-method for Determination of Fatty Acids from Small Amounts of Whole Blood. Margaret Elizabeth Smith and M. C. Kirk. Fayetteville Ark.—p. 391.
- Fractionation of Amino Acids of Livetin. T. H. Jukes. Toronto—p. 425.
- Synthesis and Destruction of Cholesterol in the Organism. R. Schoenheimer. New York and F. Breusch. Freiburg, Germany—p. 439.
- Stability of Carotene in Ethyl Esters of Fatty Acids and in Liver and Vegetable Oils. F. G. McDonald. Evansville Ind.—p. 455.
- Determination of Bases of Serum and Whole Blood. Pauline M. Hald. New Haven Conn.—p. 471.
- Cerevissterol. New Notes on Composition Properties and Relation to Other Sterols. Edna M. Honeywell and C. E. Bills. Evansville Ind.—p. 515.
- Catalysis of Hydration of Carbon Dioxide and Dehydration of Carbonic Acid by an Enzyme Isolated from Red Blood Cells. W. C. Stadie and Helen O'Brien. Philadelphia—p. 521.
- Metabolism of Azelaic Acid. H. G. Smith. Rochester N. Y.—p. 531.
- Solubility of Amino Acids in Water. M. S. Dunn, F. J. Ross and L. S. Read. Los Angeles—p. 579.
- Catalytic Oxidations. I. Oxidation of Ergosterol. K. Meyer. Zurich Switzerland—p. 607.
- Forms of Calcium and Inorganic Phosphorus in Human and Animal Serums. III. Comparison of Physiologic and Experimental Hypercalcemia. Helen Rivkin Benjamin and A. I. Hess. New York—p. 629.
- Studies on Vitamin G (B₁). I. Yeast and Liver Preparations as a Source of Vitamin G (B₁). R. J. Block and Lucille Reed Farquhar. New Haven Conn.—p. 643.
- Studies on Cerebrospinal Fluid. I. Chemical and Spectrographic Detection of Lead. I. M. Rabinowitch. Montreal. A. Dingwall and F. H. Mackay. Montreal—p. 67.
- Id. II. Occurrence of Lead in Cerebrospinal Fluid. I. M. Rabinowitch. Montreal. A. Dingwall and F. H. Mackay. Montreal—p. 725.
- Diffusibility of Plasma Calcium Following Parathormone Administration. Comparison of Calcium Phosphate and Protein Concentrations of Serum and Edema Fluid. D. R. Gilligan, Marie C. Volk and M. D. Mischule. Boston—p. 745.
- Studies on Urinary Acidity. II. S. Morgulis with technical assistance of I. Percec. Omaha—p. 755.

Journal of Lab and Clinical Medicine, St Louis

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- *Study of Granular and Floccular Types of Agglutination with Bacillus Typhosus. Ruth Gilbert, Marion B. Coleman and Alice B. Laviano. Albany N. Y.—p. 225.
- Study of Quinidine Effects on Ambulatory Patients with Auricular Fibrillation. L. E. Hines and C. C. Maher. Chicago—p. 232.
- *Treatment of Irritable Colon with Sodium Ricinoleate. G. N. Burger, Cincinnati—p. 234.
- Effect of Salyrgan and X-Ray on Rate of Disappearance of Thrombophlebitic Edema. L. M. Zimmerman, J. T. Gault, S. S. Halpern and G. de Takats. Chicago—p. 243.
- Comparative Study of Certain Xanthine Diuretics. A. R. Bliss, Jr. Memphis Tenn. and R. W. Morrison. Columbia, S. C.—p. 248.
- Embolism and Thrombosis of Large Branches of Pulmonary Artery in Heart Disease. L. G. Steiner. Cleveland—p. 265.
- Multiple Tumors. Report of Case. W. L. McNamara. Hines Ill.—p. 269.
- Choosing a Serum Test for Syphilis. W. A. Hinton. Boston—p. 275.
- *Studies on Hemolytic Streptococci Isolated from Hemorrhagic Smallpox. L. W. Fisher. Lafayette Ind.—p. 280.
- Changes in Blood Concentration Incident to Shock. V. H. Moon and P. J. Kennedy. Philadelphia—p. 295.
- Metaplastic Changes in Prostate Gland. L. P. Kaswan and J. Gold. Brooklyn—p. 301.

Agglutination with Bacillus Typhosus.—The study of 4,000 serums by Gilbert and her associates has shown that the employment of macroscopic tests with two killed suspensions of typhoid bacilli, one to demonstrate the floccular or species-specific, and the other the granular or group-agglutinative properties, usually furnishes information of greater diagnostic significance than does the microscopic test with living culture. These observations are in general accord with the results reported by other workers. Apparently, agglutination in a 1:80 or higher dilution with an alcohol-treated suspension usually indicates that the patient has typhoid or an infection incited by a species allied to *Bacillus typhosus*, while a similar reaction with a formaldehyde treated suspension suggests one of three alternatives: that the patient has typhoid, has had the disease in the past, or has received typhoid vaccine. Both the granular and floccular types of agglutination have seldom been observed in high dilutions of serums other than those from typhoid patients.

Treatment of Irritable Colon with Sodium Ricinoleate.—Burger treated twelve patients exhibiting the symptoms that are attributed usually to an irritable colon with sodium ricinoleate. Prior to the institution of this treatment, these patients failed to respond to a bland diet and antispasmodics. He observed that the cases reported by Dorst and Morris had all been under treatment for a period of six months or longer. Some of the inconclusive results obtained with certain of the cases included in this series are reported after only three months of treatment and would probably respond to persistent therapy. The general results may be outlined as follows: There was a diminution of the pain and belching in the majority of the patients. The amount of flatus was diminished in five. Constipation was not affected. Mucus in the stools was appreciably lessened or disappeared in 50 per cent of the patients who showed this symptom. It is important to note that the patients who did not show clinical improvement during the treatment with purified sodium ricinoleate presented with one exception, definite gastric symptoms following the ingestion of the drug. This demonstrates the necessity for having more adequate enteric coating since the sodium ricinoleate if liberated in the stomach and acted on by gastric secretions gives rise to distressing symptoms. The skin sensitivity to organisms from the intestinal flora was reduced materially in nine out of ten cases. In two it was impossible to obtain sensitivity records at the end of treatment.

Hemolytic Streptococci Isolated from Hemorrhagic Smallpox.—Fisher believes that certain differences exist between the hemolytic streptococci isolated from blood cultures of fatal hemorrhagic smallpox and the pyogenic type of organism of scarlet fever, erysipelas and puerperal septicemia. Morphologically, the strains of streptococci from smallpox are similar to those isolated from scarlet fever, puerperal septicemia and erysipelas. Classification of the streptococci by means of their action on certain carbohydrates would place the organisms from smallpox and those from scarlet fever, erysipelas and puerperal septicemia in two distinct groups, based on the inability

of the latter to ferment lactose. Each of the controlling strains produced an acid reaction in litmus milk, while the strains from smallpox were all negative. The virulence for mice of organisms from smallpox is low, the usual fatal dose, after repeated passage, being about 0.1 cc. Agglutination tests with both homologous and heterologous strains would indicate a different serologic grouping between the organisms isolated from smallpox and the comparative strains. Complement fixation results run about parallel to the agglutination tests and are apparently no more specific. Streptococci isolated from smallpox produce a specific toxin which when injected into susceptible persons gives rise to a cutaneous reaction. The antitoxin produced in rabbits is specific as it neutralizes the toxin while normal serum has no effect.

Journal of Nutrition, Springfield, Ill

G 493 578 (Nov.) 1933

Growth of Rats Fed High Protein Rations Supplemented by Different Amounts and Combinations of Vitamins B₁, B₂, C (B₁₂) and B Complex. L. D. Francis, A. H. Smith and I. B. Mendel. New Haven, Conn.—p. 493.

Calcium and Phosphorus in Development of Turkey Embryo. W. M. Janko Jr. and M. Lyons. Lexington, Ky.—p. 507.

Influence of Preceding Diet on Rate of Glucose Absorption and Glycogen Synthesis. E. M. Mackay and H. C. Bergman. La Jolla, Calif.—p. 515.

*Possibility of Gluconeogenesis from Fat. II. Effect of High Fat Diets on Respiratory Metabolism and Ketosis of Man. Estelle F. Hawley, C. W. Johnson and J. R. Murlin. Rochester, N. Y.—p. 523.

Effect of High Fat Diets on Respiratory Metabolism and Ketosis of Man—Hawley and her associates studied the respiratory metabolism in seven subjects taking high fat diets. Following meals containing varying amounts of butter fat many respiratory quotients below the theoretical level for oxidation of fat were shown. The occurrence of these low quotients does not depend on the amount of fat taken in the experimental meal or on the fatty acid-to-dextrose ratio of the general diet, so much as on the tolerance of the subject. Adaptation to or tolerance of high fat in the sense of better capacity to oxidize fat and producing less ketosis may be acquired and retained for several months. The level of the respiratory quotient bears no intimate relationship to the demonstrable ketosis or ketonuria. Production of glycogen from the protein metabolism could account for a depression of the respiratory quotient at most of 0.025 while production of glycogen from glycerin, assuming that only the glycerin of the fat metabolism was available, would produce a depression of not more than 0.003. Correction of the quotient for the demonstrable ketosis and consequent ammonia formation would not account for more than 0.005. At most, the combined effect of all these factors would not account for quotients lower than 0.69. The formation of glycogen from fat (beyond the amount that could arise from glycerin) having never been proved, it would be premature to conclude that the quotients below 0.69 in this work demonstrate gluconeogenesis from fatty acids. The authors suggest, as an alternative explanation, that in the oxidation of fatty acid chains the uptake of oxygen may outrun considerably, for a time, the production of carbon dioxide and thus account for depression of the respiratory quotient. A process of desaturation that would remove hydrogen but not produce any carbon dioxide followed by oxidation with production of carbon dioxide, would fulfil the requirements.

Military Surgeon, Washington, D. C.

73 285 336 (Dec.) 1933

Value of Studies in Health and Sanitation in War Planning. The Wellcome Prize Essay 1933. E. E. Hume.—p. 285.

New Concept of Training for Medical Department Reserve Officers. L. B. Wilson.—p. 306.

Use of Autogiros in Evacuation of Wounded. G. P. Lawrence.—p. 314.

Nebraska State Medical Journal, Lincoln

18 445 480 (Dec.) 1933

Agranulocytic Angina. A. Sachs. Omaha.—p. 445.

Surgical Possibilities of the Deformed Arthritic. J. E. M. Thomson. Lincoln.—p. 454.

Spontaneous Rupture of the Uterus. F. J. Murray. Omaha.—p. 458.

Avartin Anesthesia in Electrosurgery. A. F. Tyler. Omaha.—p. 462.

Pathologic Cervix. M. E. Grier. Omaha.—p. 464.

Postnatal Supervision. J. C. Lutzenberg. Minneapolis.—p. 467.

New England Journal of Medicine, Boston

200 979 1032 (Nov. 16) 1933

Facts and Inferences Relative to Founding of Harvard Medical School. J. R. Oliver, Baltimore.—p. 979.

Some Phases of Treatment of Gonorrhea. F. I. Keyes, New York.—p. 989.

Trend of Cases of Gonorrhea Under Treatment or Observation in the United States. Iida J. Usilton. Washington, D. C.—p. 996.

Epidemic Neurodynia. N. I. Crone and F. M. Chapman. Boston.—p. 1007.

Head Injuries. I. Allen. Burlington, Vt.—p. 1011.

Simple Diagrammatic Interpretation of Blood Tests in Diagnosis and Treatment of Syphilis Which May Be Used for the Information of the Patient. W. T. Garfield and A. A. Nelson. Boston.—p. 1016.

New Jersey Medical Society Journal, Orange

30 751 816 (Nov.) 1933

Diagnosis and Treatment of Intracranial Injuries. R. Pietri. Asbury Park.—p. 762.

Causes of Error in Evaluation of Disability Following Head Injury. N. Zivisler. Newark.—p. 766.

Deafness in Childhood. F. A. Atwood. Paterson.—p. 768.

Carcinoma of the Tonsil. Case Report. J. B. Gordon. Marlboro.—p. 771.

Suprapubic Prostatectomy Including Preoperative and Postoperative Treatment. W. H. Mackinney. Philadelphia.—p. 775.

The Light of the Prostate. C. W. Collings. New York.—p. 788.

Care of the Prostatic Patient. H. H. Goldstein. Elizabeth.—p. 783.

Antivenin Therapy in Purpura. Case Report. R. B. Van Duser and C. A. Beling. Newark.—p. 790.

Analysis of Ten Thousand Obstetric Cases. R. T. Potter. Orange.—p. 791.

Treatment of Coter. A. F. Johnson. Atlantic City.—p. 795.

New Orleans Medical and Surgical Journal

80 269 354 (Nov.) 1933

The Contribution of John W. Monette. W. A. Evans. Chicago.—p. 269.

Question of Prognosis. W. A. Dearman. Gulfport, Miss.—p. 273.

Intestinal Obstruction. Importance of Early Diagnosis and Operation. A. C. Lyne. Greenville, Miss.—p. 277.

Cancer. T. S. Jones. Baton Rouge, La.—p. 286.

Menthol Boric Acid Solution. I. Levy. New Orleans.—p. 297.

The Use of the Laboratory. Discussion of Factors Which Determine Value of Laboratory Work. T. W. Kemmerer. Jackson, Miss.—p. 295.

Climacteric Hypertension. W. I. Stalworth. Columbus, Miss.—p. 298.

Asphyxia Neonatorum. F. G. Riley. Meridian, Miss.—p. 301.

Tuberculosis of the Eye. Synopsis of the Current Literature. B. S. Guyton. Oxford, Miss.—p. 307.

Northwest Medicine, Seattle

32 447 490 (Nov.) 1933

Amelioris in Clinical Practice. J. V. Barrow. Los Angeles.—p. 447.

The Back as a Source for Pedicled Skin Grafts. A. G. Bettman. Portland, Ore.—p. 453.

The Heart in Influenza. H. Brooks. New York.—p. 456.

Coronary Thrombosis. Diagnosis and Treatment. W. J. Weese. Ontario, Ore.—p. 460.

Transurethral Electroresection of Bladder Neck Obstruction. H. L. Kretschmer. Chicago.—p. 463.

Factors in Medical and Surgical Treatment of Gout. C. F. Dixon. Rochester, Minn.—p. 468.

Staphylectomy. Its Prophylactic Value in the Common Cold. A. E. Ewens. Atlantic City, N. J.—p. 471.

Arthritis. Its Dietary Treatment. W. E. Gatewood. Portland, Ore. and Leila Wall Hunt. Pullman, Wash.—p. 474.

Oklahoma State Medical Assn Journal, Muskogee

26 425 466 (Dec.) 1933

Why Mental Hygiene? J. J. Gable and J. L. Dry. Norman.—p. 425.

The Physician's Increasing Interest in Mental Hygiene. H. H. Turner. Oklahoma City.—p. 429.

The Psychiatric Social Worker and Mental Hygiene. Grace A. Browning. Oklahoma City.—p. 434.

Chronic Subdural Hematoma. Consideration from the Standpoint of Etiology, Symptomatology and Treatment. H. Wilkins. Oklahoma City.—p. 437.

*Atropine Treatment of Postencephalitic Parkinsonian Syndrome. F. M. Adams and P. L. Hays. Vinita.—p. 443.

Myasthenia Gravis. C. H. Campbell. Oklahoma City.—p. 444.

Atropine Treatment of Postencephalitic Parkinsonian Syndrome—During the past year, Adams and Hays modified the dosage of atropine for the treatment of the postencephalitic parkinsonian syndrome. They used a 0.5 per cent solution of atropine sulphate beginning with 1 minim (0.06 cc) of the solution in a half glass of water three times a day, increasing the dose 1 minim a day until the fourth day, then 4 minims (0.25 cc) a day for three days, and then an increase of another minim a day until the tenth day, when 8 minims (0.5 cc) is

given for three days. On the thirteenth day the dose is continued at the rate of an increase of 1 minim a day until the optimal dose is established—this is usually between 12 and 18 minims (0.75 and 1.12 cc) given three times a day. Each case must be studied to determine the correct dosage—the quantity that just suffices to produce and to maintain physical and psychic euphoria. The authors found that this dosage overcame the toxic symptoms that occurred in some patients, such as nausea, vomiting, and paralysis of the bladder and the intestinal tract. The bladder became badly distended and had to be relieved by catheterization, but the distention of the abdomen could not be relieved by any treatment and it became necessary to discontinue atropine altogether, whereupon the symptoms would subside in about twenty-four hours.

Philippine Islands Med Association Journal, Manila 13 493 540 (Nov.) 1933

Food of the Male Inmates of Bilibid Prison F O Santos and N A Pidlaoan Manila—p 493
Cancer Survey of Philippine Islands in 1929 C Reyes Manila—p 502
Percutaneous Treatment of Leprosy H Reitz Manila—p 511

Percutaneous Treatment of Leprosy—Reitz believes that to treat the entire skin simultaneously with a therapeutic substance can be accomplished only by percutaneous application, that is, by friction with the curative substance on the entire surface of the skin. On the assumption that it is possible to introduce therapeutic substances through the skin by friction, this method would be ideal for the treatment of leprosy, as it is far superior to the methods of subcutaneous and percutaneous injection. The author has worked out a new method of application, based on the fact that the skin is the principal and primary seat of leprosy, the bacteria of which are embedded either in the layer of the cutis or in the subcutaneous tissue. Only substances that are compatible with the cholesterol of the skin and are perfectly dissolved in the vehicle (which also must be compatible) have any chance to enter and pass through the epidermis and come to absorption. Therefore the passage of therapeutic substances through the skin depends on the character of the vehicle in relation to the skin and the character of the substance applied in relation to the skin and to the vehicle. Several patients who were suffering from advanced leprosy of the mixed type have been treated at San Lazaro Hospital with a substance of suitable character, worked out according to the individual requirements. The preparation was applied daily, by friction on the whole body, after the skin had been thoroughly cleansed with hot water and soap and dried carefully. The medicine was administered by the patient himself, who rubbed it into the entire front of his body by manual friction and the application to the back was made by another patient, the various patients thus helping one another mutually. The skin was left in this condition all day until the next morning, when the cleansing of the skin and the application of the medicine were repeated. No noxious effect to the health of the patient was observed during the entire period of treatment. The clinical lesions underwent radical change rapidly and the infiltrations, no matter of what character disappeared leaving behind a pale mark which gradually faded out. The skin, formerly disfigured by lesions and sometimes presenting a dreadful appearance, became clean and smooth. The patients now bear no visible signs of their former disease and the blood examination shows the negative character by the absence of bacilli.

Psychoanalytic Quarterly, Albany, N Y

2 361 654 (July Oct.) 1933

Thalassa A Theory of Centality S Ferenczi—p 361
The Delay of the Machine Age H Sachs Boston—p 404
Fear of Castration in Women S Rado New York—p 425
Motherhood and Sexuality Helene Deutsch Vienna Austria—p 476
Problems of Femininity Jeanne Lampl de Groot Berlin Germany—p 489
The Origin of the Influencing Machine in Schizophrenia A Tausk—p 519
Bodily Motivation and Learning to Eat Lillian Malcove New York—p 557
Outline of Clinical Psychoanalysis O Fenichel Berlin Germany—p 562
A Note on Falstaff F Alexander Chicago—p 592

Surgery, Gynecology and Obstetrics, Chicago

57 711 828 (Dec.) 1933

Studies in Bone Sarcoma I Malignant Osteoblastomas as Evidence for Existence of True Osteoblasts A Brunschwig and P H Hirmon, Chicago—p 711
Gingivae During Pregnancy Experimental Study and Histopathologic Interpretation D E Ziskin S N Blackberg and A P Stout New York—p 719
*Effect on Infant of Morphine Administered in Labor E Shute and M E Davis, Chicago—p 727
Effect of Sympathetic Neurectomy on Collateral Arteriole Circulation of Extremities Experimental Study F V Theis, Chicago—p 737
Intra Abdominal Pressures Created by Voluntary Muscular Effort II Relation to Posture in Labor W F Mengert and D P Murphy, Philadelphia—p 745
Aseptic Peritoneal Cavity Misnomer K Roberts W W Johnson and Helen Sue Bruckner, New York—p 752
Evaluation of Bissell Operation for Uterine Prolapse Follow Up Study B H Goff New York—p 763
Dislocations of Cervical Spine Their Complications and Treatment T P Brookes St Louis—p 772
Injuries of Spinal Cord and Its Roots Following Dislocation of Cervical Spine E B Towne San Francisco—p 783
Fracture of Femoral Neck Bilateral Hip Spica Immobilization V L Hart, Minneapolis—p 788
*Fractures in Lower One-Third of Both Bones of Forearm in Children Manipulative Reduction D H Levinthal Chicago—p 790
Spinal Anesthesia Nervous System Sequelae Case in Point G H Hyslop New York—p 799
Pilonidal Sinus H Rogers, Boston—p 803

Effect on Infant of Morphine Administered in Labor—Shute and Davis state that in morphine narcosis in the newborn the air passages should be cleared by means of a tracheal catheter if necessary, and external warmth should be applied. External stimulation is not only of doubtful value but often serves only to deepen the narcosis. Such stimuli may cause the baby to inspire once or twice and then to lapse into apnea, from which it is difficult to arouse. A mixture of carbon dioxide and oxygen gases proved to be the most useful stimulus to respiration. The authors regard the reaction of morphinized babies to these gases as a criterion of true narcosis. The administration of 30 per cent carbon dioxide with 70 per cent oxygen was the ideal mixture, especially effective when followed by pure oxygen. They present an account of all fetal deaths in their series, together with the pathologic observations in which necropsies were done. They feel that no baby in their group was lost as a result of morphine narcosis. Indeed, it has been their experience that morphine is a safe drug to use in labor, especially when adequate means of resuscitation are at hand. Many clinicians have relegated this drug to the background because of the possible development of the unpleasant complications of narcosis, only to make use of far more dangerous drugs of doubtful analgesic value.

Fractures in Lower Third of Both Bones of Forearm—In an analysis of 123 fractures Levinthal found that twenty-two (17.9 per cent) were fractures of both bones of the forearm, eighteen (14.6 per cent) of the total being in children. Fourteen of these fractures were in the lower third of the forearm. The four others were in the middle third. The authors' manipulative reduction of these fractures is carried out in a lighted fluoroscopic room, and it should be accomplished as soon as possible. The anesthetic of choice is ether. The fact that several days have elapsed since the accident should not deter the surgeon from attempting this maneuver. In an overriding fracture of both bones of the left forearm the surgeon stands at the left side of the table. The patient lies on the extreme right side of the table so that it is not necessary to move him when a fluoroscopic view is desired. The elbow of the patient is flexed at right angles, and an assistant encircles the arm of the patient with his hands. During the entire manipulation the forearm of the patient is held in complete pronation. The operator places his left thumb on the dorsum of the distal radial fragment and his fingers grasp the patient's hand over the thenar eminence. With his right hand he grasps the forearm over the distal end of the proximal radial fragment, the thumb of this hand resting on his own left thumb. Maintaining pressure with both thumbs on the distal fragment the operator gently angulates the fragments, increasing the deformity and at the same time exerting a distal push and some traction. The distal push by the thumbs is

maintained, the traction in the longitudinal axis is increased and the angulation is gradually decreased, as the fragments skid into apposition. The hand, wrist and distal fragments are straightened and gradually palmar flexed with moderate ulnar deviation, while the thumbs maintain their pressure on the distal fragments. The position of the fragments is checked by the fluoroscope. Should the manipulation fail, it should be tried a second and a third time if necessary. When the reduction is complete, a circular plaster cast is applied from the wrist to the palm, with the elbow at a right angle and the forearm in complete pronation. The cast is applied over a moderate amount of sheet wadding. Roentgenograms are taken as soon as the cast is dry. Finger motion is started early. The cast is bivalved at the end of from ten days to three weeks, the position of the fragments is verified by roentgenograms, and heat, passive exercises and light massage are started. In younger children, all retentive apparatus is removed at the end of from two to three weeks.

Virginia Medical Monthly, Richmond

60 517 580 (Dec.) 1933

- Medical Education and Medical Practice J. C. Flippin University —p. 517
 Inroads Made by Optometry on Work of Oculists F. I. Smart Norfolk —p. 521
 Syphilis Problem T. Clark Washington D. C. —p. 524
 Early Diagnostic Signs of Glaucoma T. D. Allen Chicago —p. 531
 Psychologic Approach to Aene T. W. Murrell Richmond —p. 540
 *Acute Postoperative Gastric Dilatation Treated with Insulin Case Report W. J. Mallory Washington D. C. —p. 542
 Consideration of Anterior Poliomyelitis and Polio vaccination Encephalitis Case Report H. Urbach Richmond —p. 544
 Contact Glasses C. A. Young Roanoke —p. 548
 Treatment of Cervical Carcinoma with Small Amount of Radium H. B. Ivey Goldsboro N. C. —p. 550
 Polycystic Kidney Case Report I. M. Mason Washington D. C. —p. 552
 Intra Ocular Malignant Growth Case H. S. Hedges Charlottesville —p. 553

Postoperative Gastric Dilatation Treated with Insulin

—In the case reported by Mallory, a cholecystectomy was performed and no abnormality was found. The patient was discharged seventeen days later after an uncomplicated post-operative period. Eight days later he developed nausea and vomiting of all food and fluid. The only abnormality disclosed on physical examination was moderate distention of the abdomen with gas. Treatment consisted of gastric lavage, with the removal of a large amount of greenish liquid, a liquid diet, simple enema and rectal medication were given. The vomiting recurred and the patient was examined before the fluoroscope without a barium meal and the stomach was found to be filled within half an inch of the dome at the fundus. The stomach was again aspirated and 1,200 cc of fluid removed with fragments of prunes eaten six days previously. Further treatment consisted of physiologic solution of sodium chloride by hypodermoclysis repeatedly. On the fifth day feeding was resumed by mouth there was no further vomiting and the patient was discharged. He returned seven days later because vomiting recurred, 1,500 cc of greenish fluid was evacuated and a barium meal was given, he returned the next day and 1,200 cc of fluid was aspirated despite the fact that the patient had vomited five times during the night. The patient was readmitted to the hospital. The physical observations were the same as on previous examinations. Physiologic solution of sodium chloride 500 cc, with 5 per cent dextrose was given intravenously, with 10 units of insulin. Nothing whatever was given by mouth. The next day 200 cc of orange juice was given orally and 5 units of insulin was administered four times a day. The next day the diet was gradually increased by the addition of meat, bread and vegetables with 200 cc of orange juice between meals, and 5 units of insulin was given after each meal and after intermediate feeding of the orange juice. No further vomiting occurred. The patient was discharged on the seventh day and has been well for the past two months. The author believes that complete repeated evacuation of the stomach and the prevention of dehydration remain essential in the treatment of acute postoperative gastric dilatation. Insulin would seem to be a valuable physiologic remedy both in prevention and in treatment.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

G 641 704 (Nov.) 1933

- *Chronic Hypertrophic Stenosis of Pylorus in Adults E. W. Twining —p. 644
 Valve Amplifier for Detailed Study of Radium Isodose Curves G. Goldhaber and H. D. Griffith —p. 656
 Spondylolisthesis J. Brailsford —p. 666
 Ossification in Lumbosacral Region H. A. Harris —p. 685
 Cancers Produced in Rabbits by Action of X Rays on Inflammatory Lesions A. Lacassagne —p. 689

Chronic Hypertrophic Stenosis of Pylorus in Adults—

Chronic hypertrophic stenosis in adults is an uncommon benign cause of a prepyloric filling defect. The three cases described by Twining occurred in his private practice in a series of about 1,000 opaque meal examinations. Its interest for radiologists lies in the extreme difficulty of making a differential roentgen diagnosis from other stenosing prepyloric lesions, which it simulates so closely that in nearly all recorded cases a faulty preoperative roentgenologic diagnosis of carcinoma or prepyloric ulcer has been made. Minor degrees of pyloric hypertrophy are not uncommonly found at operation. Cases showing gross hypertrophy may require surgical treatment and it is important that a preoperative diagnosis should be made whenever possible. At present the roentgenologic criteria are by no means clear cut. The author presents a detailed study of his three personal cases in order to draw attention to the roentgenologic appearances and to stimulate a closer study of the condition.

British Medical Journal, London

2 955 1006 (Nov. 25) 1933

- The Traumatic Factor in Organic Nervous Disease W. Harris —p. 955
 Treatment of Tuberculosis of Larynx R. S. Stevenson —p. 960
 Prognosis of Tuberculous Laryngitis F. R. C. Heaf —p. 966
 Duration of Passive Immunity to Diphtheria E. G. M. Jones and J. D. Kershaw —p. 969
 Heartburn in Pregnancy E. B. Ryner —p. 970

Duration of Passive Immunity to Diphtheria—Jones and Kershaw obtained passive immunity to diphtheria in a highly satisfactory proportion (97.9 per cent of all patients and 100 per cent of those under 10 years of age) of Schick positives by the injection of 500 units of diphtheria antitoxin. In adults and adolescents more than 15 years of age a larger dose is probably necessary. The duration of this immunity is at least fourteen days, and in the majority of cases (94.4 per cent) it extended to twenty-one days. The incidence of diphtheritic infection in passively immunized patients occurring at the times stated would suggest that it is unwise to regard this form of immunity as lasting longer than three weeks.

East African Medical Journal, Nairobi

10 221 252 (Nov.) 1933

- Problem of Tuberculosis in the Tropics B. Spearman —p. 227
 Some Medicolegal Aspects of the Investigation of Sudden and Unexpected Death H. J. O. D. Burke Gaffney —p. 232
 Unusual Case of Suicide R. S. F. Hennessey —p. 242
 Congenital Malaria Note R. Mackay —p. 246

Indian Medical Gazette, Calcutta

68 605 664 (Nov.) 1933

- Cardiovascular and Other Manifestations of Epidemic Dropsy R. N. Chopra and S. C. Bose —p. 605
 *Carbon Tetrachlorethylene in Treatment of Hookworm Infection P. A. Mapleston and A. K. Mukerji —p. 617
 Fevers in Pregnancy M. Sarkar —p. 620
 Toxic Effects of Ephedrine A. Warming R. N. Chopra and B. Mukherjee —p. 622
 Bronchoscopy in Asthma and Other Cases F. H. Evans —p. 627
 Spread of Cutaneous Leishmaniasis Along Lymphatics S. Lal and J. R. Dogra —p. 628
 Animal Piratyphoid in Guinea Pigs C. M. E. Cyles and B. Singh —p. 629

Carbon Tetrachlorethylene in Treatment of Hookworm Infection—Mapleston and Mukerji used carbon tetrachlorethylene in fifty cases of hookworm infection under hospital conditions and have cured thirty one with the first treatment and a further six with two treatments. The cure

rate after the second treatment would probably have been higher, but ten of the remaining thirteen persons left before it could be given to them, and thus there were only four patients out of the fifty who, the authors know definitely, were not cured by two treatments. Twenty one of the patients felt slight giddiness, nine vomited four felt nausea but did not vomit, and one said he felt drowsy for a short time. Of the nine who vomited, two did so immediately and the others at periods ranging between one and three hours after swallowing the dose. The dose was not repeated, so the vomiting probably had some effect on the total cure rate, and this supposition is supported by the fact that only two of the nine patients who vomited were cured by one treatment. The symptoms were never severe. There was no constant or significant change in the pulse and respiration rates, although there appeared to be a definite tendency for the blood pressure to fall in all the cases, but this was so slight as to be negligible in practically every instance. The authors observed no macroscopic evidence of damage to the small intestine either from single or from repeated doses of tetrachlorethylene. Their method of treatment consisted of placing 2 ounces of saturated magnesium sulphate solution in a 3 or 4 ounce flask or bottle and 4 cc of tetrachlorethylene and 1 cc of oil of chenopodium, the flask was corked and shaken until the drugs were distributed throughout the mixture in the finest possible droplets, and the dose was then given to the patient immediately before the drugs had time to coalesce into larger drops and float to the surface. Although the work of Garin and others indicates that tetrachlorethylene can be repeated with safety for two or three days in succession, the authors recommend giving it at intervals of no less than ten days, because it resembles other anthelmintics in causing the female hookworms to stop laying eggs for some days when it fails to remove them and so the establishment of a cure cannot be determined under that time.

Toxic Effects of Ephedrine—Chopra and Mukherjee point out that their studies indicate that toxic manifestations and undesirable side effects are commonly encountered after the use of ephedrine in asthma and other conditions. Some of the subjective symptoms are easily explained when one considers the physiologic action the alkaloid produces on the system. Ephedrine in doses of from 1 to 10 mg per kilogram of body weight is known to cause a rise in the blood pressure of anesthetized dogs by 100 or more millimeters of mercury and the rise is maintained at this level for at least fifteen to twenty five minutes. In human beings the rise in pressure is not so high as in animals but it varies from 20 to 65 mm of mercury. It is easy to see that circulatory reactions, such as palpitation and anginal pain, will be produced by the drug, particularly when the systolic pressure is at its highest level. The symptoms are also found to disappear as the pressure returns to normal. Insomnia and tremors are possibly due to stimulation of the central nervous system. Constipation, nausea and anorexia may be explained by the paralytic condition of the intestine due to sympathetic stimulation and loss of tone. Headache and throbbing sensations in the temples may be attributed to changes in pressure in the arterioles or veins within the skull. There is no agreement regarding the dosage required to produce these effects. Ephedrine is undoubtedly not a very toxic alkaloid and consequently there is a wide margin of safety. Its minimal lethal dose when given intravenously in dogs was found by Chen to be from 70 to 75 mg per kilogram of body weight. From this it can be inferred that a man weighing from 50 to 60 Kg would require from 4 to 5 Gm of the alkaloid to produce a fatal result. In contrast to this, the usual therapeutic dose is from one-half to 2 grams (0.03 to 0.13 Gm) and 7 grams (0.45 Gm) has been given in a single dose without untoward effects. The only explanation of the toxic effects appears to be a state of hypersensitiveness of certain persons to the drug. Ephedrine is a sympathomimetic drug and the stimulation of the sympathetic system in a highly strung individual may lead to symptoms of sympathoparasympathetic imbalance. It is also well known that slight differences in the amount of calcium in the blood make the autonomic system sensitive to sympathomimetic drugs of which ephedrine is one. If during its administration the patient exhibits toxic symptoms the drug should be discontinued.

Journal of Pathology and Bacteriology, Edinburgh

37 337 512 (Nov.) 1933

- Anerobic Methods for Identification of Hemolytic Streptococci R M Try—p 337
- Simple Method for Preparation of Specific Soluble Substance of Type I Pneumococcus H W Dudley and W Smith—p 341
- Serologic Grouping of Starch Fermenting Strains of *Corynebacterium Diphtheriae* Jean Orr Ewing—p 345
- Study of Antihemolytic Titer of Serum of Man and Animals Following Staphylococcal Infection J I Connor and Margot McKie—p 353
- Further Observations on Specificity of Bactericidal Properties of Normal Serum M H Finkelstein—p 359
- Bactericidal Power of Normal Serum J Gordon—p 367
- Size of Virus of Louping Ill of Sheep by Method of Ultrafiltration Analysis W J Elford and I A Galloway—p 381
- Growth Phases of Pleuropneumonia and Agalactia on Liquid and Solid Mediums J C G Ledingham—p 393
- Leukocytes of Pigeon with Especial Reference to a Diurnal Rhythm A F B Shaw—p 411
- Functions of Brunner's Glands and Pyloric End of Stomach H W Florey and H E Harding—p 431
- *Massive Paravertebral Heterotopia of Bone Marrow in a Case of Acholuric Jaundice S J Hartfall and M J Stewart—p 455
- *Intracranial Tuberculoma H G Garland and G Armitage—p 461
- Islands of Langerhans in Nineteen Cases of Obesity R F Ogilvie—p 473
- *Pathologic Changes Observed in Paralysis of the Landry Type Contribution to Histology of Neuroparalytic Accidents Complicating Antirabic Treatment S Getzowa, G Stuart and K S Krikorian—p 483

Paravertebral Heterotopia of Bone Marrow in Jaundice—Hartfall and Stewart report a case of massive extramedullary hematopoiesis with intrathoracic localization of the tumor masses. There was little doubt that the patient suffered from familial acholuric jaundice. A sister died from the same disease and the examination of the blood of a brother now aged 52 showed that his red blood corpuscles possess undue fragility. Severe and recurring anemia existed in this patient for many years and it may be presumed that the heterotopic marrow developed excessively in this unusual situation in response to a demand for more red blood cells. That such a demand existed is shown by the hyperplastic character of the normal marrow. It is not clear why the localization of these accessory masses should be in this curious intrathoracic paravertebral site, but the same distribution was present in the cases reported by Dawson, Rich, Plonskier and Saleeby, as well as in Hunter's two unreported cases. Saleeby's patient was the only one that was not anemic. Examination of the nodules showed that they were not extensions from the marrow of adjacent ribs or vertebrae, for no pedicle or other communication could be found. The masses were in fact completely circumscribed. It has been suggested that these formations develop from small bone marrow heterotopias of embryonic origin, are examples of post-fetal metaplasia or are true benign tumors. The heterotopic view is supported by the fact that the commonest situations in which small foci develop are the liver, spleen, kidneys and suprarenals sites in which embryonic hematopoiesis normally occurs, while even the larger nodules have been most frequently reported in connection with the kidney. In these organs it is conceivable that the embryonic hematopoietic tissue might survive into the postfetal period and, under the influence of a suitable and prolonged stimulus, undergo an adaptive hyperplasia. If chronic anemia serves indirectly as the stimulus the wonder is that such ectopic nodules are not found more frequently. It is possible that a careful search in appropriate cases might reveal the frequent presence of nodules of marrow tissue within the thorax in the paravertebral angle, but the reason for this special localization would still remain obscure.

Intracranial Tuberculoma—From an analysis of 13,000 consecutive necropsies Garland and Armitage found that the incidence of intracranial masses is more than 2 per cent of all cases coming to necropsy, and of these more than half are neoplastic. Tuberculomas constitute 34 per cent of all intracranial masses, 63 per cent of all masses in patients under the age of 20 and 66 per cent in children. Above the age of 20, 17 per cent are tuberculomas. Tuberculoma is slightly more frequent in women. There is no evidence of a diminishing incidence in the twenty-one years under the authors' review. In half the cases the tuberculoma is solitary. The cerebellum is involved in 67 per cent of cases and the cerebrum in 47 per cent, the commonest type of lesion being the solitary cerebellar mass. Death results from tuberculous meningitis in 75 per cent of cases and from some other tuberculous lesion in 20

per cent. Death from increased intracranial pressure is rare. Calcification and healing are rare and, unlike gumma, tuberculous masses are rarely adherent to the dura mater. Tuberculomas rarely give rise to symptoms prior to the onset of tuberculous meningitis. There are no characteristic clinical manifestations of intracranial tuberculoma but pyrexia occurs at some stage in 90 per cent of cases. The discrepancy between the pathologic and surgical incidence of tuberculoma can be explained only by the absence of clinical manifestations prior to the onset of tuberculous meningitis.

Histology of Neuroparalytic Accidents—Getzow and his associates discuss the histopathology of three cases of acute ascending paralysis of the Landry type, two were definitely connected with the administration of antiribic treatment and the third and most rapidly fatal developed without apparent cause. The microscopic appearances in the central nervous system are similar in the three cases and differ markedly from those detailed in previous reports of posttreatment paralysis. The authors endeavored to determine the microscopic appearances in the neuroparalytic accidents of antiribic treatment. They found that the paralysis is due to disturbance of the ganglion cells, motor and sensory alike, characterized by primary nuclear changes proceeding often to complete karyolysis and final cytolysis. Microscopic examination of the brain and spinal cord revealed little more than varying degrees of a degenerative change in the nerve cells. Between the normal ganglion cell nucleus and its antemortem stage there have been encountered certain intermediate types that permit affected nuclei to be divided into three categories: the clear basophilic type, the dark basophilic type and the dark basophilic homogeneous type. The positive histologic observations additional to the fundamental ganglion cell changes included marked edema of the gray substance in the cord, most pronounced in the lumbosacral portion, enlargement of the perivascular and pericellular lymph spaces, engorgement of the small vessels and edema of the glia. There were no focal lesions, no destruction of nervous tissue (apart from the ganglion cells), no demyelination, no change in the axis cylinders, no focal increase of neuroglia, no perivascular or pericellular aggregations and no fat in the three cases. The authors believe that such rapid involvement of the cerebrospinal axis with nervous tissue destruction, diffuse indeed but strictly limited to ganglion cells, indicates the highly selective action of some toxin on these cellular elements of the central nervous system. The extreme activity of this toxin is best illustrated by the occasional speedy dissolution of water-clear almost normal nuclei, while the occurrence, even if rare, of perfectly intact bodies of cells without nucleus or with a nucleus in an advanced state of degeneration presupposes the existence of karyolytins and suggests their incrimination in a primary attack launched on the ganglion cell nuclei.

Journal of State Medicine, London

41 621 684 (Nov.) 1933

- Relation of Soil and Climate to Rheumatic Disease. E. C. Warner—p. 621.
Role of Midwife in a National Maternity Service. E. Maclean—p. 643.
New Treatment for Cancer. A. C. Maginn—p. 657.
Malnutrition in Country Schoolchildren. A. M. Critchley—p. 667.
Incidence of Simple Goiter in Public Elementary Schoolchildren in South County Antrim. Analysis of Three Hundred and Eighty Five Cases. F. Mary Erskine—p. 672.

Lancet, London

2 1131 1190 (Nov. 18) 1933

- Nutrition and Child Bearing. E. Mellanby—p. 1131.
*Clinical Applications of Dimitro-o-Cresol. E. C. Dodds and J. D. Robertson—p. 1137.
*Acholuric Jaundice with Increased Fragility of Red Blood Corpuscles Appearing After Splenectomy. A. P. Thomson—p. 1139.
Diphtheria in Hull and Its Relation to Bacteriologic Type. H. M. Leete, J. W. McLeod and A. C. Morrison—p. 1141.
Schonlein-Henoch Syndrome. Case. A. Piney—p. 1144.
Cerebral Angiography. Its Application in Clinical Practice and Physiology. E. Moniz—p. 1144.

Clinical Applications of Dimitro-Orthocresol—The results of the studies of Dodds and Robertson with dimitro-orthocresol indicate the extremely powerful action of bodies of this group and consequently the extreme caution with which their administration must be attended. A safe dose that will cause a definite increase in the basal metabolic rate would

appear to be between 50 and 100 mg. daily for a normal person or from 0.5 to 1 mg. per kilogram of body weight. Under no circumstances should the compound be administered in such quantities as to raise the basal metabolic rate above +50, as otherwise grave discomfort and danger will result. It must also be borne in mind that neither the pulse rate nor the blood pressure is of any value in assessing the basal metabolic rate, since the characteristic action of this compound is an increase in metabolism without a proportionate stimulation of the cardiovascular system such as occurs with the administration of thyroxine. Any attempt to arrive at the basal metabolic rate by the use of Read's formula would give misleading results. It would appear, therefore, that the action of the drug should always be checked by determination of the basal metabolic rate. These experiments show that it is possible to maintain the metabolic rate at a figure from 30 to 50 per cent above normal without the appearance of any discomfort or toxic symptoms. It follows that provided the diet is not grossly in excess of the person's requirements weight will be lost, and it is possible to adjust the intake so that a steady loss of weight results. This will be possible without undue privation. A series of such cases is at present under examination. It would appear that dimitro-orthocresol is about five times as potent as the dinitrophenol compound, as judged by clinical observations.

Acholuric Jaundice with Increased Fragility of Erythrocytes After Splenectomy—Thomson points out that cases of acholuric jaundice may present great difficulties in diagnosis as jaundice may be inconspicuous or even absent and the only principal feature may be unexplained anemia. In most cases there is evidence of increased fragility of the red blood corpuscles which gives a clue to the diagnosis, it is well known however that this fragility may vary in degree not only in different patients but also at different times in the same patient. In the author's patient there was no evidence of increased fragility in the two examinations carried out before the operation and the second of these was done only a fortnight before the onset of acute illness. Reticulocytosis of considerable degree is an important feature of many cases of acholuric jaundice, but in the case recorded it was found only once. It was slight in amount (3.4 per cent) and had disappeared a week later. Splenectomy was decided on on this admittedly slender evidence. The effect of splenectomy on fragility is variable, according to Dawson it remains unchanged in half the cases and is reduced in the remainder. In his paper he mentions one case in which it had been found that the fragility increased after operation. So far as the author is aware the history of his patient is the only one of this type to have been put on record. It is difficult to suggest a completely satisfactory explanation of the unusual course of the case, provisionally he accepts the simplest as the most likely to be true. It seems to him that it is possible that, when hemolysis in the spleen is active, all fragile corpuscles may be removed as soon as they enter the blood stream from the bone marrow and that consequently the estimated fragility of the blood removed from a vein may remain normal. After splenectomy, fragile corpuscles may circulate in the blood stream as they will not be removed by the spleen, and the general fragility of the red blood corpuscles in the peripheral circulation will therefore be increased. Should this be the true explanation, the author states that he would have expected the anemia to be more profound in his patient and he can only assume that the proportion of fragile corpuscles produced was not great.

2 1191 1244 (Nov. 25) 1933

- Psychology of Personal Influence. W. Brown—p. 1191.
Adrenal Cortex and Sex. Influence of Cortical Extract on Normal and Castrated Rats. S. L. Simpson, A. Kohn-Speyer and V. Korenchevsky—p. 1194.
Clinical Applications of Dimitro-o-Cresol. E. C. Dodds and J. D. Robertson—p. 1197.
*Pellagra. Its Chemical Features and Pathology with Observations on Treatment of Its Nervous Manifestations by Massive Doses of Iron. A. G. Biggam and P. Ghalioungui—p. 1198.
Spontaneous Dislocation of Atlas. Report of Case. F. A. R. Stammers and P. Frazer—p. 1203.

Pellagra—Of the twenty-six cases of pellagra that Biggam and Ghalioungui observed during the last twelve months all presented the typical rash, twenty-four a glazed tongue, twenty-

one nervous or mental manifestations (this includes cases showing only increased reflexes) and fifteen only cutaneous and nervous symptoms, while in six digestive symptoms were also present, in two digestive disturbances and, in three, only cutaneous manifestations. No special treatment is necessary for the cure of the cutaneous and digestive manifestations. The ordinary hospital diet, after getting rid of any parasitic infestation, is sufficient to cure them, and the rash usually disappears within two to four weeks after treatment is commenced. This does not always bring about a cure of the nervous or mental manifestations. Once the latter have appeared in a well defined form, improvement is extremely difficult to obtain, but simple dulness or a feeling of depression easily disappears under this treatment. Recently, Sargent states that he has obtained recovery in cases of subacute combined degeneration of the cord associated with anemia, Addisonian or otherwise, by the administration of 150 grains (9.75 Gm) of ferrous carbonate in the form of pills daily for six weeks. More recently he described one case treated on these lines with benefit, in which there was no associated anemia. Owing to the similarity between the pathologic changes of the nervous lesions of the anemias described and that of the lesions accompanying pellagra, the authors tried this form of treatment in six of their cases, and their results agree closely with the results obtained in Sargent's cases, i. e., considerable improvement in the functional state of the nervous system with little corresponding changes in the nervous signs.

Medical Journal of Australia, Sydney

2 677 712 (Nov 18) 1933

Anterior Pituitary Its Scientific and Clinical Aspects B T Mayes —p 677

Clinical Value of Electrocardiogram A J H Stobo —p 682

2 713 742 (Nov 25) 1933

Intestinal Obstruction Following Operations on Lower Part of Abdomen A Aspinall —p 713

Postoperative Intestinal Obstruction in Lower Part of Abdomen H H Schlunk —p 715

Chemical Analysis of New Growths Correlated with Their Pathologic Examination W R Mankin and A M Welsh —p 718

Tubercle, London

15 49 96 (Nov) 1933

*An Acid Fast Other Than Koch's Bacillus Cultivated from Sputum S L Cummins and E M Williams —p 49

*Observations on the M Strain of Acid Fast Bacilli A S Griffith —p 53

Inquiry into Incidence of Tuberculosis Among Nurses in a New Zealand Hospital D W C Jones —p 59

Basic Blood Pressure in Pulmonary Tuberculosis G A Stephens —p 68

Memorandum on Asbestosis E R A Merewether —p 69

An "Acid-Fast" Other Than Koch's Bacillus—Cummins and Williams describe an organism found under circumstances that would almost certainly have led to an erroneous diagnosis had the investigation stopped short of cultural tests and animal inoculation. The patient was a woman suffering from acute pulmonary disease, which had come on shortly after confinement. The picture was that of acute phthisis, but the sputum had been reported negative on several occasions. The authors found in a sample of sputum numerous acid-fast bacilli scarcely distinguishable from tubercle bacilli but showing a few curious balls of curved rods which were sufficiently peculiar to raise the question of an unusual morphologic type. From a culture a growth was obtained and from another sample of the sputum sent to Griffith six weeks later the same organism was cultivated. Whether the germ was merely an adventitious saprophyte or the causative organism of the severe pulmonary disease from which she suffered must remain open to question as opportunities for further biologic tests were refused. The authors emphasize the fact that the finding of acid fast bacilli in the sputum is not necessarily positive proof of tuberculosis. The importance of cultural verification in all doubtful cases cannot be stressed too much.

Observations on an Acid-Fast Bacillus—In the specimen of sputum from the patient having acute pulmonary disease sent to Griffith by Cummins an acid fast bacillus was obtained in culture directly from the sputum after treatment with 25 per cent potassium hydroxide. After an incubation of five days at 30 C one colony was seen on a glycerin egg and one

on an egg tube, on the latter tube another colony was seen on the eighth day and this colony was then the size of a pinhead grayish white and hemispherical. The colony on the glycerin egg tube grew much larger than that on egg and finally was heaped up, cream colored and convoluted, surrounding it for a wide distance there was a thin almost invisible marginal growth with fernlike markings, beneath which the medium acquired a dark color on exposure to light but the growth itself remained unchanged. The colonies on the egg medium were light buff, prominent and conical the larger about 3 mm in diameter, the surfaces, mainly toward the apexes, became studded with rounded prominences, the colonies had very narrow thin margins and the medium beneath was not darkened on exposure to light, but some of the prominences became slaty gray. In subculture the strain grew fairly rapidly and abundantly, producing moist easily spread and emulsified growths, which were whitish on the egg mediums and slightly creamy on glycerin agar and potato and bovine serum. A pellicle was produced on broth and the growth tended to break up and sink forming a deposit. The micro organism is strongly acid fast and alcohol fast and grows at temperatures ranging from 15 to 37 C. It retains its vitality in culture for long periods. The strain did not absorb the agglutinin from an avian antiserum (rabbit). The author found that this strain of acid-fast bacilli is pathogenic for rabbits and mice when introduced in relatively large doses intravenously or intraperitoneally but that it has little pathogenicity for the guinea-pig and none for the fowl or the frog. The strain differs from tubercle bacilli both in cultural characters and in its effects on animals and is not identical with any of the acid-fast strains of bacilli which he has obtained from tubercle-like lesions in cold-blooded animals or any of the saprophytic acid-fast bacteria with which he has worked.

Presse Medicale, Paris

42 105 128 (Jan 20) 1934

Professorship of Surgical Pathology Inaugural Address M Chevassu —p 105

Contribution to Medical Treatment of Bronchiectasis Girbal —p 111

*Action of Cobra Venin in Treatment of Algeries and Tumors A Orti —p 112

Cobra Venin in Treatment of Algeries and Tumors

The favorable action of cobra venin on the hyperesthesias caused by tumors that cannot be operated on is becoming more definitely established. The cachexias frequently associated are also often improved. Orticoni notes that anesthesia occurs with relative rapidity when the venin is injected near the site of the tumor. He feels that it probably acts directly on the nerve fibers. The improvement in the cachexias so frequently observed may be due to a tonic action of the venin but the author thinks that the change is so rapid and lasting that the venin more probably inhibits directly the destruction of the malignant cells. Although cobra venin so far has been used exclusively in the algeries produced by malignant growth, the author quotes Calmette as suggesting that there is a fertile field for investigation of its effects in hyperesthesias and neuralgias of other origins.

Policlinico, Rome

41 156 (Jan 1) 1934 Medical Section

*Research on Relation Between Calcium and Phosphorus in Blood Plasma G Meli and C Cammarella —p 1

Polyglobulism Due to Diencephalic Hypophyseal Lesions A Baserga —p 17

Clinical and Histopathologic Contribution to Question of Chronic Progressive Paralysis or Stittonary Paralysis M Tripodi —p 25

Dermatomyositis with Necrotic Suppurating Foci and Osteoperiostitis of Typhoid Origin C Constanzi —p 38

Relation Between Calcium and Phosphorus in Blood Plasma—Meli and Cammarella found that varying daily intravenous doses of sodium oxalate in rats and rabbits produce a diminution of the plasma calcium and a proportionate rise in the values of organic phosphorus. Injections of calcium produce not only a temporary rise in the calcemia but a simultaneous and proportionate diminution of the phosphatemia. Treatment with a neutral phosphate results in a rise of the phosphatemia and slight diminution of the calcemia. Sodium citrate scarcely affects the calcium content but occasions notable increases in phosphatemia while the blood becomes noncoagu-

lable. These alterations of the mineral composition of the plasma may be observed after prolonged treatment and also a few minutes after a single intravenous injection. A mixture of calcium chloride and sodium citrate in corresponding amounts is more effective than ionizable calcium salts in raising the degree of calcemia, whereas it does not alter the degree of phosphatemia. The literature shows without exception an identical synchronism in the deviation from normal of the plasmatic values of calcium and phosphorus, the two being displaced proportionately. The relation does not exist between the phosphorus and calcium in the blood but rather between the ionized parts of these two elements and, grossly, between the dialyzable fraction of calcium and the inorganic fraction of phosphorus. This fact explains why the plasmatic chemical picture of osteomalacia and rickets may be experimentally reproduced with sufficient exactness by treatment with citrate and with citrate and calcium. The relation between the plasmatic values of calcium and phosphorus remains constant. Thus it is impossible to determine in individual cases whether the primary change is imputable to the calcium metabolism or to the phosphorus metabolism.

Semana Medica, Buenos Aires

40 2049 2120 (Dec. 28) 1933 Partial Index

- Hemorrhagic Capillary Toxicosis and Clomerulonephritis. Case. M. F. Varela and G. Schultz Ortiz—p. 2055
- Castrotonometric Curve in Hypotonic Stomach. T. Martini and R. I. Curutchet—p. 2058
- Iridochoroiditis in Course of Cerebrospinal Meningitis Finding in Recovery. Case. Paulina Sztanowsky—p. 2062
- Different Treatments Applied to Different Types of Diarrhea. H. J. d'Amato—p. 2063
- Cesarean Section in Treatment of Placenta Praevia. D. A. Rojas—p. 2072
- Comparative Value of Urobilin in Urine and in Duodenal Contents in Man. M. Royer, R. Dassen and F. Martinez—p. 2075
- *Technic of Subserous Appendectomy. J. Iriarte and C. Olivera—p. 2101
- Light Dressings Without Bandages in Surgical Wounds. R. A. Hernindez—p. 2111

Technic of Subserous Appendectomy.—Iriarte and Olivera say that the subserous technic in appendectomy is a simple and rapid procedure, which is applicable to all cases. By this technic there is no danger of immediate or secondary hemorrhage. It is the only procedure that should be followed in cases of appendices covered with membranes and surrounded with friable tissues which make the dissection of the appendix a dangerous operation and make peritonization of the appendicular stump impracticable. The authors describe the technic by means of illustrations. In 1126 appendectomies they have not observed any complications for which the method might be blamed. With an early diagnosis and the opportune surgical intervention by the subserous technic used systematically, there should be no mortality in appendectomy.

Archiv für klinische Chirurgie, Berlin

178 607 788 (Jan. 23) 1934

- *Pathogenesis of Acute Erosive Gastritis. Experimental Hematogenous Caffeine Gastritis. H. Hanke—p. 607
- Contribution to Knowledge of Endometriosis. M. Matyas—p. 629
- Ileus and Blood Sugar. H. Walawelski—p. 645
- Injuries of Alimentary Canal Resulting from Blunt Trauma. J. Hoffhauser—p. 654
- Cystoid Multiple Tuberculous Osteitis (Jungling). A. Stalman—p. 669
- Justification of Operations for Misplaced Testicle. H. Hellner—p. 683
- Respiratory Irrigation and Drainage of Pleural Empyema. H. Widenhorn and H. Warthen—p. 703
- *Treatment of Hemorrhoids. K. O. Peters—p. 718
- Operations on Vas Deferens. F. Spath—p. 737
- Penetrating Abdominal Injuries. S. Lampiris—p. 771
- Adenoma of Gallbladder. J. Kiraly—p. 780

Acute Erosive Gastritis.—Hanke administered caffeine to cats in subcutaneous doses of from 1 to 3 Gm. in his animal experiments on the production of acute erosive gastritis. This was followed by the development of definite macroscopic and microscopic alterations in the gastric mucosa in the form of localized erosions. These lesions occurred with greatest frequency in the body of the stomach but were likewise seen in the pyloric portion, while with the aid of microscopic studies, defects in the duodenal mucosa were demonstrated. The erosions resembled those produced by morphine or pilocarpine in that they were limited to the superficial layer of the mucosa and

showed a tendency to spread into the depth. An individual lesion frequently presented a fibrinous necrotic layer with beginning leukocytic infiltration and perifocal edema. The absence of diffuse gastritis suggests that these erosions were not primarily the result of toxic action. The histologic picture likewise did not suggest the existence of spasmogenic factors, such as muscular or arterial spasms. There was nothing in this histologic picture to suggest an infarct nor did the limits of erosions correspond to those of blood vessels. The author therefore concluded that the erosions were of a peptic character, the result of acid gastric secretion. Caffeine in large doses has the effect of provoking a copious secretion of acid gastric juice. This view was supported by the study of the gastric secretion of the cats in the experiment. Focal localization of lesions is conditioned by the fold system of the gastric mucosa. The results of these experiments lend support to the theory of Buchner that gastric juice alone is capable of producing peptic lesions.

Treatment of Hemorrhoids.—Peters believes that the greater incidence of hemorrhoids in men than in women (four to one) is due to the differences in the pelvic floor and in the caliber of the pelvic veins. The pelvic floor in man is narrower and is composed more of connective tissue than of muscle. Its anterior portion is occupied by the muscular prostate gland, so that the entire intra-abdominal pressure is exerted against its only yielding portion, the anal region. In women the pelvic outlet is considerably wider, is more muscular, and contains in its anterior portion a sort of regulating valve with the vagina acting as the point of lesser resistance. The veins in women have a wider lumen. Attention is called to the fact that the most frequent cause of hemorrhoidal nodes is cardiac insufficiency. Intermittent chronic or acute and that operation is contra-indicated in these cases. Hemorrhoids do not call for any treatment except hygiene of the anal region, until pain is complained of or symptoms of inflammation set in. These are met by conservative measures such as sitz baths and the use of astringent solutions or salves. Surgical treatment is not indicated as long as there is no gangrene, periproctitis or thrombophlebitis. Generally speaking conservative treatment is indicated for hemorrhoidal nodes resulting from acute dilatation or insufficiency of the hemorrhoidal veins, while surgical removal is necessary in the case of genuine varicosities or angiomas. The author discusses methods of cautery operation, excision and injection. The objections to the excision method of Whitehead are the incidence of from 37 to 74 per cent (Stone) of recurrences, incontinence, strictures and persistent discharge of mucus leading to pruritus and eczema. The operation is rather difficult and the average hospitalization is from twenty to twenty-six days. Among 649 patients operated on by the cautery method in the author's clinic, there were 518 men and 131 women. The duration of hospitalization was 11.79 days for men and 13.54 for women. A follow-up study of 177 cases showed that 94.92 per cent were permanently cured, 2.28 per cent were improved and 2.26 per cent presented recurrences but were cured by reoperation. There was no instance of stenosis. The author concludes that the oldest method, that of cautery operation, originated by Langenbeck, is the best method. Its advantages are simplicity, a sterile field, applicability of local anesthesia, short hospitalization, retention of sphincter function and excellent results.

Beiträge zur klinischen Chirurgie, Berlin

159 1 110 (Jan. 17) 1934

- Further Studies of Biologic Effect of Short Electric Waves. G. Jorns—p. 1
- Multiple Symmetrical Compact Islands of Skeleton. New Picture. P. Esau—p. 24
- Contribution to Pathology of Skull Roentgenograms. F. Sorge and F. Stern—p. 29
- Duodenal Inversum. Contribution to Symptoms and Treatment of Malpositions of Duodenum. O. Hoche and E. Ruckenstein—p. 43
- *Massive Intravenous Infusions. Experimental Study. H. J. Warthen—p. 51
- Free Perforation of Postoperative Peptic Jejunal Ulcer. M. Makkas—p. 61

Massive Intravenous Infusions.—Warthen studied the effect of intravenous administration of various solutions on the blood chemistry in animal experiments. He introduced into

the femoral vein of a dog up to 2 liters and more of the solution in a relatively short time. The quantities administered amounted to from 56.6 to 210.5 cc per kilogram of the body weight. The rest nitrogen of the blood serum diminished after the administration of a 5 per cent solution of dextrose by 13.6 mg per hundred cubic centimeters, while after the administration of a hypertonic salt solution (from 1.5 to 2 per cent) it increased by 0.8 mg. The blood sugar content increased by 0.1 mg after the administration of the physiologic solution of sodium chloride, but diminished by 20 mg after administration of the hypertonic salt solution. The blood chlorides rose 100.4 mg per hundred cubic centimeters after the infusion of physiologic solution of sodium chloride and only slightly more after the hypertonic salt solution. This rather surprising effect is explained by the fact that the hypertonic solution in these experiments was injected into normal animals. The blood chlorides diminished after the administration of a 5 per cent solution of dextrose by 13.9 mg per hundred cubic centimeters, and by 59.3 mg after the injection of a 10 per cent solution of dextrose. The resistance of the red corpuscles showed only slight diminution after the physiologic solution of sodium chloride and no change after the hypertonic salt solution. There was only one fatality in the twenty-eight experiments. This animal died after an infusion of an exceedingly large quantity of a 10 per cent solution of dextrose. A postmortem showed no transudation into the pleural cavity, the pericardium or the peritoneal cavity. Death apparently was due not to circulatory disturbance but to an excessive amount of dextrose. The author concludes that the enormous quantities introduced did not cause circulatory disturbances. Corresponding quantities for human beings would amount to 7 or 8 liters for an adult weighing 65 Kg, which is several times that ordinarily used in clinical work.

Deutsche medizinische Wochenschrift, Leipzig

60 144 (Jan 5) 1934

- Physician and Science L von Krehl—p 1
Research in Experimental Therapy W Kolle—p 3
Rheumatic Disorders in Light of German Pathology L Aschoff—p 7
Reviews and Outlooks in Clinic of Diabetes Mellitus F Umber—p 11
Diagnostic Arthrotomy in Chronic Disturbances of Knee Joint A Lauen—p 14
Inflammation of Iris and Its Treatment L Heine—p 16
*Causal Therapy of Infectious Diseases with Synthetically Prepared Medicines W Schulemann—p 19
Hormonic Regulation of Female Cycle W Schoeller—p 21
Thoughts on Clinical Instruction in Germany P Morawitz—p 24
Present Status of Knowledge of Sex Hormones Eymers—p 27
Impressions from the Far East (China and Japan) P Muhlens—p 34

Therapy of Infectious Diseases with Synthetic Medicines—Schulemann discusses chemotherapy. He evaluates the chemical preparations used in the treatment of nematodes but admits that they have added little to the formerly employed anthelmintics provided by nature. Chemotherapy was much more successful in the treatment of diseases caused by protozoa such as malaria, trypanosomiasis, leishmaniasis, frambesia and amebic dysentery. In diseases of bacterial origin, particularly the spirochetoses, syphilis and recurrent fever, chemotherapy proved effective, and it was resorted to with some success in tuberculosis, leprosy and diseases of pneumococcal, staphylococcal and streptococcal origin. In diseases caused by ultra-violet viruses chemotherapy has failed. The author points out that mere accident has never produced results in chemotherapy but that the studies were always guided at least by a hypothesis, and for further studies he emphasizes the necessity of close cooperation between the chemist and the physician.

Hormonic Regulation of Female Cycle—Schoeller shows that the normal course of the female sex cycle is dependent on the harmonizing collaboration of uterus, ovary, hypophysis and midbrain which is effected by hormonal influences. In discussing the gonadotropic hormone of the anterior hypophysis, he points out that under its influence two ovarian hormones are formed the follicle hormone and the hormone of the corpus luteum. This has led Zondek and Aschheim to assume that the gonadotropic hormone of the anterior hypophysis consists of two factors which they designate as prolan A and B and which they think are produced successively in the hypophysis, as indicated in the succession of the maturation of the follicle

and the formation of the corpus luteum. Although efforts have been exerted to separate prolan A and B it has not been accomplished as yet, and Evans does not believe in the existence of the two factors. The author calls attention to Philipp's observation that during pregnancy the anterior hypophysis is practically free from gonadotropic hormone. This apparently contradictory observation becomes understandable in view of the retroaction of the gonadic hormones on the hypophysis. This retroaction is accomplished indirectly by way of the central nervous system. In the hypothalamic region of the midbrain there must exist a center, which, in the event of a reduction of the gonadal hormones, stimulates the hypophysis by nervous impulses. Thus it is not the hypophysis as such that regulates the ovary but rather the sex center. Moreover, on the basis of studies on patients with cystic hyperplasia of the uterine mucosa, it appears that luteinization is effected by the ovary rather than by the hypophysis, and the author reasons that if this is the case a separation of the gonadotropic hypophyseal hormone into prolan A and B is no longer necessary and the hormone may be considered a unit.

60 45 80 (Jan 12) 1934 Partial Index

- *Anatomic Observations on Sympathetic Nervous System and Its Changes in Gastric Ulcer P Stohr, Jr—p 45
Present Status of Otorhinolaryngology C von Eicken—p 50
Results of Research in Skin and Venereal Diseases Bering—p 54
Treatment of Diphtheria Bacillus Carriers D Hachenburg—p 56
Treatment of Coryza by Means of Targessin Glycerin Irrigations R Korbach—p 57
Diagnosis and Treatment of Most Important Infectious Diseases C Hegler—p 58

Changes in Sympathetic Nervous System in Gastric Ulcer—Stohr relates his observations on the nervous apparatus of forty-four stomachs that had been resected on account of ulcer. He shows that the nervous tissue in the center and in the immediate surroundings of the gastric ulcer presents an almost inexhaustible multiplicity of formations and points out that attempts have been made to produce a gastric ulcer experimentally by interventions on the vagus and the sympathetic. He considers it impossible that resection of nerves produces such complicated changes in the intramural nervous system as exist in chronic ulcer. In case of a disease condition of the gastric nerves, purely anatomic factors necessitate the consideration of the entire sympathetic nervous system but from the same anatomic point of view it appears hardly possible that abnormal vascular conditions, secretory disturbances, muscular spasms or inflammatory manifestations can alone be the cause of gastric ulcer, for without the sympathetic nervous system not a single cell is able to function.

Jahrbuch für Kinderheilkunde, Berlin

141 249 364 (Jan) 1934

- Chronic Nephritis During Childhood J Geldrich—p 249
*Acetarsone in Congenital Syphilis Dosage, Indication and Results F Eckardt—p 278
Clinical Forms of Otogenous General Infection (Otogenous Sepsis) in Nurslings and Children I Hofer—p 291
Toxic Diphtheria B Schirwindt—p 318
*Role of Hemato-Encephalic Barrier in Genesis of Nutritional Intoxication Pathologic Histologic Aspects of Central Nervous System in Pneumonia S J Schaferstein N A Popowa and E P Owtsharenko—p 343

Acetarsone in Congenital Syphilis—Eckardt employed oral acetarsone treatment in small children having congenital syphilis, some of whom had previously been subjected to other antisyphilitic injection treatments, while others had received no other treatment. It was found that treatment in which from 12 to 15 Gm of acetarsone was administered in the course of about twelve weeks was generally adequate. As a rule, periods of four, six and later ten days of medication with acetarsone were followed by pauses of four days. According to the weight and condition of the child, the treatment is begun with from one eighth to one fourth of a 0.25 Gm tablet daily. This dose is later increased to one half tablet and in the further course of the treatment the half tablet is given first twice and later three times a day. After twelve weeks of this procedure the treatment may be stopped, but if necessary it is repeated after an interval of four weeks. The efficacy of the treatment becomes manifest in a surprising improvement of the general condition. The children usually thrive and gain in weight. The exanthem

and the rhagades gradually disappear. Even disturbances of the bones, such as syphilitic periostitis and Parrot's pseudo-paralysis, are favorably influenced. The coryza often persists for longer periods and in the severe forms of visceral syphilis acetarsone is generally no more effective than other antisyphilitic remedies. The reduced blood pressure frequently increases in the course of the treatment. As a rule, the Wassermann reaction becomes negative during the second half or at the end of the treatment and only occasionally remains positive for some time after the first cure. The author concludes that the high percentage of effectiveness of acetarsone and the simple oral application make it the method of choice in the treatment of congenital syphilis.

The Central Nervous System in Pneumonia—This is one of a series of investigations on the role of the hemato-encephalic barrier in nutritional intoxication in infants. In this one Schaferstein and his associates describe their histologic observations on eight children, who died of pneumonia. They show that during early childhood nutritional disturbances leading to decomposition but without the toxic syndrome are accompanied by numerous changes in the central nervous system. In the soft meninges there exist mild inflammatory processes, and the nerve cells of the cerebellum and of the tuber cinereum show degenerative changes, which must be considered the result of the intoxication of the nervous system. In children the elements of the hemato-encephalic barrier are highly susceptible to various injurious agents. However, mild inflammations of the pia mater may pass off without clinical symptoms. The cerebral aspects of the toxic and decomposing nutritional disturbances differ from those in pneumonia, particularly in regard to the most frequent points of attack.

Monatsschrift f. Geburtshilfe u. Gynäkologie, Berlin

96 111 180 (Jan.) 1934

- *Treatment of Gonorrhea in Women Particularly with Acridine Dye H. Kittner—p. 111
- Growth Substances in Menstrual Blood H. Fleckner—p. 118
- Clinical Manifestations of Endometritis and Their Relation to Pathologic Histologic Picture P. N. Iogwinsky and G. A. Kolesnev—p. 124
- *Colpocystotomy in Removal of Foreign Bodies from Urinary Bladder T. d. Erchia—p. 130
- Uterovaginal Interposition According to Schauta Wertheim in Treatment of Uterine and Vaginal Prolapse J. Frei—p. 135
- Obstetric Diagnosis of Thoracopagus W. Haupt—p. 148

Acridine Dye in Treatment of Gonorrhea in Women—Kittner employs a derivative of acridine which contains arsenic. The substance is generally used as a 2 per cent solution of reddish yellow coloration but it can be applied also in the form of swelling suppositories. The author employed the substance in fifty-one cases. He treated gonorrhea of the neck of the uterus by means of a syringe constructed in such a manner that every revolution of the plunger ejects only 1 cc. of the substance. The tube introduced into the uterine neck contains several openings and the fluid does not emerge as one stream but comes out of several openings, so that the mucous membrane is well irrigated. The quantity of fluid introduced varies according to the size of the uterus and the width of the cervical canal. Since the substance may exert a corrosive action on the vaginal mucous membrane fluid that may flow back into the vagina should be removed and a dry cotton tampon should be placed in front of the uterine opening. The author observed a peritoneal shock action in only one patient, and the symptoms disappeared again in a comparatively short time. In another patient an urticarial exanthem developed, but it disappeared again within twenty-four hours. In urethral gonorrhea irrigation with the solution of the acridine-arsenic preparation is done twice daily and is followed by the introduction of a swelling suppository. Mild forms of cystitic irritations were noted frequently, but they were not severe enough to necessitate interruption of the treatment. For rectal treatment the author recommends the daily (morning) injection of 3 cc. of a 0.25 per cent solution of the preparation into the rectum and the introduction of a suppository. In summarizing his observation on the fifty-one patients, he states that the preparation effected cure in 77 per cent of the women with cervical gonorrhea, the treatment lasting twenty days at the most. In some of the patients, other treatments had proved ineffective.

Removal of Foreign Bodies from Urinary Bladder—According to d. Erchia the direct, that is, the urethral, route is the best for the extraction of foreign bodies from the urinary bladder. This method is often possible if removal is attempted shortly after the foreign body has been introduced and before it has caused inflammatory processes. However, if the removal has been delayed, the foreign body may have become encrusted with deposits of calcium salts, or cystitis, pyelonephritis and perivesical phlegmons may have developed. Such complications are especially likely if the points of the foreign body, for instance of a harpin, have perforated the mucous membrane and have entered the perivesical tissue. In cases of this type, and also when foreign bodies have been forgotten in the course of a laparotomy and have caused abnormal connections between the bladder and the neighboring organs, the author recommends colpocystotomy, in spite of the fact that some have advised against it on the ground that it leads to undesirable complications, such as fistulas. The author performed the operation successfully in three cases. He opens the bladder in the anterior third through the anterior vaginal wall. Following extraction of the foreign body, the walls of the bladder and vagina are sutured separately and a permanent catheter is introduced. In the first case a urinary fistula developed following removal of the catheter but its repair was not difficult. In the other two cases healing by primary intention was accomplished because the vagina and the bladder were separated more extensively and were sutured separately. The foreign bodies removed by the author were harpins in two cases and a thermometer in one case. The removal of the harpins had first been tried by the urethral route and had been unsuccessful, but in the case of the thermometer this method had not been tried in order to avoid breaking of the instrument.

Wiener klinische Wochenschrift, Vienna

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- Experimental Investigations on Blood Pressure and Kidney L. Braun and B. Samet—p. 63
- Umbilical Anesthesia Particularly in Abdominal Operations A. Muller—p. 69
- Operations of Congenital Lip Jaw Palate Clefts H. Pichler—p. 70
- Röntgen Examination of Blood Vessels M. Sgaltzer—p. 72
- Arthrogenic Neuralgias A. Szek—p. 74
- Clinical Significance and Pathogenic Mechanism of Agalactosuria K. Singer and I. Wechsler—p. 77
- Ski Point (Knee Injury in Sking) Anatomic and Pathologic Aspects T. Mandl—p. 80
- Simple Pathognomonic Urinary Reaction for Thyropathias Outside of the Region of Psychoses J. Viginger—p. 81
- Attacks of Tubular Vision in Postencephalitic Parkinsonism L. Halpern—p. 83
- Prevention of Pincerlike Complications in Resection of Low Duodenal Ulcers O. Bsteh—p. 85
- Early Diagnosis of Bronchus Carcinoma H. Kahler—p. 86

Clinical Significance of Agalactosuria—Singer and Wechsler point out that a galactose tolerance test was recommended by Bruer as a functional test of the liver. Elimination of more than 3 Gm. of sugar in the urine, when 40 Gm. was taken, is considered indicative of a diffuse impairment of the hepatic parenchyma. Donath called attention to the fact that complete absence of galactose, agalactosuria likewise has pathognomonic significance and the authors investigated the pathogenesis and the significance of this symptom. By determining the galactose content of the blood, they determined that agalactosuria may develop in two different ways. 1. No galactose goes from the portal circulation into the general circulation and thus there can be no agalactosuria in the absence of galactosemia. This form of agalactosuria develops particularly in achylia refractory to histamine and concurring with severe anemias either pernicious anemia or achylic chloranemia, but it also develops in achylia without anemia and in duodenal stenoses with or without achylia or anemia. The authors think that in these forms there exists a disturbance in the resorption of the galactose and consequently they suggest the term 'enterogenic' agalactosuria. 2. Severe galactosemia exists, but the renal threshold for sugar has been heightened to such an extent that no galactose passes into the urine. This form is observed in serious renal diseases and is designated as 'nephrogenic' agalactosuria. The authors conclude that agalactosuria so far has not been given sufficient attention. Its presence indicates renal or gastro intestinal disturbances and calls for further investigations to determine their exact nature.

Zeitschrift für Tuberkulose, Leipzig

69 241 320 (Jan.) 1934

- Tubercle Bacillus Infection in Reciprocal Action to Other Infections
R Bieling and L Oelrichs—p 242
- Erythema Nodosum Tuberculous Character W Gobel and E Schuhardt—p 260
- Comparative Morphology of Tuberculosis According to Age Periods V Pusik—p 266
- Vioosterol and Tuberculosis A de Carvalho—p 271

Erythema Nodosum and Tuberculosis—Gobel and Schuhardt try to demonstrate that erythema nodosum is closely related to tuberculosis. Investigators who reject such a relationship call attention to the fact that erythema nodosum is extremely rare compared to the high incidence of tuberculosis. To this the authors reply that erythema nodosum is not the exanthem of tuberculosis alone but that other factors besides the tuberculous infection are necessary for its development. The tuberculosis may be a new infection, either a primary one or a superinfection, but it may also be an old process that apparently had taken its course. The factor that favors the development of erythema nodosum may be (1) a constitutional weakness of defense (2) an endogenous disturbance in the defense mechanism (hormonic cycle seasonal increase in the reactivity) and (3) an exogenous disturbance in the defense powers (infectious diseases, or application of tuberculin). The authors report a case in which they explain the development as follows. As indicated by the demonstration of tubercle bacilli and the severe reaction to application of tuberculin at the time of the boy's admittance to the institute he had been infected previously. He also had a lamblasis which produced a negative energy. When he was put with other tuberculous patients he developed a new infection which, because it took place at the time of a negative energy led to erythema nodosum and also produced a tuberculous infiltrate with the typical roentgenologic and clinical aspects.

Vioosterol and Tuberculosis—According to de Carvalho the therapeutic effects of vioosterol in tuberculosis are still being disputed. The clinical as well as the experimental results of investigators differ considerably. The action of vitamin D becomes manifest not only in calcium fixation but particularly in the general condition through an increase in appetite and weight. The author treated twelve guinea-pigs for thirty-two days with vioosterol and then infected them with tubercle bacilli. He infected twelve and then treated them with vioosterol and he infected twelve more but did not treat them with vioosterol. Of the ten surviving animals of the first group, all but one showed an increase in weight after the infection, half of the second group of animals increased in weight in spite of the infection, and of the third group only three animals showed an increase in weight. The necropsies revealed that the infection was most severe in the third group, and mildest in the second group. The animals of the first group did not show a favorable influence from the prophylactic vioosterol treatments as some of their organs presented even more severe infections than did those of the animals of the third group.

Zentralblatt für Gynäkologie, Leipzig

58 81 144 (Jan 13) 1934

- New Safe and Successful Treatment of Placenta Praevia C J Gauss—p 93
- Thyroidal Activation by Serum from Pregnant Women and by Extracts from Their Urine K Junkmann—p 101
- Development of Insufficiency Manifestations in Impaired Heart Following Irradiation of Ovaries A Pohl—p 104
- Proliferation of Mucous Membrane in Vaginal Scars Following Vaginal Total Extirpation E Fels—p 109
- Diagnosis and Etiology of True Intra Uterine Melena P Lauffs—p 113
- True Diphtheria Bacilli in Pus of Puerperal Matritus S Tapfer—p 116
- Uterine Angiomyoma I Orsos—p 122
- Lymphangiofibroma of Uterus M Brenner—p 129
- Shaped Incision for Opening of Uterus in Cesarean Operation L Drüner—p 131

Treatment of Placenta Praevia—Gauss in a tabular report of more than 10,000 cases shows the mortality rates of the various methods of treatment for mothers and infants. This report indicates that spontaneous delivery with or without rupture of the bag of waters should be the first aim as it involves the lowest mortality. If bleeding persists after the rupture of the bag of waters other methods become necessary. Vaginal

tamponade is inadvisable because of its extraordinarily high maternal death rate. The use of the metreurynter and of indirect version offers a considerably smaller maternal mortality but the death rate of the infants is extremely high, particularly in the case of indirect version. Vaginal and abdominal cesarean operations have a considerably smaller infantile mortality and the maternal death rate is slightly less than in case of metreurynter but the author is not in favor of these methods. In dispensing largely with vaginal tamponade, the use of the metreurynter and cesarean section he has not been obliged to resort more often to indirect version and in the last few years he has employed it only about half as often as formerly. In 60 per cent of cases of placenta praevia he has resorted to what he terms the "scalp forceps." This method greatly reduced the necessity of surgical interventions. Following the rupture of the bag of waters the child's head is brought down and pressed against the bleeding site of placental attachment. The author accomplishes this by grasping the exposed portion of the child's scalp with a suitable forceps and attaching to this scalp forceps a traction device with a weight of from 500 to 1,000 Gm. The result is that hemorrhage ceases, the uterine contractions become stronger the mouth of the uterus gradually dilates and a spontaneous delivery in cranial position takes place. There was not a single maternal fatality in the cases in which the method was employed. The infantile death rate was rather high, but not as large as in indirect version.

The Impaired Heart Following Irradiation of Ovaries—Pohl demonstrates that, in patients having heart disease irradiation of the ovaries is likely to cause further impairment of the heart action. This is the case particularly if insufficiency existed shortly before or is still present. It is probable that the cardiac impairment is the result of the sudden decrease in blood pressure caused by the irradiation. The decrease is most noticeable in hypertension, and this explains why the manifestations of decompensation produced by irradiation of the ovaries is most severe in patients having high blood pressure. The author concludes from these observations that, in case of cardiac decompensation, the irradiation should always be preceded by treatment with strophanthin. Moreover, even in compensated cardiac defects the heart action should be watched during irradiation.

Incision in Uterus in Cesarean Operation—Drüner calls attention to the advantages of the Y-shaped incision employed by him. The lower branch of this incision is in the cervical portion of the uterus, the two upper ones reach into the musculature of the fundus, and they take into account the course of the fibers of the smooth muscle even more than does the curved incision. The fact that by the lower branch of the incision the circular muscle fibers are divided vertically is apparently a disadvantage, but the author asserts that he never noticed that it had undesirable results. For the opening of the peritoneum he employs a curved incision parallel to the vesical fold. Thus the incisions are not over each other but only cross each other in the center. The author had the opportunity to observe several of the scars in the course of second and even third cesarean operations. He never observed defective scars and, even in subsequent normal deliveries the scars did not cause complications. Hernia developed in one instance because of prolonged suppuration of the abdominal walls.

Ortopediya i Travmatologiya, Kharkov

7 182 (No 3) 1934

- Symptoms and Pathologic Anatomy of Hydatid Echinococcus of Bones M V Khotenko and K F Elenevskiy—p 1
- Injuries of Acetabular Fossa and Central Dislocation of Hip P A Nikiforov—p 8
- Some Late Results of Albee Operation S P Ivanov—p 19
- Pathologic Anatomy of Chronic Tuberculosis of Bone and Joints K F Elenevskiy and B V Kuvshinov—p 29
- Calcium Gout K F Elenevskiy P I Musychenko and E Ia Reznitskaya—p 37
- Orthopedic Measures in Reconstruction of Defects of Lower Jaw E E Babitskaya—p 50
- Traumatic Osteomyelitis of Vertebral Column B S Kutsenol—p 59
- Influence of Deformities of Bones of Tuberculous Nature on Choice of Occupation N I Blinov and D K Khorshlov—p 64
- Development of Question of Prosthesis in Ukraine A P Kotov—p 72

Calcium Gout—Elenevskiy and his collaborators state that, compared with uric acid gout, calcium gout is rare. According to Umber, six cases were observed in Germany between 1910

and 1921, while Profichet reported eight cases in France. Calcium gout occurs principally in young women. It appears to be the result of disturbance of the calcium metabolism associated with dysfunction of the parathyroid apparatus. The disturbance of albumin metabolism in the absence of clinical manifestations of hyperthyroidism, in the case of the authors suggests a possible role of the parathyroids in the metabolism of albumin. Alterations appeared principally in the subcutaneous reticulum and the periarticular tissues of the fingers and toes in the form of tophi. When removed the tophi were found to contain copious deposits of a white chalklike substance. Chemical analysis showed the presence of traces of uric acid salts of phosphates, of large amounts of calcium salts and of carbonates. The dynamic method of determination of the purine and the calcium metabolism permits of a differentiation between the two. The differential diagnosis between uric acid gout and calcium gout is further made possible through roentgenologic study. The roentgenogram of the latter presents a characteristic appearance of circular shadows about the phalanges arising not in the joints but in the soft periarticular tissues. Histologic studies did not reveal the presence of urates in the tophi. The tissue reaction is analogous to that of uratic gout. The calcium deposits act as a foreign body provoking an abundant accumulation of giant cells attempting slowly and imperfectly to remove these deposits. The therapy consists of a diet from which calcium is largely excluded and surgical removal of the tophi.

Acta Chirurgica Scandinavica, Stockholm

73 399 607 (Jan 15) 1934

Maclean's Urea Concentration Test in Cases of Surgical Kidney Diseases. E. Husfeldt and A. Aalkjær—p. 399

*Value of Gastric Resection in Chronic Gastric and Duodenal Ulcers. K. Roholm—p. 433

*Study of Changes in Cerebrospinal Fluid After Spinal Anesthesia. A. Backer-Grøndahl—p. 445

Passage of Sounds in Tuberculous Urethral Stricture Followed by Military Tuberculosis. W. Møller—p. 507

Comparative Study of So Called Congenital Coxa Vara and Juvenile Osteochondritis of Coxa (Coxa Plana). H. Cramitz—p. 521

*Sarcoma of Small Intestine in Connection with Case of Hemangiosarcoma of Jejunum. R. Magnusson—p. 576

Endarteritis Obliterans (Juvenile Gangrene). Two Cases. C. Lundh—p. 591

Gastric Resection for Chronic Gastric Ulcers—Roholm states that 130 gastric resections for ulcerative disease of the stomach or duodenum were performed at the National Hospital of Copenhagen between 1909 and 1931. Sleeve resection of the body of the stomach was performed in 40 and pylorotomy in 90. Before the lapse of twelve months after the operation, 105 patients were reexamined and were followed up for from one and one fourth to twenty-two years. Sleeve resection of the body of the stomach was given up because of too frequent formation of ulcer along the suture line. As the result of pylorotomy 69.2 per cent of the patients were cured, 81.5 were healed and improved, 18.5 had poor results and 12.2 died. The Polya method of gastric resection gave better results than the first method of Billroth. Better function after the latter appears doubtful and the method is technically difficult, especially when one finds it desirable to remove all the antral portion. The tendency to delayed emptying is greater than after the Polya method. There were three instances of recurring ulcer after pylorotomy. The author compares the results obtained after pylorotomies with those obtained after 101 gastro enterostomies reported from the same clinic by Nielsen. The author concludes that there is no apparent difference in the value of the two methods when used as a routine.

Changes in Cerebrospinal Fluid After Spinal Anesthesia—Backer-Grøndahl studied the cerebrospinal fluid of 138 patients operated on under spinal anesthesia. Spinal punctures were performed twenty-four, forty-eight and seventy-two hours after the operation. In 65 per cent of the patients, an increase in the cell count of the cerebrospinal fluid was found. This increase was present in only 30 per cent of the patients after forty-eight hours and in 18 per cent after seventy-two hours. The anesthetic substance used was either a 3 per cent solution of procaine hydrochloride in cerebrospinal fluid or a 1:1,500 solution of nupercaine in hypotonic salt solution, as advised by H. W. Jones. There was found an increase in the globulin and albumin in one third of the patients. The blood sugar content rose in 69 per cent. In 24 per cent this was found to be the

case only in the cerebrospinal fluid. The rise was negligible. The largest number of cells was 1,950 per cubic millimeter, while three had a cell count of more than 500. The lowest figures were found after nupercaine. No relationship could be established between the cell count and the drug used, the age of the patient or the extent of anesthesia. The relationship of headaches to the cell count was not definite. Only one of the three patients with a high cell count complained of headaches. The author likewise failed to establish causal relationship between headaches and an increase in albumin, globulin or sugar.

Sarcoma of Small Intestine—Magnusson states that the small intestine is one of the few organs in the human body in which sarcoma occurs more frequently than carcinoma. He was able to collect ninety-eight cases of sarcoma of the small intestine from the available literature, while according to Hellstrom the number of cases of carcinoma of the small intestine reported is seventy-three. The majority of sarcomas of the ileum occur between the ages of 21 and 50, with a slight preference for the third decade. Two different forms can be recognized microscopically, the annular and the diffuse. Microscopically the sarcomas of the small intestine are characterized by the fact that they originate from the submucosal layer. The serous coat is usually left intact over the growing tumor. The tumors form early metastases in the mesenteric lymph nodes. The rare occurrence of stenotic symptoms is emphasized. This feature finds an explanation in the existing dilatation of the intestine even at the seat of the tumor. The author reports a case of his own in which the involved segment of the intestine was excised with a wedge shaped piece of the mesentery. The tumor was diagnosed as a hemangiosarcoma with atypical vascular new formation and pronounced polymorphism of the tumor cells. The patient succumbed to metastases a few months after the operation.

Norsk Magasin for Lægevidenskapen, Oslo

95 1 123 (Jan) 1934

Surgical Section of Ebers Papyrus. B. Ebbell—p. 1

Historical Remarks on Treatment of Primary Glaucoma. S. Holth—p. 19

*Tuberculous Spondylitis and Regional Zoster. M. Kobro—p. 21

*Lymphemoid Glandular Fever. J. Lange—p. 32

Pfeiffer Sepsis. Two Cases. G. Benestad—p. 51

Tuberculous Spondylitis and Regional Zoster—In Kobro's case there was roentgenologically established caries of the twelfth dorsal and the first, fourth and fifth lumbar vertebrae, with abscess in the left iliac fossa. Simultaneously with a reproduction of the abscess, zoster appeared on the anterior surface of the left thigh, from Poupert's ligament to the knee and on the medial and lateral surfaces to the midline. A relation between the zoster and the primary disorder is thought probable.

Lymphemoid Glandular Fever—One of Lange's cases was in a man, aged 22, and presented the typical lymphoglandular form. Three cases were in children. In the first, admitted under the diagnosis of scrofulosis and pseudocroup, the disturbance was mainly localized in the mediastinal glands on the right side. The next, from the same house, was characterized at the start by a necrotic throat and mouth disorder, with swelling of the glands, and was diagnosed as glandular fever and secondary sepsis, the fatal outcome is ascribed to the secondary sepsis. In the third, mild case the glandular disorder was particularly localized in the inguinal and iliac glands on the right side.

Ugeskrift for Læger, Copenhagen

96 27 58 (Jan 11) 1934

Physiology and Pathology of Micturition Particularly in Relation to Practitioners' Work. O. Keller—p. 27

*Treatment of Carbon Monoxide Intoxication with Methylene Blue. C. Clemmesen—p. 37

Treatment of Carbon Monoxide Intoxication with Methylene Blue—Clemmesen cautions against the administration of methylene blue in carbon monoxide asphyxia. In four cases of grave gas poisoning from 40 to 50 cc. of a 1 per cent solution of methylene blue was given. In three cases the condition became aggravated immediately after the injection and in the fourth it continued unchanged for an hour, when it was somewhat aggravated. Two of the patients died as a direct result of the intoxication, the third from another cause.

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LONG CONTINUED, LOW GRADE, IDIOPATHIC FEVER

ANALYSIS OF ONE HUNDRED CASES

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Undoubtedly every experienced clinician has at one time or another been baffled diagnostically or therapeutically by patients suffering from long continued, low grade fever of unknown origin. The patient, although not seriously ill, realizes that she is below par and, fearful lest the fever spells impending disaster, consults her family physician, insisting on cure of the fever or at least on knowing its cause. The subsequent story of most of these patients is similar. After considerable investigation, study, and futile therapy, the patient leaves her family physician and starts on the rounds of consultants and specialists. In the vast majority of instances she visits hospital after hospital, wasting her time and substance without obtaining either satisfaction or relief.

Such cases are not rare. A hundred of these patients were subjected to careful routine examination in the Mayo Clinic from June 1919 to June 1930 and, in addition, in most instances to a careful search for foci of infection by Dr E. C. Rosenow or members of his staff without the cause of the fever being revealed. After relatively large numbers of them were seen it seemed desirable to hospitalize a group (twenty-three patients) and subject them to a specially devised routine study in order to ascertain whether or not, by more intensive investigation, the cause of the fever could be determined. In this group, in addition to repeated routine and special physical examinations, the chief of the clinical laboratory, Dr A. H. Sanford, was called in consultation in not a few instances in order that he might obtain his tests under conditions that appealed to him as optimal for success. Such patients were subjected to agglutination tests, to blood and urine cultures, to stool examinations and to any and every other test suggested by the patient's history or physical examination. Only patients with laboratory manifestations that were normal or considered insignificant are included in this report.

Our purpose in this communication is to center medical attention on this group of unfortunate patients. One hundred cases are analyzed and an attempt is made to correlate the subsequent course and subsequent diagnosis with the condition observed at the clinic in

order to ascertain the nature of the disease or syndrome, its onset, course, duration and outcome.

FEVER AND ITS PATHOGENESIS

Fever has never been adequately defined. Barbour¹ describes it as "any positive heat balance due not solely to food, exercise or environment." According to the diagnostic standards of the National Tuberculosis Association, "a temperature which persistently runs over 99.4 F when taken at least four times a day over a period of one week (by mouth five minutes) should be considered of significance and to constitute a fever." Kinghorn² believes that a temperature of 99 F is significant of organic disease provided it is taken not too soon after meals and provided the patient is not nervously excited. We are of the opinion that in the adult a continuous mouth temperature of 99 or above represents fever whether or not the patient is nervous. Furthermore, we feel that it is wiser to investigate patients with continuous low grade fever than it is to ignore the temperature or to explain it away.

Obviously in investigating patients with fever it is desirable to keep in mind the theories of the mechanism of heat regulation in the body and the ordinary diurnal changes in temperature. In any consideration of heat regulation both its production and loss must be taken into account. The temperature as measured by the thermometer represents the balance between heat production and heat loss. The normal temperature of the mouth as defined by Howell³ is 98.36 F with a diurnal variation, which may be as much as 1 degree centigrade. Temperature is usually highest between 5 and 7 p.m. and lowest between 6 and 7 a.m.

Heat production, as was first shown by Lavoisier,⁴ is the result of oxidation and chemical changes occurring mainly in the muscles and perhaps to a certain extent in the liver. Food and increased muscular activity are directly responsible for increased heat production. The adult male produces approximately 1,600 calories in twenty-four hours when the body is resting and more in accordance with increased muscular activity.

Heat is lost from the body by radiation and conduction from the skin, by evaporation of sweat from the skin, by expiration and also by the bodily excretions. Usually radiation and conduction from the skin account for about 75 per cent of the total daily heat loss. The other sources account for 14.5, 10.7 and 1.8 per cent, respectively.

1 (a) Barbour H. C. The Heat Regulating Mechanism of the Body. *Physiol. Rev.* 1: 295-322 (April) 1921. (b) The Pharmacology of Body Temperature. *Brit. M. J.* 2: 660-661 (Sept.) 1913. (c) Barbour H. C. and Prince A. I. The Control of Respiratory Exchange by Heating and Cooling the Temperature Centers. *J. Pharmacol. & Exper. Therap.* 6: 111 (Sept.) 1914.

2 Kinghorn H. M. The Significance of Slight Fevers. *Nat. Tuberc. A. Tr.* 15: 209-210 1919.

3 Howell W. H. Textbook of Physiology. Philadelphia W. B. Saunders Company 1926 pp. 966, 972, 974, 978 and 979.

4 Lavoisier cited by Howell³.

From the Mayo Clinic, the Western Montana Clinic, the Philadelphia Institute for Medical Research and the Philadelphia General Hospital.

The body temperature represents one of the body constants, hence its regulation is of importance. Heat regulation involves a physical or physiologic mechanism that suffices in environmental temperature above 15 C (59 F) and a chemical mechanism concerned mostly in additional heat production induced through increased muscular tone or muscular contraction (shivering), which is called into play below 15 C. The endocrine glands also play a role through control of the rate of oxidation in the body and possibly, as Swingle has intimated, through control of the blood and plasma volume, which secondarily concerns heat distribution in the body. In recent years the importance of water in relation to heat regulation and fever has been considerably emphasized, fever being ascribed by Balcar, Sansum and Woodyatt⁵ to a deficit of free water in the organism.

Barbour has summed up the general evidence concerning fever in the following manner:

Accepting the water balance as the central factor in fever, we are obliged to correlate its behavior with that of the nervous heat-regulating mechanism. In the infectious fevers some such process as the following takes place. As the provocative poison reaches the tissues (perhaps the muscles in particular) catabolic changes are initiated which increase the affinity of the muscles for water. This general demand on the blood for water tends to reduce the blood volume, especially at the expense of surface blood. The skin immediately becomes cooler, and this arouses the nervous regulation against cold thus exaggerating the process of vasoconstriction and hemoconcentration. This continues until the blood becomes warm enough for the nervous system to interpret the temperature as comfortable or neutral.

NEUROGENIC FEVER AS A CLINICAL ENTITY

There are many observers who believe in the existence of a low grade fever, primarily neurogenic in origin. By some, this has been termed psychogenic fever. It is thought to be the result of various types and degrees of psychic stimuli acting on an unstable heat-regulating center. This explanation of the unstable heat-regulating center has been adopted particularly by pediatricians. These questions have been discussed by Talbot,⁶ Frankel,⁷ Neilson, Cannon,⁸ Courtiere,⁹ Deutsch,¹⁰ Egger,¹¹ Horder,¹² and Falcon-Lesses and Proger,¹³ Deutsch believing that fever may be produced by anything that stimulates the vasomotor system and that many people who have a constant fever have a psychic disturbance. Egger has seen cases of vasomotor neurosis with fever lasting many years. He thinks that fever is instituted by a vasomotor or heat-regulating center. Falcon-Lesses believed that he produced fever in three patients through various types of psychic stimulation. He concluded that it was psychogenic in origin. While it is true, as will be shown, that long-continued low grade fever is associated frequently with stigmas of neurosis, it will likewise be demonstrated that the fever persisted in still more individuals in whom no neurogenic basis could be found.

It is obvious, of course, that the labeling of such fever as of neurogenic or psychogenic origin accomplishes nothing for either the patient or the physician and serves on the other hand as a block to investigation and progress.

CLINICAL MATERIAL INVESTIGATED

In the records of the Mayo Clinic covering the period from 1919 to 1930, many such case histories were found from which a hundred were selected as the basis of this study. These conform to the following: 1 The patients were over 15 years of age. 2 Those with chills were excluded. 3 The fever and clinical manifestations persisted for at least a month prior to registration. 4 The cause of the fever after adequate investigation was recorded as undetermined. 5 Adequate data relative to the subsequent course were available.

The Height of the Fever—The mouth temperature varied from 99 to 103 F. The readings were controlled by the rectal temperature in a large series of cases. The daily range of temperature in individual cases and in different cases was quite variable.

Objection might be raised to admitting that a temperature of 99 F constitutes fever and, furthermore, that 103 F does not represent a low grade fever. However, those patients evidencing a temperature of 99 F on one day often had higher temperatures on other days. Also in the patients with high temperatures,

Age of Patients

Age	15-20	20-29	30-39	40-49	50-59	60-69	Total
Number of patients	11	30	36	12	6	5	100

chills were lacking and the course of the disease was identical with that in patients with lower grades of fever.

The Time of the Fever—It was found that 11 per cent of the patients had fever throughout the entire day and 4 per cent in the morning and afternoon. The morning rise rarely appeared until the patients had been awake from two to three hours. In the majority of cases the fever did not appear until later in the day, in 69 per cent in the afternoon, in 14 per cent in the afternoon and evening and in 2 per cent in the evening only. In approximately 90 per cent of the cases the fever developed in the afternoon and evening. This is of interest, since experience with tuberculosis shows that rest and sleep are conducive to lower temperatures and activity is conducive to the production of heat.

The Age of the Patients—The ages of the patients varied from 15 to 69 years. Sixty-six and two-thirds per cent of these patients were between 20 and 40 years of age, whereas 38 per cent of the clientele of the clinic fall between these ages. The age distribution is shown in the accompanying table.

The Sex Ratio—This is equally instructive. Females constitute almost three fourths of the entire group, 72 per cent. This also is out of keeping with the sex ratio of the clinic clientele, in which women represent 54 per cent. It would appear, therefore, that in the vast majority of instances the patient was a woman between the ages of 20 and 40 years. Under 50 years of age there were nineteen males and seventy females.

Appearance of Patients—In 65 per cent of the patients, despite the prolonged existence of fever, the physician's note stated that the patient looked healthy.

5 Balcar J O, Sansum W D and Woodyatt R T. Fever and Water Reserve of the Body. Arch Int Med 24: 116-128 (July) 1919.

6 Talbot F B. Body Temperature and Its Regulation in Abt I A. Pediatrics Philadelphia 1925 p 6.

7 Frankel Dora. Ueber die normale Korperlemparatur der Kinder und ihr Verhalten bei Bewegung und Ruhe. Deutsche med Wchnschr 1: 267-268 (Feb.) 1913.

8 Cannon W B. Bodily Changes in Pain, Hunger, Fear and Rage. New York D Appleton & Co 1929 pp 351-352.

9 Courtiere J. cited by Barbour.¹⁴

10 Deutsch Felix. Das Psychogene Fieber. Med Klin 22: 1213-1215 (Aug 6) 1926.

11 Egger cited by Deutsch.¹⁰

12 Horder Thomas. Cases of Pyrexia Without Physical Signs. Canad M A J 16: 130-135 (Feb.) 1926.

13 Falcon-Lesses Mark and Proger S H. Psychogenic Fever. New England J Med 203: 1034-1036 (Nov 20) 1930.

In only seven instances were they said to look sick. This obviously suggests the possibility of functional disease.

Occupation—Occupation appears to exert no influence. Fifteen various occupations were given but no significant relationships revealed.

Duration of the Fever Before Admission—Fever was the presenting symptom in ninety-five out of the hundred cases and was known to have existed from periods lasting from one month to eleven years prior to registration. The average duration for the group as a whole was 17.6 months.

Duration of the Fever After Registration—This was ascertained through correspondence with patients and their relatives and physicians. It was found that the fever had subsided in from one month to six years in a total of fifty-five cases. In forty-nine of them the mean duration after dismissal was eleven months. Thirty-eight patients continue to have fever, and seven are dead.

The Average Duration and Outcome of the Fever—It would therefore appear that, of the fifty-five patients who recovered, the fever persisted for approximately twenty-eight months, while thirty-eight patients continue to have fever and seven of them are dead.

ASSOCIATED SYMPTOMS

Three symptoms are commonly associated with this fever: exhaustion, nervousness and loss of weight. In 87 per cent of the hundred cases, exhaustion was the most pronounced accompanying symptom. In some it was mild, so that the patients were able to carry on regular work, in others it was more severe, leading to curtailment of hours or change of occupation, while in a few it was so pronounced that the patients were bed-ridden or incapable of any work whatever. The cause of the exhaustion is just as obscure as the cause of the fever. The frequency and prominence of exhaustion would seem to indicate that it is an integral part of the syndrome.

Nervousness of one form or another was given by approximately 50 per cent of the total group, and 38 per cent record loss of weight. Additional symptoms were present and are listed according to decreasing frequency in the order named: abdominal distress, pain in the back, headache, cough, palpitation and tachycardia, generalized body pains, night sweats, anorexia, dyspnea, polyuria, dysuria, menorrhagia, hemoptysis and pruritus ani.

THE ONSET OF FEVER

The onset of the fever in the majority of instances was insidious and without a known cause. Many of the patients admitted the existence of exhaustion, nervousness or other symptoms prior to the onset of the fever. However, a considerable group¹² stated specifically that their symptoms developed during or immediately after an acute infection. Fifteen said that they had had influenza, eight an acute cold, and one each some passing infection which had in the interim passed entirely out of the clinical picture. In eighteen of this group of twenty-eight the fever has disappeared.

FEROUS OR UNCONFIRMED DIAGNOSES MADE ELSEWHERE

Information regarding the diagnoses made prior to admission to the clinic was sought and reported. Tuberculosis presumably pulmonary had been diagnosed in twenty-six instances. In no case had the

bacillus of tuberculosis been demonstrated. Four of the group had had, in addition, diagnoses of Hodgkin's disease, gallbladder disease, salpingitis and Addison's disease, none of which were confirmed here or elsewhere. Fourteen others had had various unconfirmed diagnoses, while twenty-one had previously been told that no cause for the fever was apparent.

We were particularly interested in the frequency of the diagnosis of tuberculosis in so large a proportion of the cases. Tuberculosis is a serious disease and the diagnosis should not be made unless attended with certainty. The diagnosis of tuberculosis affects not only the future of the individual but frequently the offspring to the third and fourth generations. Twelve of these patients were sent to sanatoriums for tuberculosis, where they stayed for periods varying from five months to two years, without a positive diagnosis or relief in a single instance. After dismissal from the clinic in three of these twenty-six cases a diagnosis of tuberculosis was again made by the local physicians, all three patients returning to the clinic with fever but with no evidence of tuberculosis. We have not found, nor has any one else found, positive evidence of tuberculosis in a single one among these 100 patients after from two to twelve years, and we believe that tuberculosis as the cause of the fever can be legitimately excluded.

THE RÔLE OF NEUROSIS

A large number of these cases of long continued, low grade idiopathic fever were referred to the clinic with the statement from the family physician that the fever was of infectious or neurogenic origin. Others were so considered in the clinic, including such diagnoses as chronic nervous exhaustion, anxiety neurosis, neurasthenia or functional disease. These may be grouped for the sake of argument under the head of neurosis, representing in all twenty-five cases. In this group fever subsided in eleven, while in two of them the fever has persisted for more than ten years and the patients have been unable to work because of exhaustion, for which no organic basis could be discovered. It is of interest to compare these results with the results of the group in which the diagnosis of neurosis was not suggested. In the sixty-eight non-neurotic patients the fever subsided in more than 60 per cent, which would seem to indicate that the prognosis, so far as disappearance of fever is concerned, is somewhat better in those patients evidencing no manifestations of neurosis.

THE RÔLE OF FOCAL INFECTION

Every one of the hundred patients have been checked for foci of infection, and demonstrable lesions have been found at one time or another, in one or more locations, in thirty-five cases. Removal of foci was advised and followed out in all, either at the clinic or subsequently. Fever subsided in twenty-one, or 60 per cent, of these cases. This should be contrasted with the fifty cases in which no foci were found or removed, in which the fever subsided spontaneously in approximately the same proportion, 59 per cent. It seems, therefore, that the percentage of patients in whom the fever disappeared was not affected by removal of foci, as many recovering without focal removal as with focal removal. This must not be interpreted as meaning that foci of infection should not be removed but only as indicating that such procedures do not materially increase the percentage of recoveries in this syndrome.

Four patients insist that they recovered as a result of treatment directed specifically to infection, one to the removal of a gallbladder, one to the intravenous injection of gentian violet, one to roentgen treatment of the cervical lymph glands, and the fourth to treatment for Malta fever. In connection with Malta fever, it should be stated that all members of this group of 100 patients who had not been subjected to tests for agglutination for Malta fever at the clinic were requested subsequently to have the test made by their state boards of health or by the clinic through the submission of blood for immunologic studies. The patient already referred to was the only one indicating the existence of this disease.

MANAGEMENT

Since the cause of the fever is unknown, the treatment has been largely symptomatic. In many instances, an especially devised regimen has been adopted whereby the patient has systematically undergone treatment with a series of specific remedies, quinine, emetine, iodine, arsenic, and the like, with results that were very disappointing. The intravenous use of dyes has been likewise without results of significance or permanence. Foci of infection have been eradicated when recognized, neuroses have been accorded appropriate management, and general supportive measures have been adopted, all to little avail. Rest has proved helpful in the temporary control of the fever but has not been effective in securing arrest or cure.

We have found, in the management of patients suffering from this syndrome, that our familiarity with the syndrome serves to engender confidence. Our statements that we have seen many patients recover from the syndrome, that it is not due to tuberculosis, and that it does not end fatally have proved our best weapons in allaying apprehension.

PROGNOSIS

The prognosis so far as mortality is concerned is good. In the group as a whole, only seven of the patients died. In connection with the latter, two significant facts are revealed. All of these patients were over 44 years of age and all of them had lost considerable weight. It is evident, therefore, that low grade, unexplained fever in patients over 44, particularly in those who have lost weight, should be watched continuously and carefully. Three of these cases came to autopsy. One patient died of streptococcal septicemia, one of vegetative endocarditis and one of sarcoma of the kidney. In a fourth, a mass was located in the right upper quadrant prior to death. For the other three, no cause of death could be assigned. Thus malignancy accounts probably for two cases and blood stream infection for two others.

SUMMARY

One hundred cases of long continued, low grade fever of unknown origin were studied in detail in the Mayo Clinic between January 1919 and January 1930. Clinical records of these cases are analyzed in regard to age, sex, occupation, fever characteristics, associated symptoms, general appearance, neurotic tendencies and the presence of foci of infection, the course of the disease and the outcome.

1 Such fever is almost three times as frequent in the female as in the male and occurs most frequently between the ages of 20 and 40 years, at that period of life in which physical and mental strain is probably greatest.

2 The type of fever is often designated neurogenic or psychogenic—we believe without sufficient basis. Neurotic manifestations are pronounced in at least 25 per cent of the cases. Those showing neurotic stigmas are less subject to help from treatment.

3 Focal infection is present in 35 per cent of this series, but removal of foci, although often helpful in the individual case, does not increase materially the percentage of recoveries.

4 Of these patients, 93 per cent are still living, seven are dead, two of neoplasm, two of blood stream infection and three of unknown causes. Of the 55 per cent of patients who recovered, the average duration of the fever was approximately twenty-eight months.

CONCLUSIONS

The evidence relative to the cause of the fever is not clear. It may be that it is neurogenic in origin, that it is due to focal or general infection, that it results from some metabolic derangement, or that it represents a failure of heat regulation common to a group of diverse minor functional or organic derangements in the body, or it may be that it is a disease, *sui generis*. The truth is not yet evident. As we see it, the need is for further investigation rather than the too ready acceptance of an unsupportable explanation.

Thirty-Fourth and Pine streets

A CLINICAL METHOD FOR DETERMINING MODERATE DEGREES OF VITAMIN A DEFICIENCY

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AND

ZELMA ZENTMIRE, M.S.

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The accepted and easily recognized clinical evidences of vitamin A deprivation are associated only with marked degrees of vitamin A deficiency. Night blindness is one of these several clinical phenomena, but it is one that is not recognized by an ordinary routine examination and one that usually is considered only when the complaint is made by the patient. A routine test for night blindness probably would reveal many more cases than are now suspected. It might be expected also that a suitable method of examination would detect night blindness, which is present in such a mild degree that the afflicted individual is entirely unaware of its existence. Since the etiology of night blindness in these cases is presumably the same, regardless of its degree, it should be possible to detect even moderate deficiency of vitamin A by means of appropriate tests. Our purpose in this presentation is to show that the visual tests that have been employed in this study constitute a satisfactory means of determining moderate degrees of vitamin A deficiency.

EXPERIMENTAL PROCEDURE

The clinical material consisted of children who had been accepted as patients in the pediatric and orthopedic divisions of the Children's Hospital in Iowa City. No attempt at selection of cases was made, except that patients had to be physically able to walk to the room used for the tests and mentally competent to count dim

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spots of light in a totally darkened room. In general, the tests were made immediately after the children came under hospital care, so that the observations were the result of the home regimen rather than that of the hospital.

The instrument used in making the test was an electrically illuminated Birch-Hirschfeld photometer supplied by Carl Zeiss, Inc. This instrument consists essentially of a metal tube with a light bulb at one end, and at the other end an iris diaphragm, a five-light-point disk and a Goldberg wedge. The bulb was lighted from a 110 volt circuit controlled by a rheostat. The rheostat setting was kept practically constant and was such as to cause the bulb to glow very brightly. The iris diaphragm is opened or closed by moving a lever along a scale marked with the diameter of the opening in millimeters. The five-light-point disk is made of blackened metal and has punched out of it the five point quincunx of the throw dice. The Goldberg wedge is a glass slide treated photographically in such a manner that a gradual and uniform decrease of light transmission is obtained from end to end, with practically complete transmission at one end to zero transmission at the other. The wedge is marked with a scale of opacities, the numbers of which increase from one to thirteen.

The subject, looking at the photometer, observes its light as regulated by the wedge and the iris diaphragm and transmitted through the disk, as shown in the illustration. Because of gradations in light transmission produced by the light wedge, the light spots are unequally visible. The number of light points observed is dependent on the intensity of the light source, which in turn depends on the size of the opening through the iris diaphragm and the position of the wedge. The position of the wedge relative to the disk was not altered during a test. Light sensitivity is determined by the number of observed light spots in the five-light-point disk relative to the diaphragm opening and the wedge opacity.

The advisability of determining the foot candle power of the light from the photometer was considered. It was decided that the determination would be of no value, because the instrument is well standardized and we were dealing with light differences rather than with light quantities.

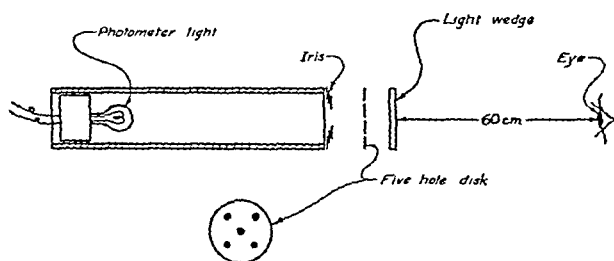
The technique of the test was worked out by the "trial and error" method but was unchanged after a satisfactory procedure was found. The test was standardized with the assistance of nine adults, who presumably had normal vision (without or with correction) and no vitamin A deficiency. The subjects were examined in a room that could be made absolutely dark. The walls were white to a height of 6 feet to facilitate bright illumination when desired, within the field of vision of the subject. Bright illumination was obtained by means of a 150 watt electric light bulb in a metal reflector supported above and behind the subject's head and so placed as to illuminate the wall faced by the subject. The subject was seated in such a position that the eyes were 60 cm. from the wedge of the photometer on a table in front of him and 100 cm. from the wall.

In the performance of the test the subject was seated comfortably in the chair. An interval timer was set for five minutes and then the moderate illumination of the room was replaced by the bright light of the 150 watt lamp. During the five minute period of exposure to the bright light the patient's intelligent cooperation was enlisted by an explanation of the plan of the test.

When the interval timer gave the five minute alarm, it was reset for ten minutes, the bright light was turned off and as quickly as possible the initial reading was made. When vision was defective, the operator frequently covered the points of light with the hand in order to avoid fatigue of the patient's eyes. When the alarm indicated the expiration of the period in darkness, the ten minute reading was taken in the same manner as the initial reading.

The liminal value of the light stimulus (end point of a reading) was taken as the point at which three constant spots of light were distinctly visible. Often five, four or three spots were temporarily visible before enough light was admitted to the eyes to permit the subject to see three constant points. The operator always confirmed the accuracy of an end point by covering the wedge with the palm of the hand for a few seconds in order to rest the patient's eyes and then by having the subject again report on the number of points of light constantly visible.

In making the test the Goldberg wedge was set at some definite point and the amount of light admitted through the instrument was controlled by means of the iris diaphragm. For the first test, immediately after the bright light had been extinguished, it was found



Schematic representation of the Birch-Hirschfeld photometer

that for the normal eye and with the wedge set at 7, the end point opening of the iris diaphragm varied from 14 to 20 mm inclusive, or, if the wedge was set at 6, the reading was 8 or 10 mm. During the ten minute period in darkness the normal eye recovered light sensitivity to the extent that, with the wedge set at 7, the end point opening of the iris diaphragm was from 3 to 6 mm inclusive. Wedge 6 was too transparent to be used for the normal eye after ten minutes in the dark.

The distance of 60 cm. from the instrument to the subject was chosen because this proved to be a convenient working distance and because to the average eye the light points are too dim at greater distances.

The time intervals were kept short, because children do not naturally remain seated quietly for more than a few minutes. The intervals chosen proved entirely satisfactory for showing definite differences between normal and abnormal eyes as regards dark adaptation.

It was desired that there should be a minimum of adjustment of the instrument in the dark. It was necessary for the examiner to learn to count the clicks of the wedge scale as it was shifted in darkness, and to count the clicks of the spring catch as the lever of the iris diaphragm was moved over its scale. When occasionally necessary to verify an adjustment in the darkness, the operator turned off the electric current and counted the clicks required to bring the Goldberg wedge or the lever of the iris diaphragm to a known point while making the excuse of resting the subject's eyes for a few seconds.

The test was so simple and so well controlled that repeated examinations gave results consistently within either the normal or the subnormal ranges, regardless of whether the subject had normal or abnormal dark adaptation. Apparently, unfamiliarity with the instrument did not influence the results. The majority of the children enjoyed the test.

A study was made of the diet preceding the examination. The information elicited was considered unsatisfactory. A reliable quantitative estimate of vitamin A intake cannot be made by questioning the subject concerning his diet.

RESULTS

Two hundred and thirty-three children were examined by this test. It was found desirable subsequently to exclude twenty from consideration. Because the tests were made immediately after the children came under observation, the unsuitability of some of the subjects for taking the test was not always immediately known. It was found that eight of the children exam-

Photometer Readings Showing the Results with Twenty-One Subjects Retained in the Hospital for Observation

Case	Age Years	Readings When Admitted				Inter val Days	Readings When Discharged			
		Initial Reading		10 Minute Reading			Initial Reading		10 Minute Reading	
		Wedge Setting	Diaphragm Setting	Wedge Setting	Diaphragm Setting		Wedge Setting	Diaphragm Setting	Wedge Setting	Diaphragm Setting
1	6	5	10	5	10	14	6	8	7	7
2	8	7	16	7	12	5	7	18	7	7
3	8	7	16	7	10	10	7	16	7	6
4	9	7	20	7	12	13	7	14	7	4
5	9	6	14	6	8	17	7	18	7	6
6	10	6	10	7	12	16	6	10	7	6
7	11	7	20	7	20	6	7	16	7	4
8	11	7	20	7	10	14	7	18	7	4
9	11	6	10	7	10	6	7	16	7	4
10	12	7	18	7	12	4.3	7	18	7	6
11	12	6	20	6	14	7	7	18	7	6
12	12	6	8	7	9	5	6	8	7	6
13	13	7	18	7	8	6	7	18	7	6
14	13	6	8	7	12	9	7	20	7	6
15	13	6	14	7	10	13	6	10	7	6
16	13	5	8	6	19	>14 <14	6	10	7	6
17	14	7	18	7	10	4	7	14	7	4
18	14	6	12	6	12	13	7	20	7	6
19	14	7	16	7	11	22	7	14	7	4
20	15	7	16	7	12	5	7	14	7	4
21	15	7	20	7	12	12	7	18	7	4

ined were either too young or had too great an impairment of mental capacity to give reliable results. Eleven children had grossly defective vision. Ten of these were syphilitic children with chorioretinitis, optic atrophy and corneal scars from keratitis, one was a child with a marked refractive error who was tested without glasses. In all these eleven cases the children had such poor vision that it was impossible to determine whether any part of their abnormal dark adaptation was due to factors other than their physical defects. One child was excluded because he was too ill at the time of his examination to give results that represented his true state. In the course of this study it was found that falsely subnormal results were obtained from children with rising temperature, severe headache, dizziness, mydriasis or weakness such as follows tonsillectomy.

One hundred and sixty-eight of the 213 children remaining were considered to have normal recovery of light sensitivity under the conditions of the test. For 149 of these the instrument readings were within the limits determined as normal. For fifteen, slightly less light through the instrument was required for the first

reading than the standard accepted as normal, but the second reading was well within the normal limits and the recovery of light sensitivity was good. In the cases of four children, both the first and second readings were outside the normal limits, but the differences between the two showed excellent recovery of light sensitivity in the dark.

For forty-five of the children the instrument readings were of such a character as to indicate poor recovery of light sensitivity. All these children were examined by some member of the ophthalmologic staff of the hospital and in no case was there discovered any indication that the abnormality was other than functional. It was not feasible to keep all these children under observation. However, twenty-one of them were retained in the hospital and were given 3 teaspoonfuls of cod liver oil daily in addition to their regular hospital diet. Without exception, all of them subsequently showed normal results with the dark vision test. The period required for recovery varied from four days to six weeks, with an average of about twelve days. General improvement and ultimate recovery were easily detected by repeated examinations made at intervals of two or three days. No prediction could be made concerning the time required for recovery. Recovery was considered to have occurred when two successive examinations on different half days resulted in normal readings.

INTERPRETATION OF RESULTS

Functional night blindness is well established as a manifestation of vitamin A deficiency. A condition equivalent to a moderate degree of night blindness was observed in a group of children by means of the test that has been described. All the children of this group who were retained under observation subsequently showed normal dark adaptation. The recovery is interpreted as indicating that the original visual defect was functional.

Because of the accepted relationship of functional night blindness to nutrition, the occurrence of recovery while the children were ingesting a good diet with an abundance of vitamin A is believed to constitute evidence that the children of this group had been suffering from vitamin A deficiency. The facts and argument presented are believed to show that the test gives satisfactory evidence of vitamin A deficiency when the results of the test show subnormal readings and when certain recognized conditions are excluded. The conditions that warrant exclusion have been enumerated. It is believed that the test detects relatively mild degrees of vitamin A deficiency because of the short period required for recovery in some of the cases. A recovery period of four or five days would seem to warrant such a conclusion. Results obtained with the test, which are to be classed as normal, constitute evidence that the amount of vitamin A available for the generation of visual purple is adequate. However, we do not have evidence that this amount of vitamin A is optimal for good nutrition, it may be or it may not.

COMMENT

It is assumed that the children with subnormal dark adaptation who were not retained under observation would have reacted in a manner similar to that of the observed group. If this assumption is granted and the evidence is accepted as interpreted, approximately 21 per cent of the children examined had a greater or less degree of vitamin A deficiency. This incidence figure is held to be of no significance, except among children

of the same class, i. e. children of a low economic level who are physically afflicted

In the course of this study it was noted that some children with vitamin A deficiency were mentally alert and in physical appearance were well nourished, others were underweight, appeared malnourished and were sluggish physically and mentally, although not mentally deficient. Still other children appeared as though they were suffering from nutritional deficiencies, but the dark vision tests indicated no deficiency of vitamin A. It was noted, also, that in general the vitamin A deficient children who were retained under observation improved both in physical and in mental well being.

SUMMARY

A test for determining the sensitivity to light following partial dark adaptation was applied to a group of 213 children. Forty-five of them were found to have subnormal dark adaptation, and approximately half (twenty-one) were kept under observation and given a good diet, which included cod liver oil. All who were returned for study regained normal adaptation. The average period required for recovery was twelve days. There are reasons to believe that this test is satisfactory for detecting moderate degrees of vitamin A deficiency.

STUDY OF THE TREATMENT IN ACUTE TETANUS

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The results obtained from the treatment of active tetanus cases are far from satisfactory. Mortality statistics on this disease vary considerably from different sources but lack any constant variation that would indicate a desirability of one form of therapy over another. The only constant variation in these statistics is found in a comparison of cases with long and with short incubation periods. This is well illustrated in the cases of Calvin and Goldberg.¹ They found a mortality of 84 per cent when the incubation was less than five days, of 83 per cent when it was from five to ten days, of 37 per cent when it was from ten to fourteen days, and of 25 per cent when it was from fourteen to twenty-one days.

Until the last few years much clinical investigation has been directed toward determining the most efficacious route of administering tetanus antitoxin. Most failures following any advocated method of treatment have been attributed to an insufficient quantity of serum. The result of this reasoning has been a pyramiding of the antitoxin dosage to unbelievable heights, limited only by the amount of serum available.

This specific treatment with tetanus antitoxin regardless of the route of administration or the amount given has been strangely ineffective in bringing about any marked decrease in mortality. This is remarkable since the prophylactic use of this serum has achieved such brilliant results.

It was with the hope of gaining additional information, which might aid in the treatment of active tetanus, that this study was attempted.

The material used includes all the cases of active tetanus admitted to the Indianapolis City Hospital and

the Indiana University hospitals from 1927 to 1933. These cases were submitted to a critical examination in an attempt to analyze the treatment given and the results obtained. Certain fallacies in the treatment will be pointed out and suggestions made of improvements that might well be instituted.

The patients were quite representative of those applying to a general hospital for treatment after the onset of tetanic symptoms. Their ages ranged from 4 to 63, with 59.4 per cent between the ages of 5 and 15. During the period of our study forty-two patients were treated for tetanus. Of these, five cases were not considered in the study because of a reasonable doubt as to the correct diagnosis from either a clinical or a laboratory standpoint. The remaining thirty-seven were undoubtedly cases of tetanus. This forms a very small series but, nevertheless, one that suggests several striking deductions.

GENERAL CONSIDERATIONS

Before going further it might be well merely to mention some of the pertinent bacteriologic and physiologic aspects that the disease presents. Tetanus is a symptom and sign complex resulting from the irritant effects of tetanus toxin on the central nervous system. Toxin is elaborated from the focus of infection by the anaerobe *Clostridium tetani*. This organism will not live in healthy, sound tissue but requires either necrotic tissue or tissue that is partially devitalized. Such a devitalization is usually accomplished by the introduction of a foreign body along with the tetanus bacteria. From this focus, usually a deep penetrating wound, toxin is produced. It is believed that the toxin is picked up from the blood stream or the focus by the peripheral nerves or their lymphatics. These structures transport the toxin to the central nervous system. Here it has a particular irritative effect on the cells of the hindbrain and cord. The toxic effects are found in the cells of the lower motor neurons, but to a lesser degree. Once combined with the nerve cell, antitoxic serum cannot displace the toxin. Antitoxin neutralizes only that toxin which is free in the blood or tissues. In this limited neutralization lies its only value in cases of active tetanus.

The nerve cells of the central nervous system are hyperstimulated. These cells and the medullated nerve fibers show slight degenerative changes. However, these degenerative changes are not specific and may be seen in other toxemias. The damage produced in the nerve cells by tetanus toxin is not permanent and in this feature contrasts with poliomyelitis, in which much of the damage is permanent. The nervous lesions of tetanus apparently are entirely reversible. With recovery, even from the most desperate cases, complete restoration of function is the rule.

Death in these patients results from exhaustion, spasm of the glottis and convulsion but not from the neurologic lesion produced by tetanus toxin. Patients do not die from the disease itself, as in bulbar poliomyelitis, "but from its symptoms."² The suggestion is made in this connection that if the distributing focus and symptoms are adequately handled the disease will limit itself.

The treatment of active tetanus logically falls into three phases. These are (1) treatment of the local focus, (2) administration of appropriate sedatives and general supportive therapy, and (3) administration of specific antitoxic serum.

From the Department of Bacteriology and Pathology, Indiana University School of Medicine.
¹ Calvin I. K. and Goldberg A. H. The Prognosis of Tetanus. J. A. M. A. 84: 1977-1981 (June 21) 1930.

² Huntington R. W. Jr. Treatment of Tetanus. Yale J. Biol. & Med. 3: 207-233 (Jan.) 1931.

LOCAL LESION

Much has been written about the treatment of the local lesion in tetanus. Thorough careful debridement has universally been advocated. Yet, in our experience, this phase has received but little consideration compared with that directed toward the administration of antitoxin. At least, this would seem to be true in the present series. In twenty-three of the thirty-seven cases, adequate exploration was not done on admission to the hospital. In these there were sixteen deaths (69.6 per cent).

It is a frequently noted fact that the local wound in cases of tetanus may appear quite innocent or may be "healed." This attention is detracted from this initiating cause and directed toward the patient's more active symptoms. Complete local excision of this type of wound has been rightly advocated. There are still prominent texts on the subject³ which teach that "if the wound is healed it should not be disturbed." Just such a procedure was followed in seventeen of our "healed wound" cases. Of these patients, twelve died, a mortality of 70.5 per cent. It is thought that this disastrous outcome was largely due to negligence in appreciating the local wound as the distributing focus of the toxin and hence the cause of the entire tetanic syndrome.

As pointed out by others, it is astonishing how many foreign bodies are found in these innocent appearing or "healed" lesions. That these foreign bodies greatly add to the danger of the disease goes without saying. The following examples taken from our cases illustrate this point.

Two of our patients in an extremely critical condition continued a stormy and downhill course after more than a week of the most intense serum therapy. Both cases appeared to be hopeless. Then quite unexpectedly foreign bodies were extruded spontaneously from the draining wounds. In one patient this occurred nearly two weeks after hospital treatment had been instituted. Immediately after the extrusion, convulsions ceased in both patients and they started on a rapid uninterrupted course to recovery.

These cases point out strikingly the importance of a foreign body in the local wound and how it may enhance local production of toxin and bacterial growth. It seems reasonable to assume that in all cases in which the severity of the disease increases with the patient's stay in the hospital there is an inadequately treated focus that is still elaborating tetanus toxin.

In the twenty deaths, only four autopsies were allowed. These are of interest because of the conditions found in the local wounds. Two of the four cases presented wounds that were "entirely healed." When, however, these were opened and explored each contained a small foreign body surrounded by necrotic tissue and pus containing *Clostridium tetani*. The wound in the third case was not explored by the pathologist because it was "completely healed." In the fourth case a foreign body surrounded by pus and necrotic tissue was removed in the ward the day before the patient reached the autopsy table. This wound likewise yielded tetanus bacilli on culture.

These examples are given to emphasize the importance of the local wound and as an argument against the dictum that "if the wound is healed it should not be disturbed." Tetanus is caused by the local focus and continued by it. The local lesion should therefore

receive primary consideration. Active tetanus is an acute surgical emergency carrying with it a mortality far in excess of most surgical emergencies. It should be treated as such with admission to the hospital by way of the operating room.

In a discussion of the local wounds, our cases caused by "blank cartridges" should not be omitted. There were ten of these, resulting in weeping draining wounds of the hands or fingers. It has often been noted that this type of injury frequently introduces the gun wadding of the cartridge into the wound. The wadding acts as a foreign body, stimulating growth of tetanus bacilli carried in with it. Our cases emphasize this observation. Of the ten cases, eight were searched for gun wadding. In all eight cardboard wadding was found and removed. In the other two a search was not made, and both patients died.

No comment is necessary to the foregoing except perhaps the observation that all blank cartridge wounds contain gun wadding, which should be removed.

It would seem from this discussion that the most logical treatment of the local wound in cases of active tetanus is that used by Tulloch.⁴ He advocated the complete excision of the focus without entering infected tissue. At many sites, of course, this is not feasible. Here the only alternative is ample wide exploration under general anesthesia, with a careful search for debris and foreign bodies.

Opinions differ as to the relative merits of the various dressings or irrigating solutions that have been recommended. Tulloch doubts the value of any particular procedure over any other. He also questions the value of oxidizing agents, such as hydrogen dioxide. Since the wound is infected, it is probable that a hypertonic wet dressing best serves the requirements.

SEDATIVES AND GENERAL CARE

It may again be stated that all deaths in tetanus are the result of one or more of the following: convulsions, spasm of the glottis or diaphragm, exhaustion and respiratory failure. It is obvious that therapy directed to prevent these conditions is of prime importance.

In the past, hypnotics, narcotics and general anesthesia have been used to control these symptoms. Before the advent of tetanus serum, sedatives used and recommended include practically all of those listed in the Pharmacopeia and need not be mentioned. In mild cases of tetanus many of these are of considerable value. In severe cases all either lack sufficient potency or are too transient in their effect.

The ideal sedative drug should produce a quiet restful narcosis which is well sustained for a number of hours. Its physiologic effect must not be exhausting on the patient after continued use. Drugs very close to this ideal have been used in recent years as basal anesthetics and have been advocated in controlling tetanic seizures.

Sodium amytal (sodium isoamylethyl barbiturate) has been used in this capacity.⁵ Avertin (tribromoethanol) has also been used and probably enjoys a greater general popularity.⁶

Both of these drugs are relatively safe and give a well sustained narcosis. In nineteen of our cases,

4 Tulloch W J J Hyg 18 103 (Aug) 1919

5 Mason J T Baker J W and Picher F Jr Sodium Amytal in Surgical Management Am J Surg 9 9 (July) 1930 Smith E R and Call H Value of Sodium Amytal in Tetanus J Indiana M A 24 472 (Sept) 1931

6 Huntington Lwen A Behandlung der Tetanus mit Avertin Zentralbl f Chir 55 194 (Jan 28) 1928 Loewe G Zur Behandlung der Wundstarrkrampfes mit Avertin Deutsche Ztschr f Chir 235 814 1932

3 Kirk N T Tetanus in Nelson Loose Leaf Living Surgery New York Thomas Nelson & Sons 1927 p 467A

sodium amytal was used intravenously to control symptoms. This was quite efficient and proved far more satisfactory than any other medication. There is one point in this use of sodium amytal which is worthy of note and which likewise applies to tribrom-ethanol. The tendency was to give amytal only when convulsions become severe. The drug was then withheld until convulsions again appeared. A more rational procedure would be to continue sustaining doses, keeping the patient under moderate narcosis at all times. In this way the patient might entirely escape severe tetanic seizures and large amounts of sodium amytal or tribrom-ethanol would not be necessary to restore a restful sleep.

The time-honored quiet darkened room is of great importance. It is too often either overlooked or not available. That the average tetanus patient is not kept sufficiently relaxed and quiet is well illustrated by our series. Of the twenty patients who died, fifteen (75 per cent) continued to have convulsions or rigidity up to the time of death. Nineteen of the twenty (95 per cent) were restless and not relaxed.

Since the tetanus patient frequently succumbs to exhaustion, all practical supportive therapy must be brought into action. The fluid intake should be maintained at a high level and elimination watched closely. As the patient usually cannot take sustaining amounts of fluid and nutrition by mouth, these elements must be given by other routes. For this purpose the intravenous and subcutaneous use of dextrose solution and physiological solution of sodium chloride are of invaluable aid.

ANTITOXIC SERUM

The pedestal on which tetanus serum has been placed in medicine is due entirely to its use as a prophylactic measure. Here it is surpassed by none of the specific serums. Ample proof of this was demonstrated in the World War.⁷ Because of these remarkable results, the serum has been viewed with the same faith in the treatment of active tetanus. Here, because of many complex factors, the antiserum fails to duplicate the specific action found in its prophylactic use.

The statement has been made that "tetanus antitoxic serum has done more harm than good in the treatment of active tetanus." This at first sounds like rank heresy. However, there is much truth in the fact that this specific has brought about practices that certainly are detrimental to the patient's welfare. Because of the fact that it has been considered a specific, it has been used in general practice to the exclusion of other phases of treatment. The local lesion has been neglected, as well as general supportive measures and sedatives.

The majority of recent writers have expressed the opinion that, in the care of patients who have already shown tetanic symptoms, tetanus serum is of doubtful value. Perhaps the most valuable statistics along this line have been those of Calvin and Goldberg.¹ These writers found no decrease in the mortality rate at Cook County Hospital despite the ever increasing amounts of serum used. Nor could they find any advantage of administration by one route over any other. In spite of adverse evidence as to its value, the average tetanus patient continues to be loaded with massive doses of serum. Failures are still explained on the basis of insufficient serum. Again the local wound and administration of ample sedatives receive little consideration.

In our series twenty patients died, a mortality of 54 per cent. This high rate cannot be explained because of lack of antitoxic serum. The amount given ranged from 50,000 to 420,000 units. Of twenty-three patients receiving from 50,000 to 100,000 units, twelve died (52.1 per cent). Of ten patients receiving from 200,000 to 420,000 units, two died (20 per cent). These figures would seem to indicate strongly the value of massive doses of serum. On further consideration, however, it is clear that those receiving small total amounts lived but a short time after admission to the hospital. Had their span of treatment been longer, they eventually would have received the massive aggregate doses already mentioned. It is because of this fact that statistics indicating the great value of huge doses of serum should not be accepted without further knowledge of their origin.

Our patients received rather uniform initial doses of antitoxin. These consisted in from 20,000 to 60,000 units in 89 per cent of the cases.

Serum was administered by vein, intramuscularly, and beneath the spinal meninges. All three routes were utilized in the majority of cases. In the light of our own results and those of others it would seem that no particular route holds an advantage over any other, except that intravenous and intramuscular medication make the antitoxin immediately available and there is no delay caused by slow absorption. Intravenous administration is somewhat more dangerous than intramuscular medication, because of anaphylactic reactions and probably no more effective. The intrathecal route would seem theoretically to be more desirable, since the serum causes a nonspecific inflammatory reaction about the spinal nerve roots. Experimental evidence demonstrates that this reaction prevents or retards the absorption of toxin from the nerve trunks.² Clinically no advantage is noted, and this route has the disadvantage of giving delayed absorption by the circulating blood.

A few of our patients received injections of antitoxin into and about the wound site. While this procedure may prevent the absorption of some toxin, it certainly destroys or interferes with the natural barrier of granulation tissue thrown up about the focus. When local injection is used, the serum should be infiltrated at some distance from the actual lesion where it cannot disturb this barrier. Local antitoxic serum nerve blocks have been advocated and would seem to be of considerable benefit.

As previously stated, serum is of value in neutralizing the uncombined tetanus toxin but can be of no aid in removing that already combined with nervous tissue. Much smaller amounts of serum than those generally used are amply sufficient to neutralize the free toxin of the body. In this light it would seem a more rational procedure to give from 30,000 to 60,000 units of serum when the patient is first seen. This dose might be repeated in a week or so, when a decrease of the amount of antitoxin in the tissues has occurred.

With the consideration of serum as an adjunct and not a "specific" in the treatment of active tetanus, more attention will be focused on the local lesion and general care of the patient.

COMMENT

It is hoped that the foregoing has emphasized several phases in the treatment of active tetanus cases not generally appreciated. Treatment should be directed along three well defined lines. These are, in order of their importance, (1) adequate care of the local wound (2) sedative and general care and (3) tetanus antitoxic

⁷ Golla F. Analysis of Tetanus Statistics. *Lancet* 2: 966 (Dec 29) 1917. Sanford A. H. Tetanus and the War. *Bull. Internat. A. M. Museums* Mar 1918.

serum Though mentioned separately here, these must be considered as an inseparable triad in the treatment of the disease. If emphasis is to be placed on any particular phase more than on another, I believe that sedatives and the local focus should receive that consideration rather than the use of antitoxin.

1 *Local Lesion*—Since the local wound causes the disease and continues it, prime consideration should be given to that focus. Whenever possible, immediate complete excision of the wound is recommended. When this is not possible, complete exposure and search for foreign bodies should be done under general anesthesia. The foreign body is a potent factor aiding bacterial growth and continuing the elaboration of toxin. It should not be overlooked. In active tetanus cases it must be considered that the local wound contains a foreign body until proved otherwise. This is particularly true of "blank" cartridge wounds. The local wound of tetanus is an acute surgical emergency and should be treated as such, even though the patient is later admitted to the medical wards.

2 *Sedatives and General Care*—Patients with tetanus die from "their symptoms and not from the disease itself." It therefore follows that if these symptoms can be controlled adequately the patient's chance of recovery is much greater. Tribrom-ethanol or sodium amytal is recommended to induce light narcosis. The suggestion is also made that these drugs be given at regular intervals so as to keep the patient quiet and relaxed. This would seem wiser than to use them only when the patient becomes rigid and is on the verge of a convulsion. Equally important in conserving the patient's strength with sedatives is adequate supportive care. Particular attention must be given so that fluid intake is maintained at a high level and proper elimination is effected.

3 *Tetanus Antitoxic Serum*—The high reputation that this product enjoys is due entirely to its prophylactic use. Here it is a specific in preventing the disease or at least in lengthening the incubation period. In active tetanus it is in no sense a specific, and its value is questioned by many. As the antitoxin is unable to withdraw toxin already combined with nervous tissue, its sole action is to neutralize uncombined toxin in the body. Here it may have considerable value and, until definite proof to the contrary, its use may well be continued. It seems unnecessary to administer the huge quantities used at present. It is recommended that from 30,000 to 60,000 units be given when the patient is first seen. This might be repeated if the case runs a long, protracted course. The intramuscular route of injection is perhaps the most satisfactory.

The conclusion of two workers in this field nearly forty years ago is as pertinent today as it was then: "An ounce of clean surgery is worth several pounds of serum therapy."⁸

⁸ Owens, J. E. and Porter, J. L. Report of Three Cases of Tetanus. *J. A. M. A.* 29: 1004 (Nov. 13) 1897.

Vitamin C—The simplest method of supplying vitamin C to young children is to give orange juice, tomato juice is also a good source, and a still cheaper one is the juice expressed from raw swede turnips. There is some clinical evidence though this is not yet conclusive that a suboptimal supply of vitamin C is by no means uncommon in Western countries, leading comparatively rarely to frank scurvy but being responsible for ill defined states of malaise and lack of energy—Colwell, S. J. *Vitamins in Clinical Medicine Practitioner* 132: 15 (Jan.) 1934.

EPIDEMIC PLEURODYNIA

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During July, August and September 1933, twenty-four cases of epidemic pleurodynia, or "devil's grip," were admitted to the Peter Bent Brigham Hospital and are typical of cases reported in the literature, as well as of those seen at other Boston hospitals¹ and by numerous physicians in private practice in Boston during the same period.

The first outbreak of epidemic pleurodynia was reported in Virginia in 1888 by Dabney.² Since that time epidemics have been reported in New York City in 1923,³ a second one in Virginia in 1923⁴ in Philadelphia and New Jersey in 1924⁵ and in Tennessee⁶ and Massachusetts in 1925.⁷ As described in the literature⁸ the condition is characterized by the abrupt onset of excruciating pain in the chest or the epigastrium aggravated by breathing or by movement of the trunk, tenderness generally over the site of pain, an accompanying rise in temperature to from 100 to 105 F with defervescence within twenty-four to thirty-six hours, in some cases recurrence of the attack, invariable recovery, occurrence in healthy young people of either sex during the summer months and occasional occurrence of several cases in the same family, absence of important pulmonary or pleural physical signs, and a leukopenia or normal white blood cell count. While the symptoms end in many cases with a single paroxysm there is a recurrent type in which the same symptoms recur after an interval of one or more days but in milder form, the total duration being from less than a day to as long as three weeks. The symptomatology may be predominantly thoracic with localization of the pain to either side of the chest, or it may be confined to the upper part of the abdomen, often with rigidity and even simulating an acute surgical condition. The respiratory rate may be slightly or markedly accelerated and shallow. The pulse rate usually parallels the temperature rise and there may be chills, prostration, headache, pains in the extremities and back, anorexia, nausea or vomiting.

DESCRIPTION OF CASES

Twenty-four cases diagnosed as epidemic pleurodynia were observed during the summer of 1933 at the Peter Bent Brigham Hospital thirteen being ward patients and eleven patients in the outdoor department. Discussion of these cases deals only with the first group which has been more completely studied. The second group, however, represents cases similar in all respects to the first.

From the Medical Clinic of the Peter Bent Brigham Hospital.
¹ Crone, N. L. and Chapman, E. M. *New England J. Med.* 209: 1007 (Nov. 16) 1933.

² Dabney, W. C. Account of an Epidemic Resembling Dengue Which Occurred In and Around Charlottesville and the University of Virginia in June 1888. *Am. J. M. Sc.* 96: 488 (1888).

³ Creene, D. Epidemic Pleurodynia. *Arch. Pediat.* 41: 322 (May) 1924.
⁴ Hanger, F. M. Jr., McCov, C. C. and Frantz, A. M. An Epidemic of Mild Fever of Unknown Nature. *J. A. M. A.* 81: 826 (Sept. 8) 1923.

⁵ Payne, G. C. and Armstrong, Charles. Epidemic Transient Diaphragmatic Spasm. A Disease of Unknown Etiology. Epidemic in Virginia. *J. A. M. A.* 81: 746 (Sept. 1) 1923.

⁶ Torrey, R. C. Epidemic Diaphragmatic Pleurodynia or Devil's Grip. *Am. J. M. Sc.* 168: 564 (Oct.) 1924.

⁷ Wood, R. B. An Epidemic of Acute Pleurodynia in Tennessee. *J. Tennessee M. A.* 18: 255 (Jan.) 1926.

⁸ Churchill, F. S., Landis, E. M. and Glusker, S. D. An Epidemic of Undetermined Nature. Dengue? *J. A. M. A.* 87: 821 (Sept. 11) 1926.

⁸ Epidemic Myalgia or Pleurodynia editorial. *J. A. M. A.* 102: 460 (Feb. 10) 1934 gives references to the foreign literature.

Characteristically the disease began abruptly with severe pain in the lower anterior portion of the chest, unilaterally or bilaterally, or in the epigastrium. Pain was generally sharp or stabbing in nature and accentuated by deep breathing or change in position. Coincidentally there was a rise in temperature to from 101 to 104 F. Three of the patients had a severe chill. Cough was extremely rare. The pulse rate rose with the temperature, varying from 90 to 135 per minute at the height of the fever, and averaging 109. At the same time, respirations varied from 22 to 70 per minute, averaging 29. The original fever varied from twelve

pain. Roentgen examination of the chest, including fluoroscopy, of eleven patients when at the height of their symptoms was negative. There was no fluoroscopic evidence of limitation of diaphragmatic excursion or of fluid in the pleural cavity.

The majority of the cases showed an elevated white blood cell count, the highest being 17,300 and the lowest 5,300, with an average of 10,400, on admission. In some previous epidemics there has been a tendency toward a leukopenia. The polymorphonuclear cells varied from 65 to 94 per cent, with an average of 77.7 per cent, the lymphocytes ranged from 7 to 27 per cent, averaging 14.3 per cent, while the monocytes varied from 1 to 16 per cent, with an average of 7.3 per cent. In no case was there an eosinophilia. No intracellular sporozoa were found. Other routine laboratory studies were not remarkable.

REPORT OF CASES

The following are typical case histories.

CASE 1—Dora W., a healthy Negro housewife, aged 28, had an uncomplicated pneumonia at 16 years. The family, past and contact histories were negative for tuberculosis. Twenty hours before admission the patient was seized with severe pain in the left lower part of the chest, radiating toward the sternum and made worse by deep inspiration. There was a short shaking chill and slight dyspnea. The temperature on admission was 101.8 F. Physical examination showed slight splinting of the left side of the chest and diminished breath sounds over the lower half of the left side of the chest, with slight dullness over this area. The left side of the diaphragm appeared to move less than the right. Deep inspiration caused excruciating pain in the left lower portion of the chest. The respiratory rate was 28 and the pulse 100 per minute. The heart was normal and the blood pressure 110 systolic and 85 diastolic. Roentgen and fluoroscopic examinations of the chest were negative. The white blood cell count was 8,900 and the blood smear showed 78 per cent polymorphonuclear leukocytes, 15 per cent lymphocytes and 7 per cent monocytes. Thirty-six hours after the onset, the temperature was normal and remained normal until discharge three days later (chart 1). Slight pain persisted on deep inspiration for twenty-four hours after the temperature reached normal. Examination of the chest eighteen

Chart 1—Fever curve in epidemic pleurodynia showing single paroxysm of fever

to seventy-two hours in duration. In about half of the cases the disease ended with a single paroxysm, but in the other half, after an interval of from twelve to twenty-four hours, the temperature again rose, with exacerbation of the symptoms. In the interval between the peaks, pain was either absent or minimal. In all cases the second and subsequent paroxysms were less severe than the first. One case was remarkable in that after the initial bout of pain and fever there was a recurrence of pain without a simultaneous rise in temperature. In the recurrent type the pain often shifted to the opposite side of the chest, to the shoulder or to the epigastrium. In about three fourths of our cases the disease lasted from five to seven days, the shortest duration was thirty-six hours and the longest seven days.

The age incidence in our group ranged from 12 to 28 years, the former being the lowest age limit in the medical service of this hospital. The youngest patient known to us was a 5 months old infant treated at the Children's Hospital.⁹

The two sexes were equally affected. It is interesting that many of the patients reported a similar illness among other members of their families or neighbors. Two of our patients were nurses. In all but a few cases, physical examination was entirely negative. In a small group however, such indefinite signs as protective splinting of the chest, slight limitation of diaphragmatic excursion, suppression of breath sounds or questionable dullness to percussion were found. Rales were never heard. In one case in which all other changes were quite typical of epidemic pleurodynia there was a transient pleural friction rub. One half of the group showed marked tenderness over the site of

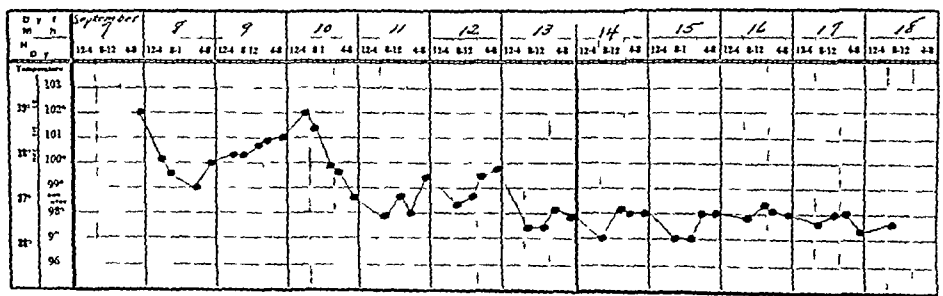


Chart 2—Fever curve in epidemic pleurodynia showing primary and secondary paroxysm of fever

hours after admission showed no physical changes, except splinting with pain on deep inspiration. When seen in the outdoor department three weeks later she was well.

CASE 2—Anna B., a healthy white schoolgirl aged 14, was awakened ten hours before admission by sharp pain in both sides of the chest anteriorly, more marked on the right and aggravated by deep breathing or movement of the body. The family and past histories were irrelevant. There was no cough, only slight nausea and headache throughout the day. On admission the temperature was 102 F, the pulse 100 and the respiration rate 26 per minute. Examination was negative except for tenderness to pressure over the lower right side of the chest. Fluoroscopic examination and roentgenograms of the chest were negative. The white blood cell count was 17,300 and the blood smear showed 90 per cent polymorphonuclear leukocytes, 6 per cent lymphocytes, 4 per cent monocytes and

⁹ McKhann C F. Personal communication to the authors.

0 eosinophils. Twelve hours later the temperature had fallen to 100 F, with slight residual pain (chart 2). Twenty-four hours later the temperature again rose to 102 F with recurrence of the pain, less severe than in the first attack. The temperature then fell rapidly to normal, with complete disappearance of the pain. The temperature remained normal, except for a slight rise to 99 F on the following two days. Two weeks later the patient was well.

The first case represents a single paroxysm and the second illustrates the recurrent type. The picture is not always as clear cut as in the two cases cited and numerous cases were seen in which the diagnosis of epidemic pleurodynia could be neither made nor ruled out. For example a youth aged 18 with a history of intermittent migratory joint pains of five months' duration, complained of pain in the right side of the chest on breathing. Examination showed tenderness in the right lower portion of the chest with spasm and tenderness in the corresponding upper abdominal quadrant. The temperature was normal and roentgen examination showed limitation of the right side of the diaphragm and slight clouding of the right base. A rheumatic etiology could not be ruled out. Three other members of the same family had epidemic pleurodynia a short time previously. Such cases with complicating etiologic factors are not included in our series.

ETIOLOGY

The etiology is unknown. Small¹⁰ observed a plasmodium within the red blood cells of two patients during the epidemic described by Torrey⁶ in 1924. He designated the organism *Plasmodium pleurodyniae*. This finding has not been confirmed in subsequent epidemics. A study of an institutional epidemic by Greene³ showed that the etiologic agent is not carried in water, milk or food. All the 141 cases reported occurred in the boys' unit of the institution which was carefully isolated from the girls' unit. The epidemic appeared to be checked when quarantine was established, and the author concluded that the spread was by contact from one individual to another. Dabney² considered the possibility that the original epidemic might have been an atypical form of dengue modified by climatic difference. This was also considered by the observers of the Cape Cod epidemic in 1925.⁷ Dengue, as such, has not been recognized in New England. The plasmodium described by Small has not been found in the present epidemic.¹¹ Crone and Chapman¹ showed that the intravenous injection of blood from a patient into a normal individual produced no symptoms.

DIAGNOSIS AND TREATMENT

The epidemic nature of a disease is not generally appreciated until the similarity of a group of cases is recognized. Hence, in our own series, although epidemic pleurodynia was considered, the early cases were classified under the more common diagnosis of acute pleurisy. One must not be misled by the apparent epidemic form of chest pain and overlook the more serious forms of pleurisy. Cases of pleurisy or early pneumonia during an epidemic of pleurodynia may present no more physical changes than the latter. Patients with a diagnosis of epidemic pleurodynia should not be readily discharged as cured without further medical observation. The diagnosis is particularly difficult when the patient is first seen a day or more after the

onset when the fever may be slight or absent. It is important during an epidemic to recognize that the abdominal symptoms, particularly in children, might lead to an unnecessary operation. The difficulty in diagnosis of the individual case is not adequately stressed in the accounts of the previous epidemics. The occurrence of complications or sequelae should rule out the diagnosis of this disease. For example, the occurrence of a streptococcal empyema or acute endocarditis as sequelae as reported in the Virginia epidemic of 1923⁴ makes the original diagnosis unlikely.

The treatment in our cases was that of acute pleurisy.
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THE TYPES OF HUMAN HYPERSENSITIVENESS

THEIR RELATIONSHIP TO THE LIABILITY TO
SERUM REACTIONS

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The practicing physician is frequently confronted with problems that may arise following the administration of therapeutic serums. The phenomena that may occur after these injections have been variously designated as hypersensitivity, hypersusceptibility, serum disease, anaphylaxis or allergy. From the standpoint of prevention and treatment however it is as unsatisfactory or inadequate to designate all conditions that may so arise by any of these terms as it is to state that a person has tuberculosis or an enteric fever. This loose usage of these terms in most of the published reports and the placing together of all types of these reactions in one group have been the cause of much confusion and of some fatalities.¹ The physician who has a knowledge of the classification of these reactions can predict and control them satisfactorily, and fatalities can be prevented.

Serum reactions can be divided into three classes (1) immediate, (2) delayed and (3) serum sickness.

The immediate reaction occurs in from several seconds to several hours. In a moderately severe reaction an individual experiences marked apprehension and profuse sweating. Simultaneously the face becomes flushed and the eyes become congested, the lids edematous and the skin covered with urticaria. There is itching of the nose and throat, lacrimation, mucoid nasal discharge, a harsh brassy cough and difficulty in breathing associated with wheezy breath sounds. Nausea, vomiting and general prostration are frequently seen. Any or all of these phenomena may be observed as the reactions vary in severity from very mild to very severe. In fact, the reaction may be so severe that respiratory death may occur in a few minutes.

The delayed type of reaction often referred to in the literature as "accelerated serum disease" of Pirquet and Schick² occurs in from six hours to five days

From the Asthma and Hay Fever Clinic of the Asthma Hay Fever and Allergy Foundation.
Read before the Pediatric Section of the Academy of Medicine of Cleveland Oct. 25, 1933.

¹ Hunt, I. W. Recent Observations in Serum Diseases. *J. A. M. A.* 99:909-912 (Sept. 10) 1933. Toomey, J. A. and August, M. H. Reactions Following Administration of Diphtheria Antitoxin and Toxin Antitoxin Results of Desensitization. *J. Prev. Med.* 4:281-294 (July) 1930.

² Pirquet, Clemens and Schick, Bela. *Die Serumkrankheiten*. Leipzig and Vienna: Franz Deuticke, 1905.

10 Small, J. C. A Protozoan Organism Within the Erythrocytes of Patients Suffering from Epidemic Pleurodynia (Devil's Grip). *Am. J. M. Sc.* 168:570, 1924.

11 McKhann, Crone and Chapman.¹

following the administration of serum, the average time being from twenty-four to forty-eight hours. The symptoms resemble in all respects those of the immediate reaction. The severity, however, is much less and diminishes with the increase in time between the injection of the serum and the development of the reaction.

Serum sickness occurs in from six days to several weeks after the injection of serum. Most of the reactions occur between the seventh and the twelfth day. The reaction may be local (at the site of the injection), general or both. A typical case begins with itching swelling and urticaria at the site of the serum injection, followed within a few hours by a feeling of malaise, pain and stiffness in the joints, generalized itching with urticaria, and tender and swollen lymph glands. In addition, any of the internal organs may be involved in a reaction, giving rise in some cases to laryngeal or bronchial symptoms, in others to acute abdominal symptoms, which must be differentiated from those due to some acute intra-abdominal infection. The condition may be confused with acute rheumatic fever, because of the fever and joint manifestations, or with tetanus, because of the marked muscle stiffness.

Patients can also be divided into three classes with respect to serum reactions: (1) naturally sensitive man or man with atopy, (2) artificially sensitized, or anaphylactic man, and (3) normal man.

There is a voluminous literature dealing with the immunologic aspects of naturally sensitive and anaphylactic man. For the purpose of this paper, however, only those points having immediate clinical importance will be discussed.

Naturally sensitive man is one who has atopy. "By atopy is meant certain clinical forms of hypersensitivity that do not occur, so far as is known, in the lower animals and which are subject to hereditary influence."³ In this group have been included asthma, hay fever and eczema. It is also believed that urticaria, angioneurotic edema and certain forms of food and drug idiosyncrasy may be classified with these.

About 10 per cent of individuals have this heredity.⁴ It is now believed generally that unless an individual has this hereditary influence and background he will not develop the symptoms of atopy.

The reaction in atopy results from the union within or on the surface of body cells of specific antibodies and antigen. The reaction may occur following the first known exposure to the antigen. The antibody of atopy differs materially, as pointed out chiefly by Coca⁵ and his associates, from that participating in anaphylaxis in animals or man.

Artificially sensitized, anaphylactic, man differs from naturally sensitive man in that there is no hereditary influence determining the capacity to become sensitized and that the sensitivity follows the absorption or the injection of an antigen. There is always an incubation period between the first contact and the development of sensitivity. The sensitivity never produces asthma, hay fever, eczema, urticaria or other related clinical manifestations of atopy. The reaction occurs on the injection of the second dose of the antigen and is the result of a union between the antibody and the antigen.

The antibody differs from that found in atopy, as pointed out previously, and is identical with that of anaphylaxis, as seen in experimental animals (guinea-pig, rabbit, dog). Atopic man, like any normal man, can acquire anaphylactic sensitivity but, as pointed out previously, only man with the proper inheritance can develop atopy.

Normal man is one who has neither atopic nor anaphylactic sensitiveness. For the purpose of this discussion the terms atopic, anaphylactic and normal will be used only with respect to the antigen horse serum.

The immediate reaction may occur in man atopically or anaphylactically sensitive to horse serum. It is in the atopic individual that the serious and fatal reactions are apt to occur. In the anaphylactic individual they are usually less severe and it is in this individual that the delayed type of reaction is more likely to occur. Apparently the onset of the reaction and its severity parallel the degree of sensitiveness. This in turn varies with the size of the sensitizing dose of horse serum and the length of the incubation period. The sensitivity is usually at its height in a few weeks following the sensitizing injection and diminishes gradually thereafter, so that the longer the period following the previous injection of horse serum the less likelihood of an immediate reaction there will be following a subsequent injection. In many individuals previously anaphylactically sensitive the interval elapsing before it becomes necessary to administer a therapeutic serum is long enough to allow the sensitivity to disappear completely and the patient reacts entirely like a normal individual.

It is the normal individual who develops serum sickness uncomplicated by immediate or delayed reactions. The exact mechanism of serum sickness is not understood. The frequency of its occurrence increases with the size of the dose of serum given. It is greatest with unpurified and unconcentrated serums. In addition, serums from certain horses produce it more often than those from other horses,⁶ and there is some evidence that it occurs much more frequently when therapeutic serums (antibody containing) are given than when normal serum is given. It is also most frequent following intravenous injection.

According to published reports, some type of serum reaction occurs in from 40 to 100 per cent⁷ of individuals to whom therapeutic serums are given, depending on the size of the dose and the method of its administration. Fortunately most of these reactions are serum sickness, which, while troublesome, is usually harmless. Since, however, it occurs so frequently it is advisable to explain to some responsible person in the family whenever serum is given that serum sickness is apt to occur in a week or ten days, so that it will cause no alarm and no misunderstanding. Death in an immediate reaction occurs about once in 70,000 injections and serious reactions about once in each 10,000 injections.⁸ It is evident, therefore, that if the physician can pick out those individuals who are likely to have serious immediate reactions he need have no fear in giving therapeutic serums to all others needing it.

³ Coca A F. Relation of Atopic Hypersensitiveness (Hay Fever, Asthma) to Anaphylaxis. Review of Recent Literature. Arch Path & Lab Med 1: 96-118 (Jan) 1926.

⁴ Cooke R A and Vander Veer Albert. Human Sensitization. J Immunol 1: 201 (June) 1916. Cooke R A and Spain W C. Studies in Hyper-sensitiveness. Comparative Study of Antibodies Occurring in Anaphylaxis, Serum Disease and Naturally Sensitive Man. Ibid 17: 295-378 (Oct) 1929.

⁵ Park W H and Thorne B. The Result of the Use of Refined Diphtheria Antitoxin, Gibbon's Globulin Preparation in the Treatment of Diphtheria. Am J M Sc. 132: 686-692, 1906.

⁶ Park W H. Human Hypersensitiveness to Whole Horse Serum or Serum Globulins Following Diphtheria Toxin-Antitoxin Injections—Its Importance. J Immunol 9: 17-24 (Jan) 1924. Park and Thorne. J 1909.

⁷ Weaver G H. Serum Disease. Arch Int Med 3: 485-513 (June) 1909.

⁸ Park W H. The Absorption of Antitoxin When Given Intravenously and Subcutaneously, with Suggestions as to the Dosage in Case of Diphtheria and Tetanus. J A Am Physicians 27: 434-441, 1912.

The most important aid in this differentiation is the history. If the patient has a history of asthma or hay fever or other atopy he belongs to the group likely to react, and this is particularly true if he is known to have symptoms on contact with horses, although before one can determine the likelihood of a reaction to horse serum it is necessary to find out whether he has atopy to this substance. The skin and eye tests are useful.

Skin tests are of two types, dermal, or scratch and intradermal. The scratch test is performed by making a linear scratch 1 cm long through the epidermis and placing on it a drop of the undiluted serum that is to be injected. A similar scratch is covered with physiologic solution of sodium chloride. A positive reaction is indicated by the development within thirty minutes of an urticarial wheal with pseudopodia surrounded by an area of erythema, in the absence of any reaction in the area covered with saline solution. If this test is negative it is safe to proceed with the intradermal test which is performed by injecting from 0.01 to 0.02 cc of a 1:100 dilution of the serum into the skin. A similar amount of physiologic solution of sodium chloride is injected into another area. A positive reaction is indicated by the development within ten minutes of an urticarial wheal with pseudopodia surrounded by an area of erythema in the absence of any change in the control. If this test is negative, a similar injection should be made with a 1:10 dilution.

The eye test is performed by placing into one conjunctival sac one drop of a 1:10 dilution in saline solution of the serum at the same time that a drop of physiologic solution of sodium chloride is placed in the other eye. A positive reaction consists of itching, lacrimation, redness of the sclera and conjunctiva, and edema of the conjunctiva and lids. This is the most important of these tests and is the one to use if only one test is to be performed.

In a patient with a history of atopy to horses in whom either the scratch, the intradermal, the eye test or all of them are strongly positive the administration of a therapeutic serum is contraindicated, as a severe reaction is almost certain to follow and it is in this type of case that death occurs.

If there is a history of atopy and these tests are negative, the patient is not atopic to horse serum and is not likely to have a severe reaction. Serum may therefore be given to such a person but precautions to be described later should be taken. Similarly patients who have previously had injections of horse serum and who give very marked reactions to the tests described may receive injections of therapeutic horse serum provided the following precautions are followed:

1. The serum should be injected subcutaneously in an extremity, the thigh or upper arm, so that the rate of absorption can be controlled by a tourniquet.

2. A tourniquet should be placed above the point of injection and should be tightened sufficiently to obstruct the venous return during the injection. One cubic centimeter should be given. The tourniquet should then be loosened but not removed and the effect of absorption observed for five minutes. If any systemic symptoms develop, the tourniquet must be tightened so that no further absorption can occur. Since that amount of reaction parallels the rate of distribution of serum to the reacting cells and this in turn depends on the rate of absorption, the reaction can be controlled by loosening the tourniquet from time to time, allowing a

rate of absorption that is below the reacting level. In addition, the effect of the previously absorbed serum may be controlled by epinephrine.

3. Before injecting serum, one should have a hypodermic syringe loaded with 1 cc of epinephrine hydrochloride solution in a dilution of 1:1,000. After tightening the tourniquet at the first sign of reaction, one should inject from 0.5 to 1 cc of the epinephrine solution intramuscularly above the tourniquet.

4. When no reaction occurs within five minutes, the remainder of the serum can be injected at one time. When there is reaction, controlled as described, the remainder of the serum should be administered in divided doses over a period of several hours, all the precautions being repeated.

"Desensitization" as a method of avoiding serum reactions has been advised by many authors and is attempted by many clinicians. It can never be carried out in the atopic patient, since "desensitization" does not occur in atopy, and any increased tolerance that might be obtained to horse serum would be to an amount infinitely smaller than the therapeutic dose of any serum. Furthermore, it requires many months to produce even this small increase in tolerance. It is also questionable whether anaphylactic man can be "desensitized" rapidly, as is evidenced by the case reports of Tuft¹⁰ and of Blankenhorn.¹¹ For clinical purposes, "desensitization" should be abandoned.

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UNDULANT FEVER

ITS RELATION TO BRUCELLIASIS IN
DOMESTIC ANIMALS

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Brucellosis of domestic animals, or, as it is more commonly known, abortion disease, contagious abortion, infectious abortion or Bang's disease, has long been recognized as a major infectious disease of great economic importance to the live stock industry. This disease is caused by one or more of the varieties of the organisms belonging to the *Brucella* group and is prevalent throughout the entire world.

A febrile disease of man variously termed Mediterranean fever, Gibraltar fever, Corsican fever, Malta fever, undulating fever, and more recently, undulant fever is caused by the same organism that is responsible for brucellosis in domestic animals. Man acquires the disease from infected animals by ingestion of raw, contaminated dairy or meat products or by direct contact with infected animals.

The confusion in nomenclature with respect to the organism involved and the specific disease in both ani-

9. Currie, J. R. On the Supersensitization of Persons Suffering from Diphtheria by Repeated Injections of Horse Serum. *J. Hyg.* 8: 35-60, 1907. Examples of the Immediate and Accelerated Reaction Following Two Injections of Antidiphtheria Serum. *ibid.* pp. 61-64. Friedlander, A. and Runnels, S. C. Reaction Following Use of Antipneumococcus Serum. *Mil. Surgeon* 42: 320 (March) 1918.

10. Tuft, Louis. Fatalities Following Rejection of Foreign Serum. Report of Unusual Case. *Am. J. M. Sc.* 175: 325-331 (March) 1928.

11. Blankenhorn, M. A. Anaphylactic Shock and Failure of Desensitization After Administration of Pneumococcus Type I Serum. *J. A. M. A.* 85: 325-326 (Aug. 1) 1925.

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imals and man is unfortunate and has definitely retarded control work.

In view of the fact that *Brucella* infection occurs primarily in animals and secondarily in man, a thorough knowledge of the disease in both domestic animals and man is necessary before effective prophylactic measures can be instituted by the medical profession for the control of undulant fever.

In order to emphasize the close association of brucellosis in animals and man, a short review of the results of early investigations appears advisable.

During the past century a peculiar febrile disease of man had been noted in the Mediterranean area of southern Europe, a disease that was not typical of the usual febrile disorders such as typhoid or malaria. Marston¹ in 1861 named it Mediterranean or gastric remittent fever. A little later Bruce,² an English army physician, isolated a short coccobacillus from the spleen in a fatal case. By inoculating a monkey with this organism and recovering it, following the death of the monkey in twenty-one days, Bruce definitely proved the organism to be the causative agent of what he termed Malta fever, after the island on which many of the cases occurred.

The work that was done by Bruce has been confirmed many times. He named the organism *Micrococcus melitensis*. In honor of Bruce, the organisms belonging to this group have been given the generic name *Brucella*. By chance, members of the British royal commission who were investigating the disease in the interest of the British army garrisons stationed in that area discovered that a considerable percentage of the blood serums from the native goats reacted positively with the agglutination test. Subsequently the organism *Brucella melitensis* var. *melitensis*³ was found to be present in the blood, milk, urine, feces or uterine discharges of actively infected goats. It was also frequently found in the spleen, liver, mammae and lymph nodes at autopsy. Premature births of the young were common with infected animals. Agglutination tests of 2,000 goats on the island of Malta showed that 40 per cent reacted positively and that 10 per cent of these were eliminating the infective organism in their milk, urine or feces. Army regulations prohibiting the use of raw goat's milk by the soldiers in the garrisons resulted in an abrupt decline in the number of cases of undulant fever among the army personnel. Since the discovery of *Brucella melitensis* var. *melitensis* infection in goats in the Mediterranean area and the fact that it was transmitted from those animals to man with resultant attacks of undulant fever, similar outbreaks have been reported in Mexico and the southwestern part of the United States. *Brucella melitensis* var. *melitensis* infection of goat origin is confined principally to warm climates in which goats are raised for dairy and meat production.

At approximately the same time that Bruce and others were investigating Malta fever in the Mediterranean area, studies were being made in other parts of the world on abortion disease of cattle with no appreciation of any possible relationship between the two

diseases. Bang,⁴ a Danish veterinarian, succeeded in isolating the causative agent of abortion in cattle and proved its infectious nature by animal inoculation.

In 1911 Schroeder and Cotton⁵ reported finding abortion bacilli in milk sold on the open market and suggested that the presence of the organism in a product which was consumed in the raw state by man might result in human infection. Traum⁶ in 1914 recovered the causative agent of abortion disease in swine from an aborted fetus. Evans⁷ in 1918 demonstrated the intimate morphologic, cultural and biochemical relationship of *Brucella melitensis* var. *melitensis* and the organism recovered by Bang from cattle affected with abortion disease. This indicated the intimate if not identical relationship of the two varieties of the organism. Later investigations showed that the organism responsible for abortion in swine belonged to the same group. As the result of the investigations of Evans and others the *Brucella*-like organism originating from goats, cattle and swine came to be considered as varieties of the same genus. Since *Brucella melitensis* var. *melitensis*, which was commonly found in goats and was known to be the causative agent of undulant fever in man, was practically identical with the organism that was responsible for abortion disease in cattle and swine the thought was expressed that the latter varieties might also be the causative agent of the disease in man. In 1924 Keefer,⁸ a physician in Baltimore, reported such a case in a man with undulant fever who had had no contact in any manner with goats. Since that time many similar cases have been reported in all parts of the world, particularly in the temperate zones, in which the source of the infection could be definitely traced to either cattle or swine.

The principal varieties of the *Brucella* group are *Brucella melitensis* var. *melitensis*, *Brucella melitensis* var. *abortus*, and *Brucella melitensis* var. *suis*, which are found primarily in goats, cattle and swine, respectively. The host specificity is not absolute, since each of the varieties has been isolated from other species of animals. Unfortunately any one of the three varieties may, under favorable conditions, affect man and produce a clinical attack of undulant fever. Subvarieties have been reported but are of little importance in relation to disease production, since they are as a rule avirulent.

The *Brucella* group affects a large number of species of animals. It has been reported, either as the result of positive serologic tests or by the isolation of the specific organism, from man, goats, sheep, cattle, swine, horses, mules, asses, dogs, cats and chickens. Under experimental conditions monkeys, turkeys, ducks, geese, pigeons, pheasants, rabbits, guinea-pigs and mice have been found to be susceptible to infection.

For the diagnosis of undulant fever in man and brucellosis in animals, the agglutination and the complement fixation tests are most commonly used. Although they compare favorably in accuracy the agglutination test is generally used on account of its comparative simplicity. This test when set up and interpreted by experienced men is as reliable as any

1 Marston J. A. Report on Fever (Malta) (1861) Great Britain Army M. Dept. Rep. 1863 pp. 486-521.

2 Bruce David. Notes on the Discovery of a Micrococcus in Malta Fever Practitioner 30 161-170 1887.

3 According to Bergey (Manual of Determinative Bacteriology, ed. 3) the correct nomenclature is *Melalgines melitensis* (Bruce) and *Alcaligenes abortus* (Bang). In accordance with popular usage at the present time the author has adopted the nomenclature suggested by Hardy (Bulletin 155 National Institute of Health). Summarized his nomenclature reads as follows: goat variety *Brucella melitensis* var. *melitensis*; cattle variety *Brucella melitensis* var. *abortus*; swine variety *Brucella melitensis* var. *suis*.

4 Bang Bernhard. Die Aetologie des seuchenhaften (infectiosen) Verderbens Ztschr. f. Tiermed. 1 241 1897.

5 Schroeder E. C. and Cotton W. E. The Bacillus of Infectious Abortion Found in Milk 28th Ann. Rep. U. S. Dept. of Agric. 1911 pp. 137-183.

6 Traum J. Report of Bureau of Animal Industry U. S. Dept. of Agric. 1914.

7 Evans A. C. Further Studies on Bacterium Abortus and Related Bacteria J. Infect. Dis. 22 580-593 (June) 1918.

8 Keefer C. S. Report of a Case of Malta Fever Originating in Baltimore Bull. Johns Hopkins Hosp. 35 6-14 (Jan.) 1924.

serologic test in use today. Huddleson⁹ is using to some extent, a method of diagnosis and prognosis of the disease in man based on the principle of the opsonic index. This method, however, is not generally used at the present time. The isolation of the causative organism is desirable, but it is not practical on account of the expense, the time and the large percentage of failures, especially when the disease is due to infection with the abortus variety. Except in rare instances, both clinical symptoms and positive serologic tests are necessary for a definite diagnosis.

The occurrence of active infection and clinical disease following exposure is largely dependent on four major factors: (1) the portal of entry, (2) the virulence of the particular strain or strains of the organism involved, (3) the number of organisms and (4) the resistance of the host.

The digestive tract was formerly thought to be the principal portal of entry of the *Brucella* organism. Experimental work, however, has shown that active infection results with much greater regularity and with a smaller number of organisms following their application to the conjunctiva than by way of the digestive tract. It has been demonstrated that the organism may invade the body through either abraded or intact skin. This is of particular importance to those groups of people whose occupations bring them in frequent contact with infected animals or raw meat or milk products. The digestive tract is still regarded as one of the principal portals of entry, both in man and in animals, particularly in animal to animal infection and in consumers of raw dairy products among the human population.

The virulence of the three principal varieties is important. Since the *melitensis* variety is confined chiefly to goats, it may be disregarded in this section of the country except in rare instances. The goat population in Virginia is small, and a recent epidemiologic study of undulant fever in the state has shown that goats were not a factor in any of the cases studied.¹⁰ *Brucella melitensis* var. *melitensis* infection of goat origin is primarily confined to tropical and subtropical regions where goats are raised extensively for dairy and meat production.

Brucella melitensis var. *abortus* and *Brucella melitensis* var. *suis*, occurring in cattle and swine respectively, are the predominant strains of both animal and human subjects. The lesions produced in guinea-pigs following inoculation with virulent *Brucella melitensis* var. *suis* are usually more extensive and attended with greater mortality than those following inoculation with *Brucella melitensis* var. *abortus*. Occasional strains of *Brucella melitensis* var. *abortus*, however, have been reported which had a virulence comparable with that usually associated with the *suis* variety. Under varying conditions a virulent strain of *Brucella* may become avirulent or an avirulent one may become virulent.

Many individuals may consume milk from an infected dairy for a long period of time or care for infected cattle without showing evidence of infection. If by chance, however, an individual repeatedly gets large doses of the virulent organism, his natural resistance may be overcome, and infection and clinical disease will result.

The question of dosage is especially important with the consumers of raw dairy products. Huddleson¹¹ made bacterial counts of nine samples of infective milk, on which the cream was allowed to rise naturally at refrigeration temperature. The average count obtained was cream, 2187 *Brucella* organisms per cubic centimeter, bottom milk, 3 *Brucella* organisms per cubic centimeter and whole milk, 264 *Brucella* organisms per cubic centimeter. It is evident that an individual who used raw contaminated cream would be much more likely to become infected than one who used whole milk or skimmed milk. The use of dairy products from small dairies is more likely to result in infection for the same reason, owing to the dilution factor. With large herds, milk from the same cow does not go to the same individual every day, and the number of organisms ingested would vary.

If the infective organism has sufficient virulence and gains access to the body in sufficient numbers, it may be able to break down the natural resistance with resultant disease. If, however, the normal resistance is low as the result of some debilitating disease or a recent operation the probability of active infection under given conditions is greater. While securing case histories of undulant fever patients in Virginia, I found, in several instances that the first symptoms were noted shortly following appendectomy, tonsillectomy or some unusual exposure.

Morales-Otero¹² has shown by experiments with human volunteers that infection occurred more readily through the abraded skin than through the digestive tract. Relatively large single doses of the organism that had been isolated for some time produced infection through the abraded skin, while the same cultures, when fed repeatedly in large doses, did not produce infection. Swine varieties were found to be more virulent than bovine and produced infection through the digestive tract when fed in smaller doses than the latter. Morales-Otero was unable to produce infection through the unabraded skin of man, but he did not consider this result conclusive.

Regardless of what the portal of entry may be, the organism penetrates the tissues of the body and enters the blood or lymph streams, remains there but a short time, and then localizes in some organ or organs. It possesses the ability to penetrate the normal mucosa of the digestive tract, the normal conjunctiva, the vaginal mucous membrane, the urethra or the epithelium of the skin.

In cattle and swine the organism has a peculiar affinity for the reproductive organs and the neighboring lymph nodes. Foci of infection, however, may be found in other organs of the body, particularly the spleen and liver. Infection is rarely permanent in any of the organs of the body except in the mammary gland and regional lymph nodes, and even in these it is as a rule only transient, except in mature animals in which the mammary gland is functioning. During lactation the mammary gland offers a favorable location for reproduction, the infective organism being found in one or all four quarters. The live organism may be present in the mammary gland of cattle during the lifetime of the animal and be eliminated either intermittently or regularly in the milk. The presence of an

9 Huddleson I. F. and Johnson H. W. Phagocytosis of *Brucella* an Index of Immunity to Undulant Fever in Man Science 74 315 316 (Sept. 25) 1931

10 Starr L. E. Undulant Fever and Its Relation to Brucellosis in Cattle and Swine in Virginia Tech. Bull. 48 Virginia Agric. Exper. Sta. 1933

11 Huddleson I. F. Hasley D. E. and Torrey J. P. Further Studies on the Isolation and Cultivation of *Bacterium Abortus* (Bang) J. Infect. Dis. 40 352 368 (Feb.) 1927

12 Morales-Otero P. Further Attempts at Experimental Infection of Man with a Bovine Strain of *Brucella Abortus* J. Infect. Dis. 52 54 59 (Jan. Feb.) 1933

almost constantly lactating mammary gland in cattle offers a reservoir for the reproduction and discharge of the organism. In swine the disease tends to be transient and not permanent as it is in cattle.

Brucella infection in the human being apparently follows the same course in the body as in animals, as evidenced by frequent involvement of the reproductive tract. The periodic functioning of the mammary gland and other peculiarities of the host or of the infective organism not thoroughly understood probably preclude the gland acting as a permanent reservoir of infection.

At the time of abortion or normal pregnancy in the case of infected cattle, hogs and goats, the organism is thrown off in myriad numbers with the fetus, placenta, amniotic fluid, and subsequent uterine discharges. Animal-to-animal and animal-to-man infection is most likely to occur at this period. At the time of miscarriages in women as the result of Brucella infection, the same conditions apply. Fortunately such cases among women are rare, and even then modern hygienic practices in most cases eliminate the possibility of the transmission of infection in the human family.

Brucellosis in horses is not manifested by abortion, as is found with goats, cattle and swine but localizes principally in the ligamentum nuchae. Obstinate fistulas involving the ligamentum nuchae, the spinous processes of the cervical and thoracic vertebrae, the scapula and the contiguous structures are relatively common in horses. These fistulas are commonly known as fistulous withers or poll evil, depending on their anatomic location. The Brucella organism, either of the abortus or suis variety, has been found present in the wound discharges from a large percentage of horses so affected. Agglutination tests show most of them to react positively with Brucella antigen. Such animals, even though relatively few, are probably just as dangerous to the attendants as the positively reacting cow at the time of abortion.

Brucella infection in cattle is widespread, having been reported in almost every country in the world in which dairying is practiced. The percentage of infected animals has been found to be greatest in those sections in which dairying is the predominant industry. In such localities it is estimated that from 20 to 50 per cent of the dairy cattle are actively infected. In most of the Southern states, where the dairy industry is of minor importance, the percentage of positively reacting animals is probably much less although little investigational work has been done and with the exception of Virginia, little accurate information is available. In Virginia the proportion of infected dairy cattle is 10 per cent, which is comparatively low. This figure is based on the results of tests of 45,285 cattle. This number is approximately 10 per cent of the dairy cattle population of the state. Calculated on this basis, there are approximately 45,000 positively reacting cattle in Virginia. Experimental data indicate that from 10,000 to 25,000 of these are eliminating the live organism in their milk.

Comparative data are of interest with respect to the percentage of positively reacting cows in herds that have supplied raw dairy products to individuals who subsequently developed undulant fever and in the state as a whole. Seventeen dairy herds consisting of 362 animals that had supplied subsequent undulant fever patients with raw dairy products were tested in Virginia. Of this group 171 cattle or 47.2 per cent,

reacted positively. These results show a decided contrast with those for the state as a whole. They indicate that raw dairy products in some cases act as the transmitting agent of Brucella infection from animals to man and that such infection frequently results in undulant fever.

The results of tests for Brucella agglutinins, as previously reported,¹⁰ are shown in the accompanying tables and in the map.

TABLE 1—Results of Agglutination Tests in 1931 and 1932 for Brucella Agglutinins in Dairy Herds in Virginia as a Whole, and in Herds that Furnished Milk to People Who Subsequently Developed Undulant Fever

Dairy Herds That Have Furnished Milk to People Developing Undulant Fever							
Number of Herds	Number of Cattle	Average Number per Herd	Number Negative	Per Cent Negative	Number Suspect	Per Cent Suspect	Number Positive
17	362	21.2	164	50.9	7	1.9	171
Dairy Herds Tested in Virginia in 1931 and 1932							
Number of Cattle Tested	Number Negative	Per Cent Negative	Number Suspect	Per Cent Suspect	Number Positive	Per Cent Positive	
45,285	39,376	86.85	1,426	3.15	4,533	10.0	

Human Brucella infection originating from swine has been shown to be relatively common in those states in which swine are raised extensively. This is particularly true in Iowa and other states of the corn belt. Agglutination tests of swine serums in various sections of the United States and Canada show that from 10 to 20 per cent react positively in low titers but only about 3 per cent in significant titers, that is, 1 in 100 or over. In Virginia, tests of 1,316 swine serums collected at abattoirs in Richmond, Charlottesville, Lynchburg, Harrisburg and Blacksburg showed that 312, or 23.7

TABLE 2—Results of Agglutination Tests of Swine Serums Collected from Abattoirs in Charlottesville, Richmond, Harrisonburg, Lynchburg and Blacksburg

	Positive*		Suspect†		Negative		Total Number
	Number	Per Cent	Number	Per Cent	Number	Per Cent	
Charlottesville	3	1.9	36	22.6	120	75.5	159
Richmond	38	4.0	203	27.0	546	69.0	792
Harrisonburg	1	0.4	55	20.2	216	79.4	272
Lynchburg	0	0.0	6	15.0	34	85.0	40
Blacksburg	0	0.0	7	13.2	46	86.8	53
Total	42	3.2	312	23.7	862	73.1	1,316

* Titers of 1 in 100 or over

† Titers no higher than 1 in 25 or 1 in 50

per cent, reacted positively in low titers, and 42, or 3.2 per cent, in titers of 1 in 100 or over. It is evident that there is some Brucella infection in swine in Virginia. The clinical histories of the swine herds in the state, however, based on information obtained from many of the veterinarians and state regulatory officials, indicate little active infection.

Undulant fever in man may be classified in part as the result of occupational hazards and in part from ingestion of raw contaminated dairy products.

Epidemiologic data collected by various investigators indicate that approximately 40 per cent of the cases of undulant fever occur among people employed on farms

Farmers, dairymen, herdsmen and their families are exposed to infection almost daily while engaged in their occupational duties. They frequently aid cows at the time of abortion or normal parturition. Retained placentas and persistent uterine discharges are common in infected herds. While they are caring for such animals, the workers' hands and arms become soiled with infective uterine discharges or milk. The organism may penetrate the skin through scratches or abrasions on

TABLE 3—Number of Patients Falling in the Different Occupational Groups

Occupation	Number	Occupation	Number
Farmers	1	County manager	1
Farm housewives	1	Railroad station agent	1
Farm laborers	7	Sales agent	1
Laborers not on farms	2	Railroad foreman	1
City housewives	4	Contractor	1
Teachers	2	School janitor	1
Ministers	1	Cattle dealer	1
Students	6	Occupation unknown	1
Operators, service station	2	No occupation	7
Physician	1		
Veterinarian	1	Total	70
Merchant	1		

the hands or arms or even through the normal skin if the parts are not cleansed promptly. The soiled hands may be inadvertently brushed across the eye with the result that the infection may gain entrance to the body through the conjunctiva. The same hazards are assumed in the care of brood sows at the time of parturition or for horses with fistulous withers or poll evil. The probability of infection in the case of contact with swine, however, is even greater, owing to the fact that the suis variety found in these animals is ordinarily much more virulent than the abortus variety found in cattle. Farmers, dairymen, herdsmen and their families ordinarily use raw dairy products, owing to the lack of pasteurization equipment as well as care for infected animals. Since a large proportion of market milk contains the live, virulent organism, the farm group of the population is exposed to infection not only by direct contact but by the ingestion of raw infective dairy products.

The occupations of seventy patients with undulant fever studied in Virginia are shown in table 3.

Undulant fever has been found to be comparatively common among butchers and abattoir employees. The spleen, liver, kidneys, lymph nodes, and other organs, and at times the blood of infected cattle and swine, frequently contain the live virulent organism. In addition to the organs noted, Feldman¹³ of the Mayo Foundation has recently reported that lesions involving the vertebrae of infected swine are common. Abattoir employees frequently have cuts on their hands from sharp bones or their knives. While they are handling infected meats, the infective organism may enter such breaks in the skin and set up active infection with resultant clinical attacks of undulant fever. This is especially true of employees caring for pork products.

Veterinarians are exposed to infection in its most virulent form, probably more than any other group of people. Almost daily while treating infected cattle and swine during the act of abortion or normal parturition, retained placentas, metritis and mastitis, their arms and hands are exposed to the live organism when it is in

its most virulent state. Similar contact occurs during operations on horses for fistulous withers and poll evil. That such infection does occur is indicated by the results found with agglutination tests of blood serums from veterinarians. In most cases in which tests have been made, from 50 to 60 per cent of the individuals show the presence of *Brucella* agglutinins in their blood serums. Clinical undulant fever is comparatively high among veterinarians.

Erythema brucellum, an allergic reaction characterized by a smooth or papulovesicular erythema on that part of the arm or arms that comes in contact with the female reproductive tract of infected cattle during obstetric operations, is common among veterinarians. The reaction appears shortly after contact and persists for several hours, attended by intense inflammation and itching. With the papulovesicular form the ruptured vesicles frequently become infected with the common pyogenic organisms, resulting in a troublesome skin condition. The reaction continues to appear at irregular intervals for months or even years, until the sensitization of the individual disappears.

In routine agglutination tests of human serums collected during Wassermann surveys and of serums from apparently normal individuals, a small percentage have been found to show the presence of *Brucella* agglutinins in significant titers, 1 in 100 or over, and a much larger percentage in lower titers. In most of these cases the history does not indicate that the individual has ever suffered with clinical undulant fever. Especially striking are systematic agglutination tests of the serums of institutional patients who have used raw dairy products from badly infected herds. The serums of from 20 to 40 per cent of the patients show the presence of specific *Brucella* agglutinins but only a small percentage show evidence of clinical disease. It is probable that a part of the individuals in whose serums specific agglutinins are found have had at some time subclinical attacks of the disease, which were regarded only as a slight indisposition and of little importance. It is evident that specific agglutinins may

TABLE 4—Summary of Tests for *Brucella* Agglutinins with Human Serums in Virginia

Human Serums	Wassermann Group		Abattoir Group		Veterinary Group		Miscarriage in Hospital	
	Num ber	Per Cent	Num ber	Per Cent	Num ber	Per Cent	Num ber	Per Cent
Positive 1 in 25	11	1.0	3	2.2	8	20.0	0	0.0
1 in 50	19	1.8	2	1.5	8	20.0	0	0.0
1 in 100	2	0.2	2	1.5	6	15.0	0	0.0
1 in 200	1	0.1	2	1.5	0	0.0	0	0.0
1 in 400	0	0.0	1	0.7	3	7.5	0	0.0
Positive (1 in 100+)	3	0.3	5	3.7	9	22.5	0	0.0
Suspicious (1 in 25 or 1 in 50)	30	2.8	5	3.7	16	40.0	0	0.0
Negative	1,036	96.9	125	92.6	15	37.5	29	0.0
Total	1,069	100.0	133	100.0	40	100.0	29	0.0

develop in a person following ingestion of raw contaminated dairy products or by coming in direct contact with infected animals, without a recognizable clinical disease developing.

Table 4 shows the results obtained in Virginia with serologic tests of Wassermann serums, serums from abattoir employees, serums from veterinarians, and serums from women who had had miscarriages in the University Hospital at the University of Virginia.

13. Feldman, W. H. and Olson, C. Jr. The Occurrence of Bacteria of the *Brucella* Group in Certain Lesions of the Bones of Swine. Proc. Staff Meet. Mayo Clin. 7: 662-663 (Nov. 16) 1932.

Undulant fever was first recognized as an endemic disease in Virginia in 1927. It was made reportable by the state board of health in 1929. The records show that ninety-two cases were reported from Virginia during the period from 1927 to Jan 1, 1932. During the course of this study, eighty-seven of these cases were investigated. Five of them could not be located, nor could definite information be obtained from the physicians in charge. Sixteen patients were found not to have had symptoms indicative of undulant fever despite the fact that their serums reacted positively in some titer. There were seventy cases on which sufficiently complete information was obtained to justify their inclusion in this series.

Virginia is primarily an agricultural state, with the dairy industry playing an important role in the northern section as well as in the sections around Richmond and Norfolk. The chief agricultural activity along the eastern shore is truck raising, in the south-central section it is tobacco growing, and in the southwestern region it is sheep and beef cattle feeding. There are relatively few goats in the state, and hog raising is of minor importance. Only a few flocks of goats were tested, and no evidence of *Brucella* infection was found.

Of the seventy patients with undulant fever studied in Virginia sixty-four were white and six Negroes. Most of the cases occurred in persons between the ages of 20 and 60. Although the disease is primarily one of late adolescence and adult life, infants and aged people are occasionally affected.

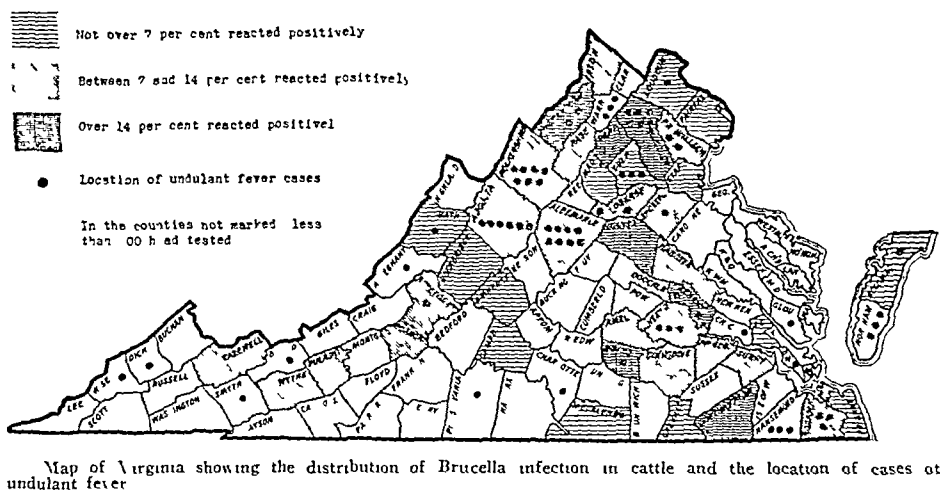
Forty-four, or 62.8 per cent, were males, and twenty-six, or 37.2 per cent, were females. The excess of males over females may be explained by the fact that a much higher percentage of men come in contact with infected animals than do women. With given conditions of exposure, the incidence of infection will be about the same for the two sexes.

The geographic location of the cases in Virginia indicates the close relationship of undulant fever with *Brucella* infection in cattle. For comparison, the location of the cases is shown on the map of Virginia on which the distribution of *Brucella* infection in cattle by counties is shown. The location of cases of undulant fever is indicated by a dot on the map. A large percentage of the cases were found to be in the northern tier of counties which correspond in general with the counties in which the greatest percentage of *Brucella* infection in cattle was found. Pasteurization of milk and cream in the larger towns and cities is evidently an important factor in the control of the disease among the consumers. On the farms and in the smaller towns pasteurization is practiced to a very limited extent.

Brucella infection is primarily a disease of animals. Of the domestic animals only goats, cattle, hogs and possibly horses are of importance in the perpetuation of the disease in nature. Man is accidentally infected either by direct contact with infected animals or their discharges or by the ingestion of raw dairy products

from infected dairy cattle or goats. It is generally considered in the United States that approximately 60 per cent of the cases of undulant fever are the result of the ingestion of raw contaminated dairy products and 40 per cent the result of direct contact with infected animals. In Virginia the source of the infection was found to be of cattle origin.

In view of the wide distribution of brucellosis in dairy cattle and the almost universal use of raw dairy products except in the larger towns and cities, it is difficult for the layman to understand why there are so few clinical cases of undulant fever. This may be explained by the following facts: 1. Most of the strains of the abortus variety originating from cattle are comparatively nonpathogenic. 2. Clinical disease results only following contact with or ingestion of, enormous doses of the abortus variety, except in the case of especially virulent strains. 3. Most people probably have some immunity, either natural or acquired. 4. Under given conditions active infection is less likely to result following ingestion of the organ-



isms than following contact through the eye or the abraded skin.

In sections of the country where hogs are raised extensively, a part of the cases have been found to be of swine origin.

In the southwestern part of the United States where goats are raised extensively which originated from the southern part of Europe, the source of infection has been shown to be largely of goat origin.

It is evident that the source or sources of infection and modes of transmission of undulant fever in the human family will vary in different geographic areas according to the prevailing local conditions of animal and dairy husbandry and the consumption of raw dairy products.

Hardy¹⁴ has reported one case of undulant fever in which the evidence suggested that the infection was secondary to a previous human case. The evidence was not regarded as conclusive. Since the live organisms may be present in the urine, feces and uterine discharges of patients with undulant fever, the attendants should exercise every precaution to prevent possible transmission of the infection.

The control and eventual eradication of undulant fever in man is dependent entirely on the control and eradication of the disease in domestic animals.

¹⁴ Hardy, A. V. The Epidemiology of Undulant (Malta) Fever in Iowa (Preliminary Report). Pub. Health Rep. 43: 2459-2469 (Sept. 21) 1928.

THE SKIN ERUPTIONS OF CODEINE

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Codeine has been in use for the past fifty years and is today one of the most widely employed narcotics. As far back as 1832 it was extracted from opium and in 1881 its chemical formula was determined to be the methyl ester of morphine.¹ Despite its extensive use, proved cases of codeine exanthems due to hypersensitivity are rare. It is not even mentioned by Morrow² in his classic monograph on drug eruptions or by Lewin,³ although the cutaneous manifestations of morphine and opium were well known to these authors.

In 1874, Bardet⁴ studied the comparative effects of codeine, morphine and narceine. Using large doses of codeine (from 0.2 to 0.4 Gm) he found that itching occurred almost constantly in himself as well as in several patients. In two instances he noted a more or less generalized associated erythema, once in himself and once in a female who could not tolerate morphine. These are examples of overdosage of codeine rather than hypersensitivity. In 1893, Pollak⁵ reported an instance in a child, aged 1½ years, who several days after the daily ingestion of codeine (0.002 Gm a day), developed on the face pinhead papules surmounting a red base. The eruption spread to the upper part of the thorax. When the drug was withdrawn, the rash faded in one day. The author stated that this was the first example of a codeine exanthem. This observation is, however, less significant because simultaneously dilated pupils developed, a sign that implies overdosage. In the following year (1894) the first scientifically established case was described by von Essen,⁶ in whose patient, a woman, aged 31, a bright erythema developed on the inner surfaces of the arms, the lateral aspects of the trunk, the abdomen, and the inner sides of the thighs and knees. The rash occurred after the ingestion of a cough mixture containing ipecac and codeine. Only from one-third to one-half grain (0.02 to 0.03 Gm) of codeine had been taken in all. The eruption was at first associated with only slight pruritus. The codeine was removed from the cough mixture, whereupon the erythema disappeared in two days. The patient subsequently received one-third grain of codeine as a diagnostic test. Three hours later she experienced chilly sensations, followed by redness of the hands and a gradual spread of the erythema over the entire body, with the exception of the face. The eruption was of a scarlet red hue, caused intense itching and disappeared in four and a half days, leaving some desquamation. In addition, the patient received one-sixth grain (0.01 Gm) of morphine without any effect. Von Essen therefore not only proved that codeine was the cause of the exanthem but also dem-

onstrated a specific sensitivity in his case. The more recent literature contains only a few additional instances of true hypersensitivity to codeine.

Aside from these, there are several cases in which codeine has been ingested in overdosage either therapeutically, through error, or with suicidal intent. The usual result has been the occurrence of a generalized scarlatiniform eruption associated with severe itching.⁸ However, marked pruritus may be the only cutaneous manifestation,⁹ and occasionally the skin may not be affected at all, with the possible exception of profuse sweats.¹⁰

Despite the rarity of published cases, we feel that there are probably many more instances of codeine hypersensitivity, which go unrecognized merely because this drug is not generally regarded as capable of producing exanthems. The present case is reported in order to attract attention to this cause of drug eruption particularly in those obscure instances in which a scarlatiniform rash occurs. The case possesses other features of interest, which will be subsequently detailed.

REPORT OF CASE

L. H. a woman aged 48 admitted to the hospital Aug 11 1933 had been suffering from malaise anorexia, and severe constant frontal headache associated with a temperature ranging around 103 F for the past week. The onset had been sudden. On the fifth day of illness, petechial spots were noted on the chest and abdomen. On admission she appeared stuporous and acutely ill. The temperature was 105.6, the pulse rate 96 and the respiratory rate 28. Her face lips and nail beds were slightly cyanotic. Rigidity of the neck was not present. She had an occasional nonproductive cough. There was slight dullness at the right base on percussion and fine rales at both bases. The heart was slightly enlarged to the right and the sounds were distinct although of poor quality. The second aortic sound was louder than the second pulmonary sound. The spleen was not palpable. The skin presented the typical cutaneous manifestations of endemic typhus (Brill's disease) characterized by a generalized maculopapular and flat purpuric eruption over the trunk and to a lesser degree on the upper extremities inclusive of the proximal part of the right palm. The individual maculopapular lesions varied in size from a match head to a split pea and many could not be blanched on pressure. There was a suggestive subcuticular mottling. The blood count showed only a moderate secondary anemia.

The further course was characteristic of typhus fever. The rash faded completely within the next two days. By the fifteenth day of illness the temperature had dropped to normal by slow lysis at which time the headache was almost gone and the patient no longer stuporous. The blood culture and the Widal reaction were negative. A Felix-Weil reaction was positive (1:40) on admission but subsequently reached a diagnostic titer (1:320) at a time when the temperature was normal.

August 16 1 grain (0.065 Gm) of codeine was given by mouth as a sedative. That evening the patient complained of itching. On the lower part of the back and abdomen there was an erythematopapular and follicular eruption. By the following day it had spread over the entire abdomen, back and chest and now appeared as a diffuse erythema accompanied by severe pruritus. Careful inspection revealed a definite follicular arrangement with a broad zone of erythema around the individual follicles, the coalescence of which produced a scarlatiniform appearance. Within the next twenty-four hours the rash faded to a great degree but the itching persisted for another day. The diagnosis of the eruption was not clear. The original follicular character of the lesions had suggested prickly heat. The possibility of an enema rash was also considered. The

From the dermatologic service of Dr W. J. Highman Mount Sinai Hospital

1. Robert E. R. Lehrbuch der Pharmakotherapie ed 2 Stuttgart F. Enke 1908 p 479
2. Morrow P. A. Drug Eruptions New York William Wood & Co 1887

3. Lewin Louis. The Incidental Effects of Drugs New York William Wood & Co 1882 translated by W. T. Alexander

4. Bardet G. Paris thesis 1874

5. Pollak A. Therap Monatsh 7: 545 1893

6. von Essen Otto. Therap Monatsh 8: 421 1894

7. Wolters Max. Deutsche Priv 11: 697 1902
Arch f Dermat u Syph 113: 569 1912
120 1926
8. Medvei B. Internat Mhn Rundschau 6: 1457 1892
Freiburg thesis 1926
9. Spratling W. P. M. Rec 44: 81 1893
10. Wagemann H. Arch f Kinderh 75: 12 (Sept) 1924

rapid spread of the eruption with its scarlatiniform appearance and the intense itching was suggestive of a drug rash but the only medicament administered had been a single dose of codeine. Moreover, no one in the medical or dermatologic departments at the time had ever personally observed an eruption after the use of codeine. Nevertheless, the original dose of this drug was repeated orally at night (10:30 p.m.). The patient could not sleep because of the resultant intense itching, and the next morning a widespread scarlatiniform rash was visible over the trunk, abdomen, lower extremities and lower half of the face. It was now clear that we were dealing with an instance of hypersensitivity to codeine. Within the following forty-eight hours the rash disappeared without any desquamation and the pruritus diminished considerably.

Three days later a patch test of codeine phosphate solution (1 grain per ounce) was applied to the right arm at 5:45 p.m. Several hours later the patient complained of a generalized pruritus, which became so severe locally that she removed the patch during the night. The following day the test area was the site of a swollen scarlet red eruption. She also complained of a mild pruritus over the remainder of the body, although there was no corresponding eruption. This could be best explained by the hypothesis that this sensitive individual had absorbed a small amount of the drug through the skin. On the following day, codeine phosphate, pantopon and opium were applied to the left forearm in powder form and Magendie solution (morphine sulphate) to the right forearm, all with negative results.

Blood was taken from the patient in an attempt to demonstrate antibodies. The serum was injected into two normal individuals, each of whom received two wheals in the left arm. About ten minutes later, a few minims of codeine phosphate solution was injected into the upper wheal. The lower one was used as a control. Within five minutes the codeine-serum site showed a marked urticarial effect with widespread erythema and striking pseudopod formation. For a moment it was thought that a positive Prausnitz-Küstner reaction had been obtained until it was found that codeine alone injected into the opposite arm produced the same erythematous-urticarial effect with pseudopod formation. Five other normal individuals reacted similarly to the intracutaneous injection of this drug. In this respect, codeine behaves very much like morphine that has been used to produce wheals artificially. In order to see the effect of the oral administration of codeine on the control serum sites of the two individuals, two doses of one-half grain each of codeine phosphate were administered. The results were negative, there was no itching, general or local, and no eruption.

Further tests were refused by the patient, whose fear of a repetition of the itching prevailed over our endeavors, so that scratch tests, quantitative intracutaneous tests with codeine and its various salts and the Urbach-Komogstein blister method for the detection of local antibodies could not be attempted.

COMMENT

Our case is an instance of true hypersensitivity to codeine, a single dose of 1 grain being sufficient to produce a generalized, severely pruritic, scarlatiniform rash. The eruption could be reproduced at will by the ingestion of the drug. An unusual feature was the positive skin patch test with codeine phosphate solution (erythematous-urticarial reaction) whereas a subsequent similar test with a solution of morphine sulphate was negative. This would seem to indicate a specific hypersensitivity to codeine, which is all the more significant since chemically the latter differs from morphine only in the possession of a methyl group. In the instance recorded by von Essen the patient developed a rash after the ingestion of codeine, whereas morphine sulphate was without effect. Occasionally, however, a patient may be sensitive to both drugs as well as to others (case 2, Wolters).

That patch tests with powders are of little value (apart from those in which the skin is simultaneously scratched with sodium hydroxide) is demonstrated by

the negative reaction to codeine phosphate powder in contrast to the positive result when the same drug was applied to the skin in solution form. A positive skin patch test in instances of drug hypersensitivity is in general very uncommon.

Since codeine appears to be excreted unchanged, the problem of antibody formation is much more simple than in the case of other drug eruptions whose existence seems to depend on decomposition products, for example, phenolphthalein eruptions. In our limited studies, we were unable to demonstrate antibodies in the blood serum, using a modified Prausnitz-Küstner technic (serum locally plus codeine by mouth). The direct Prausnitz-Küstner method (serum and codeine locally) could not be used advantageously, since codeine of itself seems normally to produce an erythematous-urticarial reaction with pseudopod formation when injected intracutaneously, imitating morphine in this respect. Unfortunately, the demonstration of local antibodies in the tissue fluids could not be attempted, a procedure that would have great theoretical interest in instances of codeine hypersensitivity. Kyrle attempted similar experiments in guinea-pigs. From his results, he concluded that the animals injected with serum from a codeine-sensitive individual reacted more strikingly to the further injection of codeine than the normal control animals. However, he admitted that these experiments were not clear cut, since guinea-pigs respond to codeine in a variable fashion. The so-called hypersensitive animals exhibited the symptoms of codeine intoxication, but in no instance could one speak of anaphylaxis. The demonstration of antibodies to codeine or to a hypothetical codeine-protein compound is still lacking.

In nearly all the instances of codeine exanthem, a scarlatiniform eruption has appeared usually within several hours after the ingestion of the drug. In general, pruritus has been associated with the eruption. Usually itching is a major symptom and in our case was so severe that the patient suffered more from its effects than from typhus fever. Itching with or without an exanthem is an almost constant symptom of codeine overdosage. It is occasionally absent in instances of codeine hypersensitivity, as in the case of Kyrle, or it may occur in a second or subsequent appearance of the rash (von Essen). In one instance (case 1, Wolters), the exudative reaction was sufficient to cause swelling of the face, hands and eyelids. In another instance (case 2, Wolters), a morbilliform eruption was reproduced in a patient who had just gone through an attack of measles. Desquamation in the wake of a codeine exanthem is a variable feature. There are no definite instances of an enanthem. When the drug is stopped, the eruption disappears in from one day to several days. If the etiology of the exanthem is unrecognized and the drug is continued, intolerable pruritus and burning of the skin occur with the development of a psychotic train of symptoms. There is no instance of death due to codeine intoxication except in that reported by Wagemann, but in that case an accidental aspiration bronchopneumonia may have been the cause of death.

In our case we were fortunate in observing the original follicular character of the eruption on the trunk. As soon as the rash takes on a generalized scarlatiniform appearance, this morphologic feature is difficult to recognize. The exanthem may be characterized as microfollicular with a broad zone of erythema around individual follicles followed by such rapid

coalescence as to produce a scarlatiniform effect. This point has been emphasized by Dittrich, who believes that the drug is probably excreted unchanged through the follicles.

In one of the cases reported by Dittrich, the eosinophil count increased to 16 per cent. Eosinophilia has been demonstrated in very few drug eruptions, the classic example being the nirvanol exanthems, in which it is practically a constant accompaniment.

SUMMARY

Our proved case of codeine exanthem due to hypersensitivity to this drug is the seventh case reported in the literature. The characteristic rash seems to be follicular in location with a broad zone of erythema around the follicles. The rapid coalescence of the erythema produces a scarlatiniform appearance. Pruritus is usually a striking symptom. An unusual feature of the case reported was the presence of a positive skin patch test. Antibodies could not be demonstrated in the blood. Further work in this direction is required, since our attempt was of necessity limited in its scope.

509 Madison Avenue

STUDIES OF HYPERSENSITIVENESS TO THE EMANATIONS OF CADDIS FLIES (TRICHOPTERA)

IV. DIAGNOSIS AND TREATMENT OF FORTY-THREE CASES OF ASTHMA AND HAY FEVER

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Long before it was demonstrated that the emanations of the caddis fly cause summer asthma and hay fever,¹ these flies were known to be of some economic value. They rank very high as food for fresh water fish. Fishermen use them for bait. The federal government assists in their propagation and distribution whenever it seeks to replenish the fish supply of any fresh water body. It may do this to help the trout in some mountain river or the perch and pike of the Great Lakes. So, while a resident of any city along the Atlantic sea coast may not have contact with these flies at home, a fishing trip or a summer vacation to the Adirondacks or to the Great Lakes will expose him to the emanations of the caddis flies. An interesting example is that of a New York City physician, who reported severe hay fever and asthma while visiting on the lake shore near Erie, Pa., during the summer of 1930. Swarms of flies attracted his attention. He especially noted his symptoms when a fly happened to brush his face. He collected a number of the flies before he returned to New York. For the rest of that summer and all during the year 1931 he had no further symptoms of hay fever or asthma. The flies that were sent to me for identification were caddis flies.

My purpose in this paper is to report a series of cases of caddis fly hypersensitiveness which have been diagnosed and treated during a period of five years, 1928-1932, inclusively. The diagnosis can be made by the usual skin, ophthalmic and passive transfer tests, an aqueous extract of the whole fly being used.¹ The flies were secured from clean sources, such as the use

of insect nets near the Niagara River at night time or catching them on large pans, which were placed on a porch or veranda near an electric light. All extraneous matter was first carefully removed. With a buffered saline solution, a clear brown extract was obtained. The extract was then put up in various dilutions, the total nitrogen content being used as a guide. For routine testing, the method that Dr. Robert A. Cooke and his associates have employed very effectively in their clinic at the Roosevelt Hospital was followed, namely, solutions of 0.001, 0.01 and 0.1 mg. of nitrogen per cubic centimeter were used for the qualitative and quantitative determinations of hypersensitiveness.

Routine tests were made on 694 private patients and 156 patients in the hay fever and asthma department of the Buffalo Eye, Ear, Nose and Throat Infirmary,



Fig. 1.—Habitat and life cycle of the Caddis fly (*Trichoptera*). Its eggs are laid in any shallow fresh water. Several caddis worms are seen on the bottom of this river. A caddis pupal case is floating near the top of the water. Perched on the water lily is an adult fly (natural size) which is just emerging from the water. A moderate wind will drive the flies inland in great swarms. From a printing by Hashime Murayama after Paul Mery. Copyrighted by the National Geographic Society.

Wettlaufer Clinic. The intradermal method was used exclusively. Besides the caddis fly extract, all patients were tested with the inhalants, foods, pollens and a number of miscellaneous allergens. One was considered hypersensitive to the caddis fly only when the skin gave repeated positive reactions and then was confirmed by a positive reaction in the eye, which was produced by dropping a little of the extract on the conjunctiva. To remove any possible doubt, a little "dust" from the wings of the fly was placed on the conjunctiva and almost immediately there followed a reddening and itching of the eye with profuse lacrimation. In every instance of suspected sensitivity in which

¹ Parlato, S. J. A Case of Coryza and Asthma Due to Sand Flies (Caddis Flies). *J. Allergy* 1: 35 (Nov.) 1929.
² Personal communication to the author.

the passive transfer test was performed, the specific caddis fly reagins were readily demonstrated. Of a total of 850 allergic patients who were tested, 43 positive ones were found, an incidence rate of 5 per cent. These figures definitely establish the fact that the allergen is not rare or very uncommon.³



Fig 2—A caddis fly mounted on a glass slide shows how easily it sheds its hair and epithelial emanations. The lighter areas on both pairs of wings indicate the denuded sections. The inhalation of these fine air borne particles cause asthma, hay fever, and even hives. Reduced from a photomicrograph with a magnification of 18 diameters.

Specific treatment produced a hyposensitization or "desensitization," which clinically was evidenced by a complete or at least satisfactory relief of symptoms. The effectiveness of the treatment was put to a severe test, since most of the forty-three patients continued to

TABLE 1—Summary of Results of Specific Treatment for Caddis Fly Hypersensitivity

Number of patients treated with caddis fly extract	32
Complete or over 90% relief	23 or 72%
70 to 90% relief	7 or 22%
Less than 70% relief	2 or 6%
Number of patients who moved from caddis fly habitats (all obtained complete relief)	6
Number of patients who failed to return for treatments (whereabouts not known)	3
Number of patients who were not given specific treatments and had recurrence of symptoms studied as controls	2
Total number of fly sensitive cases	43

* These two patients did not report in time to receive a sufficient number of treatments.

live or work near the habitat of this fly. The injections of the caddis fly extract were given subcutaneously into the arm. The first dose was usually 0.05 or 0.1 cc of the weakest solution that gave a positive skin reaction. The amount was gradually increased by 0.05 or 0.1 cc, depending on the severity of the previous injection.

³ Parlato, S. J. The Sand Fly (Caddis Fly) as an Exciting Cause of Allergic Coryza and Asthma. *Ill. Its Relative Frequency.* J. Allergy 1: 307 (Mar) 1930.

The interval between the inoculations was one week for preseasonal treatment and from three to five days for patients who were seen during the fly season. Only a few constitutional reactions of moderate degree occurred following the injections, and these were promptly relieved by the administration of epinephrine. The number of doses that each patient received varied according to the degree of sensitivity and the amount of contact with the flies which could not be avoided.

TABLE 2—Results of Specific Treatment in Relation to the Caddis Fly Season

Number of patients treated during the fly season (seasonal treatment)	20
Over 90% relief	11
From 70 to 90% relief	7
Less than 70% relief	2
Number of patients treated before the fly season (preseasonal treatment)	9
Over 90% relief	9
From 70 to 90% relief	0
Less than 70% relief	0
Number of patients treated before and during the fly season (combined method)	3
Over 90% relief	3
From 70 to 90% relief	0
Less than 70% relief	0
Total number of treated cases	32

Whenever one reported late in the summer, preseasonal treatments were arranged for the spring months of the succeeding year.

Of the total forty-three diagnosed cases, thirty-two received specific treatments. The high percentage of successfully treated cases, as shown in table 1, leads one to believe that the atopic factor of the fly emanations may be compared to that of horse dander, dog hair and other well known animal air-borne excitants and not to that of the pollens of grasses and weeds which are found in the atmosphere at the same time of the year.



Fig 3—A screen of a roadside refreshment stand taken on an afternoon during the latter part of June, 1931. Within a few minutes the two panels were covered with the tiny flies. (This picture and figure 4 were made by Dr. Herbert J. Rinkel of Kansas City, Mo., while on a visit to the Niagara River with the author.)

A follow-up record of patients who were treated as far back as 1928 and 1929 shows that these patients have had no recurrence of their allergic symptoms although they received no further treatments. I am convinced that permanent relief can be achieved from a single course of treatment consisting of from fifteen to

eighteen graduated doses, which can be administered during any part of the year, preferably before the fly season (table 2)

A number of interesting facts have been elicited from a review of these caddis fly cases. There are thirty-four male and nine female patients in this series. The



Fig. 4—A close up view taken shortly after figure 3 showing how easily the flies made contact with a person standing nearby

ages ranged from 7 to 55 years, the average being 27 years. Thirty-two of the entire forty-three patients reported that their symptoms began before the age of 21. The chief complaints were as follows: Eight patients had hay fever, nine had asthma and twenty-six had hay fever and asthma. Hives and eczema were also reported in nine of these three groups. Another important diagnostic point is that every one of these patients either lived or worked near the habitat of the fly, namely, Lake Erie or the Niagara River. Moreover, it was noted that they all either had allergic symptoms or were made worse from the middle of June to about the middle of September, the time when the flies appear. As a matter of fact, twenty-six of the thirty-two treated patients applied for medical aid during these months, usually on the day after a fresh storm of flies was encountered.

This hypersensitivity is apparently readily acquired through exposure to these flies. In one case, the family history is unknown because the patient was deserted by both parents soon after birth. Fourteen, or one third, of the remaining forty-two patients reported a positive heredity, and in only one instance both parents were allergic. In striking contrast, twenty-eight, or two thirds, gave a negative family history. Cooke and Vander Veer,⁴ Spain and Cooke,⁵ Balyeat⁶ and Rowe⁷ reported a positive heredity in from 48 to 56 per cent of their allergic cases. In view of the generally accepted concept that the allergic state is inheritable and, on the other hand, that the percentage of positive family history in this series is low, there is ample justification for the belief that hypersensitivity to the caddis fly can be acquired.

A problem that allergists are confronted with every day is the management of multiple sensitive patients. Often it is difficult to decide which is the primary or most important excitant. In this series there was a total of sixteen cases in which the caddis fly was the only exciting cause. In nine others it was found to be the principal etiologic factor, while in the remaining eighteen it was considered a contributory factor. The best results with specific treatment was obtained in the first and second of these groups. In the third group, the truly multiple sensitive cases, it was necessary to augment the caddis fly treatments with injections of extracts of other air-borne excitants and with a careful rearrangement and supervision of the diet.

SUMMARY

1 The caddis fly has a wide distribution in America and Europe. The numerous lakes and rivers in the United States are the habitats of this common fly.

2 Its emanations are made up of scaly epithelium and easily identified hairs. These emanations are readily shed. They are very variable and are found in the air in considerable quantities during the summer months. Allergic symptoms are caused by the inhalation of these fine particles.

3 In a series of 850 allergic patients who were tested during the years 1928-1932 inclusive, forty-three or 5 per cent, were found to be hypersensitive to the caddis fly.

4 Thirty-two patients received inoculations of the caddis fly extract. The results indicate that specific treatment can be effectively given during as well as before the fly season, although the latter is recommended. A follow up of these patients has shown that

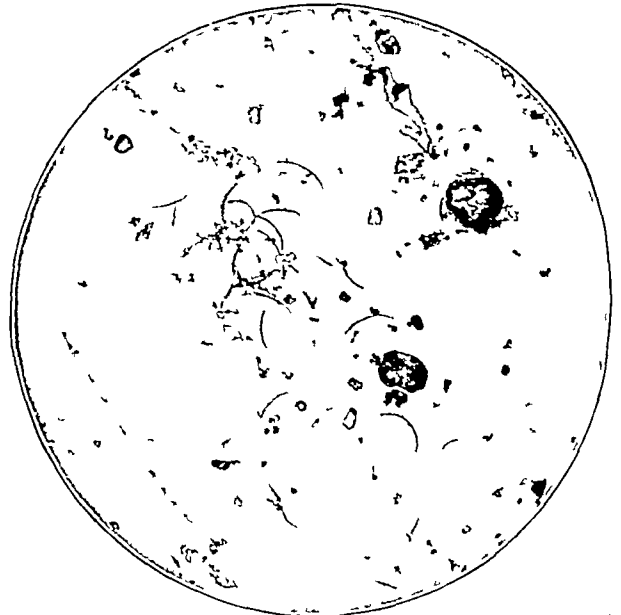


Fig. 5—A pollen plate was exposed in a park in Buffalo near the Niagara River. The presence of these flies in any community can be determined by looking for the crescent shaped hair on glass slides that have been exposed for twenty-four hours during any of the summer months. Reduced from a photomicrograph with a magnification of 700 diameters.

the hyposensitization or "desensitization" has endured as long as four years. It is substantially believed that one course of treatment will render a patient permanently free from allergic symptoms.

5 Caddis fly sensitivity should be remembered when one is considering the etiology or the exciting causes of

⁴ Cooke R. A., and Vander Veer, Albert J. *J. Immunol.* **1**: 201 (June) 1916.

⁵ Spain W. C. and Cooke R. A. *J. Immunol.* **9**: 521 (Nov.) 1924.

⁶ Balyeat R. M. *South M. J.* **21**: 554 (July) 1928.

⁷ Rowe A. H. *The Treatment of Bronchial Asthma* *J. A. M. A.* **84**: 1902 (June 20) 1925.

a patient whose asthma and hay fever occur or are worse during the summer months and whose residence or employment brings him in contact with these flies. It is believed that a complete diagnostic study of this group of patients will reveal additional cases of caddis fly hypersensitiveness in other sections of this country and Canada.

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PROTOZOAL INFESTATIONS OF AMERICAN INDIAN CHILDREN

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That amebiasis and other protozoal infections are conditions not peculiar to tropical countries, but are frequently encountered in all temperate climates, is a fact amply verified wherever careful observations have been made. Through the work of Boeck and Stiles,¹ Meleney, Riley,² Faust³ and others, a large body of information has been accumulated relative to the prevalence of intestinal protozoa in the white race of the United States. Furthermore, Meleney, Bishop and Leathers⁴ have obtained considerable data on these infections in the Negro population of Tennessee.

Notwithstanding the information made available by the aforementioned studies, little is known in regard to the prevalence of these infections in the North American Indians. Two principal reasons probably account for this fact. In the first place, most of the large Indian reservations are relatively isolated from centers of research in parasitology. And, secondly, amebic dysentery is either of rare occurrence in the native Indians, or, if common, it has never commanded public attention. With these facts in mind, it seemed worth while to make a survey of some of the Indians in Wyoming for intestinal protozoa. The data here presented are the results of an examination of eighty-three Indian boys between the ages of 6 and 17 and of seven adults.

SOURCE OF MATERIAL

The individuals examined in this survey were members of the Arapahoe tribe who live on the Shoshone Indian Reservation in central Wyoming.

The sanitary and hygienic practices of these people are not unlike those found among most American Indians. The greater percentage of them live in mere shacks and only a few possess comfortable houses. Modern plumbing fixtures are not found in their homes. A few have outdoor privies, but a greater number of the families defecate in some convenient place of concealment near the home. In matters of personal cleanliness they are equally careless.

On that part of the reservation occupied by the Arapahoe tribe is located the St Stephens Mission

School for Indian children. The eighty-three boys examined were taken from the group of children in attendance at this institution, while the seven adults were residents of the vicinity.

METHODS OF STUDY

The St Stephens Mission School is located approximately 250 miles from the University of Wyoming. Fecal samples were collected in suitable containers and shipped to the zoology department of the university, where all microscopic examinations were made. The stools were from two to five days old when received in the laboratory, thus only those species of protozoa which encyst were detected. In making the microscopic examinations a technic essentially the same as that used by Meleney was employed. This method consists of emulsifying the fecal sample in water, concentrating the cyst with a centrifuge, and then staining with an iodine solution. The preparation was then examined with a Spencer binocular microscope, 15 power oculars and the 4 mm objective being used. In all doubtful infestations of *Endamoeba histolytica* fecal smears were fixed in Shaudinn's fluid and stained with iron hematoxylin.

The eighty-three boys were examined on an average of 12 times each, while only one stool sample was secured from each of the adults.

PRESENTATION OF THE DATA

An analysis of the results show that seventy-eight, or 93.9 per cent, of the eighty-three boys were positive for one or more species of intestinal protozoa. In these seventy-eight positive cases there were a total of 174 separate infestations, or an average of 2.2 species per positive case. The number of separate infestations and incidence of each species is given in table 1. Since these data are based on an average of 12 examinations per individual, the percentages are lower than the actual incidence of each species under consideration. Yet, when no attempt is made to correct the results to a six-examination basis, as Kessel and Svensson,⁵ and Faust³ have done, the incidence figures in table 1 stand

TABLE 1—Incidence of Intestinal Protozoa in Eighty-Three Indian Boys from the Arapahoe Tribe in Wyoming

Species of Protozoa	Number Infested	Percentage Infested
<i>Endamoeba coli</i>	57	68.6
<i>Iodolimax pava</i>	46	55.4
<i>Iodolimax williamsi</i>	29	34.9
<i>Endamoeba histolytica</i>	22	26.5
<i>Giardia lamblia</i>	18	21.6
<i>Chilomastix mesnili</i>	2	2.4

among the highest on record for any group of individuals to be studied in a temperate climate, and they are in many cases as high as those recorded from natives in the tropics.

The incidence for *Endamoeba histolytica*, as reported from different regions in the United States, is seldom over 10 per cent. Therefore the figure of 26.5 per cent for this species in the Indian children is extremely high and appears to be exceeded only by the data of Meleney, Bishop, and Leathers,⁴ who report an incidence as high as 41 per cent for certain communities in Tennessee. As compared with data from tropical countries, Hegner, Johnson and Stabler⁶ give 16 per

From the Department of Zoology, University of Wyoming.
1. Boeck, W. C. and Stiles, C. W. Studies on Various Intestinal Parasites (Especially Amoebae) of Man. Bull. 133 Hyg. Lab. U. S. P. H. S. 1923.

2. Riley, W. A. Protozoal Infestation of Ex-Servicemen in Minnesota. J. A. M. A. 92: 1661-1662 (May 18) 1929.

3. Faust, E. C. A Study of the Intestinal Protozoa of a Representative Sampling of the Population of Wise County, Southwestern Virginia. Am. J. Hyg. 11: 371-384 (March) 1930.

4. Meleney, H. E., Bishop, E. L., and Leathers, W. S. Investigations of *Endamoeba histolytica* and Other Intestinal Protozoa in Tennessee. III. A State-Wide Survey of the Intestinal Protozoa of Man. Am. J. Hyg. 16: 523-539 (Sept.) 1932.

5. Kessel, J. F. and Svensson, Ruth. A Survey of Human Intestinal Protozoa in Peking, China. China M. J. 38: 961 (Dec.) 1924.

6. Hegner, R. W., John, C. M., and Stabler, R. M. Host Parasite Relations in Experimental Amoebiasis in Monkeys in Panama. Am. J. Hyg. 15: 394-443 (March) 1932.

cent for 156 natives in Panama Faust and Wassell⁷ report it in 50 per cent of fifty-seven Chinese hospital patients Faust⁸ found it as high as 72.7 per cent of the population in certain unsanitated areas in Panama.

In comparing the total incidence percentages of different protozoan surveys, a figure known as the protozoan percentage incidence has come into use. This

TABLE 2.—Comparison of Percentage Positive and Average Number of Infestations per Positive Case in Various Surveys

Individuals Examined	Total Number Examined	Percentage Positive	Average Number of Infestations per Positive Case
Present survey of 83 Indian boys	83	93.9	2.00
Faust ⁸ Virginia	469	53.9	1.41
Riley ⁹ ex-service men in Minnesota	500	22.4	1.20
Faust and Wassell ⁷ Wuchang China	57	73.7	1.80
Owen ¹⁰ orphanage in Oregon	42	71.0	1.86
Boeck and Stiles ¹ United States	8,029	1.9	1.4
Boeck ⁶ industrial school children in United States	83	77.1	1.71
Hegner, Johnson and Stabler ⁵ native Panamanians	156	1.0	1.63

figure is computed from the total number of individuals examined and the total number of infestations. Thus both positive and negative cases enter into its derivation. It is believed that a better method in comparing such incidence data is to use two figures, namely the percentage positive and the average number of infestations per positive case. The percentage positive tells how general infestations are in the group examined while the average number of infestations per positive case expresses the degree of occurrence or the frequency of multiple infestations of intestinal protozoa as a whole. These two figures give in a quantitative manner both the spread and the intensity of infestations in the subjects examined. A study of these comparable data, which have been compiled from various sources and presented in table 2, reveals the significant fact that both the percentage positive and the average number of infestations per positive case are higher for the eighty-three Indian boys than for any of the other groups. The only comparable figures in the series are those of Faust and Wassell⁷ for the fifty-seven Chinese hospital patients, of Boeck⁶ for the industrial school children, and of Owen¹⁰ for the orphanage children in Oregon.

The frequency with which multiple infestations were encountered is worthy of note. A study of table 3 shows that in twenty-six cases a single protozoan species was found, in twenty-six cases two species were noted, in ten patients three species were present, in fourteen cases four species and in two cases five species were discovered. These data show that only 33 per cent of the positive individuals were harboring a single species, while 67 per cent had two or more separate infestations.

Of the seven adult Indians examined, only two were positive and both of them showed double infestations. One, a man, aged 36, was harboring *Endamoeba coli* and *Iodamoeba williamsi*. The other, a man, aged 86, was infested with *Endamoeba coli* and *Endolimax nana*. These data are not sufficient to draw any conclusions in regard to protozoan infestations in the adult Indians.

7 Faust E. C. and Wassell C. M. Preliminary Survey of the Intestinal Parasites of Man in the Central Yangtze Valley. *Chung M. J.* 35: 130, 1921.

8 Faust E. C. The Incidence and Significance of Infestations with *Endamoeba histolytica* in New Orleans and the American Tropics. *Am. J. Trop. Med.* 11: 231-237 (May) 1931.

9 Boeck W. C. A Protozoan Survey of an Industrial School for Boys and Girls. *J. Parasitol.* 7: 191, 1921.

10 Owen W. B. Protozoan Infestations of Children. A Study in an Orphanage in Oregon. *Northwest Med.* 31: 186-188 (April) 1932.

GENERAL COMMENT

Since these eighty-three Indian boys were in residence at the mission school during the period in which the examinations were made, it might be inferred that they represent typical institutional cases. However, it should be noted that they make frequent visits with their families during the period in which school is in session and all of them spend the summer months at their homes on the reservation. The mission school is equipped with every modern convenience. The children live in dormitories provided with drinking fountains and shower baths. They dine in a mess hall that reflects every aspect of cleanliness. A comparison of the sanitary and hygienic practices which the children are compelled to observe at the mission school with those prevalent among the Indian families leads to the belief that a large percentage of the positive cases are infested while at home.

The incidence of 26.5 per cent for *Endamoeba histolytica* in the eighty-three Indian boys raises the question of whether it is not of common occurrence in all the American Indian tribes. Certainly, their sanitary and hygienic practices represent optimum conditions for the propagation of all intestinal protozoa.

As regards the question of how many of the cases positive for *Endamoeba histolytica* presented a history of dysentery or other disorders symptomatic of amoebiasis, we were not able to determine. Yet it is not likely that the American Indian as a race is totally immune to the pathogenic propensities of this organism. If this is true it is indeed an exception to our knowledge of the biology of this species.

TABLE 3.—Frequency of Multiple Infestations and Various Combinations of the Six Species of Protozoa Encountered in the Eighty Three Indian Children

Species and Manner of Combinations	Time Occurred
Single Infestations	10
<i>Endamoeba coli</i>	3
<i>Endamoeba histolytica</i>	6
<i>Endamoeba nana</i>	4
<i>Giardia</i>	3
<i>Iodamoeba</i>	3
Double Infestations	26
<i>Endamoeba coli</i> and <i>Endamoeba histolytica</i>	3
<i>Endamoeba coli</i> and <i>Endamoeba nana</i>	1
<i>Endamoeba coli</i> and <i>Giardia</i>	2
<i>Endamoeba coli</i> and <i>Iodamoeba</i>	4
<i>Endamoeba histolytica</i> and <i>Endamoeba nana</i>	1
<i>Endamoeba histolytica</i> and <i>Giardia</i>	1
<i>Endamoeba nana</i> and <i>Iodamoeba</i>	3
Triple Infestations	10
<i>Endamoeba coli</i> , <i>Endamoeba histolytica</i> and <i>Endamoeba nana</i>	1
<i>Endamoeba coli</i> , <i>Endamoeba histolytica</i> and <i>Iodamoeba</i>	2
<i>Endamoeba coli</i> , <i>Endamoeba nana</i> and <i>Giardia</i>	4
<i>Endamoeba coli</i> , <i>Endamoeba nana</i> and <i>Iodamoeba</i>	4
<i>Endamoeba coli</i> , <i>Giardia</i> and <i>Iodamoeba</i>	1
Quadruple Infestations	14
<i>Endamoeba coli</i> , <i>Endamoeba histolytica</i> , <i>Endamoeba nana</i> and <i>Giardia</i>	1
<i>Endamoeba coli</i> , <i>Endamoeba histolytica</i> , <i>Endamoeba nana</i> and <i>Iodamoeba</i>	4
<i>Endamoeba coli</i> , <i>Endamoeba nana</i> , <i>Giardia</i> and <i>Iodamoeba</i>	1
<i>Endamoeba coli</i> , <i>Endamoeba nana</i> , <i>Iodamoeba</i> and <i>Chilomastix</i>	1
Quintuple Infestations	2
<i>Endamoeba coli</i> , <i>Endamoeba histolytica</i> , <i>Endamoeba nana</i> , <i>Giardia</i> and <i>Iodamoeba</i>	1
<i>Endamoeba coli</i> , <i>Endamoeba histolytica</i> , <i>Endamoeba nana</i> , <i>Giardia</i> and <i>Chilomastix</i>	1

These data also raise the question of whether *Endamoeba histolytica* is not a contributing factor to many of the intestinal disorders so common among American Indians. Work¹¹ states that the most common disorders affecting the mass of Indians are those of the gastro-intestinal tract. These disorders, he believes, are due to faulty feeding in infancy. The data at hand offer no proof that *Endamoeba histolytica* is widely distributed among the American Indians or

11 Work Hubert. Indian Medical Service. *Mil. Surgeon* 55: 425-428 (Oct.) 1924.

that it is a contributing factor in common disorders of the gastro-intestinal tract, yet the suggestion is so apparent that physicians on the Indian reservation should bear in mind the possibility of the presence of *Endamoeba histolytica* in making a diagnosis of all obscure intestinal complaints

SUMMARY

1 Stool samples from eighty-three Indian boys of the Arapahoe tribe in Wyoming have been examined for intestinal protozoa

2 Of these patients, seventy-eight, or 93.9 per cent, were positive for one or more species of intestinal protozoa

3 These seventy-eight positive cases presented a total of 144 separate infestations, or an average of 2.2 species per positive case

4 *Endamoeba histolytica* was present in 26.5 per cent of the total number of cases examined

5 These data raise the question of whether *Endamoeba histolytica* is not widespread among the North American Indians and a contributing factor in many gastro-intestinal disorders in these people

DIPHTHERIA TOXOID

COMPARATIVE IMMUNIZING VALUE WITH AND WITHOUT ALUM, AS INDICATED BY THE SCHICK TEST

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AND

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The work here reported was done with diphtheria toxoid furnished by Dr. William H. Park, director of laboratories and research, of the department of health of New York. Its purposes were

To test the relative immunizing value of a given diphtheria toxoid, with and without the addition of alum

To find the optimum dosage as to the amount and number of doses of both products

To establish the most desirable interval between doses for group immunization

To review the results previously obtained with commercial toxin-antitoxin in Chicago

Identical lots of diphtheria toxoid of high antigenic value were employed, to one of which 0.2 per cent of alum had been added. The dosages were a single dose of 1 cc of both alum and nonalum toxoid, two doses of 1 cc each of both products at intervals of one week, and of three weeks, and three doses of 0.5 cc, each of both reagents at intervals of one week.

The results of the tests indicate that the Park alum toxoid was somewhat more effective in producing immunity than the same lots of toxoid containing no alum. This was most noticeable in the series utilizing two doses of 1 cc each at an interval of one week.

In this series, 96.1 per cent of 295 children were immunized by the Park alum toxoid in two months, and 100 per cent of 254 children in six months, as compared with 94.6 per cent of 263 children in two months and 95.9 per cent of 213 children in six months, the same lot of Park toxoid without the alum being used.

The results likewise indicate that there is no decided advantage in using an interval of three weeks between

doses as compared with an interval of one week. The percentages in the series in which two 1 cc doses were used did not show any significant difference for either time interval in producing negative Schick reactions. Yet, for administrative purposes in the handling of groups, the shorter interval between the doses is obviously more desirable.

Three doses of 0.5 cc each of Park alum toxoid at weekly intervals were less effective than two doses of 1 cc each of a similar reagent at an interval of one week. The former series gave 94.2 per cent of immunes at two months and 96.8 per cent at six months, as compared with 96.1 per cent in two months and 100 per cent in six months in the latter series.

TABLE 1—Experiments on Park Alum Toxoid Immunizations

	Schick Test Percentage			
	Negative	Positive	Immune	Non Immune
Group 1—Given two doses 1 cc each of Park alum toxoid at an interval of three weeks				
Two months after last injection	356	13	96.5	3.5
Six months after last injection	362	7	98.1	1.9
Group 2—Given two doses 1 cc each of Park toxoid without alum at an interval of three weeks				
Two months after last injection	217	16	93.1	6.9
Six months after last injection	167	6	96.5	3.5
Group 3—Given two doses 1 cc each of Park alum toxoid at an interval of one week				
Two months after last injection	295	12	96.1	3.9
Six months after last injection	254	0	100.0	0.0
Group 4—Given two doses, 1 cc each of Park toxoid without alum, at an interval of one week				
Two months after last injection	263	15	94.6	5.4
Six months after last injection	213	9	95.95	4.05
Group 5—Given three doses 0.5 cc each of Park alum toxoid at intervals of one week				
Two months after last injection	194	12	94.2	5.8
Six months after last injection	149	5	96.8	3.2
Group 6—Given three doses 0.5 cc each of Park toxoid without alum at intervals of one week				
Two months after last injection	182	53	77.4	22.6
Six months after last injection	37	10	78.7	21.3
Group 7—Given one dose 1 cc of Park alum toxoid				
Two months after injection	173	129	50.8	49.2
Six months after injection	183	67	73.2	26.8
Group 8—Given one dose 1 cc Park toxoid without alum				
Two months after injection	116	120	49.2	50.8
Six months after injection	137	30	82.0	18.0

TABLE 2—Toxin-Antitoxin Series

	Schick Test Percentage			
	Negative	Positive	Immune	Non-immune
Given three doses of 1 cc each of commercial diphtheria toxin antitoxin at intervals of one week				
Over one year after last injection	218	85	72.0	28.0

The series in which one dose only of both reagents was used was decidedly less effective in producing the desired immunity. A single dose of the Park alum toxoid produced immunity in but 50.8 per cent in two months and 73.2 per cent in six months. The figures for the Park toxoid without alum for one dose only were 49.2 per cent in two months and 82 per cent in six months.

These lots of diphtheria toxoid, both with and without alum, when given in proper dosage, proved to be considerably more effective than three doses of the commercial toxin-antitoxin formerly used in Chicago, which in a series inoculated a year or more prior to the Schick tests, showed but 72 per cent of immunes. These treatments had been given at intervals of one week.

DYSENTERY

REPORT OF THREE CASES IN ONE FAMILY DUE
TO ATYPICAL *BACILLUS DYSENTERIAE*
AND *ENDAMOEBIA HISTOLYTICA*

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NEW ORLEANS

Much attention has been drawn to the outbreak of acute colitis in persons who visited Chicago from June until November 1933. Interest has been intense, owing to the severity of the colitis and the fact that the mortality rate has been so great.

Investigators who have reported thus far point to the presence of *Endamoeba histolytica* as the causative agent of this particular acute colitis.

An interesting point in these fulminating cases of dysentery has been the failure to find *Endamoeba histolytica* in the early stages of the disease. Lund and Ingham¹ reported four fatal cases of amebiasis in which the ameba, although carefully searched for, was not discovered until autopsy. In my two cases, *Endamoeba histolytica* did not make itself evident until two and one-half months after the onset of the illness. This brings out the possibility of a double infection existing, with the ameba making its appearance late. The suggestion may be that this was due to the relatively long incubation period of *Endamoeba histolytica*.

The cases to be reported were all associated with high fever, leukocytosis, prostration, and signs and symptoms of an acute condition of the abdomen. This is unusual in cases of amebiasis per se and, as expressed by Craig,² is probably due to an associated infection, usually the bacillary dysentery group. This proved to be true in my cases, in which *Bacillus dysenteriae*, described by Schorer and Duval³ in 1904, was isolated sixty days before the discovery of *Endamoeba histolytica*.

REPORT OF CASES

The mother, father, daughter and the mother's sister, all apparently well, attended the world's fair in Chicago during the early part of August 1933. During their stay there, all visited the same hotel. The sister developed an acute abdominal condition characterized by diarrhea, abdominal pain and distention, and after a few days' illness died, the cause was not determined.

CASE 1—The daughter, aged 24 years, began to complain of abdominal pain, August 30, accompanied by a fever of 100 F., nausea and vomiting. She consulted a competent surgeon that morning, who on examination found marked abdominal rigidity, with the maximum tenderness over McBurney's point. The blood count revealed 15,000 leukocytes, with 83 per cent neutrophils. That afternoon the abdominal pain became worse, with the temperature going up to 102. A second blood count revealed 17,000 leukocytes, with 89 per cent neutrophils. An appendectomy was done and whereas the appendix was edematous and injected, the surgeon was struck by the markedly inflammatory reaction in the cecum and ascending colon. He described the cecum as being dark red. The appendix was removed. The next day the patient developed a severe diarrhea. Repeated stool examinations revealed no parasites. Widal and agglutination against stock dysentery cultures were negative. September 10 she was discharged but continued to have spells of cramps and diarrhea.

Sigmoidoscopic examination revealed no injection or ulcerations in the rectum or sigmoid. In stool culture, *Bacillus dysenteriae*³ was found. This organism was agglutinated in dilutions of 1:600 against her own blood serum. Vaccine was made from this abdominal organism and administered, with complete disappearance of pain. After three weeks' time the abdominal pains returned, on another examination of stool, *Endamoeba histolytica* was found. She was given chiniofon and made an uneventful recovery.

CASE 2—The father, aged 45, first noticed griping pains in the abdomen, August 22, while on the train returning from Chicago. These pains continued during the first week in September, at which time fever and diarrhea developed. September 13 this condition forced the patient to go to bed, where he remained for about two weeks. During this time he suffered severe abdominal pains and nausea. His temperature ranged from 99 to 101. Repeated stool examinations by a competent pathologist revealed no parasites or cysts. Agglutinations against stock dysentery culture groups were negative.

After a few days of castor oil purgation, the abdominal pains were relieved and the patient returned to work but continued to have occasional griping pains.

November 11, pain in the right lower quadrant became so severe that he was forced to go to bed again. The temperature was 102, with mucus but no diarrhea. November 15 the lower right quadrant was rigid. Sigmoidoscopic examination was done but no ulcerations were found in the rectum or sigmoid. The patient was taken to Touros Infirmary, where a blood count revealed 9750 leukocytes and 69 per cent neutrophils.

Repeated stool examinations and proctoscopic smears were negative for parasites but contained pus. A culture made from the bowel smear yielded *Bacillus dysenteriae*³. This organism agglutinated against the patient's blood in dilutions of 1:600.

The patient continued to complain of pain in the lower right quadrant, and fever ranged from 99 to 103. Vaccine was started and in two weeks the abdomen became less rigid and the temperature reached normal at times during the day.

December 14 the patient again began to have griping pain in the lower part of the abdomen with daily rises of temperature to 103. A diarrhea developed and, on stool examination *Endamoeba histolytica* was found.

Under treatment with vaccine of the isolated *Bacillus dysenteriae* chiniofon and emetine, the patient made an uneventful recovery.

CASE 3—The mother, aged 45 began to suffer with indigestion and gas pains during the latter part of August. The abdomen became markedly distended and sore. No diarrhea was noted. She continued to suffer but remained on her feet until October, when she went to bed, having a temperature of 100. She remained in bed one week, felt better and again was ambulatory with only slight abdominal pains but no fever, no diarrhea and only occasional slight mucus in stools. Repeated stool examinations by a competent pathologist revealed no parasites or cysts.

November 15 pain in the right side was very severe. Abdominal rigidity and distention, with the maximum point of tenderness over McBurney's point, was associated with a temperature of 100, nausea and vomiting.

The patient was taken to Touros Infirmary, where a blood count revealed 15,000 leukocytes, with 75 per cent neutrophils. Agglutinations against stock dysentery cultures were negative. Sigmoidoscopic examinations revealed no injection or ulcerations of the rectum or sigmoid. Smears from the bowel revealed no parasites but the presence of pus. In stool culture was found *Bacillus dysenteriae*³. This organism agglutinated against the patient's blood serum in dilutions of 1:600. Vaccine was made from the isolated *Bacillus dysenteriae*.

After a few days of colonic irrigations of mild silver protein 1:1000 the patient's temperature became normal. Vaccine was given with subsequent reactions but some abdominal relief.

December 16 the patient had abdominal cramps, tenesmus and diarrhea with blood and mucus. Sigmoidoscopic examination revealed punctate ulcers in the rectum and sigmoid. Amebas in the vegetative stage were revealed in mucus from the bowel. Under treatment with vaccine, chiniofon and emetine the patient made an uneventful recovery.

1 Lund, C. C. and Ingham, T. R. Four Fatal Cases of Unusual Atypical Amebiasis. *J. A. M. A.* 101:1720 (Nov. 25) 1933.

2 Craig, C. F. Chemical Aspects of Amebiasis read before the Orleans Parish Medical Society, Nov. 27, 1933.

3 Schorer and Duval in Studies from Rockefeller Institute for Medical Research 2:43-132, 1904.

DIAGNOSIS

In the presence of an epidemic of any condition associated with diarrhea, a physician must be alert for the possibility of the presence not only of amebiasis but also of the bacillary forms of dysentery. Silverman⁴ has called attention to the relative prevalence of bacillary dysentery, especially in cases of acute dysentery in which the amebas are not found.

The identification of the associated bacillary dysentery group in these cases was made by Dr. Charles Duval from stool cultures. The following is his description of the organism:

The bacteriologic examination of the stools of these patients suffering with acute dysentery reveals a specific bacillus, identical in each instance, which reacts and cross reacts positively with the blood of the various cases. It is noteworthy that the inoculated petri dishes prepared from the freshly passed mucoid stools showed after twenty-four hours' incubation at 37° C. large numbers of this organism, which were approximately two to one as compared to *B. coli* colonies on the plates.

The bacillus isolated from these cases is undoubtedly a member of the *B. dysenteriae* group. However, it is not the true Shiga or any one of the familiar mannitol fermenting strains. Cultural and serologic studies of the bacillus show a complete correspondence with the organism that was first described by Duval and Schorer in 1904, which they recovered from the dejecta of certain cases of infantile diarrhea. Though differing in certain cultural aspects the bacillus was considered by the authors as a variant or race of *B. dysenteriae* because it reacted strongly with antidyenteric serums.

The outstanding cultural difference of this bacillus from the well known members of the dysentery group is noted in litmus milk and Hiss's semisolid medium. Milk is rendered decidedly alkaline and it remains so. In the semisolid jelly of Hiss the growth, particularly for the deeper portions, spreads away from the inoculated needle path in such a striking manner as to give to the growth the appearance of an "opened umbrella" with the convexity toward the surface of the medium.

The bacillus possesses morphologic and staining properties which are identical with the Shiga bacillus of dysentery. In culture on the various sugars excepting dextrose there is no fermentation, even with acid production. In dextrose, acid is produced but no gas.

In regard to the establishment of causal relation of this bacillus to the dysentery in question it is based chiefly on the high agglutinating power of the patients' blood. The homologous isolations reacted positively in a dilution of 1:600. The patients' bloods were also tested against stock cultures of Shiga and Flexner types of *B. dysenteriae*. "Shiga" gave negative reactions, while "Flexner" reacted positively in dilutions of 1:200. This positive reaction of the patients' bloods to the Flexner bacillus is further proof that the cases are those of acute bacillary dysentery caused by the Duval-Schorer type of *B. dysenteriae*.

Surgeons who work in tropical countries have found that they must always be on their guard to avoid operation in cases of amebiasis under the diagnosis of acute appendicitis.⁵ It is important to examine stools and proctoscopic smears repeatedly for the possible presence of *Endamoeba histolytica* in vegetative or encysted forms. Also in certain cases in which every possible means have been tried to locate the ameba but of no avail, one would be justified in administering treatment for this parasite.

TREATMENT

The treatment in these cases consisted of rest in bed, a nonresidue diet and bland colonic irrigations. Vaccine made from the isolated Schorer and Duval Bacillus

dysenteriae was given in doses of 0.1 cc daily, increasing 0.1 cc daily until 1 cc is reached, and then 1 cc every four or five days for from six to eight weeks.

For the amebiasis, 1 grain (0.065 Gm.) of emetine was given for ten days along with 24 grains (1.5 Gm.) of chiniofon for ten days.

CONCLUSIONS

1 The possible cause for the failure to find *Endamoeba histolytica* early in the recently reported fatal cases of acute dysentery in the late epidemic was the relatively long incubation period of this parasite.

2 *Bacillus dysenteriae*, described by Schorer and Duval in 1904, was isolated in my cases sixty days before the discovery of *Endamoeba histolytica*.

3 Vaccine made from the isolated *Bacillus dysenteriae* proved effective in the treatment of these cases, resulting in complete abatement of signs and symptoms until relapse, at which time *Endamoeba histolytica* was found.

4 *Endamoeba histolytica* was discovered sixty days after the acute onset.

5 The combination of emetine and chiniofon proved effective against the amebiasis.

6 In every case of acute colitis, the possibility must not be overlooked of the presence of double infection, especially the association of *Endamoeba histolytica* with one of the *Bacillus dysenteriae* group.

307 Physicians and Surgeons Building

LYMPHOGRANULOMATOSIS MALIGNA
(HODGKIN'S DISEASE)

WITH INVASION OF THE SPINAL CANAL
AND PARAPLEGIA

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Serious involvement of the central nervous system in the course of lymphogranulomatosis maligna is a relatively well known condition, although cases proved by autopsy are of somewhat infrequent occurrence. Of the neurologic complications encountered in this disease, the most familiar ones are (a) damage to the spinal cord, presumably as a result of direct pressure caused either by extradural deposits of the abnormal granulomatous tissue or by disease of one or more vertebral bodies with consequent angulation, and (b) degeneration resulting from interference with the blood supply of the cord. Weil¹ in his recent review of the literature found that local lesions accounted for one of the aforementioned processes in 85 per cent of the cases with spinal cord involvement analyzed in his study. In an additional 7 per cent of the cases, according to his interpretation, there was scar tissue in the spinal canal, indicating to him that previously there had existed local granulomatous tissue capable of producing the cord symptoms.

Inflammatory and degenerative changes in the cord substance, without any conspicuous accumulations of granulomatous tissue in the immediate neighborhood,

⁴ Silverman, D. N., and Feemster, Roy. Types of Bacterial Dysentery in the South. A Clinical and Bacteriological Study.
⁵ Reid, M. E. Personal Communication to Lund and Ingham.
Connor, F. P. Surgery in the Tropics. Philadelphia: P. Blakiston's Son & Co., 1929.

From the D. J. McCarthy Foundation of the University of Pennsylvania. Based on material from the wards and laboratories of the Philadelphia General Hospital.
¹ Weil, Arthur. Spinal Cord Changes in Lymphogranulomatosis. Arch. Neurol. & Psychiat. 26: 1009 (Nov.) 1931.

have been observed in some instances, as in Forrest's² case 1, Shapiro's³ case 2, Weber's⁴ case 13, and in Weil's¹ case 3. In the last mentioned there evidently was an infectious meningitis as well. Walthard⁵ described a case with inflammatory changes, vascular thrombosis and extensive softening of the cord, the destructive process having been far greater than that which would have been expected as a result of pressure from the extradural tumor. There have been recorded widely diverse opinions as to the mechanism by which the various changes in the cord are produced in the absence of any apparent compression. For discussions of such possible mechanisms the reader is referred to the communications of Weil,¹ Shapiro,³ and Weil and Davison.⁶

The case here reported belongs to the larger group embracing the occurrence of lymphogranulomatous tissue locally, directly involving either the vertebrae, the structures within the spinal canal or those within the intervertebral foramina. It is unusual in that this single case shows both epidural and subdural lymphogranulomatous tissue, invasion of the nerve roots by outgrowths from this tissue, a direct connection by way of the nerve roots between the epidural and subdural tumor masses, invasion of blood vessels in the tumor mass by lymphogranulomatous tissue, congestion of the vessels of the cord and degeneration within the cord substance.

REPORT OF CASE

M. B., a woman, aged 39, admitted to the radiologic service of Dr. J. B. Carnett at the Philadelphia General Hospital Sept. 1, 1931, complained of paralysis of both lower limbs. About three years previously she had first noticed generalized muscular weakness and had lost some weight and the axillary lymphatic nodes had enlarged. After six months the cervical nodes had become prominent and the patient had begun to experience some shortness of breath on exertion.

The patient had been studied at the hospital of the University of Pennsylvania from May 1929 until July 1931. In that period a biopsy of a lymph node proved the diagnosis of Hodgkin's disease, and the patient was given, in the radiation therapy department, approximately 3 erythema doses of roentgen rays over the chest, anteriorly and posteriorly, from 3 to 4 erythema doses over each axilla anteriorly and posteriorly, from 3 to 4 erythema doses over each inguinal region, from 3 to 4 doses over each side of the neck, and from 1 to 2 doses over the abdomen. She improved greatly during the earlier course of this treatment. In the dermatologic department the blood Wassermann reaction was found to be strongly positive, and the patient was given five intramuscular injections of quinine bismuth iodine, 2 cc., and a total of sixteen injections of bismuth arspenamine sulphate, 0.2 Gm., in somewhat interrupted courses, owing to the irregularity of the patient's attendance. The blood Wassermann reaction became negative on one occasion and was slightly positive subsequently.

Repeated attacks of chest pains, vomiting and abdominal discomfort occurred after that, however, and there was gradual progressive abdominal distention. About three weeks prior to the admission of the patient to the Philadelphia General Hospital stiffness and weakness of the lower limbs occurred, and four or five days before admission there developed a complete paralysis of the lower limbs and incontinence of urine and feces.

The past medical history and the family history were irrelevant.

On physical examination the patient was found to be emaciated, and the anterior and posterior cervical and the supraclavicular lymphatic nodes on the left side were enlarged. The nodes on the right side were enlarged to a lesser degree, and there was moderate general lymphadenopathy. There was clinical and roentgenologic evidence of some consolidation in the upper lobe of the right lung and some ascites was present.

The erythrocyte count was 2,900,000 cells per cubic millimeter, and the leukocyte count was 9,100, the differential count showing 88 per cent polymorphonuclear forms. The blood serology tests gave a plus 2 (weakly positive) Kahn, and negative Noguchi and icebox modification tests. The examination of the cerebrospinal fluid showed an increased globulin content, no cells, negative cholesterol and Noguchi tests, and a colloidal gold curve of 2455543222.

On neurologic examination Dr. J. C. Yaskin found that there was complete paralysis of the muscles of both lower extremities including the gluteal and iliopsoas muscles. The paralyzed muscles were flaccid, the patellar and achilles reflexes of each side were diminished and there was little or no response to plantar stimulation. Vibratory sensation was lost throughout the lower extremities and the lower half of the trunk, the sensation of touch was practically lost below the eighth thoracic dermatome and that of pain below the tenth thoracic dermatome. There were, however, patchy areas below these levels in which there was some recognition of touch and of pain sensations, especially on the posterior aspect of the left thigh. The sense of position was entirely lost throughout the lower extremities.

Dr. Yaskin's diagnosis was softening of the spinal cord due to venous stasis and thrombosis brought about by the pressure of an extradural lymphogranulomatous deposit, although intramedullary infiltration was considered a possibility. Syphilis could not be ruled out but was considered to be less probable as an etiologic factor in the production of the neurologic signs.

Roentgenograms showed some rarefaction of the fourth lumbar vertebra, probably due to Hodgkin's disease, but the remainder of the spinal column was normal.

The patient died September 13. At autopsy there was found a widespread involvement of the lymphatic nodes, lungs, pancreas, spleen, kidneys, suprarenals and muscles of the back by abnormal deposits which were proved by microscopic examination to be a sclerosing type of lymphogranulomatosis maligna.

The gross examination of the spinal cord by Dr. Helena Riggs disclosed a thick tumor-like mass intimately attached to the dura mater, embracing the entire circumference of the cord in the lower cervical and upper thoracic regions. The mass was 7 cm. in length in the direction of the long axis of the spinal cord and its greatest thickness was 0.5 cm. At the point of greatest thickness of the tumor, the dura appeared invaded; the subarachnoid space could not be identified grossly, and the cord itself appeared compressed, distorted and possibly degenerated. Above and below the level of the tumor the gross appearance of the cord and its membranes was normal.

Through the kindness and cooperation of Dr. N. W. Winkelman, Dr. Riggs and the other staff members of the laboratories of the Philadelphia General Hospital I obtained serial sections of the spinal cord with the meninges and the tumor mass at two levels, supplemented by many sections from the adjacent regions of the cord. Because of the distorted relationships of the cord and the nerve roots as a result of the presence of the tumor, the exact segmental localization of these sections was uncertain, but the most pronounced involvement, which is described and illustrated, evidently affected the upper thoracic cord segments.

Microscopic examination showed that the granulomatous mass at its point of greatest development completely encircled the cord outside the dura mater and was intimately adherent to the membrane. The dura was thickened and its substance was invaded in places by the granulomatous tissue, but no penetration could be found at any point. The van Gieson stains (fig. 1) showed the integrity of the dura at the several levels. The microscopic characteristics of the tumor tissue coincided with those of the lesions found elsewhere in the body and were typical of a sclerosing type of lymphogranulomatosis maligna.

² Forrest Devereux, A Case of Transient Paraplegia in Hodgkin's Disease, *Lancet* 2:809 (Oct. 15) 1927.

³ Shapiro P. F. Changes of the Spinal Cord in Hodgkin's Disease: Report of Two Cases with an Unusual Skin Manifestation in One, *Arch. Neurol. & Psychiat.* 24:509 (Sept.) 1930.

⁴ Weber F. P. Paraplegia in Lymphogranulomatosis Maligna and Leukemia, *Internat. Clin.* 1:126 (March) 1926.

⁵ Walthard K. M. Rückenmarkserweichung bei Lymphogranulom in extraduralen spinalen Raum, *Lymphogranulom des Uterus als Nebenbefund*, *Ztschr. f. d. ges. Neurol. u. Psychiat.* 97:1 1924.

⁶ Weil Arthur, and Davison Charles, Changes in the Spinal Cord in Anemia, *Arch. Neurol. & Psychiat.* 22:966 (Nov.) 1929.

There was a background of fibrous tissue, varying in density in different areas, and in the trabeculae were cellular masses composed of fibroblasts, endothelial elements, Dorothy Reed giant cells, and lymphocytes and plasma cells. In some areas a limited amount of necrosis was seen, with occasionally a dense lymphocytic infiltration, largely though not strictly perivascular in distribution. The small and medium sized arteries showed a considerable thickening of the media and intima, with some hyalinization and some swelling and necrosis of the intima in many places. Masses of lymphogranulomatous cells were seen within the lumens of many vessels in the extradural tumor, apparently occluding these vessels.

The inner surface of the dura at one level was covered by an intimately adherent thin sheet of lymphogranulomatous tissue, extending almost completely around the cord, as extensions of the prominent nodules in the angles formed by the reflection of the dura over the entering and emerging nerve roots. The arachnoid in general seemed to be uninvolved except at its reflection over the nerve roots at the duraneural angles. In many places the intact arachnoid entirely separated from the considerable subdural masses, could be clearly identified. At no point was the substance of the cord seen to be invaded by the abnormal tissue growth, and the nerve roots themselves, although seriously invaded at the duraneural angles and distally, showed no such infiltration proximal to the angle of dural reflection.

Of particular interest was the demonstration of continuity by way of the nerve roots between the extradural tumor and the intradural nodules. Cross sections of the cord through about the middle of the tumor mass near the emerging nerve roots, showed the beginning lateral extension of the dura onto the nerve roots. Successive sections at this level showed the point of emergence of the roots from the dural canal marked by a distinct reduction in the thickness of the membrane and its continuation in attenuated form distally toward the posterior root ganglions (fig 2). Immediately distal to this termination of the true dural sac one could see numerous strands and projections of lymphogranulomatous tissue penetrating into the fibrous septums of the nerve bundles, being directly connected and traceable, on the one hand, to the extradural tumor and, on the other hand, to the intradural deposits. In longitudinal and slightly oblique sections of the roots these strands seemed to traverse the entire length of the extradural part of the nerve included in the block of tissue, i. e., from a

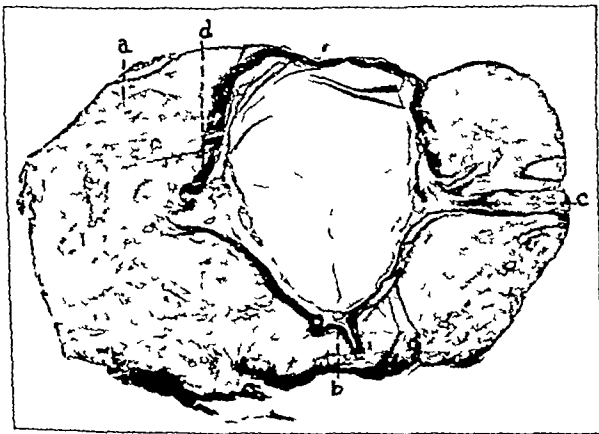


Fig 1—Cross section of the upper thoracic portion of the spinal cord a the encircling tumor mass b the intact dura c the nerve roots traversing the tumor d the beginning reflection of the dura over the nerve root of the opposite side. Van Gieson stain

point near the posterior root ganglion in each instance proximal to the duraneural angle.

At a somewhat higher level the roots were similarly invaded in their distal parts and near the dural reflection and there were masses of lymphogranulomatous tissue subdurally at the duraneural angles but the available block of tissue was too small to permit tracing these roots through their entire course at that level. At the periphery of the extradural tumor at

both levels, small but fairly regular and rounded isolated funiculi of nerve fibers, completely enveloped in the lymphogranulomatous mass, could be seen, evidently indicating the disorganization of the mixed peripheral nerves into separate bundles by the invading abnormal cells.

The abnormal tissue did not seem to have any tendency to invade the nerve fibers themselves or the funiculi, either in the mixed nerves, in the posterior root ganglions, or in the nerve roots within the dural sac. The vulnerable structures

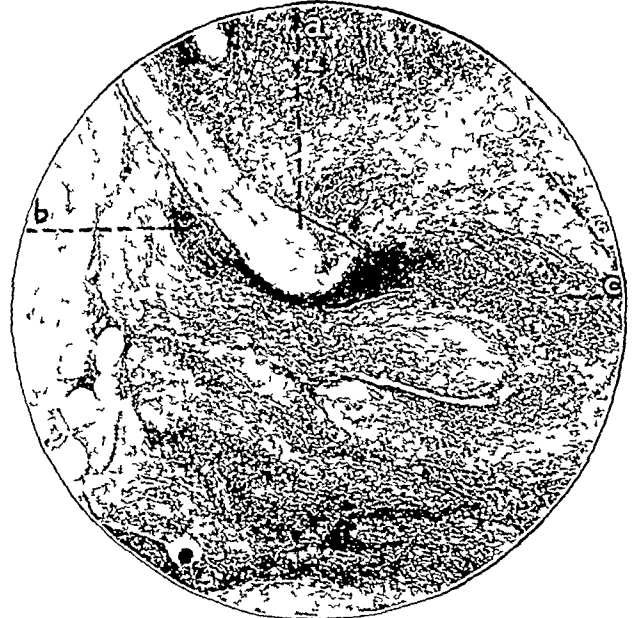


Fig 2—Section through the duraneural angle a the beginning reflection of the dura onto the nerve root b the strands of lymphogranulomatous tissue accompanying the nerve roots into the subdural space c the merging of these strands distally with the extradural tumor. Toluidine blue stain

appeared to be the fibrous epineurium, the perineurium and the endoneurium, or the lymph spaces delimited by these structures, and the subdural and epidural spaces. The striking departure of the projections of lymphogranulomatous tissue from the nerve bundles immediately within the dural sac and the sheet-like spreading of the tissue around the inner surface of the dura, without distinct involvement of the arachnoid, the cord, or the intradural portions of the nerve roots proximal to the duraneural angles, suggested the affinity of the pathologic tissue for the actual or potential lymph spaces offering the least amount of mechanical resistance or other defensive reaction against invasion.

The cord substance was the seat of myelopathic changes consisting of well marked vacuolation of the white matter, with extensive swelling and disintegration of the axons, and less conspicuous degeneration of the gray matter. Somewhat more than half of the ganglion cells of the anterior and posterior horns appeared to be normal, though among the remaining cells were seen various stages of degeneration, both of the character of ischemic degeneration and of acute swelling. The glial reaction was negligible, and small perivascular collections of phagocytic cells were found only rarely. The vessels within the cord substance as well as those of the extramedullary plexus were greatly congested. The vessels accompanying the intradural portions of the nerve roots were distinctly dilated and congested, the whole picture strongly suggesting that interruption of the blood supply of the cord, as a result of compression of the spinal branches of the vertebral, ascending and deep cervical and intercostal arteries, had played an important part in the production of the acute paraplegic symptoms. The vessels of the cord did not show evidences of syphilitic disease.

COMMENT

A number of observers have considered it probable that lymphogranulomatous tissue may reach the ver-

tebral canal by growing from the diseased mediastinal and retroperitoneal lymphatic structures through the intervertebral foramina, in company with the nerve roots. Such an observation was made by Weber⁴ (case 14) and it has been demonstrated more or less



Fig. 3—Section from the extradural tumor showing the cell structure and the occurrence of masses of lymphogranulomatous cells within the lumens of the vessels. Toluidine blue stain.

convincingly in several instances in which there have been found, in the same case, invasion of the nerve roots in the intervertebral foramina and epidural deposits within the spinal canal. The cases of East and Lightwood,⁷ Delius⁸ and others⁹ are examples of such observations.

Extension of lymphogranulomatous tissue (excluding cases of Hodgkin's sarcoma) to the subdural space was found by Urechia and Goia,¹⁰ Johnston¹¹ and During,¹² and at autopsy Delius⁸ found subdural growths at the site of a previous operation. Walther⁵ implied that the inflammatory and necrotic tissue about the nerve roots, in the subarachnoid space and in the substance of the cord in his case, resembled cellular masses of lymphogranulomatous origin, but he apparently attributed the extensive degenerative changes in the cord to a disturbance of circulation resulting from "granulomatous inflammation" with the vascular occlusions in the cord. The case of Serebrjanič¹³ showed extensive metastasis to the brain substance, the cranial nerves, the spinal nerve roots, the root ganglions and the pia-arachnoid of both the brain and the cord. That author believes, however, that only in exceptional cases is the barrier of the dura to invasion of the central nervous system broken down, and he holds that the cord changes seen in the majority of instances are non-

specific and result from direct compression or disturbance of the circulation.

The microscopic studies in the case reported herein support the conception that the granulomatous tissue has a tendency to spread by way of the nerve roots and that the spinal dura mater, even in a somewhat advanced stage of the disease, effectively resists direct penetration. The apparent affinity for the subdural space representing a part of the lymphatic system, in preference to the nervous elements within the dura mater suggests that the nervous tissue per se is damaged only in an incidental way, secondary to the involvement of the lymphatic channels or blood vessels supplying the nervous tissue. Evaluation of the other observations in this case, notably the apparent occlusions of small vessels in the substance of the extradural tumor by masses of cells resembling lymphogranulomatous elements and congestion of the vessels of the cord, is important. In the absence of demonstrable emboli in the vessels elsewhere than in the tumor, one probably is not justified in assuming that in this case the abnormal cells were disseminated through the blood channels, although the vascular occlusions in the epidural structures and vascular congestion in the cord, combined with the evidence of recent degenerative changes in the cord substance at the level of the tumor, indicate the importance of obstruction to the blood circulatory system in connection with the rapidly developing paraplegic symptoms. This is in support of the generally accepted view that circulatory disturbances play an important role in these cases in which the nerve roots are invaded and compressed.

SUMMARY AND CONCLUSIONS

In a case of lymphogranulomatosis maligna the clinical and neuropathologic features have been reported,

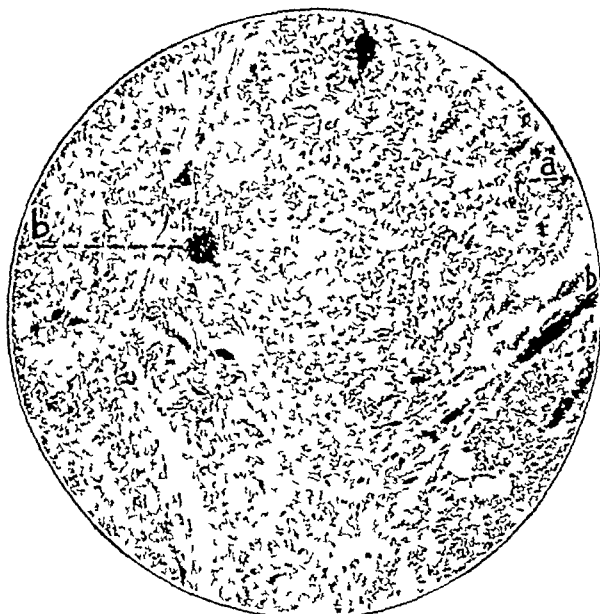


Fig. 4—Section of the spinal cord: a, vacuolation of the white matter; b, congestion of the vessels. The ganglion cells seen in this section are in the lateral splanchnic cell column. Hematoxylin-eosin stain. Slightly reduced from a photomicrograph with a magnification of 92 diameters.

7 East C F T and Lightwood R C. Compression Paraplegia in Lymphadenoma. *Lancet* 2: 807 (Oct 15) 1927.

8 Delius L. Rückenmarkskompression durch Lymphogranulomatose. *Deutsche Ztschr f Nerven* 125: 142 (May 1) 1932.

9 Schaeffer Henri and Horowitz Adolphe. Les accidents nerveux dans la maladie de Sternberg. *Presse med* 38: 403 (March 22) 1930. Weil¹.

10 Urechia C I and Goia I. Lymphogranulomatose de la moelle. *Presse med* 35: 179 (Feb 9) 1927.

11 Johnston J M. Hodgkin's Disease with Invasion of the Spinal Column. *Pennsylvania M J* 34: 877 (Sept.) 1931.

12 During M. Zur Pathologie und Klinik des Lymphogranuloms. *Deutsches Arch f klin Med* 127: 76 1918.

13 Serebrjanič B. Lymphogranulomatose Meningoencephalitis und Polyradiculitis. *Deutsche Ztschr f Nerven* 129: 103 1933.

with an attempt to correlate, as far as possible, the clinical picture in this and previously reported similar cases with the gross and microscopic pathologic changes. In this case there was a direct extension of lymphogranulomatous tissue from an extradural tumor through

the nerve roots, particularly through their fibrous septums, to the subdural space. There is apparently a greater affinity of this type of abnormal tissue for the structures comprising the lymphatic system, in preference to the structures of the nervous system. The vascular congestion was presumably secondary to compression or occlusion of the vessels in their courses along the nerve roots, and the pronounced degenerative changes in the cord substance have been attributed to this factor.

On the basis of the changes found in this case and those in similar cases reported by other observers, it is concluded that

1 The nerve roots afford a route by which lympho-granulomatous tissue may reach the subdural space, probably through the lymphatic spaces of the roots rather than by the substance of the nerve fibers

2 The spinal dura mater is relatively more resistant to penetration than are the septums of the nerve roots

3 Paraplegic symptoms may result not only from direct cord compression but from obstruction to the circulation of the cord as a result of compression or invasion of the vessels accompanying the nerve roots

1930 Chestnut Street

THE VALUE OF THE PROTEIN SKIN TESTS IN INFANTILE ECZEMA

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It is well known that infants and young children with eczema very frequently give positive skin tests to various proteins and that normal infants do not. What significance have these tests both in a theoretical discussion of the etiology of the disease and in the practical management of it?

METHODS OF TESTING

Three methods of testing have been employed (1) the cutaneous, (2) the intracutaneous, and (3) the method of passive transfer, or Prausnitz-Kustner phenomenon.

Each has its advantages and disadvantages. The cutaneous test has the advantage of simplicity, and it is not so likely to give false positives as the intracutaneous method. It has been adopted by most allergists for general clinical work. The intracutaneous method is more delicate, but it has the disadvantage of sometimes giving false positives, of occasionally causing general reactions in unusually sensitive subjects and, when a large number of tests with different proteins are to be made, is not practical for general use. It is often of value in special investigative work, however. In the method of passive transfer (Prausnitz-Küstner) a small amount of blood serum from the individual to be tested is injected into the skin of a normal person, and after twenty-four hours the allergen is applied either intracutaneously or cutaneously at the site of the previous inoculation. If the test is positive an urticarial wheal develops in a few moments. This method is accurate and has been of great value in special investigative work, but it is not well adapted for routine use. It may be positive when the ordinary skin test is negative, or it may be negative

when the skin test is positive, but in general the two are parallel. In allergic infants the allergy may be general, in which case both passive transfer and skin tests are positive, or the sensitization may be confined to the skin alone, when the skin test is positive and the passive transfer negative.

For practical purposes the cutaneous test is the most satisfactory to employ in dealing with eczematous infants.

TECHNIC OF TESTING

For infants and young children the back is the best site. The method of scarification is of some importance. It is desired to make a scratch into the skin

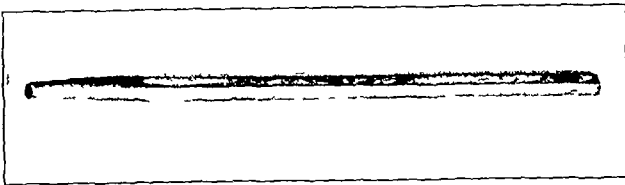


Fig 1—Scarifier

without drawing blood and to make each scratch of the same size and depth. Needles or small knives have been usually employed. They are well adapted for use in adults, but it is almost impossible with a struggling infant to make a series of scratches of the same size and depth with a needle or a knife. I have used for some time a circular scarifier $\frac{9}{16}$ inch in diameter,¹ made in the form of a punch with sharpened edges, and have found it very satisfactory (fig 1). Being in the form of a circle, the scratches are always of the same length, and with a little practice it is not difficult to make a series of scratches much more rapidly with this tool than with a needle or a knife, and it is less painful. After the scratches have been made, a small amount of protein powder is applied, and a drop of physiologic solution of sodium chloride is mixed with it. In infants, saline solution is to be preferred to tenth normal solution of sodium hydroxide, on account of the delicacy of the skin.

READING OF THE TESTS

The response to the test varies a great deal in different individuals, according to the particular characteristics of the skin. In some infants there is a certain amount of erythema surrounding every scratch, in

Positive Reactions in Three Hundred Cases of Eczema

Egg	131	Oat	9	Orris powder	5	Codfish	2
Milk	40	Beef	8	Haddock	4	Lamb	2
Wheat	30	Corn	8	Carrot	4	Dog hair	2
Barley	17	Potato	8	Pea	4	Walnut	1
Cat hair	12	Tomato	7	Orange	4	Wool	1
Spinach	11	Silk	6	Chicken	3	Salmon	1

Of 80 infants 6 months of age or under 61% were positive
Of 100 infants 1 year of age or under 63% were positive
Of 52 children 2 years of age or over in whom the eczema had existed since early infancy 77% were positive

others, practically none. Some infants give markedly positive tests with large wheal formation and a surrounding area of erythema (fig 2), others merely show larger or smaller areas of erythema without wheals. The latter type of reaction is more common in infants, and no wheals may be obtained even in markedly sensitive infants (fig 3). In order to interpret the tests

From the Eczema Clinic, Children's Hospital, and the Department of Pediatrics, Harvard Medical School.

¹ Made by Broadbent & Co., Huntington Avenue, Boston.

some practice is necessary, and on account of the varying susceptibility of individual skins there can be no absolute standard by which to judge a positive test. It is in relation to the control and to the other tests that any individual test should be judged, and if a test gives a much larger reaction than the control or the other tests, this is called a positive test.

NATURE OF SKIN TESTS

In a positive skin test with erythema, the essential phenomenon is a dilatation of the small cutaneous vessels. If this dilatation goes on far enough serum exudes through their walls, and wheal formation results. This process has been brought about by the action of the applied allergen either on the sensitized skin cells, which then release a substance capable of causing vessel dilatation, or less likely by direct action on the vessel wall or on the sympathetic nerve endings controlling vessel contraction and dilatation. This phenomenon occurs to a certain extent in normal individuals when the skin is scratched, and Thomas Lewis believes that the mechanical trauma of the scratch releases a histamine-like substance from the skin cells, which then acts on the vessels and causes dilatation. In allergic individuals this process is intensified, owing to the fact that the skin cells have been "sensitized," which is simply another way of saying that some specific change has taken place in them about which practically nothing is known.

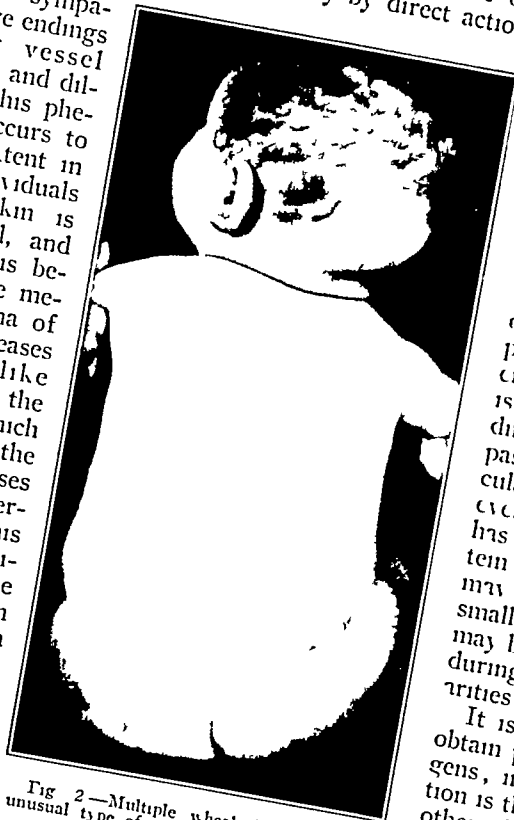


Fig. 2—Multiple wheal formation. An unusual type of reaction in infancy.

The process going on in a positive skin test is probably much the same as that which goes on in eczema, and it is likely that the more violent response in eczema is due to repeated and prolonged contact of the cells with the allergen, applied either from within or from without.

INCIDENCE OF POSITIVE TESTS

In 300 eczematous infants and young children, skin tests were positive in 59 per cent, as shown in the accompanying table.

SIGNIFICANCE OF EGG

It is agreed by all allergists that in infancy and childhood egg is by far the most common allergen to which tests are obtained, and that egg white is the particular protein usually responsible. In our series we have most often obtained positive tests to both egg white and egg yolk. Sensitivity to egg is seen especially in infancy,

it diminishes as the child grows older. One hundred infants 1 year old or younger gave fifty-four reactions to egg and 85 per cent of those who were positive to anything were positive to egg. Fifty-two children 2 years old or older gave twenty-three positive reactions to egg (44 per cent), and 57 per cent of those who were positive to anything were positive to egg.

Since positive egg reactions with no other positive reactions are very often obtained in young infants who have never eaten egg, it is obvious that egg is not directly concerned as a cause of the eczema, and for this reason it was formerly thought by many that the tests were not specific, that these infants were not actually sensitized to egg and that the positive tests were due to some peculiarity of egg protein, which was without much significance. Many pediatricians and dermatologists became discouraged with skin testing in eczematous infants and considered it of little value.

Recently, Moro,² and also Woringer,³ have shown, however, that almost all infants who give positive skin tests to egg give also positive passive transfer tests so that it may be said without a doubt that they are sensitized to egg. Since a great many of them are not eating egg it cannot be said that ingestion of the allergen to which they are sensitive is directly causing the eczema. During the early months of life, and as in the majority of these infants nothing could have happened during postnatal life to render them sensitive the sensitivity is either truly hereditary or of placental transmission. It is well known that of all proteins egg white is the most difficult to digest, and Walzer⁴ has shown by use of the passive transfer reaction that unchanged egg white circulates in the blood stream in practically all individuals even after the ingestion of very small amounts. Ratner⁵ has shown that the placenta is permeable to foreign protein. It follows therefore that during pregnancy there may be egg white in the fetal circulation. But only a small proportion of infants are sensitized to egg. This may be due to differences in the amount of egg ingested during pregnancy or more likely to individual peculiarities of the fetus that is heredity.

It is very common in young eczematous infants to obtain positive tests to egg alone and to no other allergens, in older infants and children multiple sensitization is the rule with positive tests to egg and to various other foods and animal epidermals. Of forty-six infants under 6 months of age who gave positive tests to something, forty-two reacted to egg and twenty-four of these reacted to egg alone. Of forty-six infants between 6 and 12 months of age who gave positive tests to something, thirty-nine reacted to egg but only twelve reacted to egg alone. In the first group there were 107 total reactions to various proteins, in the second group there were 151.

Moro has suggested that sensitivity to egg acquired in utero is often the starting point of allergy and that this egg sensitivity does something to the individual which not only renders him sensitive to egg but also makes him susceptible to other sensitivities as he comes into contact with other proteins. Furthermore, it does something to him which renders his skin subject to eczema in spite of the fact that as a young infant he does not come into contact with the allergen to which

² Moro, Ernst. Ekzema infantum und Dermatitis seborrhoides. Berlin, Julius Springer, 1932.
³ Woringer, P. Recherches sur l'allergie ovalbuminique du nourisson. Rev. franc. de pediat. 8: 649, 1932.
⁴ Walzer, Matthew. J. Immunology 11: 249 (April) 1926.
⁵ Ratner, Bret and Greenburgh, J. E. J. Allergy 3: 149 (Jan.) 1932.

he is sensitive (egg) So that eczema can and does exist in the infant without contact with the specific allergen As Moro has said, the soil is prepared by sensitivity to the specific allergen, and then the eczema may be often brought about by various nonspecific causes It is not unlikely that in these egg sensitive infants small amounts of any food protein which are absorbed unsplit into the circulation may bring about eczema, even if these proteins fail to give positive skin tests

Although egg white is by far the most common protein to which infants are sensitive, allergic infants may be nonsensitive to egg and sensitive to other proteins This sensitivity probably arises in the same way as egg sensitivity Although this may occur, it is not common and in eighteen infants who were definitely sensitive to cow's milk, seventeen were sensitive to egg as well, although none of them were eating or had ever eaten an egg

THE SIGNIFICANCE OF MILK SENSITIZATION

Since cow's milk is the sole diet of most young infants when they develop eczema, it deserves consideration as an etiologic factor, either primary or secondary

In 300 infants tested, 45 gave positive reactions to cow's milk These reactions were almost all in young infants In a few cases casein alone gave a reaction, in a few lactalbumin, as a rule both were positive A few of these infants were breast fed and showed violent reactions when given cow's milk for the first time Almost all of them, however, were bottle fed and had been taking cow's milk with no untoward symptoms other than eczema It appears from the figures already given that milk allergy is usually secondary to or at any rate is accompanied by egg allergy There is this peculiarity, however In practically all the infants who are sensitive to milk and to egg, it is possible to cure them by withdrawing cow's milk and using a milk-free diet, whereas in those infants who are sensitive to egg alone, and who are not eating egg, it is not possible to withdraw anything they are eating, and they do not do so well It is true that occasionally an infant who does not give positive skin tests to milk will be cured by removal of milk from the diet, but this is not the rule, and it must be concluded that if milk is causative of the eczema in these cases it is not causative by means of specific sensitization but rather by means of digestive and metabolic factors, such as overfeeding with or poor digestion of any one of the food elements

THEORETICAL VALUE OF THE SKIN TESTS

While it is certainly not true that all eczematous infants are allergic, a great many of them are, probably about two thirds, and the skin tests are indispensable in differentiating and in helping one to understand this group The positive skin tests to egg which are so common in young infants help one not a whit in the practical treatment of the infant, but they do help considerably in a proper understanding of the disease and without allergic study of these infants no progress could be made

The answer to infantile eczema probably lies in a better understanding of egg sensitization and the changes it causes in the immunologic reactions of the body, but there are woful gaps in existing knowledge

PRACTICAL VALUE OF THE SKIN TESTS

The skin tests are of practical value in that they often give indications for treatment, for, no matter

what local treatment is used, good results cannot be obtained in allergic eczema unless the allergic factor is also taken into account

Although many methods of specific and nonspecific desensitization have been tried, they are not at all reliable or satisfactory for general use in eczema, and there is no method at present that can be depended on to render an allergic infant nonallergic Avoidance of the offending food or foods in accordance with the evidence furnished by the skin tests is the method of choice The effectiveness of this procedure varies a great deal, however In young infants with milk sensitivity, avoidance of milk, and the substitution of a milk-free diet is likely to cure or at any rate greatly improve the eczema

Likewise, if there is definite sensitivity to wheat, oats or any food that the child is taking in large amounts,

and there are not many other sensitivities, avoidance of this food is very satisfactory If there is sensitivity to many foods and epidermals, combined with egg sensitivity, however, it is not easy to avoid all of them, and as a matter of fact avoidance may not be productive of good results, for such children sometimes seem to be sensitive to almost any food Avoidance of egg is of course, indicated if the skin test to egg is positive but it is not common to produce a cure by so doing Most infants who are sensitive to food outgrow this sensitivity and even become nonallergic, but in

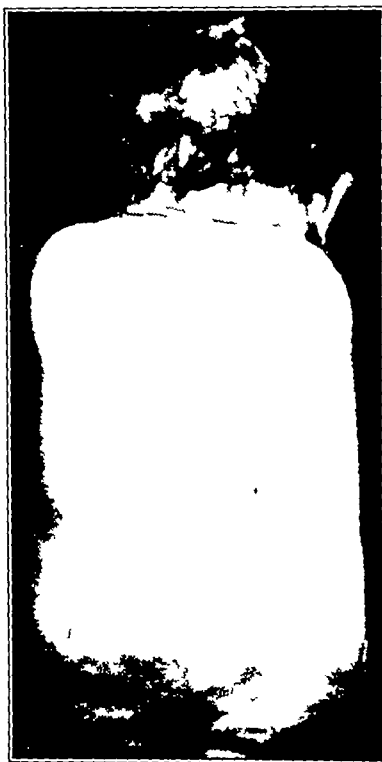


Fig 3—Erythema with practically no wheal formation The usual type of reaction in a multiply sensitized child

many cases the allergic state persists, and the baby who is sensitive to egg and milk at 6 months is sensitive to horse dander and ragweed or other epidermals at the age of 6 years and may have asthma or hay fever instead of eczema, or perhaps all combined

There can be no truly satisfactory way of dealing with all these allergic manifestations until some effective method becomes available not of treating the symptoms caused by allergy but of attacking the allergic state itself

CONCLUSIONS

- 1 Skin testing in infantile eczema should not be discredited
 - 2 It has been of great value in revealing what little is known of the nature of the disease
 - 3 It often, although not always, points the way to the cure of the patient
- 319 Longwood Avenue

Clinical Notes, Suggestions and New Instruments

A CASE OF PSEUDOHERMAPHRODITISM

RITA S FINKLER M.D. NEWARK N. J.

Pseudohermaphroditism has always been a subject of fascination and interest to the urologist, gynecologist and general practitioner. Unusual cases of true hermaphroditism and pseudohermaphroditism have been brought to the attention of the medical profession from time to time. I here present another case, which is of much interest from its clinical, endocrinologic and psychologic aspects.

The patient, brought up as a girl, was first seen by me casually five years ago, while I was attending another member of the family. At that time she was 13½ years old. She was short and stocky, was very timid, and had a deep masculine voice, a square masculine chest without any signs of breast



Fig. 1—Penis shown in place of clitoris. Vagina brought into view by the use of a speculum.

development, and a masculine distribution of hair on the body and extremities. She was not menstruating yet.

I saw the girl again a year later. Her mother called my attention to the fact that her menstrual periods were not as yet established. At that time, while doing some postgraduate work in gynecology at the Mount Sinai Hospital, I became interested in Dr. Frank's work with estrogenic substance.

I suggested such a study to the girl's mother, but as the girl was only 14½ years old, they felt that they could wait a little longer and in the meantime administer endocrine therapy. The girl received intramuscular injections of an estrogenic product and pituitary preparations by mouth all to no avail. She also began to show signs of growth of hair on her face.

In March, 1930, her mother brought her to me in great alarm, since she discovered an appendage at the site of the clitoris. On examination the appendage appeared to be an imperforate penis about 2 inches (5 cm.) long, the crura, glans, prepuce and pigmentation were typical, except that at the site of the urethra

there was a dimple but no canal visible there or anywhere else along the structure. When the patient was asked to void, the urine seemed to come from the vagina. The introitus could admit the tip of the small finger. Rectal examination revealed a small, hard uterine body lying anteriorly, no ovaries could be palpated.

Five weekly specimens of blood were taken and examined for the presence of estrogenic substance by the Frank-Goldberger technique. The fourth specimen showed a trace of the hormone.

Röntgen examination of the sella turcica was negative. The sugar tolerance test was normal. The basal metabolic rate was minus 5 per cent. I suggested a complete study of the urinary tract in order to search for further anomalies.

This study has been carried out at the Newark Beth Israel Hospital by our urologist, Dr. Sidney Keller. The urethral orifice was found to be opening into the right upper vaginal wall. The kidney, ureters and bladder were normal.

Dr. Hugh H. Young¹ of the Urological Institute of Johns Hopkins University has reported a large number of interesting cases of pseudohermaphroditism, and we deemed it advisable to consult him as to further procedures in this particular case.

Because of the great concern of the patient's parents, the girl was taken to Baltimore, where Dr. Young and an attending gynecologist gave her a detailed examination and suggested that it was essential to do an exploratory laparotomy in order to determine whether the gonads were ovaries or testicles. They also suggested a thorough exploration of the suprarenal glands in search of a possible suprarenal tumor.

The patient was operated on at the Newark Beth Israel Hospital under tribromethanol anesthesia by Dr. Sidney Keller, Dr. William Brans and myself.

The surgical procedure consisted of a midline abdominal incision, complete exploration of the pelvic organs, and exploration and palpation of the suprarenal glands. A somewhat underdeveloped uterus and tubes and ovaries were found. A careful search failed to reveal the presence of testicles. The palpation of the suprarenal glands did not reveal the presence of a tumor. The appendix was removed and the abdomen closed.

Because the pelvic organs were those of a female, the hypertrophied clitoris was removed by the usual method for amputation of the penis.

Recovery was uneventful. Stimulating doses of x-rays were given to the regions of the pituitary gland and the ovaries, under the direction of Dr. Milton Freedman. However, following each treatment the patient became quite ill with headaches and nausea, so that roentgen therapy had to be discontinued.

She was given a two months rest period and was then placed on endocrine therapy, which was checked by the hormone study of the blood and urine.

Blood and urine hormone determinations were made after the administration of anterior pituitary-like and estrogenic hormones. Blood studies never showed more than a trace of estrogenic hormone, but the urine showed a rapid elimination of both hormones.

During periods of rest, when no hormone treatment was administered, the content of estrogenic factor in the urine was 4½ rat units per liter, estimated by the Kurzrok method; the blood began to show a more constant presence of estrogenic hormone (Frank-Goldberger technique).

After treatment over a period of one year there was some improvement in the physical and psychologic make-up of the patient. The voice began to lose its masculine tone, she became less timid and silent, and her body rounded out a little. However, she did not begin to menstruate. There was no noticeable breast development, and the growth of hair on her face continued to be her great concern. She had to shave twice a week. I felt that a growth hormone was necessary to supplement the sex hormones. An aqueous preparation of the anterior lobe of the pituitary prepared by the van Dyke and Wallen-Lawrence method (University of Chicago) was obtained from the Wilson Laboratories.

From the service of Dr. Edwin Steiner, Department of Gynecology, Newark Beth Israel Hospital.

Read before the annual meeting of the Alumnae Association of the Women's Medical College, Philadelphia, June 6, 1933.

¹ Young, H. H. *Bull. Johns Hopkins Hosp.* 25: 165 (June) 1924.

I used this preparation in conjunction with filtered pregnancy urine. Certain German scientists assert that pregnancy urine from the fourth to the seventh month contains not only estrogenic and anterior pituitary-like hormones but also a growth hormone.

Five cubic centimeters of filtered pregnancy urine and 1 cc of the growth-inducing preparation were given intramuscularly every other day. This was supplemented by diathermy to vascularize the pelvis. Small doses of desiccated thyroid were given at intervals. March 16, 1933, after eight or ten weeks, when the patient was 18½ years of age, she had her first menstrual period, which lasted seven days. Besides the establishment of the period, the growth of hair on her face began to diminish. She uses a hair remover for her face only once every two weeks. Her features and body are rounding out, the breasts are beginning to develop, and the voice is almost entirely feminine in character.

The girl is bright and alert and looks very happy. Until about six months ago she spoke little, was very self-conscious and looked like a hunted animal.

After her first menstrual period, she returned to me for further treatment of filtered urine injections and pelvic diathermy. Her second period occurred after six weeks of this treatment. The growth hormone was not used, since a fresh supply was not available at that time. So far the girl has had three more periods, from four to five weeks apart, lasting four or five days.

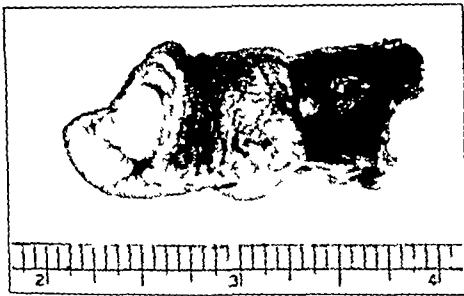


Fig 2—Removed appendage shows all the characteristics of a penis except for the absence of a urethra.

COMMENT

Many striking and varied cases of true hermaphroditism and pseudohermaphroditism have been reported in medical literature. The most interesting case is that reported by Dr James C Masson² in 1925 and by Dr Burden³ in 1924 in which an apparently normal man of 30 developed periodic attacks of hematuria, lasting from three to four days and appearing at intervals of from four to five weeks.

At the age of 40 this man was operated on for an abdominal tumor and found to have a didelphic uterus, both horns being distended with menstrual blood, the cervix leading into a small pouch, which opened into the urethra. Normal ovaries containing cysts were found in the broad ligaments and testicular tissue was found on each side containing spermatozoa in the ducts.

In true hermaphroditism and pseudohermaphroditism the change in secondary sex characters usually appears at the time of puberty, when the whole chain of endocrine glands receives an impetus to new and vigorous activities. The change in the growing child is noticed by the parents and any abnormalities become evident at that time.

It is usually at this period that the physician is consulted and the responsibility of determining the true sex of the individual often rests on the consultant.

Sometimes it is best to bring up the individual as a female in spite of the presence of male gonads and vice versa. Environmental inclinations and social standing must be considered. The

point is well illustrated by the case reported by Dr Walton Martin,⁴ in which a deaf and dumb imbecile brought up as a girl was later proved to have undescended testicles in the inguinal regions and a penis bound down by adhesions, the urethra opened into a vagina. It was deemed best to remove the testicles, amputate the penis, and leave the patient as a girl.

Recent advances in the hormone study of the blood and urine have proved to be of considerable help in the diagnosis and treatment of the patient whose case is presented on these pages.

Later studies showed the gradual increase in the ovarian activity and also the presence of a possible low renal threshold, the latter conclusion is drawn from the fact that the ovarian and pituitary-like preparations administered intramuscularly were rapidly eliminated in the urine.

SUMMARY

The value of the results of the blood and urine hormone studies is as follows:

- 1 Direct aid to diagnosis and treatment
- 2 Indication of the presence of the ovaries and the amount of ovarian activity
- 3 Determination of the renal threshold by the rate of elimination of hormones

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SUPRARENAL VIRILISM IN A WOMAN

(TUMOR OF AN EXTRARENAL SUPRARENAL REST)

ANATOLE KOLODNY, M.D., Ph.D., SIOUX CITY, IOWA

Virchow's statement "propter ovarium solum mulier est quod est" (woman is what she is solely because of the ovary) is refuted by present-day knowledge of the functional relationship of the various ductless glands to the sexual life of woman. Since Apert in 1910 called attention to the influence of a hyperplasia of the suprarenals on the female sex characteristics, numerous contributions to this question have appeared in the literature and abundant clinical material demonstrating this fact has been placed on record. Anatomic studies have appeared explaining this functional relationship since the anlage of the suprarenal cortex appears to be close to the sex gland anlage, both primordia partly coalesce and hence their functional interdependence in later life.

For this clinical relationship Gallais coined the descriptive term "syndrome genitosurrenale." The literature abounds with reports of cases demonstrating this syndrome, in which tumors of the suprarenals cause sex abnormalities. However, it has never been sufficiently established that similar sex disturbances might appear in the wake of a tumor arising from an extrarenal suprarenal rest. The only literature dealing with sexual abnormalities appearing as a consequence of tumors of extrarenal suprarenal rests refers to tumors of the ovary, the "ovarian hypernephromas," which probably are related to the arrhenoblastomas.

The extrarenal suprarenal rests first described by Marchand, the so-called Marchandsche Nebennieren, are to be found distally to the lower pole of the kidney, between the kidney and the genital glands. In the female, these rests are found in the ligamentum latum and in the male in the neighborhood of the testis and spermatic cord. Later Schmorl described suprarenal rests also in the region of the solar plexus. The literature does not contain any evidence that the latter suprarenal rests may give rise to tumors leading to sexual disturbances.

I aim to place on record an unusual case of the "syndrome genitosurrenale," which accompanied a cortical suprarenal tumor arising in an extrarenal suprarenal rest in the region of the solar plexus.

A white woman aged 37, the mother of a grown son, felt a lump in the left epigastrium in the fall of 1932. The lump was growing fast and soon she complained of digestive diffi-

² Masson J C True Hermaphroditism Am J Obst & Gynec 81:86 (Jan) 1925
³ Burden A G J Urol 12 153 (Aug) 1924

⁴ Martin Walton Pseudohermaphroditismus Masculinus S Clin North America 9 535 544 (June) 1929

culties. About eight months before she had felt the lump, menstruation had stopped entirely. Two months after the cessation of menstruation she was growing a mustache and hair on the chin. The thorax as well as the inner upper arm and below the navel were covered with hair. During the last six months she felt a fullness in her head and thumping in her ears and head when she was lying in bed. Despite a sick feeling in the stomach and an inability to consume proper amounts of food, she gained 8 pounds (3.6 Kg.) in six months.

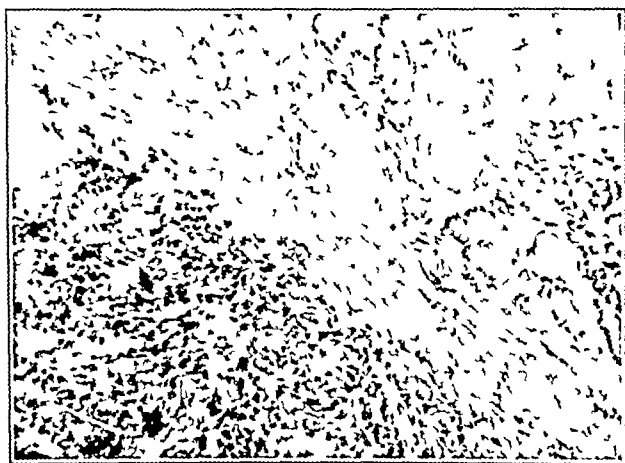


Fig. 1—Section of the tumor which penetrated through the muscular layer of the stomach and approached the gastric mucosa.

She was rather obese, her voice was coarse and ugly and the skin was red and rough. Instead of the female horizontal pubescence there was a definite male vertical. The face, chin, upper lip, forearms, arms, thighs and legs were covered with hair. The scalp was dry. The clitoris was at least twice the normal size. The labia were covered with hair and the breasts were quite small. The blood pressure in millimeters of mercury was 185 systolic and 105 diastolic. The hemoglobin was 35 per cent (Dare).

An examination of the abdomen showed a tumor the size of a child's head in the epigastrium to the left of the middle line. The tumor felt smooth, soft, elastic and definitely adherent to the anterior abdominal wall. Palpation and moving of the tumor caused eructations of gas. The gastric secretion following the ingestion of a test meal showed a complete absence of free hydrochloric acid and a greatly reduced combined acidity. There was in the gastric contents definite evidence of blood. A fluoroscopic examination showed a large filling defect along the greater curvature of the stomach. The transverse colon was fixed to the tumor at its inferior border.

Because of the masculinization of the patient, suprarenal tumor was suspected. An examination of the kidneys showed them to be normal in size, location and function. With these observations I was rather at a loss as to the exact diagnosis, although it was evident that surgery was indicated and justified. The patient was operated on, December 20. Several blood transfusions preceded the operation. The tumor was found to be the size of a child's head, adherent to the anterior abdominal wall. The transverse colon was tightly stretched over the inferior and posterior aspect of the tumor. A careful dissection of the transverse colon showed that the tumor approached it through the mesocolon. One could definitely distinguish the two sheets of the peritoneum forming the mesocolon, pushed apart by the tumor that was wedging in from behind and approaching the transverse colon. Following the dissection of the transverse colon the tumor was free throughout, with the exception of its superior aspect where it approached the stomach. Here there was a very intimate connection between the tumor and the stomach. The tumor invaded the stomach, destroyed a large portion of the greater curvature and grew into the stomach cavity, causing a narrowing and obstruction of it. Since only a resection of the stomach would make possible a complete removal of the tumor, gastric

resection according to the first method of Billroth was done, and the tumor together with 15 cm. of the stomach removed.

The patient made a good postoperative recovery. She left the hospital on the fourteenth day after operation. The refeminization of the patient was striking. Six weeks after the operation she menstruated for the first time in the past ten months. Her libido, which had been absent for the past year and a half, commenced to return. Her voice became more feminine and the growth of hair on the face was disappearing. She kept improving rapidly until six months after the operation, when a pain developed in the right side of the chest. A roentgen examination revealed pulmonary metastases and the patient died seven months after the operation. Up to the time of her death her appearance kept getting more feminine and menstruation remained normal.

The pathologic specimen showed the distal half of the stomach invaded by a tumor weighing 1,250 Gm. The tumor was round, soft, fragile, grayish yellow and very vascular, containing many hemorrhagic areas. Numerous yellow white nodules were seen dispersed throughout the soft hemorrhagic mass. The capsule of the tumor was intact except at the point of invasion of the stomach.

The histologic examination showed wide strands of large clear cells anastomosing freely with one another. Abundant droplets of lipoids were demonstrated in the cells, while no sign of degeneration was seen in them. The Lubarsch glycogen reaction was positive. Widely gaping thin-walled blood vessels coursed between the wide strands of polygonal cells. In other areas a tubular perivascular arrangement predominated. The tubules were surrounded by a vascular stroma. Large polyhedral cells with round or oval nuclei formed these tubules. The cytoplasm of the cells was vacuolated or foamy from the presence of fat or doubly refractive material. In general the appearance of the growth recalled the suprarenal cortex, and the general arrangement of the cells, connective tissue and vessels suggested the zona fasciculata.

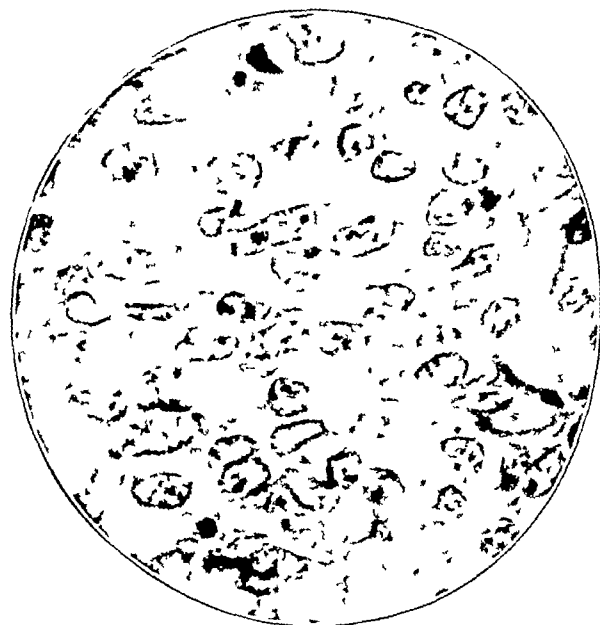


Fig. 2—Section showing the foamy appearance of the cells.

The situation of this tumor as found at operation between the leaves of the mesocolon suggests the origin of the tumor from a suprarenal rest in the region of the solar plexus. Such a situation of an extrarenal suprarenal rest is unusual, since most suprarenal rests are found along the internal spermatic vein or in the neighborhood of the pelvic organs. This is the first report of a case of suprarenal hirsutism developing as a result of a cortical suprarenal tumor arising in a suprarenal rest in the neighborhood of the solar plexus.

PRIMARY CARCINOMA OF THE LUNG IN A TWENTY
THREE YEAR OLD MAN

L A CROWELL JR MD, LINCOLTON, N C

Since primary carcinoma of the lung is rare in the twenties I thought it would be of interest to present this case

H D R, a man, aged 23, a textile foreman, admitted to the Lincoln Hospital, July 14, 1933, suffered chiefly from cough, dyspnea, pain in the right side of the chest and weakness. The illness began May 26, seven weeks before admission, with the sudden development of a cough with expectoration of brown sputum. The family stated that he had seemed more irritable and out of sorts since February 1933 and had lost weight during that time, although he had had no definite localizing symptoms. The cough got steadily worse until two weeks before admission, when the patient, while at work, suddenly had a severe lancinating pain in the middle of the right chest made worse by inspiration and by the beating of the heart. He immediately sought medical aid, went to bed and received symptomatic treatment.

During the succeeding ten days the cough disappeared, the expectoration decreased and the pain abated. A tuberculosis specialist at this time recommended sanatorium observation.

July 11 the patient suddenly became more dyspneic, the pain dull in character, became more intense, cyanosis increased, weakness increased, appetite disappeared, the digestion became poorer, and the heart beats became more frequent.

Previous to the present illness the patient had always been in rugged good health. He had worked in the spinning room of a cotton mill for ten years. The patient had influenza one year before but had never had pneumonia. There was no history of lung disease in his or in his wife's family.

On admission the patient's temperature was 100.4 F, the pulse was 100 and respiration was 30 and labored. The blood pressure was 125 systolic and 85 diastolic. There was a moderate amount of pyorrhea, the tongue was coated a brownish white, the tonsils were normal and the thyroid gland was slightly palpable.

The superficial veins in the neck and in the epigastric and hypochondriac regions were moderately distended. The patient was laboring for breath and made a slight expiratory grunt. The skin and mucous membranes were slightly cyanotic. At this time there was a noticeable puffiness in the right supraclavicular space and a slight fullness about the head neck and the upper half of the chest. The patient was unable to sit or stand for more than thirty seconds without going into a violent paroxysm of coughing, followed by severe dyspnea and cyanosis. The heart rate greatly increased at each such attempt. No adventitious heart sounds were heard. The cardiac apex was displaced 1 inch to the left.

Examination of the right lung revealed diminished expansion, a flat note below the second rib anteriorly and dullness from the apex to the second rib. Breath sounds over the entire side were greatly diminished. Whispered voice sounds were increased especially over the upper half. Tactile vocal fremitus was diminished over the entire side. Three or four punctate scars from unsuccessful attempts made to aspirate the right pleural space seven and ten days before admission were found about the inferior angle of the right scapula.

Examination of the left lung revealed no abnormalities except slight prolongation of expiration and slight exaggeration of breath sounds.

The epigastric and hypochondriac veins were distended. The right lobe of the liver was enlarged to four fingerbreadths below the costal margin and the left lobe was two fingerbreadths below. All reflexes were negative.

The blood count revealed 12,000 leukocytes of which 78 per cent were polymorphonuclears, hemoglobin was 75 per cent, the urine was normal and the blood Wassermann reaction was negative. A single roentgenogram of the chest revealed the right lung field completely blotted out by an opaque density except for two or three irregular small areas of greater transmission of the rays in the upper lobe area. An oblique roentgenogram of the chest, made nine days after admission, showed a fluid level at the level of the clavicle. (Special precautions were

taken during the aspiration, by the use of a rubber tube between the syringe and the needle, to prevent the suction of air into the pleural space during aspiration.)

On the day of admission, 650 cc of port wine colored fluid, having a moderate tendency toward coagulation, was removed from the right pleural space. This fluid had a specific gravity of 1.0145. A differential cell count showed 94 per cent lymphocytes and 6 per cent polymorphonuclear leukocytes. The red cells were abundant. No other cells were found. Albumin was present, 10.5 per cent wet and 2 per cent dry. No tubercle bacilli were found on direct smear or on the inoculation of 10 cc of fluid sediment into a guinea-pig. No aerobic growth was obtained. The patient experienced considerable relief after that aspiration.

Two days after admission an attempt to aspirate the chest was unsuccessful even at the site of the previous aspiration. On the fourth day following admission the patient began to show distinct signs of edema about the right shoulder and neck. This, at first, was nonpitting in character.

Six days after admission 800 cc of port wine colored fluid was aspirated from the right pleural space. This contained many red cells. At the end of this operation the patient went into a paroxysm of coughing and became dyspneic and somewhat cyanotic but soon recovered his breath and color. During the succeeding week edema and cyanosis increased rapidly, and a peculiar flatness appeared in the tone of the patient's voice. Cough increased and became productive of from half an ounce to an ounce of brown, rusty and frothy sputum. The patient gradually became more restless and sleepless. The aspiration of 800 cc of fluid seemed to relieve the dyspnea and reduce the edema slightly but not as much as the first one. On the eighth day following admission 500 cc of the same type of fluid was withdrawn, which showed a marked tendency toward coagulation. By this time the edema of the neck, shoulder and head had become quite marked and had become pitting in character.

Ten days after admission, 250 cc of fluid was withdrawn with difficulty. On the thirteenth day 150 cc was withdrawn with greater difficulty, and from then on the needle failed to find the pleural space but seemed to strike tough tissue just beyond the depth at which it had been customary to obtain fluid. By this time the patient's cough had increased until it was almost continuous, in spite of liberal doses of cough medicine. While the patient was coughing there would appear over the head, neck and right side of the chest a diffuse blush. Signs of oxygen want became increasingly evident.

About August 1 the patient was put on morphine, with little apparent effect. During the third week after admission the leukocyte count was the same, but the polymorphonuclear count had moved from 78 to 85 per cent. Three days before death the patient became slightly delirious and began having hallucinations and talking at random, with occasional periods of lucidity. On the day before death the white blood count was 15,000 with 90 per cent polymorphonuclears, and examination of the urine was negative.

The edema continued and the patient's head, neck and shoulders became enormous. Toward the last he was unable to turn his head, the trachea seemed almost entirely occluded and respiration was carried on with great difficulty and effort.

Edema of the left lung appeared two days before death. There was surprisingly little displacement of the mediastinum at this time—only about 1 inch.

The temperature during his stay in the hospital ranged from 97 to 102.6 F, tending to be higher as the patient approached death, the pulse ranged between 78 and 150, tending to get higher as the patient neared death, the respiration rate ranged from 9 to 50, getting higher as the end approached, except that the rate gradually went down during the last eighteen hours.

The autopsy revealed that the right lung was a solid mass of tough but friable tissue. The upper two lobes and the upper half of the lower lobe were fairly hard and dense, but the lower half of the lower lobe was necrotic and semiliquefied. The pleural space on the right was almost completely obliterated, and the upper and middle lobes of the right lung were pressed hard into the superior mediastinum, especially against the superior vena cava, trachea and right pulmonary veins. The lumen of the superior vena cava was practically occluded and

the trachea was bowed to the left and its lumen was reduced 75 per cent at the point of greatest pressure

Serous fluid was found in the pericardium, the left pleural space and the peritoneal cavity. No enlarged lymphatic glands or metastases were found anywhere. The liver, however, was enlarged from chronic passive congestion.

The cut section of the diseased lung was grayish white and solid and showed small white nodules in the pleura and areas of necrosis and softening in the deeper tissue.

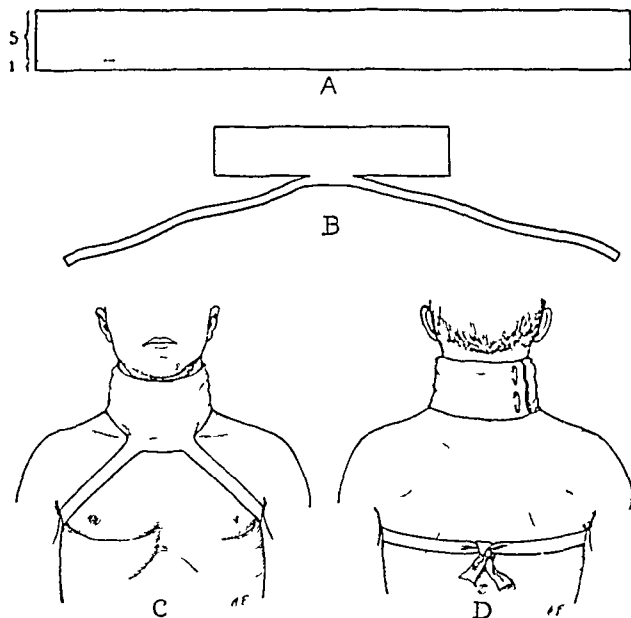
Paraffin sections showed none of the original lung structure but showed a diffuse infiltrating neoplastic growth with necrosis and hemorrhage and excessive connective tissue. The cell was spindle shaped and columnar and arranged in hollow alveolar formation in the softer tissue.

The diagnosis was carcinoma, derived from the epithelium lining the bronchus.

A SIMPLE METHOD FOR RETAINING THYROID DRESSINGS

MANDEL WEINSTEIN, M.D., LONG ISLAND CITY, N. Y.

The low position of a thyroid incision has always presented a problem in postoperative bandaging. This region is too low for a properly applied neck bandage and too high for a chest dressing. The usual methods for retaining sterile gauze dressings following thyroidectomy include fixation by adhesive plaster



Supporting bandage for thyroid incision. A, pattern for cutting bandage; B, finished bandage; C, D, application of bandage front and back.

or gauze bandaging. Retention by adhesive strips is uncomfortable, traumatizes sensitive skin and prohibits movements of the neck on the trunk. Gauze bandaging, on the other hand, is bulky, limits motion of the neck and causes pain and discomfort, owing to pressure and tension over the wound.

The supporting bandage that I have been using is made as follows: A flannel bandage 6 inches in width is cut to a length of approximately 36 inches. The width is reduced by a 1 inch strip, cut from each end and almost meeting at the center (A in the illustration), allowing the 1 inch strip to remain attached by approximately 2 inches. The wider flannel band, 5 inches in width, is used to enclose the neck, while the 1 inch band spans the chest, passes under each axilla and is tied in the back. One roughly measures the length of the wider band necessary to cover the sterile bandages and encircle the neck, and this is shortened accordingly (B). However, the narrower band of flannel must of necessity remain long to be tied behind

the patient (C, D). Safety pins or narrow adhesive strips are used to fasten the neck band, while a simple bow or knot finishes off the chest strip of flannel. This flannel bandage is removed with ease and may be used for several days without being replaced. In addition, patients enjoy the warmth from the flannel bandage and the complete enclosure of the neck.

Jackson Avenue and Twelfth Street

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS COMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES TO WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

ORTAL-SODIUM — Sodium *n*-hexylethyl barbiturate.—

Sodium *n*-hexylethyl malonylurea— $\text{NaCH}_2\text{CH}(\text{CH}_2)_4\text{CH}_2\text{C}(\text{CH}_3)(\text{CH}_2)_4\text{C}(\text{NHCO})\text{NCO}$. The monosodium salt of

n-hexylethyl barbituric acid. Ortol-sodium differs from soluble barbituric acid, U. S. P. (sodium diethylbarbiturate), in that one of the ethyl groups of the latter is replaced in the former by a *n*-hexyl group.

Actions and Uses.—The actions and uses of ortol sodium are essentially similar to those of barbituric acid, but ortol sodium is more active than barbituric acid and it is used in correspondingly smaller doses.

Dosage. From 0.2 to 0.4 Gm. (3 to 6 grains) followed by a glass of water. It is rarely necessary to give more than 1 Gm. (15 grains) in twenty-four hours. When oral administration is contraindicated, ortol sodium may be administered rectally.

Manufactured by Parke Davis & Company, Detroit, U. S. patent 1,624,546 (April 12, 1927, expires 1944). U. S. trade mark 302,616.

Capsules Ortol Sodium 3 grains (0.2 Gm.)

Caution. Aqueous solutions of ortol sodium are not stable but decompose on standing; on boiling a precipitation occurs with evolution of ammonia.

Ortol sodium is an odorless white or slightly yellowish powder with a bitter taste, very soluble in water, soluble in alcohol, practically insoluble in ether and benzene. An aqueous solution of ortol sodium has an alkaline reaction to litmus.

Dissolve about 0.5 Gm. of ortol sodium in 100 cc. of water and an excess of diluted hydrochloric acid, collect the resultant hexylethyl barbituric acid on a filter, wash and dry at 90° C. It melts at 122–123° C. Incinerate about 1 Gm. of ortol sodium; the residue responds to tests for sodium carbonate. Boil about 0.5 Gm. of ortol sodium with 5 cc. of a 25 per cent sodium hydroxide solution; it is decomposed with evolution of ammonia. Dissolve about 0.3 Gm. of ortol sodium in 10 cc. of water and divide into two portions; to one portion add 1 cc. of a mercuric chloride solution; a white precipitate results, soluble in an excess of ammonia; to the other portion add 5 cc. of silver nitrate solution; a white precipitate results, soluble in an excess of ammonia.

Dissolve about 0.5 Gm. of ortol sodium in 50 cc. of water and add 5 cc. of diluted nitric acid and filter through paper. Separate portions of 10 cc. each of the filtrate yield no greater opalescence on the addition of 1 cc. of silver nitrate solution than that produced by 0.25 cc. of tenth normal hydrochloric acid in 50 cc. of water (chloride) nor turbidity on the addition of 1 cc. of barium nitrate solution (sulphate). To about 0.2 Gm. of ortol sodium in 25 cc. of water add 1 cc. of diluted hydrochloric acid; filter through paper; the filtrate yields no coloration or precipitation on saturation with hydrogen sulphide (salts of heavy metals). Add about 0.1 Gm. of ortol sodium to 1 cc. of sulphuric acid; the solution is colorless (readily carbonizable substances).

Transfer about 1 Gm. of ortol sodium accurately weighed to a glass stoppered cylinder, add 50 cc. of anhydrous ether, stopper and shake for ten minutes; decant the supernatant liquid through filter paper and repeat twice using 25 cc. and 15 cc. portions respectively of ether, utilizing the same filter; evaporate the combined filtrates to dryness in a tared beaker and dry to constant weight at 90° C. The residue does not exceed 0.5 per cent (uncombined hexylethyl barbituric acid).

Dry about 1 Gm. of ortol sodium accurately weighed to constant weight at 100° C. The loss does not exceed 2.5 per cent. Transfer about 0.5 Gm. of ortol sodium accurately weighed to a suitable Squibb separatory funnel, add 50 cc. of water followed by 10 cc. of diluted hydrochloric acid, extract with eight successive portions of ether in 25 cc. each; evaporate the combined ethereal extractions to dryness in a stream of warm air and dry to constant weight at 90° C. The amount of hexylethyl barbituric acid corresponds to not less than 90.8 per cent nor more than 91.6 per cent calculated to the dried substance. Transfer the acidulated aqueous portion from the foregoing immiscible solvent extraction to a tared platinum dish and evaporate to dryness on a steam bath; to the residue obtained add 5 cc. of sulphuric acid; heat cautiously until the excess of sulphuric acid has been volatilized; repeat twice using portions of 1 cc. each of sulphuric acid each time; add about 0.5 Gm. of ammonium carbonate; ignite to constant weight and weigh as sodium sulphate; the percentage of sodium corresponds to not less than 8.5 per cent nor more than 9 per cent when calculated to the dried substance.

DIGALEN-ROCHE (CLOETTA) (See New and Non-official Remedies, 1934, p 158)

The following dosage form has been accepted
Tablets Digalen Roche 1 Cat Unit

DEXTROSE (See New and Nonofficial Remedies, 1934, p 270)

The following dosage forms have been accepted

Ampoule Solution Dextrose 25 Gm in 50 cc Each ampule contains dextrose U S P 25 Gm in distilled water to make 50 cc buffered with sodium citrate 0.25 per cent

Prepared by John Wyeth & Brother Inc Philadelphia

Ampoule Solution Dextrose 50 Gm in 100 cc Each ampule contains dextrose U S P 50 Gm in distilled water to make 100 cc buffered with sodium citrate 0.25 per cent

Prepared by John Wyeth & Brother Inc Philadelphia

PROCAINE BORATE-SEARLE (See New and Non-official Remedies, 1934, p 59)

The following dosage form has been accepted

Tablets Procaine Borate without Epinephrine Each tablet contains procaine borate Searle 0.05 Gm (34 grain)

SHEFIELD B ACIDOPHILUS MILK—A whole milk cultured with *Bacillus acidophilus*. It contains not less than 250 million viable organisms per cubic centimeter at the time of sale

Actions and Uses—See general article Lactic Acid-Producing Organisms and Preparations, New and Nonofficial Remedies, 1934, p 250

Dosage—For adults 1000 cc per day, increased or decreased to meet individual requirements. When employed in infant feeding it may be diluted with boiled water. Sheffield B acidophilus milk must be kept in a cool place and should be used prior to the expiration date stamped on the label

Manufactured by the Cheplin Biological Laboratories Inc Syracuse N Y (Sheffield Farms Co Inc New York N Y distributor) No U S patent or trademark

Fresh whole cow's milk with a butter fat content of not less than 3 per cent is sterilized at 100 C for two hours. After cooling to 37 C the milk is inoculated with a twenty hour seed culture of pure strains of *Bacillus acidophilus*. After inoculation the milk is kept at 37 C for from twenty to twenty-four hours until an acidity is reached such that 10 cc will require for neutralization 8 cc of tenth normal sodium hydroxide solution phenolphthalein being used as indicator. The product is then cooled agitated until homogeneous and transferred to one-half pint and quart bottles. The strains of *Bacillus acidophilus* used are isolated by Cheplin. To insure a high degree of activity and colonization within the human alimentary tract the organism is freshly isolated from human intestinal contents as frequently as is found necessary through actual feeding experiments

PRELIMINARY REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING
PRELIMINARY REPORT PAUL NICHOLAS LEECH Secretary

CYSTEINE HYDROCHLORIDE

Substances containing a negatively charged sulphur atom have been used in the treatment of cutaneous ulcers. The work of Reimann¹ with thiocresol was a forerunner. Thiocresol possessed certain disadvantages, such as undue irritation and unpleasant odor. Kendall,² after isolating crystalline glutathione suggested that it might have essentially the same effect as thiocresol owing to the common presence of the S-H or sulphhydryl radical. The results obtained by Brunsting and Simonsen³ showed glutathione definitely effective but, because of expense cysteine was substituted by these authors in subsequent investigations.

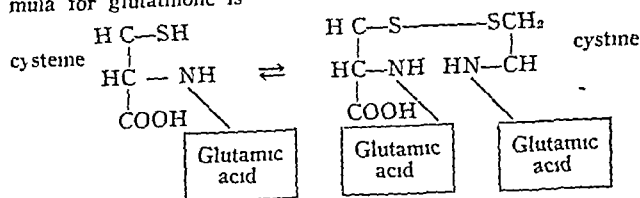
Intractable persistent, unhealthy ulcers of various origin are reported as responding with a fair measure of success when due to trauma, burns and circulatory defects but practically no response is found in the specific ulcerations (i.e. scrofulous sinuses, Bazin ulcers, nodulo ulcerative syphilids, pustular psoriasis, lichen simplex and lichen planus).

¹ Reimann S P. Use and Reasons for the Use of Thiocresol to Stimulate Wound Healing. J A M A 94 1369 (May 3) 1930

² Kendall E C, McKenzie B F and Mason H L. A Study of Glutathione. I. Its Preparation in Crystalline Form and Its Identification. J Biol Chem 54 657 (Nov.) 1929

³ Brunsting L A and Simonsen D G. Cutaneous Ulcers Treated by the Sulphydryl Containing Amino-Acid Cysteine. J A M A 101 10 (Dec 16) 1931

It is worthy of comment that an amino-acid such as cysteine, whose bimolecular oxidation product, cystine, is one of those qualitatively necessary in the protein fraction of the diet, should exhibit such stimulating properties on damaged tissue, but the action may be explained on reasonably sound theoretical grounds, which, however, are entirely speculative. The formula for glutathione is



Reduced glutathione

Oxidized glutathione

It is the opinion of F Gowland Hopkins that glutathione plays a very significant if not fundamental role in oxidative metabolism within the cell. He has demonstrated⁴ a relatively constant concentration of about 0.01 per cent in healthy tissues. It is apparent that the glutamic acid is, for all practical purposes, inert and that the reaction centers in the SH group and the cysteine \rightleftharpoons cystine conjugation. Whether cysteine and cystine can or do act as does glutathione is not so important, since an additional conjugation with glutamic acid could conceivably take place within or adjacent to the cell, thus producing the active compound.

The possibility immediately suggests itself that the stimulating properties of cysteine, applied locally, lie in the production of a greater intracellular metabolism brought about either by the cysteine itself or by glutathione formed at the site of application. The simple chain of events would be (as is well demonstrated for cell growth)

Increased metabolism \rightarrow karyokinesis \rightarrow multiplication \rightarrow tissue repair

That this may actually be the mechanism is suggested more strongly by the fact that the lesions wherein good results were obtained consisted in ischemic unhealthy, devitalized tissues *not* the seat of specific disease, while little effect was found in the specific ulcerations.

Adlersberg and Perutz⁵ have effected more rapid healing of indolent leg ulcers by the local application of insulin, a compound that is known to contain suboxidized sulphur. While Hammett⁶ was unable to verify their work with oxidized glutathione, both he and Voegtlin and Chalkley⁷ (the latter working with *Amoeba proteus*) have demonstrated increased nuclear and cytoplasmic division in the presence of glutathione in 1:100,000 dilution. The effect is reported to be much more pronounced in the case of more mature (larger) amoebas and practically absent in the smallest specimens. Results of that sort would apparently indicate that the sulphhydryl group might not have a stimulating effect on malignant tissue, since such tissue is relatively immature. However, in the light of other studies, by Voegtlin and Thompson⁸ and by Lecloux⁹ it appears certain that cysteine or a sulphhydryl (-SH) compound should not be applied to malignant or precancerous ulcerations. These authors have shown that active tumor tissue contains as much glutathione as liver substance which is among the richest of all organs in that compound. In the same paper on *Amoeba proteus*, Chalkley and Voegtlin^{7a} record the proliferative effect on nuclei to be much more pronounced than that on cytoplasm, a fact that further militates against the use of

⁴ Hopkins F G and Elliott K A C. Relation of Glutathione to Cell Respiration with Special Reference to Hepatic Tissue. Proc Roy Soc B London 109 58 (Sept 1) 1931

⁵ Adlersberg D and Perutz A. Beeinflussung der Regenerationsfähigkeit der Haut durch lokale Applikation von Insulin. Klin Wchnschr 6 105 (Jan 15) 1927

⁶ Hammett F S. Chemical Stimulus Essential for Growth by Increase in Cell Number. Proc Am Philos Soc 68 151 (April) 1929

⁷ (a) Chalkley H W and Voegtlin C. Chemistry of Cell Division. Inhibition of Cell Division of *Amoeba proteus* by High Dilutions of Copper Salts—Antagonism of Copper and Glutathione. Pub Health Rep 17 535 (March 4) 1932 (b) Voegtlin C and Chalkley H W. Chemistry of Cell Division. I. The Effect of Glutathione on Cell Division in *Amoeba proteus*. Ibid 45 3041 (Dec 12) 1930

⁸ Voegtlin C and Thompson J W. Glutathione Content of Normal Animals. J Biol Chem 70 793 800 (Nov.) 1926

⁹ Lecloux J. Facteurs energetiques de la croissance des tissus cancéreux. Liege med 22 329 405 452 1929

sulphydryl-containing substances on malignant tissue, which always contains a greater percentage of mitotic or potentially mitotic nuclear material, and relatively less cytoplasm, than its normal counterpart

It should be remembered that, however promising and unique (in modus operandi) the method may be, it should until the development of further confirmatory evidence, be considered as a possibly helpful adjunct to the older, established treatments for refractory cutaneous ulcers of nonspecific origin

It is well to emphasize that cysteine should not be used in the treatment of any cutaneous ulceration in which possibly malignant or premalignant conditions cannot be excluded

The Council voted to postpone consideration of cysteine hydrochloride until further evidence becomes available. If sufficient data warrant acceptance in the future, the A. M. A. Chemical Laboratory will be asked to investigate the product with a view to elaborating standards

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
PAUL NICHOLAS LEITCH, Secretary

I-X BARIUM MEAL OMITTED FROM N N R AND I-X BARIUM UNFLAVORED NOT ACCEPTABLE FOR N N R

I-X Barium Meal (Dick & Ryan Co.) was accepted by the Council in 1929 as a barium sulphate preparation for use in roentgen examination of the gastro-intestinal tract. It is described as a mixture of barium sulphate, U. S. P. 85 per cent, native aluminum silicate, 10 per cent, malted milk (malt extract powder), 5 per cent, and a trace of saccharin. The period for which the product was accepted expiring at the close of 1932, the firm was asked for evidence for its eligibility for continued inclusion in New and Nonofficial Remedies.

A short time previously the firm had presented for the Council's consideration an additional barium sulphate preparation for roentgen examination of the gastro-intestinal tract. I-X Barium Unflavored, stated to consist of barium sulphate U. S. P. 92½ per cent and "the same suspension agent used in I-X Barium Meal in the amount of 7½%.

The firm submitted an advertising circular dealing with both the accepted and the newly submitted products. The Council found a number of objections to this circular: some generalized claims of superlative merit and the claim that with the use of the products "Constipation is Minimized and Better Radiographs Result." The firm was asked to tone down the superlative statements and to submit evidence to substantiate the two claims just mentioned. The firm was also informed that, in accordance with the Council's requirements for similar products, the word "sulphate" should appear in the names of the two products and, further, that a quantitative statement of the composition should appear in advertising and on the labels of the respective products. Ample time was accorded the firm to use up existing stock of the advertising and of the lithographed cans in which the products are marketed.

The firm was further informed that the product previously accepted as "I-X Barium Meal" would be reaccepted as "I-X Barium Sulphate Meal" and the product submitted as "I-X Barium Unflavored" would be accepted as "I-X Barium Sulphate Unflavored" when the advertising was revised to meet the objections stated and when agreement was given to make the stipulated changes of name on the trade packages and in the advertising.

The firm replied that it contemplated making a radical change in "I-X Barium Meal" "within two months," as a result of which new advertising and containers would be required, at which time the requests of the Council could be met. After the expiration of the stipulated time, the firm was asked whether these changes were being made. The firm has failed to give a satisfactory reply indicating its willingness to comply with the Council's rules. The Council was therefore obliged to omit "I-X Barium Meal" from New and Nonofficial Remedies and to declare "I-X Barium Unflavored" unacceptable for New and Nonofficial Remedies, without prejudice to future consideration of either or both products.

Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
RAYMOND HERTWIG, Secretary

ACCEPTANCE WITHDRAWN

BUTTER CREAM BREAD

The Anchor Bread Company, Sacramento, Calif., submitted to the Committee on Foods a white bread made by the sponge dough method, called Butter Cream Bread, prepared from flour, water, cream, sugar, salt, butter, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Analysis (submitted by manufacturer) —	per cent
Moisture (entire loaf)	33.3
Ash	1.0
Fat	3.7
Protein (N x 6.25)	6.4
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	55.3

Discussion of Name—"Butter cream bread" has not been defined by the United States Department of Agriculture. The baking trade has no recognized trade opinion on the composition of a "butter cream bread." Although the bread contains considerable butter and cream and somewhat more milk fat than "milk bread" their quantity is not considered sufficient to warrant the emphasis of milk fat content given by the name. The continued acceptance of this bread will serve as a precedent for the adoption of similar names for other bread brands, thereby extending any misinformative connotations of the significance of the term "butter cream" and will convey the impression that this type of bread is recognized by the United States Department of Agriculture and the baking trade, which is not the case. A food name should not unduly emphasize the importance of any ingredient, thereby misleading the public as to the composition of the product or its nutritional values.

The manufacturer was advised of these opinions but is unwilling to change the name, for business reasons. The acceptance of this bread is therefore being withdrawn and it will no longer be listed among the accepted foods of the Committee.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG, Secretary

COFFEE EDUCATIONAL ADVERTISING

Sponsor—Bureau of Coffee Information, New York

The Bureau of Coffee Information is supported by the American Can Company, which developed the vacuum process for packing coffee. Its purpose is to disseminate information about coffee.

Advertising—The advertising of this bureau is intended to promote the distribution of ground coffee in tins sealed under vacuum. The advertising provides general information on coffee, commencing with its cultivation and including various steps up to the final distribution of the roasted coffee "sealed in vacuum" in tins.

Investigation shows that freshly roasted coffee immediately sealed in vacuum in tins does not become stale in the unopened package. In this manner it is possible to deliver fresh coffee to the consumer at all times. After the can has been opened, the coffee stales as does any coffee exposed to the atmosphere.

The staleness or freshness of roasted coffee is correlated with the retention of carbon dioxide and carbon monoxide within the coffee bean. Coffee that has lost these retained gases has

also lost its freshness and possesses flavors defined as "staleness." Coffee that is quickly sealed in tins immediately after roasting retains in large measure its absorbed gases. The packing of roasted coffee in "vacuum" in tins prevents oxidation of coffee oils contributing to the well known staleness flavors.

The main advertising booklets are entitled

Coffee Facts for Homemakers
The Story of Coffee
Coffee from Tree to Consumer
What Flavor Measurement Reveals About Keeping Coffee Fresh
The Coffee Problem
The Song of the Coffee Bird
Loose Leaflets giving information on the culture, roasting and packing of coffee and brewing of coffee beverage

CERTIFOODS CERTIFIED NURSERY FOODS— VEGETABLE PUREE

VITAMIN CONTENT GUARANTEED, NO ADDED
SEASONING OR SUGAR

Distributor—Certifoods, Inc., New York, a subsidiary of the Maltine Company, New York.

Packer—Curtice Brothers Co., Rochester, N. Y.

Description—Sieved vegetable mixture containing carrots, spinach and tomatoes prepared by methods efficient for retention in high degree of the natural mineral and vitamin values, no added seasoning or sugar.

Manufacture—Definite proportions of carrots, spinach and tomatoes, prepared as previously described (THE JOURNAL, Feb 17, 1934, p 539), are mixed, heated to 71 C, sieved in an atmosphere of nitrogen gas, canned, processed and packed as described for Certifoods Certified Nursery Foods—Green Beans (THE JOURNAL, Oct 3, 1931, p 1003). The processing is for forty minutes at 116 C.

An alternative is the use of previously canned materials packed in No 10 tins, which are subsequently treated as described above.

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	92.8
Total Solids	7.2
Ash	0.7
Fat (ether extract)	0.2
Protein (N \times 6.25)	1.1
Reducing sugars before inversion as dextrose	1.6
Reducing sugars after inversion as dextrose	2.8
Sucrose (copper reduction method)	1.3
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	4.6
Calcium (Ca)	0.04
Phosphorus (P)	0.04
Iron (Fe)	0.0007

Calories—0.2 per gram 6 per ounce

Vitamins—The methods of preparation, sieving and processing are efficient to conserve the natural vitamins in high degree.

The product is guaranteed to contain 560 units of vitamin A (Sherman method), 3 units of vitamin B (Chase and Sherman method) and 3 units of vitamin G (Bourquin and Sherman method) per ounce.

Claims of Manufacturer—See this section for Certifoods Certified Nursery Foods—Green Beans (THE JOURNAL, Oct 3, 1931, p 1003).

GOLDEN STATE BRAND UNSWEETENED EVAPORATED MILK

Manufacturer—Golden State Company Ltd., San Francisco.

Description—Canned unsweetened evaporated milk.

Manufacture—The milk is collected and concentrated according to standard procedures (THE JOURNAL, April 16 1932, p 1376).

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	74.1
Total solids	25.9
Ash	1.4
Fat	7.8
Protein (N \times 6.38)	7.8
Lactose (by difference)	1.8
	9.9

Calories—1.4 per gram 40 per ounce

Vitamins and Claims of Manufacturer—See announcement of acceptance of Evaporated Milk Association Educational Advertising (THE JOURNAL, Dec 19 1931 p 1890).

HERSHEY'S MILK CHOCOLATE AND ALMONDS

Distributor—Chocolate Sales Corporation, Hershey, Pa.

Manufacturer—Hershey Chocolate Corporation, Hershey, Pa.

Description—Milk chocolate containing cane sugar, milk, cacao butter, chocolate and roasted almonds.

Manufacture—Milk chocolate (prepared as described for Hershey's Milk Chocolate (THE JOURNAL, Feb 24, 1934, p 606)) is admixed with almonds, roasted in cacao butter, molded into bars and automatically wrapped in aluminum foil.

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	0.6
Ash	1.9
Ash insoluble in water	1.5
Ash insoluble in acid	0.01
Fat	39.3
Total nitrogen	1.6
Protein (noncaffeine and nontheobromine N \times 6.25)	10.1
Casein	3.8
Sucrose	35.5
Lactose	6.7
Whole milk solids	17.2
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	47.3
*Theobromine	0.13
*Caffeine	0.01

* By Prochnow's modification of the Beckurts-Fromme method. Arch. d. Pharmaz. 247: 698, 1910.

Calories—5.8 per gram 165 per ounce

Claims of Manufacturer—Complies with the United States Department of Agriculture definition and standard.

HAWAIIAN FINEST QUALITY PINEAPPLE

- (1) BAR-JOE BRAND SLICED (VACUUM PACKED)
- (2) BINCO BRAND CRUSHED
- (3) BINCO BRAND SLICED (VACUUM PACKED)
- (4) BING BRAND SLICED AND BROKEN SLICES (VACUUM PACKED)
- (5) DELICIOUS BRAND EXTRA SLICED FANCY QUALITY (VACUUM PACKED)
- (6) DELICIOUS BRAND EXTRA CRUSHED
- (7) GROSSE POINTE QUALITY BRAND SLICED (VACUUM PACKED)
- (8) UNITED BRAND CRUSHED
- (9) UNITED BRAND SLICED AND TID-BITS (VACUUM PACKED)

Distributors—(1), (2) and (3), The Bindley Grocery Company, Marion, Ohio; (4), (5) and (6), McTighe Grocery Company, Binghamton, N. Y.; (7) R. Schayowitz and Sons, Detroit; (8) and (9), United Grocers Company, Brooklyn.

Packer—Hawaiian Pineapple Company, Ltd., San Francisco.

Description—Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole Hawaiian canned pineapple products (THE JOURNAL, April 8, 1933, p 1106, and April 29, 1933, p 1338).

PRUDENCE READY TO BROWN BEEF LOAF (PORK ADDED) WITH GRAVY

Manufacturer—Boston Food Products Company, Boston.

Description—A meat loaf prepared from United States inspected and passed by Department of Agriculture beef and pork, cracker meal, beef extract flour, seasoning (sodium chloride, onion, white pepper) and potassium nitrate.

Manufacture—United States inspected and passed by Department of Agriculture lean beef and pork cured with potassium nitrate, trimmed of gristle, sinews and other inedible matter, and peeled and sliced onions are coarsely chopped, cracker meal and gravy prepared from beef extract, flour and seasoning are added and the mixture is finely chopped and automatically filled into cans, which are sealed and processed.

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	71.9
Total solids	28.1
Ash	2.3
Sodium chloride	1.3
Fat (ether extract)	8.1
Protein (N \times 6.25)	12.8
Crude fiber	0.1
Carbohydrates other than crude fiber (by difference)	4.8

Calories—1.5 per gram 43 per ounce

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 24, 1934

A COMPARATIVE STUDY OF CLINICAL BISMUTH TREATMENTS

The extensive use of bismuth as a spirocheticide in the treatment of syphilis is comparatively recent. It has been recommended in particular for obstinate cases wherein it is regarded by some as probably superior to mercury. According to expert students¹ of the subject, the clinical efficiency of treatment with bismuth compounds in syphilis has been sufficiently demonstrated by all the available methods—by clinical progress, by the disappearance of spirochetes from lesions, and by the reversal of the Wassermann reaction. Many compounds and preparations of bismuth have been employed, so that the question of choice has come to the forefront. This is particularly true because the soluble preparations involve the danger of absorption of poisonous amounts of bismuth. According to Sollmann, Cole and Henderson¹ it may be presumed that compounds which differ in solubility differ also in rapidity of absorption, and therefore of excretion, and in promptness and duration of action. If continued action is essential, as seems probable, too rapid absorption would necessitate frequent injections, and slow absorption would not only delay the effect but tend to produce cumulation and toxicity.

The extensive investigations¹ recently reported from the School of Medicine of Western Reserve University in Cleveland have thrown some light on the physiologic aspects of the action of bismuth in some of its manifold current dosage forms. The procedure was based on the thesis that since the intensity of the excretion of bismuth is determined chiefly by the concentration in the plasma, the urinary excretion especially is a fair index of the actively circulating bismuth, and this is probably the effective bismuth, for, as with mercury, the action seems to cease promptly after the administration is discontinued, when there are still considerable amounts of bismuth fixed in the tissues. Assuming, then, that the urinary excretion of bismuth reflects the

concentration of the active element in the blood, the new data were secured from human patients through careful chemical analyses of the excreta. They lead to the conclusion that the resemblance between the different bismuth compounds is more striking than the differences, except for bismuth subsalicylate.

The various bismuth preparations differ materially as to speed of absorption. The watery solutions stand first, followed in order by oil solutions, oil suspensions of the tartrate, and finally oil suspension of the salicylate. According to the duration of the excretion, and therefore of the concentration and action, the sequence runs in inverse order. The height of the concentration and the total amount of bismuth excreted, which together represent the intensity of the action, are fairly parallel and depend more on the dosage and the frequency of the injection than on any other factor, the salicylate, however, occupies a special position. It appears undesirable, since its absorption is both too slow and too persistent. The fecal excretion of bismuth seems to be only about a tenth of the urinary excretion and fairly parallel to it. The Cleveland investigators have presented clear indications of the relation of the types of compounds now in use to the concentration of active bismuth in the blood secured by their use. As Sollmann and Cole clearly point out, however, this is not all that must be taken into consideration in the bismuth therapy of syphilis. Clinical usefulness includes other factors, such as pain of administration, convenience and cost, which were not involved in their inquiry.

VASODILATATION OF THE EXTREMITIES

In considerations of peripheral vascular disease it is becoming increasingly important to differentiate clearly between organic occlusion of the vessels and vascular spasm. Obviously the latter is conceivably subject to modification through the nervous connections that control to a considerable extent the vasomotor mechanisms of the extremities or other regions involved. In a lecture delivered before the Royal College of Surgeons of England as early as 1858, soon after Claude Bernard's classic studies on the vasomotor constriction functions of the sympathetic nervous system, Brown-Sequard¹ remarked "In those cases of gangrene in which no obstruction has been found after death in the vessels of the dead parts, it is extremely probable that a long persistent spasm of the blood vessels has existed." Of late, various methods have been proposed to determine early in the course of peripheral vascular disease whether the diminished flow of blood to an extremity is due to simple arterial spasm or to obliterative structural disease of the blood vessels. Scott and Morton²

¹ Brown Sequard C. E. Course of Lectures on the Physiology and Pathology of the Central Nervous System. Delivered at the Royal College of Surgeons of England in May 1858. Philadelphia 1873 p 148.

² Scott W. J. M. and Morton J. J. Sympathetic Activity in Certain Diseases Especially Those of the Peripheral Circulation. Arch Int Med 48 1065 (Dec) 1931.

¹ Sollmann Torald Cole H. N. and Henderson Katharine I. Excretion of Bismuth in a Series of Clinical Bismuth Treatments. Arch Dermat & Syph 28 615 (Nov) 1933.

of the University of Rochester Medical School have noted, in their studies of sympathetic activity, that the hyperthermia following the parenteral administration of a foreign protein was long ago advised as a method of treatment in many conditions, among them the peripheral vascular diseases. Brown³ applied this reaction to the diagnosis of these peripheral vascular diseases, deriving a vasomotor index from a comparison of the increase in surface temperature of the foot with the increase in body temperature. This method offered the first differentiation of spasm and occlusion in the involved area. It has been described as disagreeable to patients inconvenient to the physician, and in some cases actually attended with serious complications.

Scott and Morton's study of the sympathetic influence on the vascular system has brought to light a fundamental difference in the control of the peripheral and the splanchnic arteries. The usual surgical depth of general anesthesia entirely obliterates vasoconstriction in the extremities, while it scarcely affects that of the splanchnic area. This seems to be dependent on an anatomic or, more probably, a phylogenic difference in the vasomotor control for these regions. The vasodilatation resulting from nerve block, general anesthesia or spinal anesthesia has its limitations as a clinical procedure. Landis and Gibbon⁴ of the Hospital of the University of Pennsylvania have recently pointed out that the several tests of peripheral vasodilatation at present in use, though different in method, are similar in principle. The surface temperature of the distal portion of the cool, exposed extremity is measured thermo-electrically. Dilatation of the peripheral vessels is then produced and the rise in surface temperature is recorded. The level to which the temperature rises with complete vasodilatation has been determined in persons with normal peripheral circulation. If the surface temperature fails to reach this normal level in a room at suitable temperature, the arteries supplying the part are regarded as being unable to dilate owing to organic changes in their walls.

An exceedingly simple procedure for producing vasodilatation in the lower extremities has been investigated by Gibbon and Landis.⁵ They observed that immersing the forearms and hands in warm water produced vasodilatation in the lower extremities. In ten observations made on the spontaneously cool lower extremities of six normal subjects, the temperatures of the toes began to rise within fifteen minutes after the forearms were immersed in warm water. In all but one of these observations the surface temperature reached 32 C (89.6 F) within twenty-nine minutes after the forearms were immersed. In every instance the surface temperature exceeded 31.5 C (88.7 F),

which Morton and Scott regarded as the minimum normal response to spinal and general anesthesia. In an extension of their studies, Landis and Gibbon⁴ remark that to produce vasodilatation by this relatively simple procedure requires no special apparatus and causes much less discomfort to the patient than the injection of typhoid vaccine or the induction of spinal or general anesthesia. Heat has been used also by Lewis and Pickering⁶ and by de Takats,⁷ but special apparatus is required in the methods employed by them, the body being warmed in an electrical cabinet in the former case and by means of diathermy apparatus in the latter.

As an illustration of the practical application of the procedure of Landis and Gibbon, involving immersion of the forearms of patients in water at from 43 to 45 C (109.4 to 113 F), a statement of their observations may be cited. In seven patients with pain, coldness or cyanosis of the lower extremities, the temperature of the toes rose to levels above 32 C (89.6 F). This normal response definitely excluded the possibility of obliterative structural disease of the arteries as a cause of the diminished flow of blood in the lower extremities. Fourteen patients with thrombo-angitis obliterans or arteriosclerosis involving the lower extremities showed varying grades of organic occlusion and spasm when tested by this method. In eight of the thirteen patients who failed to show the normal vasodilator response to warming the forearms, the results were compared with those obtained by some other method of producing vasodilatation, including the intravenous injection of typhoid vaccine, the use of spinal anesthesia and anesthetization of the posterior tibial nerve. In seven of the eight patients the clinical interpretation of the results by the two methods was the same.

In their recommendation of their entirely unobjectionable technic the Philadelphia investigators conclude that, if the surface temperature of the toes rises above 31.5 C, significant obliterative structural disease of the arteries of the lower extremity is definitely absent. If the surface temperature fails to rise to this level, organic arterial obstruction is probably present. With controlled room temperature, the approximate grade of the organic obstruction is indicated by the difference between 31.5 C and the maximum temperature reached. For absolute certainty in the diagnosis of organic arterial obstruction the abnormal vasodilator responses obtained by warming the forearms should be confirmed by some other method of producing peripheral vasodilatation. Equally recent is the procedure involving the study of the peripheral pulse volume by means of the plethysmometer of Johnson.⁸ It records the pulse

³ Brown G. E. The Treatment of Peripheral Vascular Disturbances of the Extremities. *J. A. M. A.* **57**: 379 (Aug. 7) 1926.

⁴ Landis E. M. and Gibbon J. H. Jr. A Simple Method of Producing Vasodilatation in the Lower Extremities. *Arch. Int. Med.* **52**: 55 (Nov.) 1933.

⁵ Gibbon J. H. Jr. and Landis E. M. Vasodilatation in the Lower Extremities in Response to Immersing the Forearms in Warm Water. *J. Clin. Investigation* **11**: 1019 (Sept.) 1932.

⁶ Lewis Thomas and Pickering G. W. Vasodilatation in the Limbs in Response to Warming the Body with Evidence for Sympathetic Vasodilator Nerves in Man. *Heart* **16**: 33 (Oct.) 1931.

⁷ de Takats Geza. The Differentiation of Organic and Spastic Vascular Occlusions. *Ann. Surg.* **94**: 321 (Sept.) 1931.

⁸ Johnson C. A. Studies on Peripheral Vascular Phenomena. I. A New Device for the Study of Peripheral Vascular Phenomena in Health and Disease. *Surg. Gynec. & Obst.* **55**: 731 (Dec.) 1932.

volume of a digit as shown by the height of pulse waves in specially prepared tracings. According to Scupham and Johnson⁹ of Northwestern University Medical School, in persons suffering from occlusive disease of the arteries of the extremities the pulse volume wave deviated sharply in size and contour from that obtained in normal persons. The method is an objective one, more direct, it is asserted, and in some respects more reliable than the determination of skin temperature. The procedure is simple and easy of application, and with it permanent records may be obtained for accurate subsequent comparison. It is believed to be applicable, as a criterion, to all the methods for differential diagnosis between organic occlusion and angiospasm, in the same manner that determinations of skin temperature are now used. It is valuable in the determination of occlusion in the smaller arteries of a digit when other methods are not applicable. Evidently the study of peripheral vascular disease is entering on a productive period that is likely to initiate real progress in a difficult field of clinical medicine.

FURTHER EVIDENCE OF THE DISTRIBUTION OF INTESTINAL AMEBAS

Amebic dysentery became recognized as a distinct disease entity as the result of the investigations of Councilman and Lafleur in the United States in 1891. For many years it was relegated to the province of tropical medicine, because of the conspicuous incidence of intestinal amebiasis in the warmer climates. Nevertheless, in their *Human Protozoology*, published ten years ago, Hegner and Taliaferro¹ remarked that infestation with *Endamoeba histolytica*, the parasite of amebic dysentery, can no longer be considered tropical but is world wide in distribution. In fact, we can sum up the geographic distribution of all the entozoic amebas of man, they add, by saying that they all occur, in different percentages in each species, wherever man occurs. In discussing the problem of amebiasis, Craig² noted the probability that more than 5 per cent of the people of the United States harbor *Endamoeba histolytica*, and it is not unlikely that the incidence in the more southerly states is even higher. The discovery of many cases of amebic disease as well as carriers in Chicago last fall and the attendant publicity served to focus attention on a much neglected menace to health.

In such situations, to be forewarned is to be forearmed. A survey³ recently made at the University of Pennsylvania on more than a thousand college freshmen showed from the examination of a single stool per person that 4.1 per cent of these students harbored

Endamoeba histolytica. Repeated stool examinations probably would have shown a still higher incidence. Most of these young persons came from homes in Pennsylvania or New Jersey, and few had traveled extensively either in the United States or abroad. It is likely that these students became infested before coming to college, so that the incidence found indicates the presence of the parasite in these districts.

Obviously, most of the students harboring *Endamoeba histolytica* were "carriers." As the Philadelphia investigators point out, just why some persons when infested with this ameba become ill, while others do not, is not exactly known. It seems probable, however, that some individuals have a greater natural resistance to this parasite than others and also that some strains of the parasite may be more virulent than others. Wenrich, Stabler and Arnett offer some salient advice that is deserving of repetition. As amebic dysentery is considered to be rare by many medical men, the true nature of such cases is likely to be overlooked. Amebic disease is admittedly difficult to differentiate from other disturbances of the digestive tract and normally requires the finding of the amebas themselves in the feces or in the tissues obtained at necropsy. With four other amebas resident in the human bowel, proper diagnosis requires special training in the technique of examination and in the differentiation of these different types of parasites. Education on the part of the public as well as of health officials is eminently desirable. Experience has taught that early recognition of the causes of disease is one of the most effective helps not only in treatment but also in the framing of effective prophylactic measures.

Current Comment

BONE DEVELOPMENT IN SUNNY PUERTO RICO

Occasionally one hears an ironical comment on the importance of sunlight for human well being. This is not surprising in view of the confusion and uncertainty that still exist with respect to the medical or physiologic aspects of climatology. Adverse criticism, furthermore, is a justifiable and almost inevitable consequence of the exploitation of sunlight and its artificial substitutes in the form of apparatus designed to produce special types of radiant energy. There has been all too much quackery and pseudoscience about solar irradiation. Nevertheless, one could scarcely expect to find a more convincing demonstration of what sunshine actually can accomplish than is afforded by the data of Eliot and Jackson¹ on the bone development of infants and young children in Puerto Rico. Rickets is undoubtedly a rare disease in that land of intense sunlight. The study included nearly 600 Puerto Rican children from 1 to 34 months of age. The observations were made in a thoroughgoing manner and included roentgeno-

⁹ Scupham, G. W. and Johnson, C. A. *Peripheral Vascular Phenomena. III. The Peripheral Pulse Volume in Occlusive Arterial Diseases*. Arch. Int. Med. 52: 877 (Dec.) 1933.

¹ Hegner, R. W. and Taliaferro, W. H. *Human Protozoology*. New York: Macmillan Company, 1924.

² Craig, C. F. *The Amebiasis Problem*. J. A. M. A. 98: 1615 (May 7) 1932.

³ Wenrich, D. H., Stabler, R. M. and Arnett, J. H. *The Incidence of the Disease Producing Ameba (Endamoeba Histolytica) in 1,060 College Freshmen and Its Significance*. Science 79: 143 (Feb. 9) 1934.

¹ Eliot, Martha M. and Jackson, Edith B. *Bone Development of Infants and Young Children in Puerto Rico*. Am. J. Dis. Child 46: 1237 (Dec.) 1933.

graphic appearance of the bones and analyses of the blood. Only five cases of rickets were detected, an incidence of less than 1 per cent. Even some of these exceptions were readily explained. One was a case of frank severe rickets, that of a 7 months old infant who had lived all his life in a stone cellar lighted only with electric light, and another, a case of healed rickets that had occurred when the child lived in New York City. The Puerto Rico climate is characterized not only by the intense character of the sunlight but also by its uniform availability throughout the year. Although the average number of hours of sunlight during a year in San Juan does not greatly exceed the average number in some Northern cities, its availability is much greater. In San Juan the daily average of hours of sunlight varies relatively little from month to month (from 6.8 in December to 8.4 in August), and the uniformly warm climate allows the hours of sunlight to be constantly available to children throughout the year. In the northern part of the United States, on the other hand, not only is there a considerable variation from month to month in the daily average of hours of sunlight, but the long cold season reduces to a minimum the availability of what sunlight there is for at least five months in the year. It should also be remembered as has been shown by Tisdall and Brown, that the intensity of the sunlight probably is relatively great and varies little from season to season at the latitude of Puerto Rico (18 degrees), whereas in northern American cities (around 40 degrees) the intensity, without much doubt, is considerably lower during the winter months. Eliot and Jackson state that if one takes into consideration the uniformly warm climate, the intensity of the sunlight and its availability for many hours daily throughout the year and the outdoor habits of the people, the presumption that the children of Puerto Rico should be free from rickets would seem to be justified.

THE FAT OF THE FECES

The feces always contain a measurable amount of "fat" or lipid material, regardless of whether any fat has been ingested. During fasting the "fat" fraction of the excreta from the alimentary tract may amount to one third of their dry weight. Formerly the fecal fat was attributed to two sources: food fat that had failed to be digested and absorbed, and fat from the bacteria and cellular debris of the digestive canal. More recently the evidence has accumulated to indicate that a certain amount of fat is actually excreted through the intestine independent of the other factors mentioned. This general view is championed by Bloor and his school. They cite the fact that the fecal lipids of animals are excreted in constant amount and are of a uniform type, regardless of the quantity of fat in the diet or its degree of unsaturation (iodine number). Because of their similarity in composition, Sperry¹ believes that the fecal lipids represent a secretion or excretion from the blood. This investigator showed also that the bile,² epithelial desquamation³ and prob-

ably bacteria⁴ are not the sole source of fecal lipids. It is known that sterile meconium obtained from newborn infants shows the presence of fatty material. At the Royal Victoria Hospital in Montreal, Krakower⁵ has compared the composition of the fecal lipids in a group of normal persons who received test diets containing small and large amounts respectively of fat. Despite the wide variations represented by such extremes as 8 and 128 Gm of fat daily, the excreted lipids were uniform in composition, as judged by their iodine numbers, and thus differed from the fats fed in which the values varied from 82 to 125.8. The independence of the stool lipids was further shown by the comparatively slight relationship in the amounts of fat in the diet and those recovered in the feces. It is hard, therefore, to avoid Krakower's conclusion that fecal lipids do not represent a residue of fat in the diet, when given in moderate amounts, but may be in part excretions of the blood into the gastro-intestinal tract. These assumptions need to be kept in mind in the clinical examination of the stools.

Medical Economics

NEW FORMS OF MEDICAL PRACTICE

Some California Health Insurance Rackets

In a series of articles in *THE JOURNAL* which began in October 1932, the Bureau of Medical Economics emphasized certain dangers and abuses likely to be associated with attempts to apply the insurance principle to medical care.

Some of the dangers then suggested were the following:

1 Profit making plans in this field could easily degenerate into fraudulent "rackets."

2 Practically all the plans lacked provisions to insure financial security. There was seldom any provision for reserves such as experience has shown are a first essential of any insurance plan.

3 Owing to the lack of sound financial provisions, the subscribers to such plans had no security that they would receive anything in return for payment collected.

4 The presence of numerous such schemes operating in the same field would inevitably create commercial competition. The easiest way to meet such competition is to reduce the quality of the service. To do this is comparatively safe, because the customer cannot judge that quality and nearly every scheme resisted any suggestion for professional supervision of the quality of the service. Such supervision has been long recognized as the only method of maintaining high standards in hospital and educational institutions, both of which are less affected by competition and may be supposed to have greater incentives to maintain proper standards.

5 It was predicted that, although such plans were always proposed as a method of reducing the costs of medical care, their first effect was to take a large share of the subscribers' money for lay management and especially for solicitation of members. Experience in other countries had shown that, in such a conflict over the patient's dollar, the share going for the payment of medical service was continually reduced to increase the proportion taken for those to whom the scheme was only a method of securing income.

6 Emphasis was placed on the historically established fact that all solicitation for medical service inevitably led to a deterioration of almost every phase of that service.

7 Such schemes, looking on the physician as a mere instrument in a commercial transaction, always lead to such unjust

¹ Sperry W M J Biol Chem 68 357 (May) 1926
² Sperry W M J Biol Chem 71 351 (Jan) 1927
³ Sperry W M J Biol Chem 92 xxxiii (June) 1931

⁴ Sperry W M J Biol Chem 81 299 (Feb) 1929
⁵ Krakower Abram "Fecal Fat" and Its Relation to Fat in the Diet Am J Physiol 107 49 (Jan) 1934

and excessive exploitation of the physician as to weaken or destroy professional standards

When these articles were published, promoters and defenders of these plans criticized the Bureau of Medical Economics sharply for its conclusions. They charged that the Bureau had drawn on its imagination in order to build objections. The truth is that every such objection was based on examination of existing systems in which these evils had already begun to develop.

The Report of the Committee on the Costs of Medical Care seems to have been instrumental in starting a flood of such schemes.

In the few months that have elapsed, there has been an opportunity for all these evils to develop. They have developed faster and in more vicious directions than the Bureau had predicted.

California was hailed by the defenders of these new forms of medical practice as pointing the way to be followed by the rest of the country. This state became the happy hunting ground of the medical promoter. Now the Alameda County grand jury has indicted nineteen men in connection with the "health insurance racket" which, as the *San Francisco Chronicle* says, has victimized hundreds of persons throughout the state. Three of those indicted are now either in jail or out on bonds of from \$5,000 to \$20,000, while officers are seeking to find the remainder in order to arrest them. The *Chronicle* continues: "The first indictment contained two counts, one of conspiracy to commit petty theft, the other conspiracy to violate the insurance laws. The second indictment charges conspiracy to make false promises. All three offenses are felonies, each punishable by two years' imprisonment or a \$5,000 fine, or both."

This investigation was largely inspired by Dr. Charles B. Pinkham, secretary-treasurer of the Board of Medical Examiners for the State of California. He has been investigating the operations of such organizations for some time. He discovered that fourteen of these so-called hospital associations were connected in one way or another with a single room in the Phelan Building, San Francisco.

Assistant District Attorney Leslie G. Gillen was quoted by the *San Francisco Examiner* of April 30, 1932, as saying after the investigation that between 4,000 and 5,000 persons are making payments of from \$1 to \$5 a month into health and hospital organizations that are either suspended from business or do not exist as far as the state of California knows.

It is significant that it took nearly a year after these facts had become known before the present grand jury action was secured. This would seem to indicate that these swindling associations had become sufficiently powerful to wield political influence.

In a list compiled by Dr. Pinkham Jan. 29, 1934 are found the names of 143 such associations. The investigation showed that thirty-seven of these used two or more names. While this is not a proof of fraudulent intent, it is at least a suspicious fact that a corporation or business firm finds it necessary to change its name one or more times within the short period the organization has been in existence. Something of the character of the service being given by those that even pretend to meet their obligations is shown by some of the facts unearthed during this investigation.

Of one association, it is said, it is reported that 'the office girl prescribes for members seeking medical service, that Drs. — and — have prescriptions already compounded and the office girl gives them to policyholders.'

The complaints of failure to provide medical service had been investigated by the grand jury in two other cases.

The representative of another medical service concern had been arrested for violation of the medical act.

One subscriber complained that after paying \$4.50 a month for three years he was refused medical treatment for his baby.

The attorney general said about one contract: 'I am of the opinion that the issuance thereof not only violates the law relating to insurance companies but the Medical Practice Act, as well as the State Bar Act.'

Another organization that contracted to furnish all forms of medical service reported a staff of two physicians, four dentists, four chiropractors and one chiroprapist.

A view of the character of the service furnished, as revealed by the state board of medical examiners, is given in the report of the *San Francisco Chronicle* for Feb. 21, 1934.

According to Inspector J. W. Davidson of the board the doctor sent to see her by the health association said the intestinal ailment of which she complained was imaginary. Within a week she was dead in the county hospital and of that ailment. The company did not pay.

Inspector Davidson tells also of the company that stipulated it would deliver a baby free for any couple that had held their policy for two years. One young couple thought they had qualified. They waited two years and then prepared for the baby.

When the baby was about to arrive they notified the company, asking for the promised service. Did they get a baby free? They did not. The company called attention that they had once been eleven days late in payment of a premium and that in accordance with section Q line 6 of the contract they would have to wait two years from the time the delinquent premium was paid.

In other words said Davidson they would have to postpone the baby.

The *Underwriters Report* a weekly insurance paper of San Francisco, in its issue of Feb. 15, 1934, describes the financial condition of one such company as follows: "Special agents of the State Medical Board raided the offices of the United Travelers Underwriters in San Francisco two weeks ago, at which time they confiscated two thick files of complaints from irate and gipped policyholders and learned that the insurance company had exactly \$140 in liquid assets against \$70,000 of insurance in force. The raiding officers were unable to serve their warrants because the 'John Does' had fled. They were arrested later in Reno."

Another scheme distributed paid-up memberships to be given out by commercial houses in Long Beach which entitled the holder to one year of benefits.

Harry Kramer who has recently been indicted and whose bond was fixed at \$20,000 was operating at least seven different organizations.

There is a long list of physicians who have permitted their names to be used by such organizations and who, in some cases, undoubtedly have destroyed reputations built up through years of practice.

As a result of this sudden growth of medical insurance schemes in California many thousands of people have been defrauded of money which they thought they were paying for medical service. They have probably been deprived of medical service except so far as physicians and existing relief organizations have come to their assistance. If the money thus collected, and even worse than wasted, is to be counted as a part of the cost of medical care, it is quite evident that these organizations, so far from having reduced that cost, have greatly increased it.

It would be hard to find a better illustration of the evils that inevitably follow the introduction of lay control, the profit motive and solicitation into the field of medical service.

Association News

MEDICAL BROADCASTS

National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15, Central standard time (5 o'clock Eastern standard time, 3 o'clock Mountain standard time, and 2 o'clock Pacific standard time).

The next three broadcasts will be as follows:

March 26 Why Pasteurize? W. W. Bauer, M.D.
April 2 What Is Health? W. W. Bauer, M.D.
April 9 Peculiar Accidents W. W. Bauer, M.D.

Columbia Broadcasting System

The Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central standard time. The next three broadcasts will be as follows:

March 29 Flowers That Bloom in the Spring W. W. Bauer, M.D.
April 5 Smog W. W. Bauer, M.D.
April 12 Pretty Polly W. W. Bauer, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS EDUCATION, PUBLIC HEALTH ETC.)

CALIFORNIA

Outbreak of Botulism—Five members of a Japanese family in Santa Clara County died, recently, of botulism contracted through an unusual source, according to the state health department. All members of the family partook of a meal, Dec 28, 1933, at which a soy bean preparation was consumed. This preparation had been made December 26 and cooked four hours on the stove, after which it was buried in a cloth sack and placed in a heated pit in the ground for two days to allow fermentation. Laboratory examination of the mixture proved positive for botulism.

Dr Ely Retires—Dr Leonard W Ely, since 1913 professor of surgery, Stanford University School of Medicine, will retire from the faculty at the end of the present academic year. Dr Ely was born in Brooklyn in 1868 and graduated in medicine at Columbia University College of Physicians and Surgeons. He engaged in private practice in New York and also in Denver and is the author of several volumes on diseases of the bones and on tuberculosis. To fill the vacancy in the department, Dr Donald E King, formerly of Ann Arbor, has been appointed an associate professor in orthopedics. He will assume his duties September 1.

Society News—Dr Arthur Elmer Belt, among others, spoke before the Los Angeles Surgical Society, March 9, on "Electrical Cutting—Its Remote Effect on Tissue, with Particular Reference to Electrosurgical Resection of the Prostate."—At a meeting of the San Francisco Pathological Society, March 5, the speakers included Dr James B McNaught on "Rupture of the Pulmonary Artery."—At a meeting of the Clinical and Pathological Society of Los Angeles, February 22, speakers included Drs Henry Snure and George D Maner on "Carcinoma of the Stomach with Unusual Bone Metastases."—Dr Eberle Kost Shelton, Santa Barbara, addressed the Hollywood Academy of Medicine, February 15, on "The New Growth Hormone."—Speakers before the Society for Neurology and Psychiatry, February 21, in Los Angeles, were Drs Nelson P Anderson on "Adenoma Sebaceum with Tuberos Sclerosis," Verne R. Mason, "Exophthalmos," and Cyril B Courville, "Mortality of Injuries to the Head."—Dr Harry M Weber, Rochester, Minn, spoke on "Roentgen Manifestations of Tumefactive Processes in the Large Intestine and Their Differential Diagnosis" before the San Diego Academy of Medicine, February 21.

COLORADO

Society News—Dr Cuthbert Powell, Denver, addressed the Boulder County Medical Society, March 8 on "Value of X-Ray Diagnosis in Obstetrics."—Severance Burrage, Dr PH, spoke before the Medical Society of the City and County of Denver, March 6, his subject was "Microbial Fingerprints—Their Relation to Respiratory Disease." The Rocky Mountain Pediatric Society sponsored the program of the society, February 6, Dr Henry F Helmholtz, Rochester, Minn, was the guest speaker, on "Pyelitis in Children."

DISTRICT OF COLUMBIA

Medical Bills in Congress—Changes in Status S 2006 has been reported to the House without amendment (H Rept 900). The bill authorizes the Commission on Licensure of the District of Columbia to issue a license to Della D Ledendecker to practice chiropractic in the District. **Bills Introduced** S 3045 introduced by Senator Davis, Pennsylvania, proposes to provide for needy blind persons of the District of Columbia.

FLORIDA

Business Bureau Organized—The Lake County Physicians Business Bureau, sponsored by the county medical society, has been organized to collect and adjust accounts for its members and establish and maintain friendly relations between members and their patients.

Personal—Dr Leonidas M Anderson Lake City, was recently presented with the medal awarded annually by the local chapter of the American Legion for distinguished service and citizenship based upon peace time service to the community.

Dr Anderson is now president of the Columbia County Medical Society and a past president of the Florida Medical Association.—Dr Thomas S Kennedy, sanitary officer of the West Florida district, has been appointed assistant state director of rural sanitation.

Society News—The Florida State Board of Health conducted a tuberculosis clinic in Fort Pierce, February 16, Dr William A Claxton was in charge.—Dr Walter B Lancaster, Boston, addressed the Tampa Eye, Ear, Nose and Throat Society, February 14, on "Certain Disturbances of Binocular Vision and Their Treatment" and "The Ultracapsular Method of Cataract Extraction."—Dr Henry E Palmer, Tallahassee, was elected president of the Association of Seaboard Air Line Railway Surgeons, recently.—At a meeting of the De Soto-Hardee-Highlands County Medical Society in Bowling Green, January 9, Dr James R Boulware, Jr, Lakeland, discussed "The Use of Phenobarbital in Infancy."—A symposium on indigestion, or dyspepsia, constituted the program of the Duval County Medical Society at its meeting, February 6, speakers were Drs Ernest B Milam, Clayton E Royce, Harry A Peyton, Herrman H Harris and Harry B McEuen.—Dr James O Wallace, Pittsburgh, spoke before the Dade County Medical Society, February 2, on "Defangements of the Knee Joint," and Max Dobrin, Miami, "Diabetes Mellitus in Relation to the Pituitary Gland."

GEORGIA

Dr Moss Resigns as Dean—Dr William L Moss has resigned as dean of the University of Georgia Medical Department, Augusta, it has been announced. He was named to the position in July 1931. Dr Moss was graduated from Johns Hopkins University School of Medicine in 1905 and has been a member of the medical faculties of Harvard and Yale universities. In 1916 he was in charge of a Harvard expedition to Peru and in 1920 was a member of a Harvard commission to the Dominican Republic (THE JOURNAL, June 27, 1931, p 2216). Dr G Lombard Kelly, professor of anatomy, was named vice dean in charge of administration, it was stated. Dr Moss has also resigned as professor of preventive medicine, it was reported.

Society News—At a meeting of the Muscogee County Medical Society, February 8, Drs Clifford A Peacock spoke on "Diseases of the Eye in Relation to Systemic Disease", Francis B Blackmar, "Edema of the Optic Disk," and John B Thompson, Jr, "Diseases of the Ear and Mastoid in Relation to Systemic Disease."—Dr William A Selman presented a paper on "Carcinoma of the Colon" before the Fulton County Medical Society, Atlanta, February 15.—At a meeting of the Atlanta Neurological Society, February 22, Dr Ross M Chapman Towson, Md, spoke on "Mental Hygiene and the Public Health" and Dr S Bernard Wortis, New York, "The Convulsive State."—At a meeting of the Ware County Medical Society February 7, Dr Daniel M. Bradley, Waycross, gave a paper on "Treatment of Menstrual Disturbances."—A joint paper on "Infantile Paralysis—From Medical and Orthopedic Standpoints, with Particular Reference to Cases Treated in Macon" was presented before the Macon Medical Society, February 6, by Drs William C Boswell and John I Hall, both of Macon.

ILLINOIS

Dr Starkel Honored—Friends of Dr Charles H Starkel, Belleville, gave a dinner in his honor, February 14, at the University Club in St Louis, to observe his completion of fifty years in the practice of medicine. Dr Starkel, who is 72 years old, graduated from Rush Medical College in 1884. He was health commissioner of Belleville for many years.

Society News—Dr Ko K. Chen, director of pharmacologic research Lilly Research Laboratories, Indianapolis, addressed the Peoria City Medical Society, March 6, on "Development of Ephedrine," "Newer Antidotes for Strychnine and Cyanide Poisoning" and "Toad Poisons."—The St Clair County Medical Society was addressed in East St Louis March 1, by Dr Charles H Neilson, St Louis, on "The Weather, Its Influence on Health and Disease" and in Belleville, March 7, by Dr Cleaves Bennett, Champaign, on "Care of Indigent Sick as Done by Adams Champaign, Cole and Macon County Medical Societies."—Speakers before the Adams County Medical Society at Quincy, March 12, were Drs Philip H Kreuschner, Chicago, and Nathaniel G Alcock, Iowa City, on "Backache" and "Prostatic Resection," respectively.—Dr Joseph Marcovitch Jacksonville, spoke before the Morgan County Medical Society, February 8 on "Symptoms and Clinical Findings in Postepidemic Encephalitis," and Dr Warner H Newcomb, Jacksonville Treatment of Cardiac Decompensation."

Chicago

Program on Poliomyelitis—"Orthopedic Care of Poliomyelitis" will be the subject presented by Dr. Michael Hoke, surgeon-in-chief, Georgia Warm Springs Foundation, Warm Springs, Ga., before the Chicago Medical Society, March 28, in the Medical and Dental Arts Building. The society devoted its meeting, March 21, to a discussion of milk. Speakers were Paul Krueger, assistant director, bureau of dairy products, Chicago Board of Health, A. M. Krahl, director, public relations, Pure Milk Association, M. O. Maughn, executive secretary, The Milk Council, Inc., Dr. Roy R. Ferguson, secretary, Chicago Medical Society Milk Commission, and Mr. Raymond Hertwig, secretary, Committee on Foods of the American Medical Association. H. L. Russell, Ph.D. director, Wisconsin Alumni Research Foundation, discussed 'Irradiated Vitamin D Milk.'

INDIANA

Dinner to Dr. Wishard—The senior class of Indiana University School of Medicine held a dinner in honor of Dr. William N. Wishard, February 28, in celebration of his sixtieth anniversary as a graduate of medicine. Dr. Wishard is professor of genito-urinary surgery at the medical school and a former superintendent of the Indianapolis City Hospital. His father, Dr. William H. Wishard, made the first formal effort to obtain a general state hospital by resolution introduced in the session of the Indiana State Medical Association in 1868, it is reported. A son, Dr. William N. Wishard Jr., is associated in practice with him.

Society News—The Indianapolis Medical Society held a joint session with the midwestern section of the American Congress of Physical Therapy, March 13, speakers were Drs. Max Thorek, Chicago, on "An Electrosurgical Method for Obliterating the Gallbladder," and John Stanley Coulter, Chicago, "Physical Therapy in the Rehabilitation of the Disabled." The society was addressed, March 20, by Dr. Lowell T. Coggeshall, Chicago, on "Diagnosis and Treatment of Lobar Pneumonia." Speakers before the society, February 20, were Drs. John W. Carmack, Indianapolis, and Ernest O. Asher, New Augusta, on "Suppuration in the Petrous Portion of the Temporal Bone" and "Bedside Observations on Prognosis," respectively. The society was addressed February 27, among others, by Dr. Carl Habich on "Gonorrhea in the Female."

IOWA

Society News—Dr. Oscar R. Prettyman, Manson, discussed urinalysis before the Calhoun County Medical Society in Rockwell City, March 13.—At a meeting of the Chickasaw County Medical Society in New Hampton, February 2, Dr. Erwin von Graff, Iowa City, spoke on "Dangers of Stump Cancer after Subtotal Hysterectomy."—A symposium on the upper respiratory tract constituted the meeting of the Hardin County Medical Society; the speakers were Drs. Ralph H. Parker and George A. May, both of Des Moines.—Dr. Paul B. Magnuson, Chicago, discussed the surgical treatment of arthritis before the Scott County Medical Society in Davenport, February 6.—At a meeting of the Tama County Medical Society in Dysart, February 23, Drs. Thomas F. Hersch and Ernest G. Kieck, Cedar Rapids, spoke on common colds and their prevention and common skin diseases, respectively.—The Wapello County Medical Society will be addressed, April 3, by Dr. William E. Olson, Ottumwa, on "Correlation of Simple Laboratory Procedures with Clinical Findings as an Aid to Diagnosis." Dr. Myron G. Means, Ottumwa, spoke before the society, March 20, on "Catarrhal Jaundice."—Recent speakers before the Wayne County Medical Society included Dr. Robert O. Hughes, Ottumwa, on "Diagnosis of Acute Diseases in Children."

KANSAS

Credit Bureau Established—Members of the Sedgwick County Medical Society are participating in the recently established Wichita Medical Credit Bureau. In designating the accounts to be listed with the bureau, the committee on medical economics of the society demands that individual members shall not use their own judgment as to what bills are delinquent. All accounts over ninety days old must be listed with the bureau. Personal information on file about the patient will be available to participating physicians.

Society News—Speakers before the Clay County Medical Society at Clay Center, February 14, were Drs. George W. Bale and Franklin R. Croson, both of Clay Center, on trichomonas vaginalis and acute intestinal obstruction, respectively.

—At a meeting of the Shawnee County Medical Society, February 5, Dr. Arthur E. Hertzler, Halstead, discussed the present trend in treatment of gonorrhea.—Speakers before the Wyandotte County Medical Society, March 20, were Drs. Charles Omer West and Maurice A. Walker on "Allergy" and "Leucocytosis in Carcinoma of the Stomach." Dr. Harold V. Holter discussed "Lacerations at Childbirth and Their Treatment" before the society, March 6, and Dr. Donald N. Medearis, "Vomiting in Infants." A joint meeting of the society and the Jackson County Medical Society, March 13, was addressed by Dr. W. Lee Hart, Medical Corps, U. S. Army, on "Relationship of the Army to Medicine," Dr. Reuben H. Hunt, Medical Corps, U. S. Navy, "Navy Medical Service in Our Insular Possessions," and Dr. Otto Jason Dixon, "Ear, Nose and Throat Complications in Exanthemata."

KENTUCKY

Bill Passed—H. 662 the uniform narcotic drug act, has passed the house and senate.

Personal—Dr. Amphas W. Davis, Madisonville, has been appointed a member of the state board of health to succeed the late Dr. Ben B. Keys, Murray.—Dr. Oscar M. Crenshaw, Lebanon, recently received a bequest of \$1,000 from a patient "in appreciation for medical services."

Hospital News—St. Anthony's Hospital Association gave a dinner, January 27, in honor of Dr. William Seaman Bainbridge, New York, who described the work of a committee that is collecting and coordinating the medical and surgical experiences of the World War. Dr. Argus D. Willmoth presided at the dinner and addresses were made by Drs. George A. Hendon, Ira N. Kerns, Curran Pope and John R. Wathen, all of Louisville.

MASSACHUSETTS

Bill Introduced—S. 257 proposes to regulate the sale of methyl alcohol, and certain preparations containing alcohol.

Health at Lowell—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended March 10 indicate that the highest mortality rate (24.4) appears for Lowell and that the rate for the group of cities as a whole was 13.2. The mortality rate for Lowell for the corresponding period last year was 13, and the rate for the group of cities, 11.9. The annual rate for eighty-six cities for the ten weeks of 1934 was 12.7 as against a rate of 12.4 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

MINNESOTA

Society News—Dr. Frank S. McKinney, Minneapolis, addressed the Washington County Medical Society at Stillwater, recently on "Modern Treatment of Hernias and Varicose Veins."—Speakers before the Minnesota Academy of Medicine, March 14, in Minneapolis, were Drs. Henry W. Cook and Frederic E. B. Foley on mortality and morbidity trends and operative division of the horseshoe kidney, respectively. Dr. William F. Braasch, Rochester, presented an unusual form of renal polycystic disease.

Dinner to Dr. Schwyzer—Dr. Arnold Schwyzer, St. Paul, was guest of honor at a dinner, February 12, sponsored by the sisters of St. Joseph's Hospital to commemorate his forty-third year at the hospital and his seventieth birthday. He was presented with an illuminated framed parchment by Dr. Samuel C. Schmitt on behalf of the staff. Dr. John A. Lepak was toastmaster, and Dr. William J. Mayo, Rochester, the principal speaker on "Teacher, Physician and Surgeon." Other speakers included Drs. Carl C. Chatterton, who delivered greetings from the hospital, Gustav Schwyzer, "My Brother and Pre American Days in Switzerland," John L. Rothrock, "High Social and Civic Recognition," Justus Ohage, Sr., "Reminiscences," and William C. Carroll, "The Ever Guiding Hand in the Hospital." Dr. George A. Geist who also spoke composed two musical numbers in honor of Dr. Schwyzer.

MISSISSIPPI

Bill Passed—S. 316, proposing to amend the medical practice act, has passed the senate in amended form. As introduced, the bill proposed (1) to require midwives to procure from the state board of health annually permits signed by the secretary of the board and by the county health officers of the counties in which such midwives respectively reside, (2) to redefine

the practice of medicine, and (3) to authorize the state board of health to revoke a license to practice medicine or a license to practice osteopathy, if the licensee (a) procures or aids or abets in procuring a criminal abortion, (b) is habitually intemperate in the use of intoxicating liquor or narcotic drugs or violates the federal narcotic laws, (c) obtains any fee on the assurance that a manifestly incurable disease can be permanently cured, (d) procures by fraud or deceit a license to practice, (e) is convicted of any charge resulting in a penitentiary sentence, or (f) is convicted before a court for crime in the course of professional practice. The board is authorized to reinstate any license that it has revoked.

Bills Introduced—S 469 proposes to authorize the organization of corporations to engage in the business of writing contracts providing for hospital services in cases of illness or accident. H 553 proposes to authorize the Board of Supervisors of Harrison County to make a general levy, not to exceed one half of one mill, on all the taxable property in the county, to provide funds for charitable hospital purposes. H 851 proposes to regulate the practice of podiatry. Podiatry is declared to mean "the diagnosis and medical, mechanical, electrical, and surgical treatment of the minor ailments of the human foot, such as corns, calluses, warts, ingrowing and abnormal nails, bunions, and similar conditions." Podiatrists are to be permitted to use "such mechanical appliances as may be deemed necessary for the relief or cure of such ailments of the feet, except partial or complete amputation of the foot or toes, surgical correction of the various forms of talipes (club-foot) and other deformities of muscles, tendons, bones, and nerves requiring cutting operations, or the use of anesthetics other than local anesthetics related to the part affected used to prevent operative or mechanical pain, provided that massage of the leg in connection with such treatments is not prohibited. Diseases and conditions of the feet produced by kidney, heart, and other systemic diseases are not to be treated by persons licensed under this act." The bill is not to apply to licensed physicians.

MISSOURI

Hospital for Negroes—Construction on the Homer G. Phillips Hospital for Colored, St. Louis, will be resumed through the recent transfer of \$1,500,000 to a hospital fund from funds appropriated for other purposes. Much needed improvements to other municipal institutions will also be carried out as the result of this transfer. The hospital will have 600 beds when completed, and cost \$2,500,000. It is expected to be ready for occupancy about July 1935. The work begun on the structure some time ago was stopped when funds were exhausted.

Society News—The Buchanan County Medical Society was addressed February 7, by Dr. Albert H. Muench, St. Joseph, on sterility. At a meeting of the Cape Girardeau County Medical Society, February 12, Drs. Hugh V. Ashley, Cape Girardeau, and Daniel G. Seibert, Jackson, spoke on placenta praevia and care of pregnancy in the home respectively. Dr. Frank B. Long, Sedalia, read a paper on pernicious anemia before the Pettis County Medical Society, February 19. The medical societies of Howell, Oregon, Texas, Wright and Douglas counties recently merged, forming the South Central Counties Medical Society. Meetings are to be held every two months. At this meeting, the Carter-Shannon County Medical Society was invited to become a part of the new organization. Dr. James C. B. Davis, Willow Springs, was named president, and Dr. Alfred C. Ames, Mountain Grove, secretary. At a meeting of the St. Louis Medical Society, March 2, speakers included Drs. William Carl Stude on 'Perforations of the Labia Minora', Norman Tobias, 'Extragenital Infection in Syphilis', and Frank L. Morse, 'Treatment of Cancer with Pancreatic Extract'. Dr. Jacob William Beckmann will speak on 'Encephalitis B' and discuss the St. Louis epidemic before the St. Louis Neuropsychiatric Society, April 2. Dr. Charles A. Doan, Columbus, addressed the Kansas City Academy of Medicine, March 16, on 'Clinical Implications of Experimental Hematology'.

NEW YORK

University News—It was stated in THE JOURNAL, March 3, page 705, that "Syracuse University College of Medicine has discontinued its department of obstetrics in order to concentrate all its work in Syracuse Memorial Hospital." This sentence should have read 'Syracuse University College of Medicine has discontinued the department of obstetrics in its university owned hospital in order to concentrate all obstetric work in Syracuse Memorial Hospital'.

Bills Introduced—S 1142 and A 1742 proposes to make it unlawful for any business corporation or voluntary association to practice podiatry or to solicit by any method the practice of podiatry, for itself or for any licensed podiatrist. The practice of podiatry, or the advertisement thereof, by any person under any trade name or under any name or designation other than his own, is prohibited. No person, other than a licensed physician, is to be permitted to use in connection with his name the words or terms "foot-specialist, foot-correctionist, foot-expert, practopedist, podologist, or any words or terms of similar import." A 1442 proposes to accord liens to charitable hospitals, and hospitals operated by counties, cities, towns or villages treating any person injured through the negligence of another on any rights of action, claims, counter claims or demands accruing to such person by reason of his injuries. A 1567 proposes to amend the law prohibiting any unvaccinated child from entering a school in a city having a population of 50,000 or more, by providing that a child not vaccinated may be admitted on the recommendation of the board of health or such other board, commission or officers of such city having jurisdiction of the enforcement of the vaccination law.

New York City

Afternoon Lectures in Queens County—Recent Friday afternoon lectures under the auspices of the Queens County Medical Society at the society's building in Forest Hills have been given by the following physicians:

Dr. Milton B. Rosenbluth, Modern Aspects of the Treatment of Pneumonia
Dr. Pol N. Coryllos, Surgical Treatment of the After Effects of Pneumonia
Dr. William Bierman, Office Electrosurgery
Dr. Joseph E. Conner, Recent Advances in Hematology

Discussion of Maternal Mortality—A meeting to discuss the recent report on maternal mortality issued by the New York Academy of Medicine was held, March 7, under the joint auspices of the academy, the New York Obstetrical Society and the Medical Society of the County of New York. Drs. Harry Aranow, George L. Brodhead and George W. Kosmak presented various phases of the report, and the following participated in discussion: Drs. Arthur W. Bingham, East Orange, N. J., Clifford B. Lull, Philadelphia, Thomas Parran, Jr., Albany, state health commissioner, John L. Rice, commissioner of health, Sigismund S. Goldwater, commissioner of hospitals, and Edward C. Podvin.

OHIO

Dr. Corrigan Appointed to Diplomatic Post—Dr. Francis P. Corrigan, Cleveland, has been appointed American minister to El Salvador, Central America. Dr. Corrigan, a native of Cleveland and a graduate of Western Reserve University School of Medicine, has spent much time in Latin American countries. Recently he has been head of the surgical department of St. Alexis' Hospital, Cleveland.

Society News—Dr. Robert C. Austin, Dayton, addressed the Darke County Medical Society, Greenville, February 16, on 'Pitfalls in Abdominal Surgery'. Dr. John T. Quirk, Piqua, addressed the Miami County Medical Society, Troy, February 2, on 'Diagnosis, Chemical Significance and Treatment of Premature Systoles'. Dr. William J. Dieckmann, Chicago, discussed 'Toxemias of Pregnancy, Especially the Nonconvulsive Type' as a guest of the Marion County Academy of Medicine, February 6. Drs. William E. Lower and William J. Engel, Cleveland, addressed the Mahoning County Medical Society, Youngstown, March 20, on 'Endocrine Factors in Human Economy' and 'Present Status of Intravascular Surgery', respectively. Dr. Louis Feid, Jr., Cincinnati, addressed the Ross County Medical Society, February 1, on 'Benign Uterine Hemorrhage and Its Treatment'. Dr. T. Wingate Todd, Cleveland, addressed the Cincinnati Academy of Medicine, March 5, on 'The Physiology of Youth'.

PENNSYLVANIA

Interns' Prize Contest—Dr. George C. Schein, intern at South Side Hospital, Pittsburgh, won first prize in the annual interns case report contest conducted by the Allegheny County Medical Society. Second and third prizes were won by Drs. Harry Lubow and Clyde B. Trees and honorable mention went to Drs. William N. Pitchford and George W. Hobson. All are graduates of the University of Pittsburgh College of Medicine except Dr. Trees who is a graduate of Harvard University Medical School. Dr. Schein read his paper at the meeting of the society, March 20.

Philadelphia

Society News—Drs Nathaniel W. Winkelman and Alexander Silverstein, among others, addressed the Philadelphia Neurological Society, February 23, on "Unilateral Amyotrophy—Its Diagnostic Importance for Cerebral Localization."

Hospital News—Dr Abraham I. Rubenstone, medical director of Mount Sinai Hospital, will deliver the eighth of a series of public health talks sponsored by this hospital, April 25, on diabetes. Dr Bernard Mann will speak on cancer, March 28.

Seminar on Gynecology and Obstetrics—The fourth course of seminars under the auspices of the Philadelphia County Medical Society related to gynecology and obstetrics. Following is the program:

Drs Charles Mazer and Franklin I. Payne: Our Present Knowledge of Sex Physiology and Clinical Applications of the Newer Knowledge in Female Endocrinology, respectively, March 2.

Drs Philip F. Williams and Edward A. Schumann: Toxemias of Pregnancy and Hemorrhage, respectively, March 9.

Drs Charles C. Norris and Robert A. Kimbrough Jr.: Significance of Menopausal Bleeding and Diagnosis and Treatment of Cervical Lesions, respectively, March 16.

Drs Norris W. Vaux and Edmund B. Piper: Management of Anomalies of the Passages and Puerperal Infection, respectively, March 23.

Drs Piper and Floyd E. Keene: round table conference, March 30.

RHODE ISLAND

Bills Introduced—H 736 proposes to amend the workmen's compensation act by providing compensation for disabilities resulting from certain occupational diseases named in the bill. H 738 proposes to repeal existing laws relating to narcotic drugs and to enact a uniform narcotic drug act.

SOUTH CAROLINA

Bill Introduced—S 1562 provides that no physician, surgeon, osteopath, homeopath, chiropractor, registered nurse or any other person practicing medicine or any branch thereof shall without first obtaining permission from the patient or his personal representative, be permitted to disclose any information acquired by him in attending a patient in a professional capacity.

VIRGINIA

Bill Passed—H 236, to amend the law making it now unlawful for any tobacco manufacturer to employ opium either in the tobacco used or in the paper wrappers of cigarettes by forbidding also the like use of marihuana, loco weed or any other sedative, narcotic or hypnotic drug, or like chemical or substance, has passed the house and senate.

McGuire Lectures—Dr Frank Charles Mann, professor of pathology, surgery and experimental physiology, Mayo Foundation, Rochester, Minn., will deliver the McGuire Lectures at the Medical College of Virginia, Richmond, April 2-3. His subjects will be "Anatomy and Physiology of the Liver" and "Experimental Pathology of the Liver."

Society News—The Smyth County Medical Society was organized at a meeting in Marion, February 14, with Dr Avery B. Graybeal as president. Drs Harry Goldstein and Samuel Beverly Cary, among others, addressed the Roanoke Academy of Medicine, February 5, on "Bronchial Fistula with Spontaneous Recovery" and "Problems in Transurethral Surgery," respectively.

WASHINGTON

Society News—Dr Harold Brunn, San Francisco addressed a special meeting of the King County Medical Society, Seattle, March 16, on diseases of the chest. Drs Alexander H. Peacock, Seattle, and Kenneth K. Sherwood, Kirkland, addressed the society, February 19, on "Diverticula of the Bladder" and "Vaccine Treatment of Arthritis," respectively. At a meeting of the Chelan County Medical Society, Wenatchee, January 4, speakers were Drs Edward J. Barnett, Spokane, on "Nephritis in Infancy and Childhood" and "Thrombosis of Dural Venous Sinuses in Childhood" and Donald G. Corbett, Spokane, on "Transurethral Resection of Vesical Neck Obstruction." The Kitsap County Medical Society was organized at Bremerton, January 3, with Dr Henry A. Barner, Bremerton, as president. Dr Paul W. Sweet, Centralia, addressed the Lewis County Medical Society, Chehalis, January 9, on "Rectovaginal Fistula." Dr Herbert W. E. Johnson, Everett, presented a paper on "Malignant Conditions of the Genito-Urinary Tract" before the Snohomish County Medical Society, January 2. Drs Raymond E. Watkins and Henry H. Dixon, Portland, addressed the Walla Walla Valley Medical Society, Walla Walla, January 11, on "Carcinoma of the Female Genital Organs" and "Psychoneuroses in Relationship to General Medicine," respectively.

WISCONSIN

Officers of State Board of Health—Dr Stephen Cahana, Milwaukee, was elected president of the state board of health recently to succeed Dr Gustav Windesheim, Kenosha, who had served six years. Dr Mina B. Glasier, Bloomington, was named president-elect. Drs Joseph Dean and Cornelius A. Harper, Madison, were reelected vice president and secretary, respectively.

Society News—Dr Alfred W. Adson, Rochester, Minn., addressed the Dane County Medical Society, Madison, January 9, on "Surgical Consideration of Brain Tumors" and Dr Mabel G. Masten, Madison, discussed "Spontaneous Subarachnoid Hemorrhage." Dr Francis D. Murphy, Milwaukee, addressed the Fond du Lac County Medical Society, Fond du Lac, January 10, on coronary thrombosis. Dr Fremont A. Chandler, Chicago, gave an address on "Diseases of the Lumbar and Sacro-Iliac Regions from an Orthopedic Standpoint" before the Racine County Medical Society, Racine, January 18.

GENERAL

Negro Health Week—The twentieth annual observance of Negro Health Week will be held throughout the country during the week beginning April 1, under the joint auspices of the National Negro Health Movement, the U. S. Public Health Service, state, city and county departments of health, and the national organizations interested in public health and in racial welfare. Days of the week are designated as Mobilization Day, Home Health Day, Community Sanitation Day, Special Campaign Day, Adults' Health Day, School Health Day and General Clean-Up Day. Sunday, April 8, will be Report and Follow-Up Day.

Society News—Dr Henry M. Fitzhugh, Baltimore, was installed as president of the Federation of State Medical Boards of the United States at a meeting, February 13. Dr Irvin D. Metzger, Pittsburgh, was named president-elect. Dr Roy B. Harrison, New Orleans, vice president, and Dr Walter L. Bierring, Des Moines, were reelected secretary. The annual meeting of the American Society for the Control of Cancer was held at the New York Academy of Medicine, March 2. Clarence C. Little, Sc.D., managing director, reviewed the work of the society. Dr George H. Bigelow, Boston, described the program of cancer research of the Massachusetts state department of health. Dr John C. A. Gerster, New York, work of the New York City Committee, and Dr Joseph Colt Bloodgood, Baltimore, cancer research at Johns Hopkins University.

Medal for Discovery of "Heavy Water"—The Willard Gibbs Medal has been awarded to Harold C. Urey, Ph.D., associate professor of chemistry at Columbia University since 1929, for his discovery of "heavy water." In this compound, the hydrogen atom weighs twice as much as the hydrogen in ordinary water. The Willard Gibbs Medal is annually awarded by the Chicago section of the American Chemical Society to a scientist in any country "whose work in either pure or applied science has received world wide recognition." Founded in 1911, the medal is named for Josiah Willard Gibbs, American scientist who was professor of mathematical physics at Yale from 1871 until 1903. Born in Walkerton, Ind., Dr Urey, who is 41 years old, received his early education in Indiana. In 1917 he was graduated from the University of Montana with the degree of bachelor of science in zoology, and in 1923 he received the degree of doctor of philosophy in chemistry from the University of California. He is the editor of the *Journal of Chemical Physics*.

A New Sixteen Million Dollar Foundation—About \$16,000,000 has been made available for philanthropic purposes through the recent creation of the Horace H. and Mark A. Rackham Fund in Detroit. Dr Mark S. Knapp, Flint, Mich., has been named director of medical research. He has been authorized to make a survey of possible fields of research in social sciences, character building, child welfare and health and medical research. On completing this study, which will be carried on in various research laboratories and universities throughout the country, his recommendations will be acted on by an advisory council. In addition the desirability of "establishing a scientific medical and health research institute" is to be considered. The fund was created by the late Horace H. Rackham, a Detroit attorney, who died last June. His will provided that the residue of the estate after payment of bequests should create a fund to be used for the good of humanity, and named a board of trustees to administer it. The trustees are Mrs. Mary A. Rackham, the widow, Bryson D. Horton, retired manufacturer, Judge Arthur J. Lacy and Attorney Clarence Wilcox, all of Detroit.

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Philadelphia

Society News—Drs Nathaniel W Winkelman and Alexander Silverstein, among others, addressed the Philadelphia Neurological Society, February 23, on "Unilateral Amyotrophy—Its Diagnostic Importance for Cerebral Localization"

Hospital News—Dr Abraham I Rubenstone, medical director of Mount Sinai Hospital will deliver the eighth of a series of public health talks sponsored by this hospital, April 25, on diabetes. Dr Bernard Mann will speak on cancer, March 28

Seminar on Gynecology and Obstetrics—The fourth course of seminars under the auspices of the Philadelphia County Medical Society related to gynecology and obstetrics following is the program

Drs Charles Mazer and Franklin I Payne Our Present Knowledge of Sex Physiology and Clinical Applications of the Newer Knowledge in Female Endocrinology respectively March 2

Drs Philip F Williams and Edward A Schumann Toxemias of Pregnancy and Hemorrhage respectively March 9

Drs Charles C Norris and Robert A Kimbrough Jr Significance of Menopausal Bleeding and Diagnosis and Treatment of Cervical Lesions respectively March 16

Drs Norris W Vaux and Edmund B Piper Management of Anomalies of the Passages and Puerperal Infection respectively March 23

Drs Piper and Floyd E Keene round table conference March 30

RHODE ISLAND

Bills Introduced—H 736 proposes to amend the workmen's compensation act by providing compensation for disabilities resulting from certain occupational diseases named in the bill. H 738 proposes to repeal existing laws relating to narcotic drugs and to enact a uniform narcotic drug act

SOUTH CAROLINA

Bill Introduced—S 1562 provides that no physician surgeon, osteopath, homeopath, chiropractor, registered nurse or any other person practicing medicine or any branch thereof shall, without first obtaining permission from the patient or his personal representative, be permitted to disclose any information acquired by him in attending a patient in a professional capacity

VIRGINIA

Bill Passed—H 236, to amend the law making it now unlawful for any tobacco manufacturer to employ opium either in the tobacco used or in the paper wrappers of cigarettes, by forbidding also the like use of marihuana, loco weed or any other sedative, narcotic or hypnotic drug, or like chemical or substance, has passed the house and senate

McGuire Lectures—Dr Frank Charles Mann, professor of pathology, surgery and experimental physiology, Mayo Foundation, Rochester, Minn, will deliver the McGuire Lectures at the Medical College of Virginia, Richmond, April 2-3. His subjects will be "Anatomy and Physiology of the Liver" and "Experimental Pathology of the Liver"

Society News—The Smyth County Medical Society was organized at a meeting in Marion, February 14, with Dr Avery B Graybeal as president—Drs Harry Goldstein and Samuel Beverly Cary, among others, addressed the Roanoke Academy of Medicine, February 5, on "Bronchial Fistula with Spontaneous Recovery" and "Problems in Transurethral Surgery," respectively

WASHINGTON

Society News—Dr Harold Brunn, San Francisco, addressed a special meeting of the King County Medical Society, Seattle, March 16, on diseases of the chest. Drs Alexander H Peacock, Seattle, and Kenneth K Sherwood, Kirkland, addressed the society, February 19, on "Diverticula of the Bladder" and "Vaccine Treatment of Arthritis," respectively—At a meeting of the Chelan County Medical Society, Wenatchee, January 4, speakers were Drs Edward J Barnett, Spokane, on 'Nephritis in Infancy and Childhood' and Thrombosis of Dural Venous Sinuses in Childhood" and Donald G Corbett, Spokane, on "Transurethral Resection of Vesical Neck Obstruction"—The Kitsap County Medical Society was organized at Bremerton January 3, with Dr Henry A Barner, Bremerton, as president—Dr Paul W Sweet, Centralia, addressed the Lewis County Medical Society, Chehalis, January 9, on 'Rectovaginal Fistula'—Dr Herbert W E. Johnson, Everett, presented a paper on "Malignant Conditions of the Genito-Urinary Tract" before the Snohomish County Medical Society, January 2—Drs Raymond E Watkins and Henry H Dixon, Portland, addressed the Walla Walla Valley Medical Society, Walla Walla, January 11, on "Carcinoma of the Female Genital Organs" and 'Psychoneuroses in Relationship to General Medicine, respectively

WISCONSIN

Officers of State Board of Health—Dr Stephen Cahana, Milwaukee, was elected president of the state board of health recently to succeed Dr Gustav Windesheim, Kenosha, who had served six years. Dr Mina B Glasier, Bloomington, was named president-elect, Drs Joseph Dean and Cornelius A Harper, Madison, were reelected vice president and secretary, respectively

Society News—Dr Alfred W Adson, Rochester, Minn, addressed the Dane County Medical Society, Madison, January 9 on "Surgical Consideration of Brain Tumors" and Dr Mabel G Masten, Madison, discussed "Spontaneous Subarachnoid Hemorrhage"—Dr Francis D Murphy, Milwaukee, addressed the Fond du Lac County Medical Society, Fond du Lac, January 10, on coronary thrombosis—Dr Fremont A Chandler, Chicago gave an address on "Diseases of the Lumbar and Sacro-Iliac Regions from an Orthopedic Standpoint" before the Racine County Medical Society, Racine, January 18

GENERAL

Negro Health Week—The twentieth annual observance of Negro Health Week will be held throughout the country during the week beginning April 1, under the joint auspices of the National Negro Health Movement, the U S Public Health Service, state, city and county departments of health, and the national organizations interested in public health and in racial welfare. Days of the week are designated as Mobilization Day, Home Health Day, Community Sanitation Day, Special Campaign Day, Adults' Health Day, School Health Day and General Clean-Up Day. Sunday, April 8, will be Report and Follow-Up Day

Society News—Dr Henry M Fitzhugh, Baltimore, was installed as president of the Federation of State Medical Boards of the United States at a meeting, February 13. Dr Irvin D Metzger, Pittsburgh was named president-elect, Dr Roy B Harrison, New Orleans, vice president, and Dr Walter L Bierring, Des Moines, was reelected secretary—The annual meeting of the American Society for the Control of Cancer was held at the New York Academy of Medicine, March 2. Clarence C Little, Sc D, managing director, reviewed the work of the society, Dr George H Bigelow, Boston, described the program of cancer research of the Massachusetts state department of health, Dr John C A Gerster, New York, work of the New York City Committee, and Dr Joseph Colt Blood good Baltimore, cancer research at Johns Hopkins University

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Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb 24, 1934

The Serum Treatment of Lobar Pneumonia

Following the great amount of work on the serum treatment of pneumonia in the United States, the Medical Research Council has assisted an extensive inquiry in the hospitals of this country during the last three years. This was placed under the control of the therapeutics trial committee of the council. Typing was generally done on the fresh sputum and lung puncture was rarely used. Serums of types I and II were prepared and standardized according to the Felton units current in the United States. It was given intravenously as early as possible. If the infecting pneumococcus could be typed without many hours' delay the appropriate serum was given after this had been done. Otherwise a preliminary dose of 20,000 units of each type was given and subsequent treatment adjusted to the type ultimately found. The routine injection was 20,000 units repeated every eight hours or at least twice a day. If no improvement was found after forty-eight hours treatment it was generally found useless to continue the serum. The total dosage varied from 50,000 to 120,000 units. Type II cases seemed to require a larger dosage than type I. After the fifth day it was generally felt that serum had no further useful action.

The following conclusions are drawn. Concentrated antiserum for type I pneumococcus reduced the fatality of type I cases of lobar pneumonia in persons between the ages of 20 and 40 but appeared to have little if any effect on older persons (from 40 to 60). It also seemed to reduce the average duration of the fever. Similar results were obtained when type II antiserum was used in type II lobar pneumonia. Immediate dangerous serum reactions were rarely seen, but one or two lots of a particular concentrated mixed serum did cause rigors and collapse. The benefits were not so marked as to make it desirable that all severe cases of lobar pneumonia irrespective of the type of the infecting pneumococcus, should be treated with type I and type II antiserum on the chance that they might belong to a type that is favorably influenced. Each case must be typed as soon as possible so that the appropriate serum may be used. The use of serum is not recommended except under conditions in which typing can be obtained. If accurate typing can be done in five or six hours, serum should be withheld until the type is known and the 20,000 Felton units given. But if more time is required for typing a preliminary dose of 20,000 units of both types should be given and the corresponding serum continued when the type is known. The first injection should be made slowly and cautiously into the vein, 1 cc being introduced in a minute or two and the total being injected in from ten to fifteen minutes. If an unfavorable reaction occurs, 0.5 or 1 cc 1:1,000 epinephrine hydrochloride should be injected subcutaneously.

In considering the results of serum treatment in Great Britain it is important to bear in mind that pneumonia is less serious in this country than in the United States. This point is brought out in an important paper on lobar pneumonia contributed to *Guy's Hospital Reports* by J. A. Ryle and R. L. Waterfield. They point out that whether from the conditions of housing and city life prevailing in the United States or from other causes, the incidence, mortality and epidemic tendency of pneumonia is greater than in the British Isles. The hospital figures in England and Scotland show a mortality between 10 and 20 per cent. At Guy's Hospital the mortality was 16 per cent between the ages of 13 and 75 years. The more gravely ill tend to go to the hospital. Hence the mortality in

private practice is lower—about 10 per cent. In the United States, on the other hand, the mortality at the Rockefeller Hospital was 19.5 per cent and at Bellevue 35.8. Among 422 cases of all types untreated with serum, Cecil found a mortality of nearly 36 per cent and among 429 cases treated with serum 28 per cent. Even this lower figure approaches twice the Guy's Hospital figure. Ryle and Waterfield are more restrained in their support of serum treatment than the therapeutics trial committee. They hold that, unless the method can be simplified, it must remain more suited to hospital than home conditions. For the most part it is contraindicated in children and adolescents, since the natural recovery rate is high in them. They would hesitate to employ it in any subject with known allergic tendencies, for they are doubtful whether the benefits would outweigh the ill effects. In previously healthy adults showing a good initial response and high leukocytosis, they would withhold serum. There thus remain adults giving cause for undue anxiety at an early stage and showing failure of leukocytosis, alcoholic addicts might be included. To these it would be justifiable to give an early dose of serum and to continue the treatment if the organism should be found to be of the appropriate type. The treatment is more worthy of consideration in type I than in type II infections. Expense prohibits the treatment for needy patients in their own homes and raises the difficult question whether to counsel their removal to a hospital. If the disease has passed its third day and adequate attention and nursing can be secured, they would usually prefer to keep the patient at home and forego the possible advantages of laboratory study and serum therapy.

Osteopaths Again Attempt to Obtain Registration

The osteopaths, undeterred by previous failures to obtain registration, are making another attempt. In the house of commons a member asked leave to introduce a bill to regulate the practice of osteopathy and to prescribe the qualifications of osteopathic practitioners. The object is to set up a statutory board with powers to compile a register of qualified osteopaths with a prescribed standard of professional conduct. The bill would give an osteopath the right to employ a qualified anesthetist (in other words a physician who specialized in anesthesia) without his falling under the ban of the General Medical Council. At present an anesthetist is not permitted to work for any one who is not a qualified medical practitioner. It was also stated that osteopaths did not seek inclusion in the medical profession. It was claimed that osteopaths had worked for thirty years in this country and had to their credit a large number of striking successes while failures had been due to 'quacks' practicing osteopathy. Leave was granted to bring in the bill. Opposition will come in the next stage.

Immunization Against Yellow Fever

At the Royal Society of Tropical Medicine Dr. G. W. M. Findlay pointed out that travel by air now enabled persons infected with yellow fever to reach from endemic centers well within the incubation period of the disease, many countries that harbored the vector of the virus. Some method of eradicating yellow fever was thus important. This could be achieved only by destruction of either the virus or the vector. As vast areas in Africa and South America are infected it is impossible to annihilate the mosquito vector. Therefore a method of immunization was desirable. Forty years ago, Carlos Juan Finlay suggested the possibility of immunizing, but no safe or efficient means of employing the ordinary virus of yellow fever had been found. However, in 1930 Theiler discovered that yellow fever could be transmitted to mice by intracerebral inoculation. These mice did not develop visceral lesions like those found in man but died from encephalitis. Intraperitoneal inoculation was fatal only to young mice in which the virus became localized in the central nervous system. After serial passage

the virus lost its power to produce visceral lesions in monkeys, though inoculated intracerebrally it produced encephalitis. All efforts to reconvert in monkeys and rodents the fixed neurotropic virus into a viscerotropic one failed. In this country 290 persons have been immunized by injections of neurotropic mouse fixed virus and human yellow fever immune serum. These include officials and others going to West Africa. Thirty per cent developed febrile reactions consisting of headache and aching in the limbs and back for twenty-four to forty-eight hours, with leukopenia and slight bradycardia. In only a small number was the reaction severe. Immune bodies began to appear in the blood seven or eight hours after inoculation and attained maximum in three or four weeks. After ten months they decreased but were still detectable after sixteen months and probably persist for much longer periods. So far the success of immunization has been demonstrated only among laboratory workers, among whom accidental infection with yellow fever used to be a common accident. Since the introduction of immunization, accidents have been completely absent.

The Diabetic Association

About a year ago the brilliant idea occurred to Mr H G Wells the writer, to form with others who have diabetes an association to provide much needed financial help for the diabetic clinic at King's College Hospital. He suggested to the hospital authorities that instead of appealing to the general philanthropic public they should limit their appeals to prosperous diabetic patients who had benefited by the modern treatment of the disease. The result was startlingly successful. A single letter from Mr Wells in the *Times* raised the required sum. Out of this sprang a permanent diabetic association, which, in addition to organizing the philanthropy of persons with diabetes, gave the advantage of opportunities for the exchange of opinions and experiences in new foods, remedies and treatment. Mr Wells now proposes to open the diabetic association to the poor as well as to the rich for mutual aid and assistance and to promote the advance of knowledge and the diffusion of information. If diabetic patients, physicians and nurses, particularly those specializing in diabetic work, can be persuaded to join it is proposed to ask for subscriptions, select a council and issue a quarterly journal, which will contain summaries of important research work, reviews and abstracts of new books on the disease, and discussions of the special foods and new drugs that are always forthcoming. A section would be available for correspondence between members and for answers to difficulties. Foundation members willing to subscribe \$25 are now being sought.

PARIS

(From Our Regular Correspondent)

Feb 7, 1934

The Surplus of Physicians

While the surplus of physicians has again come to the fore, it is generally admitted that there is a similar overcrowding of all the liberal professions. In spite of the notices sent out by the dean of the *Faculté de médecine* to the pupils in the upper classes of the *lycées* and to their parents informing them that a medical career is becoming less and less attractive to a young man the number of medical students continues to increase. The number of physicians in France has increased in twenty years from 16,185 to 27,500 whereas the population for that period increased only 2,000,000. The cost of a medical education also has increased. It is estimated that the total cost today is about 110,000 francs (\$7,150) for the general practitioner and much more for those who hope to secure a post in the hospitals or a *faculté de médecine*. A physician does not begin to take in any money until he is past 30. For several years longer he is paying off the cost of his installa-

tion, his equipment and his library. The unequal distribution of physicians over the territory is, however, just as great a disadvantage as the surplus. The average number of inhabitants per physician varies greatly in different regions. In January 1930 many French departments had from 2,000 to 2,500 inhabitants to each physician. Only the departments of the Seine and the Garonne have fewer than 1,000 inhabitants to each physician. There is a strong contrast between the density of the population and the dearth of physicians in Bretagne and in the industrial regions of the North, the East and of the Loire, in which the medical service is to a great extent assured by physicians attached to private companies. The graduate physician opens up his practice where it best suits him. His choice, however, as Mr Roussy has brought out, is not influenced solely by economic factors—the desire to make a living—but partly by psychologic factors, such as the mode of life in a given region. But for the physician the leading of an agreeable existence in the cities is becoming a more difficult problem. The less fortunate physicians are finding less opportunity to secure permanent posts, since the social insurance act and the workmen's compensation act grant the patient free choice of physician. The *Confédération des syndicats médicaux français* has established a bureau that endeavors to direct young physicians of restricted means toward the rural districts. It seeks to make clear to them the hardships to which those are subjected who open a practice in the cities. The income tax, which may be fixed arbitrarily at 80 per cent of their annual rent, is not the least of the disadvantages. Some departments of France offer special inducements to physicians who consent to settle in their region. The confederation includes departmental "syndicates," which give young physicians suggestions as to suitable openings.

Increase of Mental Patients

In the report that he was requested to make on the hospital service rendered mental patients, Mr Chausse has called the attention of the general council of the Seine to the fact that the increase in the number of mental patients in the department continues with regularity. The increase noted between Oct. 1, 1932, and Oct. 1, 1933, was exceptional. The number of mental patients rose from 16,408 to 16,888, an increase of 480. The administration explains this difference by stating that the reason the psychopathic hospitals are overcrowded is not so much the increase in the number of internments as the reduction in the number of dismissals. If one compares the reports of the past two years (1931 and 1932) it will be seen that the number of admissions rose from 4,856 to 4,942, an increase of 86. The dismissals, on the other hand, were 2,938 in 1931 but dropped in 1932 to 2,170, a decrease of 768. This is no doubt a consequence of the present economic crisis. But there is still another cause for overcrowding mentioned by Mr Chausse namely, the diminution in the mortality of mental patients treated in the psychopathic hospitals. The difficulty of relieving the congestion in these hospitals is apparent. One remedy that has been applied, which consists in transferring to rural hospitals patients who have no relatives and who receive no visits, has become insufficient. Under these conditions the general council has been induced to accept the suggestions of the prefect of the Seine pertaining to the erection of a new psychopathic hospital at La-Queue-en-Brie, in Seine-et-Oise.

Phrenicectomy

Emile Sergent, Kourilsky and Clement Launay recently addressed the Academy of Medicine on phrenicectomy with reference to tuberculosis and to bronchial and pulmonary suppurations. They conclude that, in pulmonary tuberculosis, phrenicectomy should be reserved for cases in which therapeutic pneumothorax is not practicable. The intervention will be more effective if it is combined with sanatorium treatment.

It is always ineffective in old sclerosed lesions, in the presence of large cavities, in acute or miliary processes, and in dilations of the bronchi. In infected bronchiectasias it is without danger, and it is sometimes effective in cylindric bronchiectasia of recent origin. Phrenicectomy is contraindicated in the presence of putrid abscesses, particularly on the left side. It may be followed by a temporary amelioration in the more active foci but is most commonly ineffective. It is sometimes dangerous. On the whole, the authors favor pneumothorax, which is more effective and has fewer contraindications.

ITALY

(From Our Regular Correspondent)

Dec 31, 1933

Congress of Internal Medicine

The Società Italiana di medicina interna held its thirty-ninth national congress in Pavia, under the chairmanship of Prof. Adolfo Ferrata, director of the Clinica medica in that city. The congress convened simultaneously with the Congress of Surgery. The president, Prof. Edoardo Maragliano, senator, delivered the inaugural address, in which he recalled that the society was established in Pavia, forty years previously.

FOCAL INFECTIONS

The chief speakers on the first topic, "Focal Infections," were Professors Lusena and Chini of Rome. They pointed out that clinical observations and experimental pathology have led to the conclusion that chronic inflammatory conditions in any part of the organism (often in the mouth) may maintain morbid states in distant organs. Such points of origin of distant disorders are called foci of infection.

According to Rosenow and his followers the agents are generally streptococci or their toxins, which, emerging from the focus of infection, reach a particular organ and maintain there an inflammatory condition, being guided by the principle of selectivity. As regards the rheumatic types, the school of Rome, to which the speakers belong, has evidence to prove that a marked arthrophilia characterizes the micro organisms cultivated from the tonsils of these patients.

Investigations carried out at the Scuola di Roma confirm the possibility that streptococci may have such a selective tropism for the nervous system as to constitute a genuine neurotropic focus.

The relations between tonsillitis and nephritis have been confirmed. The speakers have made a contribution to the subject by studying the relations of foci of infection to the thyroid, to cutaneous diseases, to puerperal infection and to abortion, or miscarriage. The focal infection theory of appendicitis, gastroduodenal ulcer and cholecystitis is supported by many clinical observations. The most frequent focus is induced by tonsillitis. Particular importance attaches also to eye disorders, such as iritis, keratoconjunctivitis, choroiditis and optic neuritis. These are often associated with sinusitis and dental caries. The speakers established the role of the prostate in focal infections.

In the general discussion, Professor Frugoni of Rome emphasized that the problem of focal infections is essentially a clinical problem. The question of selectivity and of tropisms experimentally is quite different from the clinical question, which constitutes the true source of fact and observation.

UREMIA

The official speaker on the second topic, "Uremia," was Prof. Ferruccio Schupfer of Florence. The speaker distinguished true uremia, or hyperazotemic uremia, the syndrome of true anuria, hyperazotemia with hypochloridemia, eclampsia in nephritic patients, and angiogenic chronic pseudo-uremia. It is not correct to regard the anuric syndrome as identical with the uremic. In the former there is among other things, the sudden suppression of the renal function in kidneys that may

have been previously sound, and there is also suppression of the elimination of water.

The cases of hyperazotemia with chloropenia, which occur in non-nephritic persons, present many points of resemblance to cases of uremia. Chloropenia is often due to marked loss of sodium chloride as a result of vomiting and diarrhea. Many postoperative hyperazotemic syndromes suggest this type.

Eclampsia of nephritic patients is to be regarded as distinct from true uremia, for, in the former, the symptoms pointing to absolute insufficiency of the kidneys are absent. The cause of the convulsions is to be sought in an edema of the brain. In treating eclamptic attacks, one must seek to combat, by means of lumbar puncture and venesection, excessive intracranial pressure.

Angiogenic pseudo-uremia has no dependent relation with renal insufficiency and may occur also in non-nephritic persons. It is characterized by arterial hypertension and by arterial spasms, chiefly cerebral.

Professor D'Arbela, of the Clinica medica in Florence, considered uremic acidosis, pointing out that, in true uremia, compensated and decompensated acidosis may be encountered, whereas decompensated alkalosis is rare and is usually to be ascribed to pseudo-uremia. In uremic acidosis the speaker distinguishes a period of latency (preuremic acidosis), a period of compensation characterized by diminution of the alkali reserve of the blood but with a normal hydrogen ion concentration and a decompensation in which the hydrogen ion concentration becomes more distinctly acid. The kidneys play an important part in the pathogenesis of uremic acidosis, serving as regulatory organs of acid-base equilibrium. Determination of the degree of acidosis is of great diagnostic value. Antacid treatment gives good results only as a prophylactic measure.

Professor Volterra, of the Clinica medica in Florence, spoke on the chemical changes in the blood, the organic fluids and the tissues in true uremia. These changes affect both the organic and the inorganic constituents, among the latter, one observes chiefly an increase of sulphur, phosphorus and potassium together with a diminution of calcium. The chlorine content is variable and should be followed with great care by the attending physician as furnishing particularly a guide in establishing dietetic norms. Importance attaches to the elimination of nitrogen. More recently, attention has been called to the aromatic compounds—indican, the phenols, the amino-acids, oxacids, and urinary chromogens—which substances accumulate in the blood of uremic patients, and the changes in their percentages are aids in the diagnosis and the prognosis.

Professor Lunedi of Florence discussed the pathogenesis of eclampsia in nephritic patients and angiogenic pseudo-uremia. Of the theories proposed he gave special consideration to the angiospasm theory of Forlanini and to Volhard's theory of cerebral edema and concluded that neither of the two is completely satisfactory. A more recent interpretation is based on the essential elements of these two theories and assumes that the attack of eclamptic uremia is caused by a marked reduction in the flow of blood to the brain, due to arteriospasm. This change in the blood circulation is possibly followed by a sudden permeability of the capillary walls and then by cerebral edema.

In angiogenic pseudo-uremia the psychic manifestations should be attributed in part to arteriosclerotic lesions and in part to increased endocrine pressure. But some of the symptoms seem to find their most satisfactory interpretation in the angiospastic attacks, which, it would seem, must be regarded today as one of the fundamental factors of cerebral apoplexy occurring in these cases.

Mother and Child Day

December 24 was celebrated throughout Italy as a day devoted to the interests of the mother and the child. This is

the first year that such a day was set apart by the government, the purpose being to combat a trend toward a decline in the birth rate. Such propaganda appears necessary in view of the fact that recent statistics have shown that, as compared with 1,124,479 births in 1924, there were only 992,049 births in 1932, which denotes a decline of 132,000 births. This difference was not entirely covered by the diminution in the number of deaths, so that there was a net deficit of about 77,000. The birth rate has declined from 29 per thousand in 1924 to 23.8 per thousand in 1932.

The protection of mother and child is entrusted in Italy to a national organization, which is active in many related fields: the crusade against social diseases, and particularly with reference to their baneful effects on mother and child, systematic aid for expectant mothers and parturients, aid for the children of the tuberculous from the first days of their birth, aid and treatment for the children of syphilitics and malaria patients. To this society is entrusted also the propaganda for the education of future mothers, and the location in the rural districts of the institutions for the care and training of young children.

BELGIUM

(From Our Regular Correspondent)

Feb 6, 1934

The Diploma for Specialists

Previous letters have contained accounts of the various phases through which the problem of establishing a diploma for specialists has passed during the deliberations of the Federation medicale belge and the Académie royale de médecine.

Professor Goovaerts recently denounced the following resolution passed by the academy: 1. The public authorities shall prohibit the use of the title of specialist by any physician who has not met the fixed requirements and shall impose on violators of the law penalties similar to those imposed for violations of the medical practice act. 2. In accordance with the legal provisions to be adopted by the public authorities, only holders of a special diploma can assume the duties of department heads in hospitals, institutes, polyclinics and dispensaries, and then, of course, only in the branches covered by the diploma. Likewise, only holders of a special diploma can be accepted by official bodies, societies or mutual associations for the practice of internal medicine, general surgery, obstetrics and gynecology, pediatrics, and other specialties to be specified.

The result of applying the provisions of this resolution Mr. Goovaerts points out, would be to divide the medical profession into a category of superphysicians who would enjoy all the higher privileges, and a group of subordinate physicians who, owing to the threat of prosecution for illegal practice, would be kept out of all official positions, as they could not be chosen as department heads in the hospitals, polyclinics or dispensaries and could not be sanctioned by official organizations, even for the practice of internal medicine. The proposition is the work of a small body of men who, though they doubtless had good intentions, failed, he said, to take full account of the ultimate consequences of the regimentation that they approved. The proposed regulations are disapproved by the majority of the specialists. As to the physicians who make up the body of the medical profession, they are so absorbed in their daily tasks that they do not always follow with attention the resolutions formulated in their behalf (but without asking their opinions) by the royal academy and the Council on Higher Instruction. These physicians should be enlightened in regard to the dangers that threaten them. If, after being duly informed they do not denounce the Draconian regulations that a small body of their confreres is endeavoring to impose on them and if they do not protest vehemently against the resolution passed by the Academy, there is cause for looking

despairingly into their future. They are ready, it would seem, for any abdication and any form of servitude.

On the other hand, the Société belge de chirurgie has approved unanimously the resolution of Professor de Beule, which affirms the need of creating a special diploma for surgeons, which, while not depriving doctors of medicine, surgery and obstetrics of the rights conferred on them by law, will serve to stress the need of graduate training for those who seek an official post as surgeon in a hospital or clinic. The technical and scientific progress of surgery demands imperatively the creation of a diploma guaranteeing that the holder has acquired a thorough knowledge of surgery by special studies and work under master surgeons. The society, after the adoption of this expression of principle, will take up the detailed study of the project approved by the Academy of Medicine. It will be recalled that the duty of respecting the acquired situations and legal rights has always been mentioned in all the discussions that have been held on this subject. At the meeting held Feb. 28, 1931, the third section passed the following resolution: "The Royal Academy of Medicine of Belgium, while respecting the integrity of the rights conferred by the diploma of doctor of medicine, surgery and obstetrics, takes account of the changes that the new social laws have brought about in the practice of medicine, and expresses the desire to see a diploma (or a certificate) for specialists created, and reserves for a later date a discussion of the methods of bringing about such a measure."

Controversy About Health Centers

A serious controversy has arisen at Brussels. The medical circles allege that the Société belge de médecine préventive et d'eugénique, in creating health centers to which are admitted (gratuitously in some communes, and on the payment of a small fee for the benefit of the society, in others) persons whom the physician feels that he has a right to regard as prospective clients, is exceeding the limits of the objective for which it was created. Dr. Malvoz, in an interview, confirms the opinion of the physicians: "Does not the clinical instruction of the faculties of medicine, which is constantly improving, render all physicians capable of taking blood pressures, of withdrawing blood for an examination of the urea and other constituents, or of examining a specimen of urine for the presence of albumin, sugar or the like? What would be left to the physician if his activities are to be restricted by taking away from him this essential task of his profession—the examination of a patient from both the preventive and the curative point of view? The practitioners did not wait for the creation of the Société de médecine préventive before giving periodic health examinations." It is certain that, in opening to the public the diagnostic centers, the Société belge de médecine préventive et d'eugénique is trespassing on the prerogatives of the physician. That must not be, for at present the situation of the physician, which is difficult at the best, will not admit of any competition on the part of social organizations.

Opening of Prince Leopold Institute of Tropical Medicine

The Prince Leopold Institute of Tropical Medicine at Antwerp was recently opened. The port of Antwerp is the logical port at which persons land who are returning home after service in Africa. It likewise affords shelter to a considerable number of sailors of all nationalities, whose health it watches over carefully. The institution, which occupies 2½ acres of land in the city of Antwerp, has placed side by side the part that is purely colonial and the various scientific departments: the bacteriologic laboratory, the chemical laboratory, the museum of hygiene, and the sanitary service. The theoretical instruction in tropical pathology is combined with the clinical

instruction There is a small hospital of fifty beds with all the modern comforts The new institute has taken over a triple function, it is a university, laboratory and hospital combined It is designed to furnish graduate instruction to physicians planning to practice in the Belgian Congo, to provide instruction for missionaries, sanitary officers and nurses who expect to serve in Africa, and, finally, to carry on scientific research

Insurance Against Occupational Diseases

Dr Glibert has published an article giving a survey of the insurance against occupational diseases in Belgium The law has rendered inestimable services and, although only four years has elapsed since the system was introduced, it has been sufficient to show the value of the methods constituting the mode of reparation

Four hundred requests for indemnification were presented to the "Fund", 357 were made the subject of medical inquiries and only a single case was taken to the courts The inquiries dealt chiefly with lead poisoning and a few rare cases of hydrargyrisms and anthrax infection, the three diseases accepted by the first Convention of Geneva on the subject and by the royal decrees in force at the time the research was begun

BUENOS AIRES

(From Our Regular Correspondent)

Dec 12, 1933

Iodine in Thyroids of Cattle

The thyroids of cattle in the cattle zones of Argentina (as reported by Mazzoco, Ruff and Torno) and in Uruguay (as reported by Goslino) are rich in iodine content In cows and sheep there is an average of 400 mg of iodine per hundred grams of thyroid powder, not previously deprived of the fat by ether According to Ruff the figures are slightly higher in winter (434 mg) than in spring (391 mg) and in summer (366 mg) The preceding data concern the area of the littoral of Argentina, the most important cattle area in the country In Salta province, however, the content of iodine in the thyroids is lower, specially in the areas where goiter is endemic (as reported by Mazzocco) The permanent committee of the pharmacopeia has suggested the adoption of a standard in order that all the commercial thyroid preparations may have an equal amount of thyroxine The standard would be used until there is an international method adopted

Continuous Paroxysmal Tabetic Topalgia

This syndrome was described by Sicard in 1921 The algia is fixed in one area, does not irradiate and is constant It is accompanied by a constant painful paroxysmal crisis and sometimes also is by tremors Dr Julio Diez reported recently a case in which an ample posterior radicotomy (sixth cervical to second dorsal) completely failed Diez then performed an anterolateral cordotomy, which brought about a complete disappearance of the pain He believes that in this disease there might be a radicular lesion but that the pain is caused by the medullary lesion and that the only surgical treatment for continuous paroxysmal tabetic topalgia is an anterolateral cordotomy

A Discussion on Tropical Pathology

A discussion of tropical pathology was conducted last October, at a meeting in Santiago del Estero, under the presidency of Dr S Mazza There were discussions on exanthematous typhus, and Drs Brumpt of Paris and Ventemillas of Bolivia read papers on vectors of mountain fever and its therapy, respectively Drs Mazza, Martinez and Cornejo Arias spoke on *Trypanosoma cruzi* in children and adults and Dr Mazza on *Trypanosoma cruzi* in mammals Papers were read on malaria and hemoglobinuric fever There were more than twenty papers read by Drs Hormaeche Videla Rey, Mazza,

Canal, Feijoo, Cornejo, Argañaraz and others on brucellosis Drs Langeron of Paris, Mackinnon of Montevideo, Talice, Niño, D'Accini, Canal and Feijoo spoke on mycosis

Pan-American Sanitary Conference

The date for the ninth Pan-American Sanitary Conference, which is to take place in Buenos Aires, has been postponed several times However, the members of the committee, under the direction of Dr G Araoz Alfaro, in accord with the government, have decided to have the meeting in 1934

Congress of Obstetrics and Gynecology

The second Congress of Obstetrics and Gynecology will meet in Buenos Aires in July 1934 The topics to be discussed will be tuberculosis and pregnancy, ovarian insufficiency, and conservative surgery in gynecology

University News

The "Luis Güemes" prize was awarded to Dr R. Izzo for his book "Semiotologia de la Azotemia" The Pascual Palma prize was awarded to Dr O Marottoli for his book "Estudio Ortopédico sobre la Cadera"

Drs E Beretervide, J J Puente P O Dezeo, L Figueroa, Alcorta, A Di Cio, O Prestini, E Com Molina and H Aprile have been nominated assistant professors of pediatrics, dermatology, hygiene, urology, medical clinics gynecology, prosthetic technic and dental anatomy, respectively, in the Faculty of Medicine of Buenos Aires

Deaths

The following deaths have been reported

Dr Juan B Señorans, the initiator of studies on experimental physiology in Argentina (1883-1886), formerly professor of legal medicine and toxicology at the Faculty of Medicine of Buenos Aires honorary professor of the Faculty of Medicine of Medicina of Buenos Aires, aged 74

Dr Martin Castro Escalada assistant professor of otorhino laryngology of the Faculty of Medicine of Buenos Aires, aged 52

Dr Alfredo Larguia, formerly director of the Conservatorio de vacuna antivaricela of Buenos Aires and formerly director of the Hospital de Niños of Buenos Aires

RIO DE JANEIRO

(From Our Regular Correspondent)

Dec 15, 1933

The National Conference for the Protection of Children

The first National Conference for the Protection of Children has just been held in Rio de Janeiro under the presidency of Prof Olinto de Oliveira, head of the department of children in Brazil The medical delegates of the Brazilian states, who were in session for eight days, discussed subjects related to the life of children, from every aspect For the protection of children in Brazil, the following points were considered

1 The law must eliminate the inequality of conditions of children, which is the most unjustifiable of all social inequalities, and insure when possible the necessities for health, education, rest, comfort and amusements

2 The federal constitution must insure the protection of the family of maternity and of infancy

3 The activities of the federal, state and municipal legislative bodies must be coordinated in maintaining the "code of children," which contains the fundamental principles of all Brazilian legislation on the subject

4 The law must insure (a) the protection of large families, (b) the familial vote (c) the civilian rights of women on the same footing as the political rights already established, (d)

punishment for abandoning the family and for its infection, (e) the prenuptial medical examination, (f) facilities for adoption, (g) the effective repression of criminal abortion, (h) the especial protection of illegitimate children, (i) the punishment of omissions on the part of the father or guardian with regard to the education of their children and wards, (j) the efficiency and legality of the civil legislation, (k) the exercise of the paternal power in the interest of the minor, and (l) the development of the natural aptitude of women to cope with child-bearing

5 Legislative and administrative measures should be adopted tending to restrict infant mortality and morbidity and for the moral defense of childhood

6 Institutions and services necessary for the protection of children should be organized throughout the country and their efficiency insured

7 Festive occasions should be promoted regularly, such as (a) health contests, (b) breast feeding contests, (c) selection of the best student in schools, (d) of the cleanest poorhouse, (e) prizes for good conduct, and (f) prizes for numerous, healthy children

8 In the federal, state and municipal budgets a certain percentage should be reserved to pay the expenses of the services of protection and assistance to children and of their education

Regulation of the Sexual Cycle

Dr Thales Martins recently gave an interesting lecture on regulation of the sexual cycle before the Society of Biology of São Paulo. He discussed the regulation of the activity of the sex glands by the hypophysis and of the latter by the ovary or the testicle. He described the dual action of the testicular hormones, one of which acts on the secondary sex characteristics and the other controls the activity of the hypophysis. He explained the influence of the nervous system on the sexual sphere through the intermediary of the hypophysis, which regularly discharges hormones in the blood. He discussed the migration of animals, birds and fishes and cited the work of a commission of members of the Royal Society, who concluded that the migration was actuated indirectly through the interrelation of the hypophysis and the sex glands and that it could be obtained by injection of hormones

The Annual Conferences of the Free Teachers

The free teachers of the Faculty of Medicine of the University of Rio de Janeiro have decided to give a series of annual conferences in order to make known the work done in all fields of medicine. The conferences that have already been given were attended by a large number of physicians and students. The free teachers play an important part in the medical instruction of Brazil because they are mostly young physicians full of ideals and enthusiasm who dedicate themselves to the work of instruction and attain great success, some of their lectures being superior to those given by professors. The annual conferences have awakened great interest in student circles

A Small Epidemic of Neuromyelitis

Professor Austregesilo, in the name of Drs Borges Fortes and Euridice de Magalhães, presented to the National Academy of Medicine experimental and anatomopathologic studies on neuromyelitis which they have been conducting. In a series of preparations he demonstrated the meningo-medullary changes and the lesions in the anterior parts of the lateral tracts showing atrophic and vascular changes. The nucleus ambiguus was found greatly altered. The lesions of periaxial neuritis of the sciatic nerve were evident. The recent inoculations of substances obtained from nine patients in the cornea of rabbits have resulted in experimental corneal lesions. The speaker called attention to the neurotropic virus which for about one year has produced a small epidemic of neuromyelitis

BUCHAREST

(From Our Regular Correspondent)

Feb 20, 1934

Rockefeller Foundation Aids Dispensary in Bucharest

Rumania, whose present territory is three times as large as it was prior to the war, has to expand its medical institutes, which are used for the purpose of teaching medical students. The first one to be enlarged is the Public Health and Hygiene institute, which will be one of the best equipped in Europe. The magnificent building, which will be ready in April or May, will shelter a modern preventive medical dispensary. The huge costs will be covered equally by the ministry of public health, the city of Bucharest and the Rockefeller foundation. The costs of upkeep will be shared likewise, but only for the first five years, thereafter the Rockefeller foundation will gradually withdraw. The preventive dispensary will imitate one of New York's institutes, which a special committee studied last summer. The new Bucharest dispensary will supply preventive medicine for an important district of the capital city but will also serve to educate the hygienists of the country

The New Minister of Health

Some years ago in Rumania, three members of the ministerial cabinet were physicians. One would expect that among these would have been the minister of health. Not at all. To the latter post a lawyer was appointed. The same thing has happened again. In the new liberal government, which constituted itself last December, the health minister is a layman, while the minister of public instruction is a physician, Dr Angheliescu. But the state secretary of the minister of health is a physician, who was a practitioner in a remote town. He was elected a member of the chamber of deputies and then appointed to state secretaryship.

Only good can be expected from the new regime, for Professor Gane, the state secretary, proved himself competent in 1926, when the new public health law was framed under his guidance.

Health Insurance in Bulgaria

According to the present law, insurance is compulsory for all those who work as employees in industry, commerce and agriculture. The administrators of the insurance are the friendly societies, which are organized according to territorial apportionment. Every society has a board of managers of nine or twelve members, of whom one third are employers and two thirds employees. Supervision over the societies is exercised by the sickness insurance council, in which the medical profession is well represented. Two thirds of the expense is paid by the employees and one third by the employers. The state pays 50 per cent of the administrative costs of the district societies. The insurance is due from the third day of sickness to the amount of 50 per cent of the wage. Medical attendance, drugs and hospital accommodations may be paid for twenty-six weeks.

Medical attendance is regulated by the state and there is the fullest free choice of physician. The societies have the right to employ contract physicians, but the members are at liberty to consult also noncontract physicians. Doctors' bills are supervised by a committee appointed by the medical association. In regard to drugs there is a list of those which may be prescribed without any restriction, there is another list containing proprietary medicines these can be ordered only with special justification of their being necessary. Drug stores have to allow a reduction of 20 per cent, but should the amount purchased from them exceed a certain sum, the reduction amounts to 25 per cent.

In legal disputes arising between physicians and the friendly societies the council makes the decisions.

Marriages

BENNIE BOOKER DALTON, Red Springs, N C, to Miss Willie Grace Covington of Mebane, at Wassaic, N Y, March 2

GREGORY GEORGE SHIELDS, Abbotsford, Wis, to Miss Blanche Knutson of Viroqua, at Milwaukee, Dec 28, 1933

JOHN PAUL TIERNEY, Boston, to Miss Mary Ellen Schlee-hauf of Cincinnati, at Covington, Ky, January 28

ANTHONY CHARLES JOSEPH HAHN to Miss Harriet A Nowack, both of Watertown, Wis, January 23

JOSHUA TAYLOR, Washington, N C, to Miss Mary Ann Jamison of Richmond, Va, Dec 27, 1933

FRITZ JOSEPH MOENNIGHOFF, Wichita, Kan, to Miss Alfreda Voge of Kansas City, recently

CARL H BENDLER to Miss Grace Imogene Campbell, both of Gary, Ind, February 3

EDGAR F FINCHER, JR, to Miss Helen Nichols, both of Atlanta, Ga, February 10

FRED CARL ENDRES, Peoria, Ill, to Miss Ida Wheeler of Yates City, recently

MAX W FLOTHOW to Mrs Myrtle Strehlow, both of Omaha, recently

Deaths

Max Ballin ⊕ Detroit, University of Berlin, Germany, 1892, formerly clinical professor of surgery, Detroit College of Medicine and Surgery, member of the American Surgical Association, fellow of the American College of Surgeons, served during the World War, surgeon to the Harper Hospital, consulting surgeon to the Children's Hospital, Woman's Hospital and the Highland Park (Mich) General Hospital, received the class two gold medal for his exhibit on parathyroidism at the annual session of the American Medical Association in New Orleans in 1932, aged 64, died, March 3, of heart block

Frederic Shephard Dennis ⊕ New York, Bellevue Hospital Medical College, New York, 1874, member and past president of the American Surgical Association, member of the Connecticut State Medical Society, fellow of the American College of Surgeons and the Royal College of Surgeons, since 1910 emeritus professor and from 1898 to 1910 professor of clinical surgery, Cornell University Medical College, professor of surgery at his alma mater from 1883 to 1898, consulting surgeon to the Bellevue, St Vincent's and Montefiore hospitals, New York, and the Litchfield County Hospital, Winsted, Conn, author of Dennis' System of Surgery, aged 83, died, March 8, of heart disease

Paul Edgar McNabb ⊕ Major, M C, U S Army, Washington, D C, University of Pennsylvania School of Medicine, Philadelphia, 1912, served during the World War, fellow of the American College of Physicians, member of the American Association of Pathologists and Bacteriologists, Tennessee State Medical Association, and the International Association of Medical Museums, curator of the Army Medical Museum, 1931-1933, at one time president of the U S Army Medical Department Research Board in Manila, P I, aged 46, died, February 24, in the Walter Reed General Hospital, of progressive hypertensive disease and cerebral hemorrhage

Harold L Van Metre ⊕ Los Angeles, State University of Iowa College of Medicine, Iowa City, 1915, associate clinical professor of surgery, University of Southern California School of Medicine, instructor in surgery at his alma mater, 1917-1919, fellow of the American College of Surgeons, on the staffs of the Hospital of the Good Samaritan, Methodist Hospital of Southern California, Los Angeles General, Hollywood Clara Barton Memorial and California hospitals, aged 45, died, January 27

Claude Percival Fryer ⊕ Maryville Mo Willamette University Medical Department, Salem, Ore, 1906, member of the Kansas Medical Society, formerly field agent of the U S Public Health Service and health officer of Brown County with headquarters at Hiawatha, Kan for many years health officer of Nodaway County Mo, aged 60, died Nov 9, 1933, of coronary thrombosis

Rolfe Eldridge Hughes, Laurens, S C University of Maryland School of Medicine, Baltimore, 1892 member and past president of the South Carolina Medical Association past president and for many years secretary of the Tri-State Medi-

cal Association of the Carolinas and Virginia, past president of the Laurens County Medical Society, aged 65, died, Dec. 2, 1933

John Joseph Farrell, Hannibal, Mo, Washington University School of Medicine, St Louis, 1901, member of the Missouri State Medical Association formerly secretary of the Marion County Medical Society, aged 54, on the staffs of the Levering Hospital and St Elizabeth's Hospital, where he died, Dec 3, 1933, of cerebral hemorrhage

Charles Bickham Ford ⊕ Seattle, Bellevue Hospital Medical College, New York, 1895, past president of the North Pacific Surgical Society, fellow of the American College of Surgeons, visiting gynecologist to the Seattle City Hospital and surgeon to the Children's Orthopedic Hospital, aged 60, died, February 20, of bronchopneumonia

Peter N K Schwenk ⊕ Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1882, member of the American Ophthalmological Society, fellow of the American College of Surgeons, for many years on the staffs of the Wills Hospital and the Pennsylvania Hospital, aged 79, died, February 17, of pneumonia

Arthur B Chandler, Montreal, Que, Canada, McGill University Faculty of Medicine, Montreal, 1906 served with the Canadian Army during the World War, head of the children's department of the Montreal General Hospital and medical director of the Child Welfare Association, aged 50, died, February 13

Frank Bell Fuson, Larned, Kan, Missouri Medical College, St Louis, 1886, member of the Kansas Medical Society and the American Psychiatric Association, formerly health supervisor for the state eleemosynary institutions, on the staff of the Larned State Hospital, aged 74, died, February 4, of nephritis

Benjamin Butler Keys ⊕ Murray Ky, Vanderbilt University School of Medicine, Nashville, Tenn, 1908, past president and secretary of the Calloway County Medical Society, member of the state board of health, part owner of the Keys-Houston Clinic Hospital, aged 53, died, January 25, of heart disease

Albert Marion Earel ⊕ Hoopeston Ill, Rush Medical College, Chicago 1891, member of the American Academy of Ophthalmology and Oto-Laryngology, aged 67 died, February 25, in the Lake View Hospital, Danville, of a basal skull fracture received when he fell through an elevator shaft

James Young McCullough ⊕ New Albany, Ind, University of Louisville (Ky) School of Medicine, 1907, past president of the Floyd County Medical Society, secretary of the county board of health, on the staff of St Edwards Hospital, aged 51, died, February 22, of hypernephroma

Claude Edward Case ⊕ Clifton Springs, N Y, University of Pennsylvania School of Medicine, Philadelphia, 1917, fellow of the American College of Physicians, on the staff of the Clifton Springs Sanatorium and Clinic, aged 40, died, January 27, in Doylestown, Pa, of lymphosarcoma

William Clifton Black, Greenville, S C, University of Maryland School of Medicine, Baltimore, 1886, member of the South Carolina Medical Association, fellow of the American College of Surgeons surgeon to the City Hospital, aged 73, died, Dec 12, 1933, of cirrhosis of the liver

Alonzo Blauvelt, New York College of Physicians and Surgeons in the City of New York, medical department of Columbia College, New York, 1876 for many years member of the city health department aged 79, died, February 20 in Maplewood, N J, of heart disease

James Dunaway McCann, Raymondville, Texas, Vanderbilt University School of Medicine, Nashville, Tenn, 1894, member of the State Medical Association of Texas, veteran of the Spanish-American War, aged 64, died, January 31, of heart disease

Godfrey Oldfield Cuppage, Moberly, Mo L R C S, Ireland, 1883, L K Q C P, Ireland, 1884, member of the Missouri State Medical Association, formerly health officer of Moberly, aged 73, died, Nov 18, 1933, of cerebral thrombosis

Zopher F Dunning ⊕ Milford, Conn, Albany (N Y) Medical College 1888 member of the Medical Society of the State of New York on the staff of the Milford Hospital, aged 69 died, February 4, of carcinoma of the prostate

John Walker Carter Jones ⊕ Newport News, Va, University of the South Medical Department, Sewanee, Tenn, 1900, on the staffs of the Riverside and Elizabeth Buxton hospitals, aged 55 died suddenly February 9 of coronary thrombosis

Donald Henry Conterman, Oneida N Y, Syracuse University College of Medicine, 1923, member of the Medical Society of the State of New York, for six years health officer of Oneida, aged 35, died, Dec 26, 1933, of pneumonia

Francis Marion Cram ♂ Redfield S D, Medical College of Fort Wayne, Ind, 1882, Rush Medical College, Chicago, 1891 past president of the South Dakota State Medical Association, aged 76, died, February 13

Floyd Alvah Bird, Olympia, Wash, Missouri Medical College, St. Louis, 1899, member of the Washington State Medical Association fellow of the American College of Surgeons, aged 56, died, Nov 26, 1933

Abram G Jones, Walnut Cove, N C, University of the City of New York Medical Department, 1868 member of the Medical Society of the State of North Carolina, Civil War veteran, aged 89, died, January 15

William Roy Keller ♂ Dover Ohio, Hahnemann Medical College and Hospital of Philadelphia, 1910, served during the World War, on the staff of the Union Hospital, aged 46, died, February 14, of heart disease

Edward McIntyre Haley, Blossburg, Pa, University of the City of New York Medical Department, 1888 served during the World War, aged 69, died, January 29, in Northport, N Y, of lobar pneumonia

Alfred F Whitehurst, Iuka, Miss, University of the South Medical Department Sewanee, Tenn, 1898, member of the Mississippi State Medical Association, aged 65, died in December 1933

Charles Fuller Clark, Omaha, University of Michigan Medical School, Ann Arbor, 1881, member of the Nebraska State Medical Association, aged 77, died, February 10, of heart disease

Enoch A Burwell, Nokomis, Ill, Missouri Medical College, St. Louis, 1884, formerly bank president and president of the school board, aged 77, died, January 27, of cerebral hemorrhage.

Hugh Torrance McLaughlin, Steubenville, Ohio, State University of Iowa College of Medicine, Iowa City, 1881 formerly a medical missionary, aged 77, died, January 29, of thrombosis

Frank Herbert McCray ♂ Schaller, Iowa, Sioux City College of Medicine, 1896, past president and secretary of the Sac County Medical Society, aged 67, died, January 15, of septicemia

William Winter Beall, Baltimore, Howard University School of Medicine, Washington, D C, 1888, aged 74 died, Dec 29, 1933, of myocardial insufficiency and arteriosclerosis

Jacob Edward Herman, Brooklyn, College of Physicians and Surgeons in the City of New York medical department of Columbia College, 1888, aged 69, died, Dec 23, 1933

Gertrude B Kelly, New York, Woman's Medical College of the New York Infirmary for Women and Children, 1884, aged 72, died, February 16, of arteriosclerosis

James Dallas Kirk, Roanoke, Va, Long Island College Hospital Brooklyn 1870, for many years member of the school board, aged 87, died, Dec 22, 1933, of pneumonia

Thompson Wright Grace, Port Lavaca, Texas, Kentucky School of Medicine Louisville, 1891, aged 67, died, Nov 2, 1933, in Victoria, of acute dilatation of the heart

George Dillwyn Green, Waynesville, N C, University of Pennsylvania School of Medicine, Philadelphia, 1872, aged 84, died, Dec 18 1933, of chronic myocarditis

Enrico Scimeca, New York, Royal University of Palermo Faculty of Medicine and Surgery Palermo, Italy, 1893, aged 66, died suddenly Dec 31, 1933, of heart disease

Emmett Black Arcadia, Calif, Western Pennsylvania Medical College Pittsburgh 1909 aged 51, was instantly killed, February 10 in an automobile accident

Maurice H Rosenberg, Chicago Bennett College of Eclectic Medicine and Surgery, Chicago 1894, aged 62, died, February 28 in the Michael Reese Hospital

John S Miller, Los Angeles, University of Missouri School of Medicine Columbia 1879 American Medical College, St. Louis, 1880, aged 75 died, Nov 22, 1933

William John Hendry, Baltimore University of Toronto Faculty of Medicine 1933, aged 24, died February 18, in the Johns Hopkins Hospital, of poliomyelitis

Edgar Hunt, Hampton N J, Bellevue Hospital Medical College New York, 1878 aged 76 died, Dec 19, 1933 of complications of the face and acute pleuritis

Charles Elmer Field, Brockton Mass, Harvard University Medical School, Boston 1878, aged 80, died, February 14, in the Brockton Hospital, of pneumonia

Glenn Taylor Logsdon Los Angeles, University of Tennessee Medical Department Nashville, 1924, aged 41, died, January 5, of poison, self-administered

Franklin McKinley, Parkersburg, W Va (licensed, in West Virginia under the Act of 1881), aged 85, died, January 16 of myocarditis and nephritis

Llewellyn Bartlett Richards, Syracuse N Y, University of Michigan Homeopathic Medical School, Ann Arbor, 1881, aged 89, died, Dec 29, 1933

Howard Eaton Lomax ♂ Albany, N Y, Albany Medical College, 1892, served during the World War, aged 65, died, January 13, of pulmonary embolism

John J McLean ♂ Jersey City, N J Halifax Medical College, Halifax, N S, 1879, on the staff of the Christ Hospital, aged 79, died, January 12

Henry Plummer Lovewell ♂ Providence, R I, Harvard University Medical School, Boston, 1894, aged 67, died, January 1, of coronary thrombosis

John Newton Calhoun ♂ Lisbon, Ohio, Western Reserve University Medical Department, Cleveland, 1876, aged 80, died, February 11, of pneumonia

Louis Francis Zachary, Livingston, Tenn, University of Louisville (Ky) School of Medicine, 1894, aged 68, died, Dec 1, 1933, of heart disease

John M Henderson, Waeider, Texas, Vanderbilt University School of Medicine, Nashville, Tenn, 1880, aged 84, died, Dec 14, 1933, of typhus fever

Joseph M Gilbert, English, Ky, Louisville Medical College, 1893, member of the Kentucky State Medical Association, aged 66, died, February 12

Nathan Ramsey Simmons, Toledo, Ohio, Hahnemann Medical College and Hospital, Chicago, 1884, aged 76, died, January 29, of enterocolitis

Richard Coopender Bankston, Tampa, Fla, Tulane University of Louisiana Medical Department, New Orleans, 1888, aged 79, died, February 1

Francis Marion Bourland, Houston, Texas, Missouri Medical College, St. Louis, 1890, aged 69, died, in February, at the Hermann Hospital

Jefferson G McKinney, Plattsburg, N Y, College of Physicians and Surgeons, Baltimore, 1886, aged 73, died, January 27, in Orlando, Fla

Jesse Franklin Campbell, Mangum, Okla Atlanta College of Physicians and Surgeons, 1902, aged 57, died, February 19, of pneumonia

Leon O Vaughan ♂ Waverly Va, Medical College of Virginia, Richmond, 1904, aged 58, died suddenly, Nov 26, 1933, of heart disease

J W Myers, Philippi, W Va, Physio-Medical College of Indiana, Indianapolis, 1895, aged 61 died, January 16, of cerebral hemorrhage

James Eddy Montgomery, Los Angeles, College of Physicians and Surgeons, Baltimore, 1886, aged 70, died, Nov 2, 1933, of carcinoma

Hermann Duesing ♂ Bridgeport, Conn, University of Wurzburg Germany, 1891 aged 64, died, January 31, of coronary occlusion

Robert Lee Little, Judsonia Ark, College of Physicians and Surgeons, Dallas, Texas, 1906, aged 68, died, February 10, of heart disease

Almon Dahlgren Shipley, South Gate, Calif, University of Wooster Medical Department, Cleveland, 1880, aged 86, died, January 21

Peter Sloan Keim, Cleveland, Jefferson Medical College of Philadelphia 1896, aged 60, died, January 4, of cerebral hemorrhage

Martin C Carr, Duquoin, Ill, Missouri Medical College, St. Louis, 1876, aged 83, died, February 15, of organic heart disease

John C McLellan, Leamington Ont, Canada, Saginaw (Mich) Valley Medical College, 1902, died, Nov 17, 1933

Thomas M McIntosh, Thomasville, Ga, Atlanta Medical College, 1875, aged 80, died, Dec 4, 1933, of heart disease

Cecil Ephraim Smith, San Francisco, Rush Medical College, Chicago, 1900, aged 56 died, Dec 8, 1933

Elijah Emery Rose, Ewing, Va (licensed in Tennessee in 1889), aged 80, died, Dec 27 1933, of senility

Correspondence

GRANULOCYTOPENIA

To the Editor—My reason for commenting on an article in THE JOURNAL, February 17, entitled "Granulocytopenia," by Pauline Zininger, is that the two cases described may possibly be instances of leukosis (leukemia) rather than of agranulocytosis. The two conditions are frequently confused, despite what may seem at first glance obvious differences. It is becoming increasingly evident that the diagnosis of agranulocytosis, granulocytopenia and the like is being made on the basis of a very low leukocyte count without much consideration being given to the possibility that the leukopenia might not be primary but rather secondary to some such disorder as aplastic anemia, aleukemic leukosis (leukemia), generalized sarcomatosis with involvement of the bone marrow, or even sepsis. True or primary agranulocytosis is probably an intrinsic disorder of the bone marrow (metabolic in type?) in which the granulocytes either do not grow at all or do not properly mature. Only rarely is there an associated anemia or reduction in the blood platelets.

It may well be true that Dr Zininger's case 1 was an instance of primary agranulocytosis. However, when one notes that in the patient's second attack the hemoglobin and red blood cell count steadily diminished and the leukocyte count suddenly increased to 20,000 and 36,300 with the appearance in the peripheral blood of myelocytes and myeloblasts, the impression is obtained that the patient may not have had agranulocytosis but rather acute myelogenous leukemia. The fact that the high white blood cell count followed two injections of extract of gastric juice (adisin) does not prove anything, and it seems unwise to say that there was a "satisfactory response" to adisin especially since the patient at this point began to go definitely downhill and died within a month. I saw the same sort of "response" in a patient with aleukemic myelosis (aleukemic myelogenous leukemia) following the injection of liver extract, the leukocyte count rising to 250,000, and spontaneous reversions in cases of aleukemic leukosis to a high white cell count are not at all unusual.

There are other features in Dr Zininger's case 1 that seem to me typical of leukosis: (1) the necrotic lesions of the skin and subcutaneous tissues, (2) the failure of response to pent-nucleotide, (3) the progressively downhill course with a rising white count and anemia, (4) the postmortem examination of the spleen, which was moderately enlarged and which showed effacement of normal architecture and infiltration with cells which "were largely mononuclear but some showed polymorphic nuclei" and (5) the sections of the bone marrow, which showed "a very active regeneration of the marrow with many granular cells present." (No mention is made of the condition of the red cells or megakaryocytes.) Dr Zininger mentions the concept enunciated by Fitz-Hugh and Krumbhaar of "maturation arrest." I feel that this concept may be overemphasized and that several cases of acute leukosis have probably been on this account mistakenly diagnosed agranulocytosis, even though the marrow showed large numbers of myeloblasts and myelocytes. The author's case 2, in which necrotic lesions of the skin developed and the course was rapidly progressive to death, may also have been leukosis despite the low white blood cell count. I have myself been guilty of confusing acute leukosis with agranulocytosis. Recent reexamination of the bone marrow biopsy sections of case 1 in my first paper on the subject (*Am J M Sc* 181:502 [April] 1931) reveals typical myeloblastic proliferation, which at the time escaped me and others.

Most cases of 'agranulocytosis' that I see turn out to be acute aleukemic leukosis (leukemia), usually myelogenous in

type. These may be diagnosed by the progressive usually macrocytic anemia, progressive reduction in blood platelets, and leukopenia with the presence usually in the peripheral blood of myeloblasts (often diagnosed incorrectly as lymphocytes, monocytes and large mononuclear cells). I have found sternal bone marrow biopsy of prime importance in the diagnosis. Lympho-sarcoma may give almost the same picture if it metastasizes to the bone marrow, and one case of myelosarcoma (chloroleukosarcoma, chloroma) that I saw was diagnosed as agranulocytosis. Peculiarly enough, the great majority of the cases of leukosis I have seen are aleukemic. They masquerade not only as agranulocytosis but as pernicious anemia, splenic anemia, Brint's disease, aplastic anemia and purpura hemorrhagica. Aleukemic leukosis should always be considered in cases presenting obscure anemia, leukopenia and thrombocytopenic purpura.

Considerable skepticism has been aroused recently regarding the value of the pentose nucleotides in the treatment of agranulocytosis. Many physicians report failure in their cases. The majority of failures, as I have noted in a recent paper (Agranulocytosis: Report of Three Cases Treated with Nucleic Acid Derivatives, *New England J Med* 209:1054 [Nov 23] 1933) may be the consequence of incorrect diagnosis. Successful therapy in the presence of aleukemic leukosis or profound sepsis cannot be expected. Another possible reason for failure may be the occasional inefficacy of the pentose nucleotides in stimulating the maturation of the bone marrow leukocytes. In one case under observation now, treatment with pent-nucleotide caused extremely severe reactions, during which the white blood cell count fell progressively to 500. When the more simple nucleic acid derivative adenine sulphate, which was first used by Reznikoff (*J Clin Investigation* 9:381 [Dec] 1930) and which may possibly be the active principle of the pentose nucleotides, was given, no further reactions occurred and the patient showed rapid improvement.

WILLIAM DAVESHEK, M.D., Boston

REPORT OF A TOXIC MANIFESTATION DUE TO "DINITRENAL"*

To the Editor—The need for caution in the use of dinitrophenol as repeatedly suggested in recent issues of THE JOURNAL prompts me to submit the following report.

A white woman, aged 32, entered my office, February 15, complaining of violent itching of the palms of the hands of five days' duration. Her previous history was completely negative. She stated that she had had a generalized mottled eruption ten days previous to the onset of the itching. The rash had lasted three days. She further stated that about ten days before the appearance of the eruption she had begun to take two capsules of "Dinitrenal" daily on the advice of a friend who told her that she could reduce this way without dieting. At the end of a week she increased the daily dosage to four capsules, according to the instructions on the label of this proprietary product. Physical examination revealed moderate swelling of both hands. Irritation of the skin of the hands or of the trunk by scratching or rubbing elicited typical urticarial wheals. (There was no history of previous anaphylaxis.) The temperature was 99.6 F, the pulse rate 80. Examination of the urine gave negative results.

The pruritus proved extremely resistant to all forms of treatment. It was so severe that the patient was unable to sleep for almost six full days in spite of strong somnifacients. Then the pruritus gradually disappeared.

SIDNEY HIRSCH, M.D., Cedarhurst, L. I., N. Y.

* Dinitrenal is the trade name for a product marketed by the Drug Products Company of Long Island City. The label gives the contents of each capsule as: Dinitrophenol sodium gr 1½, Suprarenal desiccated gr ¼, Carbo vegetalis.

NIGHT BLINDNESS

To the Editor—Dr Holcomb's interesting communication (THE JOURNAL, March 10, p 786) mentions the fact that night blindness was known to classical medicine and yet there was, even then, the same confusion as to designation that has persisted to the present time. As shown by his quotations, both Hippocrates and Rhazes use the term "nyctalopia" to mean poor vision at night, i e, with lowered illumination. Dr Holcomb himself speaks of "nyctalopia" as appearing frequently in Russia with the lenten fasts. This term is generally used at present for "owl-sight," i e, vision in the dark, or for the vision of the dark-adapted eye. For night blindness a paraphrase is made with the term "hemeralopia," meaning (good) sight in daytime, i e, bright light, thus the "nyctalopia" in the British Black Sea Fleet during the war in the Crimea described by John Rees, quoted as hemeralopia. The logical French have discarded this term and have substituted for it "hesperanopia," meaning night-non-vision. If this or some similar term such as nyctanopia is not adopted, medical writers should at least use the present current terms correctly.

PERCY FRIDENBERG, M D, New York

DUST COVER FOR APPARATUS

To the Editor—A dust cover for apparatus, made from discarded x-ray films, was described by Dr R. H. McClellan in THE JOURNAL, Nov 4, 1933. This useful and economical protection for instruments can be made more dust tight if Duco household cement is used to fasten the seams. I have also found that it is easier to construct the covers by cementing the seams than by using the stationers' piercing paper fasteners suggested by Dr McClellan. Film cement, of course, could be used, but this is more expensive and has no advantage over the Duco cement except quicker drying. Care should be taken not to use the cement too generously, otherwise the film will be unduly softened and unworkmanlike joints produced.

DONALD A LAIRD, PH D, SC D, Hamilton, N Y

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

UNIVERSAL ALOPECIA AREATA

To the Editor—I have a patient who started to lose all the hair on his body last May and now for three months he has not had any. He has not had to shave for three months. He is a married man with two children and the only thing he complains of is that he is cold all the time and almost has a chill every time he goes outdoors. He also complains of feeling tired. He has the appearance of a man in good health. All the blood and urine tests are negative. What is best to do for him? Please omit name.

M D Illinois

ANSWER—This man has alopecia areata which has become universal. The baldness has a depressing mental effect and this may account for his tired feeling and inability to resist cold, though every effort must be made to find other constitutional conditions that can be held responsible for them. He must be told at the start that response to treatment will no doubt be slow and that he must expect to take treatment for many months or even more than a year before he sees benefit. Results can be obtained in most cases even as bad as his by long persistence.

If his basal metabolism is normal or low, thyroid gland extract can be given in appropriate dosage, which can be expected to counteract the tired feeling and chilly sensations. Hydrotherapy can be employed: hot baths followed by baths as cold as he is able to stand, the cold being increased as the patient's response increases. Salt may be added for increased stimulation. Cod liver oil, iron and strychnine may be employed as indicated. General ultraviolet ray exposures may also be used.

Locally, ultraviolet rays in strong dosage to small areas of the scalp, best with the water-cooled quartz mercury vapor arc lamp, may be used. An erythema followed by exfoliation should be obtained from each treatment, and they should follow one another as soon as exfoliation has taken place, the intensity being increased as needed. If this source of radiation is not available, chemical stimulation can be used. The simplest is the application several times a day of stronger ammonia water, which gives good results in some cases. It should be applied after washing the scalp with hot water and soap, which is a good preparation for any local application. Acetic acid is used in the same way, applied once every fourth or fifth day, depending on the strength of reaction. This and the still stronger medicaments should be applied by the physician and used only over limited areas, the stronger the application the smaller being the area. Tricresol, diluted with alcohol to 25 per cent, the strength increased as the weaker solution fails to cause sufficient response, may be used, or phenol in the same way. A solution containing equal parts of tincture of iodine, phenol and chloral hydrate may also be efficient. One medicament should be used until the scalp acquires resistance to it and then should be changed for another. Turpentine, kerosene, chrysarobin and even croton oil are recommended. The latter must be used with great caution, for it can destroy the hair follicles. Chrysarobin on the scalp often is carried to the eyes and causes severe conjunctivitis, which possibly can be avoided by applying it in collodion. With all methods, the eccentricity of the disease must be remembered. It can refuse to yield for a long time, whereupon a slight growth of hair is suddenly seen. When this occurs, local and general measures must be kept up until the hair is full grown, and the case watched for months after this. One of the most important parts of the treatment is encouragement of the patient to keep up treatment in spite of the long failure to see results.

FOREIGN PROTEIN THERAPY IN PSORIASIS

To the Editor—I have heard of the treatment of generalized psoriasis by intravenous typhoid bacterin injections as used sometimes in treating arthritis. Can you tell me how successful this is? Is there any newer or better treatment of this disease than is outlined in the textbooks? Please omit name.

M D Missouri

ANSWER—Foreign protein therapy has long been used with benefit in stubborn cases of psoriasis. It alone will not clear up the eruption but will often render the case amenable to local therapy to which it was previously resistant. The mildest form of such therapy is injection, intramuscularly, of the patient's own blood. This is extolled by some dermatologists as more effective than intravenous injection of typhoid vaccine. From 5 to 20 cc of blood is drawn from the vein and immediately injected into the gluteal muscles in the upper outer quadrant of the buttock. The treatment is given every fifth day and continued for from five to twenty times. It sometimes causes a mild febrile reaction. Other mild forms of foreign protein therapy are the intramuscular injection of sterile milk preparations and hypodermic injections of vaccines. Some authorities praise the action of vaccines made from the organisms isolated from the patient's stool, testing out the various vaccines and using for treatment those which cause a reaction in the patient's skin.

For intravenous injection, typhoid vaccine should be used because its reactions are controllable. Enough to cause a definite but not severe reaction should be given. In conjunction with this, as with the milder forms, local therapy must be used. Crude coal tar ointment and neorobin are cleaner than chrysarobin and as effective in most cases. With any local application, the mildest that will be effective should be used. A hot bath before application of the ointment is helpful. Grindon reports the clearing of psoriasis in some cases by the use of two hot sodium bicarbonate baths daily, a half pound of the soda being used to the bath and the patient remaining in the hot water for an hour each time.

The combination of ultraviolet radiation and crude coal tar ointment suggested by Goeckerman is perhaps the most popular method of treatment among dermatologists at the present time. The ointment used by him was that recommended by C J White: crude coal tar, 2 Gm, zinc oxide, 2 Gm, corn starch, 16 Gm, and sufficient petrolatum to make 32 Gm. This must be made by mixing the first two ingredients, then the last two, and then mixing the two mixtures, making a black ointment. After a hot bath at night, this is rubbed well into all the lesions. The next day before the ultraviolet ray treatment, it is largely removed with olive oil, leaving a light film on the lesions. This film is in some way activated by the irradiation so that its effect on the psoriasis is enhanced. After

the treatment the patient may take a bath and remain free from ointment until before retiring, when he applies it again, preparatory to the same program for the next day. This treatment is best given in the hospital but can be modified for ambulatory patients. If the patient cannot leave the ointment on his skin during the daytime, a thin film may be applied just before the ultraviolet treatment. Treatments are given as frequently as the circumstances of the patient permit. If spots of coal tar ointment get on the clothing, they should not be washed with soap and water but should first be wet with oil or kerosene for several hours, after which they can be washed out.

USE OF CONVALESCENT MEASLES SERUM

To the Editor—Will you please let me know the therapeutic value of intramuscular whole blood injections in the treatment of measles using the blood of a parent who has had the disease some time before I should also like to find out the technic of these injections and the amount of blood usually injected. Please omit name.

M D Ohio

ANSWER—Generally speaking, convalescent measles serum injected intramuscularly within four days after exposure will prevent measles in by far most of the cases. When the seventh day of the incubation period has passed protection is uncertain, and after the eighth day or later practically no protection results. The dosage may be summarized as follows. In a child of three years or under 5 cc of serum should be injected intramuscularly if within four days after exposure, in older children, about 2 cc more of serum should be given for each additional year, in children over 6 years of age, the dose should be at least 10 cc. If the injection is not given until the fifth day after exposure, the dose should be 10 cc for a child of 3 or under and from 15 to 20 cc for older children. If the serum of a parent or other adult is used the dose given should be larger, and if whole blood is injected the dose should be still larger. The injections are given into large muscular masses, such as those in the buttock or on the outer side of the thigh. There is no special technic except that aseptic precautions must be observed closely. If whole blood is injected the injection should be made immediately on withdrawal of the blood before coagulation takes place or else the blood must be citrated (add 1 per cent of sodium citrate).

PAINS IN BACK AND LEGS RELATED TO CANCER OR MENSTRUATION

To the Editor—A woman aged 50 had a partial thyroidectomy eight years ago. The left breast was amputated two years ago for advanced carcinoma. High voltage roentgen therapy was administered and there has been no local recurrence. There is a history of long standing pain in the back and stiffness of the legs which became acute about a year previous to her last operation and has continued at intervals to date. Since last May, when I first saw the patient she has had four attacks each lasting a week or two of excruciating pain in the back and both legs but principally in the right leg. The pain terminates suddenly and almost completely at the onset of menstruation. During these attacks rather large doses of morphine are required to give the patient relief. During the intermenstrual period sometimes lasting two or three months the patient is approximately as she has been for years. Do these marked remissions rule out metastases to the bones of the pelvis as the cause of the pain? Irrespective of the cause would you advise irradiation of the ovaries to bring about a cessation of menstruation? I have had roentgenograms taken last spring and again recently. They have been read as showing metastases to the pelvis but I cannot be absolutely convinced that the rarefied areas are not due to intestinal gas. It seems almost inconceivable to me that such complete remissions would occur if there were advanced metastases present. Please omit my name and city.

M D Kansas

ANSWER—Since the attacks of pain in the back and legs became acute about one year before the breast was amputated, there is most likely no relationship between the pain and the carcinoma in the breast. If the pain was due to metastases in the pelvic bones and the present pain is of the same character, it is certain that the bones after three years would show pronounced changes, which could be detected readily. There is surely no indication to stop the menstrual flow by radiation therapy because, according to the history, the attacks of pain cease almost entirely with the onset of menstruation. Hence the patient obtains relief at the time of the menses. Remissions do not necessarily rule out metastases to the bones of the pelvis. Judging from the history of the case, if bone metastases can be ruled out, relief from the severe pain can most likely be obtained by performing a pelvic sympathectomy. This operation, which consists of the removal of the so-called presacral nerve or superior hypogastric plexus, was recently described by J. P. Greenhill and H. E. Schmitz (*THE JOURNAL* July 1 1933 p 26).

CLIMATIC TREATMENT OF BRONCHIECTASIS

To the Editor—I would appreciate having a list of locations suitable for sending a patient with bronchiectasis. Would southwestern Texas offer such a person any relief?

M D Indiana

ANSWER—Climatic treatment of patients with bronchiectasis serves a useful purpose, however, it should not supplant other more direct measures of management which are frequently indicated. Of these the relief, if possible, of patients with infections of the upper respiratory tract, especially sinusitis, is important, together with the prompt removal of foreign bodies from the trachea and bronchi, and of organic obstructions of these structures, the recognition and treatment of pulmonary disease such as chronic bronchitis, lung abscess, pneumoconiosis and asthma, and the persistent employment of postural drainage when it is effective in removing fluid accumulations. A bronchoscopic examination is desirable in all cases. Cultures of the material obtained by way of the bronchoscope should be taken and an autogenous vaccine made and used cautiously. All general measures designed to improve the general health of the patient should be employed. Of these rest, fresh air, adequate sleep and a nourishing diet are important. Under proper conditions climatic treatment may prove of accessory value in improving the general health of the patient and may prevent or minimize recurrent infection of the upper respiratory tract. A dry climate at a moderate elevation is desirable and may be found in almost any part of southwestern Texas and also at Phoenix and Tucson, Ariz. and Taos, N. M. The mistake should not be made of sending a patient to the Southwest or to any other section of the country without first arranging with a responsible and competent physician in the locality who will assume medical responsibility for the patient.

CATECHIN IN GOITER

To the Editor—Can you tell me something about the use of a product called catechin in the treatment of exophthalmic goiter?

M D Connecticut

ANSWER—The expression "catechin" has lately been applied to a somewhat indefinite group of substances alleged to be antagonists to certain hormones in the body. According to a German report (Catechins Newly Discovered Substances in the Blood Berlin letter, *THE JOURNAL* Jan 7, 1933, p 55) the term "catechin" is derived from a Greek word signifying "to keep within bounds." The catechins are not substances that accidentally influence the action of a hormone but rather active substances whose special province, as it were, is to prevent excessive effects of hormones or to modify their action. German investigators, notably Blum of Frankfurt-on-Main, have long claimed that the blood contains substances that are antithyroidal in character. Blum believes that he has isolated such a product that is always found in the blood stream in large quantities, serving thus as a watchman for the thyroid gland, or, in other words, being a genuine "catechin." The studies have scarcely passed the earliest experimental stage.

It is unfortunate that the word "catechin" has been coined anew in the sense referred to. Gambir or pale catechin is described in the U. S. Pharmacopeia. Catechin has long been known to organic chemists as a product related to the tannins. It is a white crystalline substance of known structure the principal constituent of gambir, a tannin material found in Sumatra (Holleman, A. F. *A Text-Book of Organic Chemistry*, New York John Wiley & Sons, Inc., 1925). The structural formula of catechin is given in Meyer and Jacobson's *Lehrbuch der organischen Chemie* volume 2 part 3, page 91. When catechin is heated it becomes changed to the well known pyrocatechin.

TREATMENT OF SYPHILIS

To the Editor—I am treating a woman patient for syphilis (early secondary) and have given her seven intravenous injections of neoarsphenamine 0.6 Gm. and am planning to start giving either bismuth or mercury compounds with the eighth dose of arsenic. Which if either is the more satisfactory? If mercury what preparation and how much for each treatment and how applied? If bismuth what preparation and how much? Is biliposol a satisfactory product for this purpose? Would it be well to give more arsenic for the first course? The patient is 30 years old and weighs 110 pounds (50 Kg.). Please omit name.

M D, North Dakota

ANSWER—The dosage of neoarsphenamine 0.6 Gm., is probably too large especially for a woman weighing but 110 pounds (50 Kg.). It is to be recommended that the dose be reduced to 0.45 Gm. and that it be continued until she has received a total of ten injections. With the last injection of neoarsphenamine the first injection of bismuth should be given. For this purpose one may employ intramuscular injections of potas-

sium bismuth tartrate suspension in oil, given intramuscularly, 100 mg once a week. Or bismocymol, 100 mg, once a week. That is, of the metallic bismuth. Or the biliposol, 80 mg of metallic bismuth, once a week. These injections should be continued for a course of ten treatments. The bismuth course should then be followed by another course of ten injections of neoarsphenamine, 0.45 Gm, given once a week. Here again, at the end of this course of neoarsphenamine, a succeeding course of bismuth is to be recommended, and since this is an early case of secondary syphilis, with the disease well generalized, it probably would be well to follow it with still a third course of arsenical injections. A specimen of blood should be taken at the beginning of each course of treatment. Treatment should be continuous, with no rest periods between the courses, and it would be well to have a lumbar puncture done within six months to make sure that there is no involvement of the central nervous system. Naturally a patient that is under therapy with heavy metals like arsenic and bismuth should be watched closely for symptoms of intolerance, and the urine should be checked at each visit. Whether further therapy should be employed after the treatment outlined would depend on the serologic tests. If the Wassermann returns to a negative reaction and remains so, it is questionable whether further treatment would be needed. On the other hand, if they still continue to show a positive reaction, it would be well to follow the last course of arsenicals with perhaps a course of mercuric salicylate injections, 0.1 Gm intramuscularly once a week. Or, if the patient prefers, a course of mercury inunctions of fifty or sixty rubs. Any patient that has had treatment for syphilis, after the Wassermann reaction has become negative, and after such course of treatment has been completed, should be kept under observation and examined regularly for a period of years.

CYST OF OVARY

To the Editor—A woman aged 50, married twenty-eight years never was pregnant or seriously ill and gives a history of no operative work. Her menses began when she was 17 years old, they were never regular until she married, since then they have come on time the last flow occurring Jan 16 1934. There is no leukorrhea. The patient states that she has always felt well. About a month ago while in bed her husband put his arm round her waist and pulled her toward him suddenly and forcefully. She felt a snap in her right side over the lower edge of the liver. There was some pain, this gradually became worse and then subsided. About a week later the patient noticed that her abdomen was getting bigger and harder and that her breathing was rather labored. She is unable to lie on her right side. General examination reveals nothing abnormal save the presence of a great amount of fluid in the abdomen. The latter is hard and shiny. Examination of the urine is negative. The blood pressure is 144 systolic, 92 diastolic. The heart is normal save for a very slight and very soft systolic murmur. The lungs are absolutely normal. Am I justified in recommending that the abdomen be tapped so that a more complete and thorough examination can be made? Is it logical to suspect a malignant condition in a case in which no pain, no illness of any kind no loss of weight nor any of the elementary symptoms of a suspected malignant condition are or were manifested? I took a Wassermann test but have as yet received no reply. Kindly omit name.

M D Connecticut

ANSWER—The history is suggestive of traumatic rupture of a thin walled cyst or of a cystic mass with a thin area in one wall. The most common type of cyst in such a patient is one that arises in the ovary. The presence of free fluid in the abdomen does not necessarily indicate a malignant condition. It may represent fluid that was liberated when the cyst was ruptured and, in addition fluid that was being produced by the cells lining the cyst wall. Even if a large part of the fluid arises in the peritoneum, the cyst is not of necessity malignant, although most of these cases are malignant. On the other hand, the absence of ill health, loss of weight and pain do not rule out a malignant disease. It is far better to perform a laparotomy than to tap the abdomen, because the former procedure will reveal the true diagnosis and will enable the operator to remove any abnormality that is found. In a large proportion of women with ascites, papillomatous cysts of the ovaries are found. Even though most of these cysts are malignant and all give a malignant appearance, some are distinctly benign. Hence when papillomatous tumors of the ovaries are found a radical operation should be performed and the uterus, tubes and both ovaries should be removed. When it is technically impossible to remove all these organs, as much of the papillomatous tissue as possible should be taken out. Sometimes a cure follows such an incomplete operation. All removed tissue should of course be examined microscopically, although sometimes it is difficult to tell whether such tissue is malignant or benign. If it proves to be carcinomatous it is best to follow the operation with radiation therapy. There is a high incidence of recurrence in cases of papillary tumors of the ovaries.

CHRONIC MALARIAL SPLEEN

To the Editor—Mrs R E, a white woman about 28 years of age, a housewife became pregnant late in 1932. The family and personal history are negative except for malarial fever at intervals during 1932, the fever being present every other day during the attacks. Irregular doses of quinine were administered during the entire year. Exacerbations of malaria occurred during the entire pregnancy and were treated irregularly by another doctor. The patient consulted me in June, 1933 when she was about eight months pregnant. She was anemic in appearance and had a large, rather soft palpable mass and corresponding dullness to percussion filling most of the left side of abdomen. Fever occurred every other day. The signs were interpreted as representing an enlarged spleen due to chronic malaria. Intensive quinine therapy together with dilute hydrochloric acid and small doses of solution of potassium arsenite and in addition a tonic were instituted. About a month later the patient delivered a healthy normal infant. In spite of continued quinine therapy, arsenicals orally and intravenously (solution of potassium arsenite orally and sodium cacodylate intravenously in ascending doses, finally reaching 0.5 Gm at a dose) plasmodium bed rest and iron and ammonium citrate, the spleen remains about 4 cm inferior to the left costal margin and at times enlarges to fill half of the left side of the abdomen. For two months following delivery the patient had rather severe metrorrhagia and menorrhagia unrelieved by curettage and by calcium lactate. This was probably due to anemia (the hemoglobin was from 40 to 50 per cent) and is now much improved. The chief problems I have in mind are whether there would be any justification for splenectomy the danger of rupture of the spleen or hemorrhage into the spleen if left alone and how the patient may be helped back to better health—she still has occasional attacks of fever on alternate days. Please omit name and address.

M D, South Carolina.

ANSWER—The clinical features recorded apparently justify the classification of this case as one of chronic malarial spleen, of relatively mild degree. Malarial infections of the spleen, as seen in most of the United States, are different from those seen in countries in which malaria is prevalent. Although the spleen has been removed in a number of cases splenectomy under such circumstances indicated rather clearly that it is associated with a higher mortality than is splenectomy for any other disease. Removal of the spleen, therefore, becomes advisable only when the spleen is so large that symptoms are definitely referable to its size. As Pool and Stillman have pointed out in discussing malaria and splenomegaly, "the disease is not located exclusively in the spleen nor is that organ an incubator for the malarial parasite, therefore the removal of the chronic malarial spleen will not bring about a cure of the infection."

It would seem advisable in this case to carry out routine measures to meet such conditions as exist. Treatment for the anemia should be instituted. Quinine should be given over a sufficient length of time. If regression of the spleen does not take place, consideration should be given to irradiation of the spleen. The possibility of rupture unquestionably is greater in the malarial spleen than in any other form of splenomegaly because of the character of the enlargement, and every reasonable caution should be taken against direct or indirect injury.

EFFECTS OF INJURY ON PREGNANT WOMAN AND ON UNBORN CHILD

To the Editor—A woman aged 42, sustained an abdominal injury during the seventh month of her pregnancy. All the other children were born normal and have remained so. The mother had no miscarriages or abortions. The child was delivered at full term. Several months later this child evidenced signs of mental deficiency with lack of speech and otherwise failed to react as normal children do. Kindly let me know whether it is possible for the child to have sustained an intra uterine cerebral injury resulting in its present condition of other cases on record, and literature on the subject to which you can refer me.

LOUIS K MORGANSTEIN M D Bayonne, N J

ANSWER—While it is possible for injury during pregnancy to produce symptoms such as are described in this case, it is difficult to prove that there is a causal relationship between the injury and the child's mental retardation. Women have frequently received severe injuries to the abdomen during gestation and practically all the children born afterward have been normal. Even interruption of pregnancy by abdominal injury is uncommon and damage to the child is infrequent except in the cases of abruptio placentae and rupture of the uterus that sometimes follow trauma. The fetus lies in a sac of water, which protects it from direct injury. However, cases have been reported in the literature in which trauma to the mother was held responsible for various defects and abnormalities found in the child after birth. Most of the injuries to these children were broken bones, but in a large proportion of these cases the bony defects were not due directly to the trauma but to a predisposition to bone disturbances. Cases of intracranial hemorrhage have been ascribed to abdominal injury to the mother during pregnancy. One such case was reported by Fink (*Monatschr f Geburtsh u Gynak* 59 264 [Dec]

1922), who also mentions the case described by Seitz in which old cerebral hemorrhage was found in a child who was born alive of a woman who had had an abdominal injury. A discussion of the subject of trauma during pregnancy and its effects on the fetus may be found in the article by A. S. Hammerschlag "Trauma und Operation, bei Schwangerschaft" in Halban-Seitz's *Biologie und Pathologie des Weibes* 8 957, 1927.

It must be remembered that occasionally a woman over 40 years of age, especially one who has had a large number of children, gives birth to an abnormal child. The usual type of defect in such cases is mongolian idocy. Regardless of this, a backward child may be born to almost any type of parent. Furthermore, the child may show mental deficiency at the present time but its development may speed up later so that it will become as normal as other children.

BLOOD IN SPINAL FLUID

To the Editor—A boy aged 7 previously healthy suffered from constipation for four or five days and failed to get results from cathartics or enemas. I found the child in an extremely nervous condition with general body twitchings. Temperature and pulse were normal. There was no abdominal tenderness or rigidity. I could not elicit any peristalsis whatever. The child complained only of difficulty in swallowing and a sensation of having something in his throat which made him cough. The pupils were equal and reacted to light and in accommodation. A preliminary diagnosis of paralytic ileus was made. He became progressively worse until three hours later the pupils were contracted and did not react to light and there was slight rigidity of the neck. Other physical signs were absent. It was decided to do a spinal puncture but while the nurse was preparing the suitable needles the patient died. Immediately after death a lumbar puncture was done and with a syringe 30 cc of practically pure blood was withdrawn from the spinal canal. This was apparently under considerable pressure. Cultures did not yield any bacteria. There was no past history of an injury to cause this hemorrhage. I have not been able to find in any of the literature reports of massive hemorrhage in the spinal canal except that which is due to trauma. I am desirous of knowing what conditions might cause such massive hemorrhage other than trauma. Please omit name.

M D Pennsylvania

ANSWER—Pure blood may occur in the spinal fluid in cases of cerebral aneurysm. Necropsy in these cases discloses ruptured aneurysm of the circle of Willis. Such central lesions are usually associated with fever and occur as a rule in elderly persons. It has nevertheless been found that cerebral aneurysm may be congenital in origin or may be the sequel of an infectious embolus. Multiple cerebral emboli may result as complications of subacute bacterial endocarditis.

Blood may pour into the spinal fluid if an apoplexy has taken place, particularly if the vessel has ruptured into the lateral ventricles.

The fluid may be blood tinged in fracture of the skull if meningeal hemorrhage has occurred.

It should not be forgotten that there is a plexus of veins on the posterior wall of the body of the vertebra. If these are punctured, a bloody fluid will be obtained.

It is unfortunate that a necropsy was not obtained in this case to permit a more accurate appraisal of the condition of the organs, so as to ascertain the definite cause of death.

EFFECTS OF GLYCINE ON MYOCARDITIS

To the Editor—The feeding of glycine or glycolol (an amino acid) in the several muscular dystrophies particularly myasthenia gravis appears to be fraught with a good deal of success as manifested by the improvement in muscular tone and strength of those afflicted with these mysterious maladies of muscle nutrition. Would it not be possible to improve the nutrition of the heart muscle by such feedings of glycine in those afflicted with myocarditis? Of course the skeletal muscles are under a different kind of nervous control, probably the chemical structure of the myocardium is different from that of the skeletal groups. Is it known that the vagus has trophic functions? Are there known chemical or physiologic reasons why feeding glycine would be ineffective in myocarditis? It seems that it might be tried without jeopardizing the functions of a diseased malnourished heart.

M D Pennsylvania

ANSWER—There are no known physiologic reasons why feeding glycine should be effective in the treatment of myocarditis, especially when one considers that myocarditis is generally considered to be due to anatomic changes in the muscle itself and not secondary to pathologic or impaired function of its extrinsic nervous mechanism. Furthermore, there is no experimental evidence to show that the vagus nerves carry trophic impulses. In the experimental animal, double vagotomy does not lead to changes in the cardiac musculature as seen in skeletal muscle deprived of its efferent nerve supply.

It should be understood that the muscular dystrophies may be primarily of central origin particularly myasthenia gravis.

In some unpublished work on myasthenia gravis by Luckhardt and Johnson it was found by knee jerk experiments that following injections of ephedrine (which is a powerful central nervous system stimulant) there was a marked and progressive increase in the knee jerk and this was associated with marked clinical improvement. This bit of evidence suggests that myasthenia gravis may be primarily of central origin.

Furthermore, the heart muscle is not generally involved in the muscular dystrophy except as secondary to the general malnutrition of the body.

NAPHTHA JAG

To the Editor—I have a patient a man aged 42 who on Saturday January 20 used Clx Chromium Cleaner and Noble's Cleaner on his car for a period of two and one-half hours in a small garage with the doors shut and no ventilation. About two hours afterward he developed an unsteadiness of gait and the next morning he was unable to stand alone. Examination was negative except for apparent severe cerebellar disturbances. As long as he lay quiet and did not turn his head he felt perfectly normal except for a lightness in his head. If he tried to rise up or turn his head from side to side he immediately became very dizzy and would feel that he was falling. When he attempted to stand up and walk he could not even stagger across the room holding on to fixed objects. This condition has improved and now he can walk across the room with some assurance if he stays close to a fixed object although his gait is distinctly ataxic. There seems to be nothing else in his history that would account for this nerve involvement. He tells me that in using the cleaners he found that one of them called Clx seemed to dry too quickly and he could not rub it off so he took gasoline to remove the residue of the cleaner.

HOWARD B. GOODRICH M.D. Hannibal Mo

ANSWER—No exact information is available as to the specific content of the two cleaners mentioned. It is, however, possible to account for the condition described from a knowledge of the toxicity of gasoline. All gasoline, naphthas, Stoddard's solvent and the like are toxic and gasoline, being more readily evaporated, is more toxic than those others with higher boiling points. The acute condition produced is commonly termed a "naphtha jag." In addition to cerebellar involvement it is not unusual for higher centers to be involved. A few persons become sensitized to the action of these petroleum derivatives and thus readily respond to trivial reexposures. From the fact that this work was carried out in a small garage with no ventilation together with the fact that a large surface from which evaporation took place was provided, it is believed that a practical hazard to acute gasoline poisoning existed. The possibility of carbon monoxide poisoning should be ruled out by further inquiry. Should it still be felt that a need exists for an analysis of the two cleaners mentioned, information as to sources of such services will be provided on supplemental inquiry.

ANGIONEUROTIC EDEMA OR QUINCKE'S DISEASE

To the Editor—A woman aged 24 weighing 150 pounds (68 Kg.) married five years sterile had menorrhagia of three years duration for which she has been treated by radium curettage and glandular therapy without relief so that finally she had a hysterectomy. She has had endocrine symptoms for the last five years for which she is now on gland therapy. She now complains of frequent attacks of puffiness in the neck anteriorly and extending laterally in the supraclavicular fossa. These lateral swellings are about the size of an egg have the consistency of cotton and do not pit on pressure. There is no pulsation, crepitus or bruit. The condition comes on suddenly and may last from a day to a week during which time the patient is extremely nervous. It then disappears as suddenly as it came. I should like to know the cause and the treatment. Kindly omit name.

MD Illinois

ANSWER—The condition described is most likely that previously known as angioneurotic edema but now more frequently called transient circumscribed edema or Quincke's disease. According to Maranon this condition, which is always transient, "seems to be due to a colloidoclastic disturbance, an anaphylaxis which brings it close to urticaria." In most cases the swellings are colorless or crimson, are hard, appear in different parts of the skin, and do not pit on pressure. After a variable length of time they disappear, without leaving any traces. However, after frequent recurrences the swellings may persist. These lesions may or may not be accompanied by other manifestations. They may occur during the menstrual periods, but in most cases the important factor is a premature or physiologic ovarian insufficiency hence these local adiposities are not rare during the menopause.

In the menopause and the premenopausal period there is also a fairly frequent occurrence of the condition known as 'supraclavicular lipomas' and 'supraclavicular pseudolipomas.' These are symmetrical lipomas which deform the shoulder lines and are sometimes painful. In the latter instance they are regarded as indications of Dercum's syndrome. These painful swellings

are also more common after the menopause and castration than at other times. They often improve under ovarian therapy. However, in addition to ovarian insufficiency, other factors in this syndrome may be disturbed function of the hypophysis and thyroid as well as a nervous factor.

In the case cited it is advisable to administer such ovarian preparations as theelin and ammotin. If these substances do not give relief, it may be well to try anterior pituitary hormones.

BÖHLER SLING

To the Editor—Kindly let me know what a Bohler sling is. In an excerpt from the *American Journal of Surgery* in THE JOURNAL Nov 4 1933 page 1510 it says that utilization of the Bohler sling rendered unnecessary the use of casts skeletal traction or open operation and that the patients can be treated at home as well as at the hospital. Where can I read of it and see a diagram of it?

HENRY F. CASSIDY, M.D., Baltimore

ANSWER—The Braun-Bohler splint is illustrated in a book entitled "Treatment of Fractures," translated by M. E. Steinberg and published by Wilhelm Maudrich of Vienna in 1929. It is also illustrated in an article by A. B. Ilievitz published in the *American Journal of Surgery* (21 21 [July] 1933).

CEREBRAL ARTERY MOST FREQUENTLY INVOLVED IN CEREBRAL HEMORRHAGE

To the Editor—Please tell me which one of the arteries ruptures most commonly in cerebral hemorrhage (apoplexy) as I have read some differences of opinion on the subject.

THOMAS GAERST, Curaçao, Dutch West Indies

ANSWER—The artery from which bleeding occurs most frequently in cerebral hemorrhage is the lenticulostriate artery, which arises from the anterolateral ganglionic branches of the middle cerebral. The lenticulostriate artery was called by Charcot the artery of cerebral hemorrhage. It runs between the lenticular nucleus and the external capsule and ends in the caudate nucleus.

CHORDEE AFTER GONORRHEA

To the Editor—A man aged 38 had an attack of acute gonorrhea two years ago which cleared up under treatment in two months. Since then he has complained of impotence and chordee. Physical examination is negative. The prostate is normal, slides are normal and there are no strictures. He has received bromides and cacodylates to no avail. What treatment would you recommend? Please omit name.

M. D. Washington

ANSWER—Chordee persisting so long after an acute attack is due either to a submucous infiltration or to some damage to one or more cavernous sinuses. Dilatation with large sounds may improve this. Medical diathermy may also be tried. The impotence is in all probability a temporary condition.

NUMBNESS OF ARM AND HAND

To the Editor—In Queries and Minor Notes (THE JOURNAL February 3 p 395) a physician of Washington asks for an idea as to diagnosis for numbness of the left arm and hand. The brachial plexus and nerves derived from it especially the musculospiral nerve are liable to injury incident to their situation. The great mobility of the bones of the arm and shoulder permits a number of extreme postures which are capable of causing great injury to the nerves. A great many cases of brachial neuritis could be prevented if the possibility of their occurrence were generally known. One of the common and easily avoidable causes seen nowadays is the faulty position of the left arm in automobile driving. The left arm is raised, with the elbow resting on the open window of the door whereby not only is the arm subject to the wind and draft but the uplifted arm stretches the plexus setting up a neuritis of the musculospiral nerve. Or the shoulder joint from fatigue and relaxation of the muscles that normally held it backward and upward sags downward and forward and the head of the humerus may compress the ulnar nerve against the second rib causing a true pressure neuritis. In thin persons the ulnar nerve alone may be affected but in stouter patients a padding of fat may transmit the pressure to the whole plexus. I have not seen this particular form of neuritis described in the literature or in text books. As good a term as any would be driver's arm.

R. DE R. BARONDES, M.D., San Francisco

TREATMENT OF VINCENT'S INFECTION OF THE MOUTH

To the Editor—On page 639 of the February 24 issue of THE JOURNAL you have presented an answer to an inquiry on Vincent's infection of the mouth which seems to me to be the most sane exposition on the treatment of this acute condition that I have seen. I am especially impressed with your last paragraph in regard to the uncalculated and incidentally dangerous treatment of this disease with organic chemicals which I have strongly opposed ever since these chemicals were recommended for this purpose i. e. about 1919.

HERMANN PRINZ, D.D.S., M.D., Philadelphia

Council on Medical Education and Hospitals

COMING EXAMINATIONS

- AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written* Examinations will be held in various cities April 30 *Oral* Cleveland June 11 12 Sec Dr C Guy Lane 416 Marlboro St, Boston
- AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written (Group B Candidates)* The examinations will be held in various cities of the United States and Canada April 7 *Oral* (all candidates), Cleveland June 12 Sec, Dr Paul Titus 1015 Highland Bldg Pittsburgh
- AMERICAN BOARD OF OPHTHALMOLOGY Cleveland June 11 and Butte Mont July 16 *Application must be filed at least 60 days prior to date of examination* Sec Dr William H Wilder 122 S Michigan Blvd Chicago
- AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec Dr W P Wherry, 1500 Medical Arts Bldg Omaha
- ARKANSAS *Basic Science* Little Rock, May 7 Sec Mr Louis E Gebauer 701 Main St Little Rock *Regular* Little Rock May 14 15 Sec Dr A S Buchanan, Prescott *Homoeopathic* Little Rock May 8 Sec, Dr Allison A Pringle Eureka Springs *Eclectic* Little Rock May 8 Sec Dr L L Marshall 820 W 14th St Little Rock
- COLORADO Denver, April 3 Sec, Dr William Whitridge Williams 422 State Office Bldg Denver
- CONNECTICUT *Endorsement* Hartford March 27 Sec Dr Thomas P Murdock, 147 W Main St Meriden
- IDAHO Boise April 3 Commissioner of Law Enforcement Hon Emmitt Pfost 205 State House Boise
- ILLINOIS Chicago April 10 12 Supt of Regis, Dept of Regis and Edu, Mr Eugene R Schwartz Springfield
- MINNESOTA *Basic Science* Minneapolis April 3-4 Sec, Dr J Charnley McKinley, 126 Millard Hall University of Minnesota Minneapolis *Medical* Minneapolis April 17 19 Sec Dr E J Engberg 350 St Peter St St Paul
- MONTANA Helena, April 3 Sec Dr S A Cooney 7 W 6th Ave Helena
- NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates, May 7 9 (limited to a few centers) June 25 27 and Sept 12 14 Ex Sec, Mr Everett S Elwood, 225 S 15th St Philadelphia
- NEBRASKA *Basic Science* Omaha, May 12 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln
- NEVADA Carson City May 7 Sec, Dr Edward E Hamer Carson City
- NEW MEXICO Santa Fe April 9 10 Sec Dr P G Cornish Jr 221 W Central Ave, Albuquerque
- RHODE ISLAND Providence April 5 6 Dir Dr Lester A Round 319 State Office Bldg Providence
- TENNESSEE Memphis, March 26 27 Sec, Dr H W Qualls 130 Madison Ave Memphis
- WISCONSIN *Reciprocity* Milwaukee April 5 Sec Dr Robert E Flynn 401 Main Street LaCrosse

New York September Examination

Mr Herbert J Hamilton, chief, Professional Examinations Bureau, reports the written examination held by the Board of Medical Examiners of the State of New York at Albany, Buffalo, New York and Syracuse, Sept 25-28, 1933. The examination covered 9 subjects. An average of 75 per cent was required to pass. Two hundred and six candidates were examined, 156 of whom passed and 50 failed. The following schools were represented:

School	PASSED	Year Grad	Number Passed
College of Medical Evangelists	(1932)	(1932)	1
Yale University School of Medicine	(1930) (1931)	(1931)	2
George Washington Univ School of Med	(1932 2) (1933 4)	(1933 4)	6
Georgetown Univ School of Med	(1928) (1932 2) (1933 5)	(1933 5)	8
Loyola University School of Medicine	(1933 2)	(1933 2)	2
Northwestern University Medical School	(1930)	(1930)	1
Rush Medical College	(1933 3)*	(1933 3)	3
Univ of Louisville School of Medicine	(1926) (1928)	(1933)	3
Tulane University of Louisiana School of Medicine	(1933 3)	(1933 3)	3
Johns Hopkins University School of Medicine	(1931)	(1931)	1
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932) (1933)	(1933)	2
Boston University School of Medicine	(1932), (1933 2)	(1933 2)	3
Harvard University Medical School	(1930)	(1930)	1
Tufts College Medical School	(1931) (1932 2) (1933)	(1933)	4
University of Michigan Medical School	(1929) (1931) (1933)	(1933)	3
St Louis Univ School of Medicine	(1924) (1932) (1933 2)	(1933 2)	4
Crighton University School of Medicine	(1930) (1933, 4)	(1933, 4)	5
Albany Medical College	(1933)	(1933)	1
Columbia University College of Physicians and Surgeons	(1931) (1932 2) (1933 8)	(1933 8)	11
Cornell University Medical College	(1927) (1933)	(1933)	2
Long Island College of Med	(1931 2) (1932 3) (1933 2)	(1933 2)	7
New York Homeopathic Medical College and Flower Hospital	(1932 2) (1933 9)	(1933 9)	11
New York University University and Bellevue Hospital Medical College	(1932 2) (1933 7)	(1933 7)	9
Syracuse University College of Medicine	(1932), (1933 6)	(1933 6)	7
University of Buffalo School of Medicine	(1932 2) (1933 5)	(1933 5)	7
University of Rochester School of Medicine	(1932) (1933)	(1933)	2
Hahnemann Medical College and Hosp of Philadelphia	(1932)	(1932)	1

Jefferson Medical College of Philadelphia	(1933)	1
Medical College of the State of South Carolina	(1932)	1
Meharry Medical College	(1933)	1
Vanderbilt University School of Medicine	(1932)	1
University of Vermont College of Medicine	(1932)	1
Medical College of Virginia	(1930)	1
University of Virginia Department of Medicine	(1933)	1
University of Manitoba Faculty of Medicine	(1929)	1
Queen's Univ. Faculty of Medicine (1930) (1931)	(1932)	3
University of Toronto Faculty of Medicine	(1930 2)	2
Laval University Faculty of Medicine	(1931)	1
McGill University Faculty of Medicine	(1927) (1933)	2
Medizinische Fakultät der Universität Wien	(1928) † (1932) †	2
Deutsche Universität Medizinische Fakultät	Czechoslovakia (1932) †	1
University of London Faculty of Medicine	(1933) †	1
Université de Paris Faculté de Médecine	(1933) †	1
University College Dublin National Univ. of Ireland	(1933) †	1
University of Aberdeen Faculty of Medicine Scotland	(1905)	1
Univ. of Edinburgh Faculty of Med (1930) (1931)	(1933) †	3
University of St Andrews Conjoint Medical School	(1932) (1933 3) (1933 10) †	14
Osteopaths		6
FAILED		
School	Year Grad	Number Failed
University of Arkansas School of Medicine	(1933)	1
George Washington University School of Medicine	(1933)	1
Georgetown University School of Medicine (1930) (1932 2) (1933)	(1931)	5
Howard University College of Medicine	(1932)	1
University of Georgia School of Medicine	(1930)	1
Loyola University School of Medicine	(1933)	1
University of Louisville School of Medicine	(1931)	1
Tulane University of Louisiana School of Medicine	(1922)	1
Boston University School of Medicine	(1932) (1933)	2
St. Louis University School of Medicine	(1930)	1
Creighton University School of Medicine	(1933)	1
Long Island College of Medicine	(1931)	1
New York Homeopathic Medical College and Flower Hospital	(1928) (1933)	2
University of Buffalo School of Medicine	(1930) (1933 4)	5
Hahnemann Medical College and Hospital of Philadelphia	(1929) (1932)	2
Temple Univ. School of Medicine (1931) (1932 2) (1933 2)	(1933)	5
Meharry Medical College	(1933)	1
McGill University Faculty of Medicine	(1933)	1
Medizinische Fakultät der Universität Wien (1926)	(1932) †	2
Deutsche Universität Medizinische Fakultät	Czechoslovakia (1925) (1929)	2
University of Sheffield Faculty of Medicine England	(1933) †	1
Albert Ludwigs Universität Medizinische Fakultät	Germany (1930)	1
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1925) † (1929) (1931) † (1932) †	4
Regia Università di Roma Facoltà di Medicina e Chirurgia	(1931)	1
University of Saratov Faculty of Medicine Russia	(1922) †	1
Licentiate of the Royal College of Physicians Royal College of Surgeons Edinburgh and of the Royal Faculty of Physicians and Surgeons of Glasgow	(1931) †	1
University of St Andrews Conjoint Medical School	(1932) †	1
Osteopaths		3

Forty-one applicants were licensed by endorsement from November 1 to December 31. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad of
Yale University School of Medicine	(1930) N B M Ex	
George Washington University School of Medicine	(1928) New Jersey	
Georgetown Univ. School of Medicine (1928) D C	(1933) Maryland	
Howard Univ. College of Medicine (1924) N J	(1932 2) Virginia	
Rush Medical College	(1924) Illinois	
Indiana University School of Medicine	(1933) Indiana	
State University of Iowa College of Medicine	(1931) Iowa	
Johns Hopkins Univ. School of Medicine (1926)	(1932) Maryland	
Harvard University Medical School	(1912) N B M Ex	
Tufts College Medical School	(1911) Mass	
Detroit College of Medicine and Surgery	(1925) Michigan	
St. Louis Univ. School of Medicine (1916) Mass	(1933) California	
Washington University School of Medicine	(1927) N B M Ex	
Creighton University School of Medicine	(1931) California	
Albany Medical College	(1931) N B M Ex	
Columbia University College of Physicians and Surgeons	(1931) (1932) N B M Ex	
University of Buffalo School of Medicine	(1932) N B M Ex	
University of Rochester School of Medicine	(1932) N B M Ex	
Jefferson Med. College of Philadelphia (1902) Penna	(1931) N B M Ex	
Univ. of Pennsylvania School of Med (1913) Mich	(1927) Penna	
Meharry Medical College	(1932) Tennessee	
University of Tennessee College of Medicine	(1928) Tennessee	
Vanderbilt Univ. School of Medicine (1932) N B	M Ex Tennessee	
University of Virginia Department of Medicine	(1932) Virginia	
University of Toronto Faculty of Medicine (1926) Minnesota	(1923) Ontario	
Medizinische Fakultät der Universität Wien	(1918) † Diploma	
Medizinische Fakultät der Universität Leipzig	(1901) † Germany	
Regia Università di Roma Facoltà di Medicina e Chirurgia	(1922) (1931) † New Jersey	
University of St Andrews Conjoint Medical School	(1932) Indiana	
Osteopaths		New Jersey

* One of these applicants has received a four year certificate and will receive an M.D. degree on completion of internship.
† Verification of graduation in process.

Book Notices

Food Products. By Henry C. Sherman, Ph.D., Sc.D., Mitchell Professor of Chemistry, Columbia University. Third edition. Cloth. Price \$3. Pp. 671 with 42 illustrations. New York: Macmillan Company, 1933.

This edition constitutes a complete rewriting of this well known book, furnishing subject matter for a broad general study of foods and the chief types of food products. The first and second chapters treat of the principal constituents and functions of foods and of the general aspects of food control. Chapters on each of the chief types of food follow. The last chapter treats of the best use of foods from the standpoint of nutrition and food economics. The production, preparation for market, statistical data, storage methods, questions of sanitation, inspection and standards of purity, general composition, mineral and vitamin content, digestibility, nutritive value and place in the diet are considered for each type of food. Lists of suggested readings are appended to each chapter. The appendix includes the Food and Drugs Act, excerpts from rules and regulations for its enforcement, the meat inspection law, excerpts from meat inspection regulations, and tables on the mineral elements and vitamins of foods. The book is of particular value to all interested in foods along chemical, economic, nutritional, sanitary or technological lines.

Report on an Investigation into the Causes of Maternal Mortality in the City of Madras. Being a Report on the Investigation of 436 Maternal Deaths That Occurred During a Twelve Month Period in the City of Madras. By A. L. Mudaliyar, M.D., F.C.O.G., Second Obstetric Physician and Gynecologist, Government Hospital for Women and Children, Madras. Paper. Price 12 annas. Pp. 78. Madras: Government Press, 1933.

From a study of 26,207 births, including stillbirths, in Madras for parts of the years 1930 and 1931, twelve months in all, it was learned that there were 293 deaths from childbirth, a rate of 166 per thousand births. As stillbirths are included these figures are not comparable with others, because the latter count only live births. The author admits that "the position with regard to mortality statistics" in the whole country "is beyond all hope of assessment." As usual, sepsis caused most of the deaths, 264 per cent, anemia caused 115 per cent and was a complication in many deaths from other causes, puerperal hemorrhages caused 127 per cent, and eclampsia and toxemias only 96 per cent of the deaths. In Madras there are five maternity institutions all doing good work. The infections occurring are ascribed to overcrowding. A review of the midwife situation, stressing its educational aspect, and a large roster of recommendations complete the interesting and instructive pamphlet. Prominent among the latter is the demand for a separate provision for septic cases and separate wards for clean and suspected cases and also for all abortions.

A City Set on a Hill. The Significance of the Health Demonstration at Syracuse, New York. By C. F. A. Winslow, Dr. P.H., Professor of Public Health, Yale School of Medicine. Published for the Milbank Memorial Fund. Cloth. Price \$3. Pp. 367. Garden City: Doubleday, Doran & Company, Inc., 1934.

This is a history of the development of the city of Syracuse from its beginning down to the present day, with particular emphasis on development of health service in that city. As far as the present health service in Syracuse is concerned, the book represents an appraisal of health activities in 1931, according to the appraisal form for municipal health work developed by the Committee on Administrative Practice of the American Public Health Association. The author is also chairman of this committee. The appraisal form is recognized as a useful instrument for measuring public health work, but it has, in common with all agents of any considerable potency, certain disadvantages which are fully recognized by its sponsors. It measures quantitative values in public health work. There is as yet no objective measure of quality in public health work. Published for the Milbank Memorial Fund, this volume naturally reflects the philosophy of that organization, which tends toward socialization of medical services and emphasis on governmental responsibility for health. The book is an able exposition of this philosophy. It is naturally to be expected that a demonstration under such sponsorship would proceed largely in disregard of the possibilities for cooperative relationships with the medical profession. The author records in a number

of instances cordial cooperation of the profession with the demonstration, but he also records the failure of diphtheria immunization when for one year it was turned over to the profession. This failure, as experience elsewhere shows, is evidence of a failure of cooperation. The Milbank Fund spent approximately three fourths of a million dollars in eight years demonstrating health administration to the citizens of Syracuse. Naturally, the expenditure of such sums brought large developments, many of which are admirable. The most serious objection to this demonstration, as to others, is that it has not visualized the opportunities for drawing into public health work the vast potential resources inherent in the medical practitioners in any community, this despite the fact that on page 204 the author says "a direct and tangible result of the public health program in its broad sense must always include the practice of medicine and cooperation of an educated public as essential elements."

Die Psychoanalyse und der praktische Arzt Von Dorian Feigenbaum. Vortrag gehalten zu Ehren von Prof. Sigm. Freuds 75 Geburtstag in der Deutschen Medizinischen Gesellschaft der Stadt New York am 4. Mai 1931. Sonderdruck aus Zentralblatt für Psychotherapie und ihre Grenzgebiete. Band VI. Heft 1. Boards. Pp. 27. Leipzig: Verlag von S. Hirzel.

This is the text of an address given by Dr. Feigenbaum before the German Medical Society of New York in honor of Freud's seventy-fifth birthday. The first part summarizes in condensed form the scientific principles on which psychoanalytic therapy is based. This serves as a necessary introduction for the real theme of the address—the value of an orientation in psychoanalytic principles on the part of the general practitioner and of physicians in other branches of medicine. This is illustrated by means of two cases, which are interestingly and briefly presented. One of these illustrates the futility and danger of a "rest cure" without understanding or even investigation of the patient's psychologic situation. This is contrasted with the prompt help that psychoanalysis was able to bring in a favorable case. The address concludes with a brief discussion of some of the limitations of the field in which psychoanalytic therapy is indicated.

A Guide for Developing Psychiatric Social Work in State Hospitals By Hester B. Crutcher, Director of Social Work, Department of Mental Hygiene, State of New York. With a foreword by Frederick W. Parsons. M.D. Paper. Price 50 cents. Pp. 57. Utica, New York: State Hospitals Press, 1933.

This monograph outlines the functions of psychiatric social workers in state hospitals. The qualifications, training and personality needed for this work are presented, and the importance of understanding the environment is stressed. Under the plan laid out, the social worker is an active agent in the actual treatment of patients and not, as is often the case, merely concerned with routine questions and answers. Enlightening and practical procedures are suggested in the later chapters. Several excellent outlines are presented for taking histories, pre-parole summaries, boarding home investigations, social analysis from the point of view of treatment, and monthly reports. It is wisely stressed that history forms must not be followed blindly, as informants will often bring up spontaneously much that would be missed by the routine question and answer method. The monograph does not so much give definite directions as to what should be done as suggest the lines that should be followed; it gives the psychiatrist an excellent idea of the services that can be rendered by social workers.

Abhandlungen aus dem Gesamtgebiete der Hygiene. Herausgegeben von Dr. R. Grassberger, o. ö. Professor der Hygiene, Leiter des Hygienischen Institutes der Universität in Wien. Heft 14. Das Verhalten von Bluthörperchen sowie von Mikroben in abgestuften Essigsäure-NaVanadatgemischen. Eine biochemische Methode zum Studium der Artsppezifität. Von Dr. H. M. Jettmar, Assistent am Hygienischen Institut der Universität in Wien. Paper. Pp. 121 with 19 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1934.

When serum is added to mixtures of various proportions of acetic acid and sodium vanadate, different forms of precipitation result. Herein lies the principle of Benden's "lability reaction." Jettmar describes the effects on the blood corpuscles of various species by acetic acid and sodium vanadate mixtures, also the effects of such mixtures on micro-organisms in suspension. The results are of interest to students of chemococcolloid reactions in general.

Metabolic Diseases and Their Treatment. By Dr. Erich Grafe, Professor of Medicine and Director of the Clinic of Medicine and Neurology at the University of Würzburg, Germany. Translated by Margaret Galt Bolse under the supervision of Eugene F. Du Bois, M.D., Medical Director, Russell Sage Institute of Pathology, and Henry B. Richardson, M.D., Associate Professor of Medicine, Cornell University Medical College, New York. Cloth. Price \$6.50. Pp. 551 with 37 illustrations. Philadelphia: Lea & Febiger, 1933.

This volume, competently translated, has been revised and brought down to date since it appeared in German, about two years ago. Although it was primarily intended as a practical handbook for the physician and student, its chief interest for the American reader will probably depend on the mature, moderate and concise discussion of the experimental and theoretical considerations involved in the etiology and treatment of the metabolic diseases. The bibliography is rather extensive and is conveniently placed in footnote form on the pages where it is cited. Although German references predominate, the significant American literature is also represented. The subject matter is divided into five main parts: 1. General remarks concerning metabolism and nutrition (29 pages). 2. Nature and treatment of nutritional disorders (78 pages). 3. Metabolic diseases and their treatment (282 pages). This, the major section, is divided into three chapters, on obesity, habitual undernutrition (magersucht) and diabetes mellitus (202 pages). 4. Qualitative disturbances of protein metabolism and their treatment (77 pages), these include gout, alcaptonuria, cystinuria and aminuria. 5. Disturbances of the water and mineral economy (36 pages). The author is conservative in his therapeutic advice. The book is well put together and is sufficiently well illustrated with tables and graphs. Photographs of a few patients have been reproduced.

Einführung in Geist und Studium der Medizin. Zwölf Vorlesungen von Dr. med. Georg B. Gruber, Professor der Pathologie an der Universität Göttingen. Boards. Price 4.80 marks. Pp. 271 with one illustration. Leipzig: Georg Thieme, 1934.

This book on the spirit and study of medicine is intended for beginning medical students. Its aim is to give such students a bird's-eye view of the whole field of medicine and to emphasize the point of view that medicine is an "indivisible whole." It consists of twelve lectures, which trace the development of the fundamental medical sciences and the various medical specialties and point out their relationships to the study of medicine and to medical practice. The author devotes a good portion of each lecture to giving advice to the young medical student. In spite of the fact that these lectures serve as an interesting introduction to medical history, their general paternalistic tone, though perhaps necessary for the stimulation of beginning students, may be found amusing or irritating by more mature readers.

Safety in Physical Education in Secondary Schools. By Frank S. Lloyd, Associate Professor of Education, New York University. Publications of the National Bureau of Casualty and Surety Underwriters Educational Series, Volume IX. Paper. Price \$1.25. Pp. 167. New York: National Bureau of Casualty and Surety Underwriters, 1933.

This is a careful statistical study of accidents in connection with physical education in secondary schools. As might be expected, football ranks high among causes of injury but, surprisingly enough, the gymnasium seems to be a more hazardous locality than the gridiron. Wrestling is high in injuries, while boxing is not. Among other very hazardous activities, in the order of importance, are touch football, heavy apparatus and football, while lacrosse, wrestling and tumbling are classified as highly hazardous. Ice hockey, archery, basketball, speed ball, field hockey and fencing are classed as hazardous, while pass ball, field and track, soccer, cross country and swimming are designated slightly hazardous. Minimum hazards are to be anticipated in handball, golf, indoor ball, dancing, boxing, volleyball, tennis and calisthenics, in the order named. The accident incidence per thousand participating individuals appears to bear no direct relation to days lost, although in general the very hazardous, highly hazardous, hazardous, mildly hazardous, and minimum hazard sports are grouped more or less alike, with respect both to accident incidence and to days lost. This is a publication which is indispensable to directors of physical education, coaches and athletic officials, not only for its statistical studies but also for its constructive recommendations. Those physicians who have to do with school work and athletic activities will also find it valuable.

Developing Attitudes in Children Proceedings of the Mid West Conference of the Chicago Association for Child Study and Parent Education March 1932. Cloth Price \$1.50 Pp 156 with illustrations Chicago, University of Chicago Press 1933

This book contains three main papers and six round-table discussions concerning the development of various attitudes in children, such as ethical, vocational and religious. As is frequently the case when a number of addresses are collected, it is found that there is no coherence in the group. Often, oratory is more important than facts, as in this book. Here, too, occasional conclusions are presented, but facts that support them are not given. The book, in general, tends to indicate that children accept the attitude of their parents and teachers and accept the views of those on whom they are dependent. It should not require a book of this length to reach that conclusion.

Précis de microscopie. Technique expérimentation diagnostique. Par le Dr. M. Langeron, chef de laboratoire à la Faculté de médecine de Paris. Fifth edition. Cloth Price 100 francs Pp 120 with 36 illustrations. Paris: Masson & Cie 1934

The present edition of this textbook on microscopic procedures is a worthy member of the medical series which the publishers have sponsored. It is completely rewritten and has many new chapters. The changes have been so numerous that it is almost a new book. Recent advances in the various types of microscopic illumination, micromanipulation and microchemistry are some of its features. The text is concise, and useless detail has been omitted. When supplementary information might be desirable, the author gives bibliographic references. The list, however, is not sufficiently inclusive for the amount of material covered. The organization of the book is excellent and is well adapted for the novice in the study of microscopy, as well as for those desiring a reference work on microscopic procedures beyond the scope of the average textbook. There are three main sections. The first deals with the microscope and its accessories. This is a concise and comprehensive discussion and should satisfy the needs of most students of microscopy. The second section deals with general microscopic methods and the technique of the various ways of preparing material for microscopic study. There is an ample discussion of vital staining and cytologic technique, with due consideration of the current theories and the most recent procedures. The third section deals with special methods for the microscopic investigation of protozoa, metazoa and bacteria. The value of the book would have been decidedly enhanced by a more adequate illustration of the second and third sections. For the most part this is not a standardized book on laboratory procedures as many of the methods are new and have not been thoroughly tried. The volume is, however, a definite contribution as a concise reference book or as a textbook for students of microscopy.

The Practice of Surgery By Russell Howard CBF MS FRCS Surgeon London Hospital and Alan Perry MS FRCS Surgeon London Hospital. Fourth edition. Cloth Price \$10 Pp 1388 with 592 illustrations. Baltimore: William Wood & Company 1933

This textbook serves as a good outline of general surgery as planned for students. Many features are somewhat unusual, especially the emphasis placed on diagnosis and treatment. The organization is similar to that of most textbooks of similar character. The subject matter is gradually and continuously developed from the presentation of basic pathologic and immunologic principles. The authors are to be commended for their inclusive discussion of traumatic surgery.

Die Embolie Von Dr. Sigurd Frey Privatdozent für Chirurgie an der Universität Königsberg/Pr. Boards. Price 12 marks Pp 178 with 52 illustrations. Leipzig: Georg Thieme 1933

This monograph, written by a surgeon, naturally treats the subject from a surgical point of view. Emboli located in organs where they may be treated surgically are fully discussed. Non-surgical emboli, such as those in the kidney, brain, heart and spleen, are given scanty consideration. So also are the emboli due to bacteria, parasites, pigment, tumor cells or foreign bodies. The causes of thrombosis and the structure of thrombi are fully discussed as are the clinical features and the results of thrombotic emboli on the lung, extremities and intestine. The surgical treatment of each of these accidents is set forth with

clear description and suitable illustrations. The subject of air embolism is given forty-five pages. Fat embolism also is fully treated. There is an extensive bibliography filling about twenty-five pages, according to a rough estimate, more than 90 per cent of the references are to German literature and less than 10 per cent to the literature of the rest of the world.

Text Book of Pathology By Robert Muir M.A. M.D. Sc.D. Professor of Pathology University of Glasgow. Third edition. Cloth Price \$10 1p 957 with 516 illustrations. Baltimore: William Wood & Company 1933

The first edition of this book appeared in 1924. The present edition includes recent advances and has many new illustrations as well as a new index. The book presents general pathology in chapters on disturbances of nutrition and circulation, on inflammation and on tumors. The rest of the book deals mainly with the special pathologic anatomy of the circulatory, respiratory, hematopoietic, alimentary, urinary, nervous, locomotive and reproductive systems. The last chapter is devoted to the endocrine glands. The skin, the eye and the ear are not considered. Within its field Muir's work may be regarded as a standard textbook, with special emphasis on the morphologic changes produced by disease.

The Pharmaceutical Pocket Book for Practitioners and Students Published by the Pharmaceutical Society of Great Britain. Twelfth edition. Fabrikoid. Price 5/6d 1p 344. London: Pharmaceutical Press 1933

This is published with the idea of epitomizing in convenient form the science and art of prescribing. It also contains for those who are not physicians a number of tables dealing with sources of drugs, directions for making a herbarium, and chapters on bacteriology and even on food and diet. As would be expected from this type of book, it is of service to those who are interested in drug therapy without being interested in the best interests of scientific medicine. For instance, a complex description is given for preparing an emulsion of petroleum. Pharmaceutically it is well worth reading, but medically it reflects prescribing of twenty-five years or more ago. The typographic setup of the book is excellent and could well be emulated by American authors of similar treatises.

A Reference Hand Book of Gynecology for Nurses By Catharine MacFarlane M.D. F.A.C.S. Professor of Gynecology Woman's Medical College of Pennsylvania. Sixth edition. Cloth Price \$1.50. Pp 175 with 19 illustrations. Philadelphia & London: W. B. Saunders Company 1934

This book has passed through six editions since its first appearance in 1908 when it was evolved from the author's lecture notes in gynecology. It has always maintained a high standard of accuracy and is marked for its brevity and illustrations. The trained nurse may by its use refresh her memory or revise her ideas concerning present day practice and procedure with but small effort. The new material added to the present edition is well chosen and concisely stated. Only on minor points can one take issue with the author, such as concerning the site of fertilization of the ovum (p. 26) and the viability of the unfertilized ovum (p. 28). As a whole, the book can be highly recommended to the nurse, for whom it is intended and for whom it was prepared.

Die Spezifität der serologischen Reaktionen Von Dr. K. Landsteiner the Rockefeller Institute for Medical Research New York. Paper. Price 8.80 marks. Pp 123. Berlin: Julius Springer 1933

The purpose of this monograph is to summarize the results of the work of the author and his co-workers on antigens and to discuss serologic specificity and related questions. As would be expected from the leader in the chemical study of specificity, attention centers mainly on chemical work bearing on fundamental problems. The presentation follows essentially the development of this work. There is an introductory statement of the concept of specificity, which is followed by sections on the serologic specificity of proteins on the specificity of cellular antigens on the specificity of the antibodies, on serologic reactions with artificial antigenic complexes and simple chemical substances and on chemical investigations of specific cell substances (carbohydrates, lipoids). The author is a master of clear, concise, correct statement. His method of reviewing published work is a model of exactness and concrete precision. Not a word is wasted. Landsteiner's monograph is a classic contribution. It should be translated into English.

Medicolegal

Medical Practice Acts Internal Curative Medicine, Use by Osteopath Unlawful—The defendant, a licensed osteopath, treated a patient for hemorrhoids by the interstitial infiltration method, using a solution of 95 per cent Wesson oil with 5 per cent phenol. The state of Iowa, contending that this constituted the practice of medicine, sought to enjoin him. The trial court denied the injunction and the state appealed to the Supreme Court of Iowa.

A license to practice osteopathy or osteopathy and surgery, said the Supreme Court, does not authorize the holder to prescribe or give internal curative medicine. If the defendant prescribed or gave internal curative medicines, the injunction prayed for by the state should have been granted. The defendant, while admitting that phenol is a common drug, insisted that it was not a curative medicine. Several osteopathic witnesses testified that phenol is not a curative medicine and that, as the defendant had administered it, he had not administered an internal medicine. But, said the Supreme Court, the statements of these osteopathic witnesses were evidently influenced by the theory of osteopathy, which does not believe in curing patients by the use of curative medicines. Moreover, the opinion of the witnesses with respect to curative medicines is ordinarily of lesser value than the opinion of a nonsectarian practitioner. Four nonsectarian physicians testified that phenol is an internal curative medicine and that the use of it by the defendant was the administering of medicine internally. As a matter of fact, continued the court, the defendant's own testimony shows that he used phenol internally. It is true that he did not administer it through the patient's mouth, but in modern practice internal curative medicine is frequently administered, not through the mouth, but into another part of the body by the use of the hypodermic needle or by some other process. According to the defendant's own testimony, he administered the phenol internally to set up counterirritation in the system near the hemorrhoid which he was treating. In other words he desired the counterirritant in the treatment, in addition to the ordinary manipulations of an osteopath. As thus administered, the phenol was an internal curative medicine. As was said in *State v Stoddard* (Iowa), 245 N W 273.

Internal curative medicine is some substance or preparation administered internally for the cure, removal or healing of some disease or condition demanding medical treatment.

Clearly, then, said the Supreme Court, by thus administering the phenol, the defendant gave internal curative medicine to his patient. He departed from the boundaries of osteopathy into the field of the practice of medicine and under no circumstances does his license to practice osteopathy entitle him so to do. In so practicing he violated the medical practice act and hence may be restrained by permanent injunction.

For the reasons stated above, the Supreme Court ordered that an injunction be issued, enjoining the defendant from practicing medicine.—*State v McPheeters* (Iowa), 249 N W 349.

Malpractice Fragments of Turbinate Bone Lost in Respiratory Tract—On March 29, 1930, the defendant performed a turbinectomy on the plaintiff. She, in this action against the defendant, claimed that two pieces of turbinate bone were negligently permitted by the defendant to fall down her throat and lodge in her bronchial tubes or lungs. As a result of this negligence it was contended, she became severely ill and developed acute tuberculosis. The jury returned a verdict for the plaintiff and the defendant appealed to the Supreme Court of South Dakota.

The situation in this instance said the Supreme Court is similar to cases in which surgeons leave instruments, sponges and other foreign articles inside a patient. The physician's negligence in performing the operation was submitted to the jury under appropriate instructions and the acts of the physician in severing the turbinates, the caution and care he used in performing his work and the care and skill he used to

prevent the turbinates from falling into the patient's throat and ultimately being inhaled into her lungs were all questions for the jury. The doctrine of nonliability because of error of judgment, continued the court, is not applicable here, for the reason that the defendant made no attempt in his defense to bring himself within that rule. He stood squarely on the contention that no turbinate bones were lost and that no such bones ever reached the plaintiff's lungs. He simply contended that nothing happened. Had he contended that he exercised his best judgment and gave careful attention to what he was doing, then it would be conceded that he would not have been liable for a mere error of judgment. The defendant complained that the trial court did not instruct the jury that the negligence in the case, if any, would have to be established through the testimony of experts. We do not consider, said the Supreme Court, that in this case such an instruction was warranted. Both experts and nonexperts testified in the case and the jury had the right to take into consideration all of this evidence and all of the facts and circumstances, and was not limited to the naked evidence of experts. If the testimony of the defendant to the effect that he removed the pieces of turbinate bone and examined them was reasonable and worthy of belief, why, questioned the court, did he push a probe through the nasal cavity and why did he tell the plaintiff that the bone must have gone down? Why did he make several x-ray and fluoroscopic examinations? The defendant's testimony, said the court, is inconsistent with what he did at the time of performing the operation and also with his subsequent acts. There is a sharp conflict in the testimony as to whether or not the fragments entered the plaintiff's lungs. The question was submitted under appropriate instructions to the jury. They saw fit to believe the plaintiff and her witnesses, and, concluded the court, we feel that there is substantial and credible evidence to sustain the verdict of the jury. The judgment of the trial court was therefore affirmed.—*Bennett v Murdy* (S D), 249 N W 805.

Medical Practice Acts Roentgen Treatment as Practice of Medicine—The plaintiff sued Dr. Frederick E. Diemer and Dr. Frank E. Butler, as co-partners, for a scar allegedly the result of the defendants' negligence in treating by roentgen rays a tuberculous gland on the plaintiff's neck. Dr. Diemer was not served with a copy of the summons and complaint and did not appear in the case. Evidence was adduced at the trial to show that the firm of Diemer and Butler was a corporation, organized under the laws of Oregon, to carry on the theory and practice of "Roentgenology, Radiation, Therapy." Furthermore, it was shown that Dr. Butler was an officer of Diemer and Butler, Inc., but that he had practically nothing to do with the treatment of the plaintiff and did not administer any of the treatments, which were administered by a technician. The liability of Dr. Butler was apparently predicated on the contention that as a partner he was liable for the plaintiff's injuries, even though he did not personally treat her. The trial court directed a verdict for Dr. Butler, holding (1) that the plaintiff had erred in bringing the suit against him as a co-partner of the firm and (2) that there was no evidence that the scar on the plaintiff's neck was due to negligent treatment.

In her appeal to the Supreme Court of Oregon, the plaintiff contended that physicians could not legally incorporate to practice medicine and that therefore the trial court erred in holding that Diemer and Butler constituted a corporation. The use of the x-ray machine or electrotherapy does not necessarily constitute the practice of medicine in Oregon, said the Supreme Court. Section 68-2118, Oregon Code, 1930, provides that the provisions of the medical practice act "shall not be construed to affect or prevent the following: (15) the practice of physiotherapy, electrotherapy or hydrotherapy carried on, by or under the direction of duly licensed practitioners of medicine and surgery." Under this provision, continued the Supreme Court, it is lawful for persons to incorporate to carry on the business of using the x-ray or electrotherapy. While operating the x-ray machine, the corporation was employed in operating a mechanical device which may be operated, said the court, by any one without a license from the

state, provided it is under proper supervision. The Supreme Court concurred in the finding of the trial court that Diemer and Butler constituted a corporation and that there was no evidence that the two physicians held themselves out as partners in the practice of medicine.

There was no evidence, continued the court, to show that the scar on the plaintiff's neck was the result of negligent treatment. The evidence showed that the breaking down of the tuberculous glands would itself cause a scar, regardless of the x-ray treatments. Whether the breaking down resulted from the administration of the x-ray treatment or whether it came from the disease itself was left wholly to speculation and conjecture. Where the testimony shows plainly that there are two or more causes for only one of which a defendant is liable, and the matter is left to mere speculation and guess the case should not be submitted to the jury. The manipulators of x-ray machines, in the use thereof, are to be measured by the standard of care, skill and diligence that would be exercised by a physician and surgeon of ordinary care, skill and diligence under the same circumstances and conditions, regardless of locality. Nevertheless it is necessary for the plaintiff to prove that the negligent use of the x-ray machine was the proximate cause of the injury of which the plaintiff complained. This was not done in the present case. The judgment of the trial court was affirmed.—*Doumitt v Diemer (Ore)* 23 P (2d) 918

Optometry Practice Acts Right of Board Member to Prefer Charges and to Sit in Revocation Proceedings—

After notice and hearing, the New Jersey board of optometrists revoked Gross's license to practice optometry. He brought certiorari to the supreme court of New Jersey questioning the legality of the revocation. The secretary of the board he contended was disqualified from sitting in the proceedings, since he had preferred the charge on which the proceedings were based. The supreme court of New Jersey, however, did not agree with Gross's contention. The secretary of the board, said the supreme court, had no personal interest in this matter. Section 11 of the optometry practice act (Comp St Supp Sec 127—99) expressly provides that charges may be preferred against a licensed optometrist to revoke his license by any person or corporation, or the board may on its own motion direct its secretary to prefer the charges. The secretary brought the complaint as a result of a conference with the members of the board and on behalf of the board. Moreover, the complaint was based on a matter of public record, Gross's conviction of a crime, as expressly contemplated in the act. The act concluded the court, does not intimate that when the secretary prefers charges he should not hear them, in fact, a certificate can be revoked only by unanimous vote of the board sustaining the charges. The order of the board revoking Gross's license was accordingly affirmed.—*Gross v New Jersey State Board of Optometrists (N J)*, 167 A 25

Medical Practice Acts Other Violations as Evidence

—When a defendant said the court of appeals of Georgia, division 1, is charged with practicing medicine without a license evidence tending to show that about the time charged in the indictment he treated persons other than the one named in the indictment is admissible. In such a prosecution it is proper for the trial court to admit in evidence an indictment, returned some four years previously, to which the defendant had pleaded guilty, charging him with practicing medicine without a license.—*Lyda v State (Ga)*, 169 S E 751

Malpractice Physical Examination of Plaintiff—Right of Defendant Physician to Demand—

The general rule in Texas, said the court of civil appeals of that state is that a person suing for damages for personal injury cannot be compelled to submit to a physical examination by physicians of either the defendants or the court's selection. But when such a person voluntarily exhibits the injured part of his body to a jury during the trial of his case he thereby waives the inherent inviolability of his person and his immunity from examination by experts. In such a case speaking generally the defendant may properly demand that the plaintiff submit to

reasonable examination by reputable physicians of the defendant's selection, and the trial court's refusal of the defendant's motion therefor constitutes error. But such error does not necessarily require reversal. It is only when the error has apparently or probably resulted in injury to the defendant that the judgment should be reversed.—*Kenney v LaGrone (Texas)* 62 S W (2d) 600

Society Proceedings

COMING MEETINGS

- Alabama Medical Association of the State of Birmingham April 17 19 Dr D I Cannon 519 Dexter Avenue Montgomery, Secretary
- American Association for the Study of Neoplastic Diseases Baltimore March 29 31 Dr F R Whitmore 2139 Wyoming Avenue N W Washington D C Secretary
- American Association of Anatomists Philadelphia March 29 31 Dr George W Corner University of Rochester School of Medicine Rochester N Y Secretary
- American Association of Pathologists and Bacteriologists Toronto Canada March 29 30 Dr Howard T Karsner, 2085 Adelbert Road Cleveland Secretary
- American College of Physicians Chicago April 16 20 Mr E R Love 1nd 133 South 36th Street Philadelphia Executive Secretary
- American Gastroenterological Association Atlantic City April 30 May 1 Dr Russell S Holes The Rittenhouse Plaza Philadelphia Secretary
- American Laryngological Rhinological and Otolological Society Charleston S C April 35 Dr Robert L Loughran Bridgewater Conn Secretary
- American Otolological Society Atlantic City April 6 7 Dr Thomas J Harris 104 East 40th Street New York Secretary
- American Physiological Society New York March 28 31 Dr Frank C Mann Mayo Clinic Rochester Minn Secretary
- American Society for Clinical Investigation Atlantic City April 30 Dr H L Blumgart 330 Brookline Avenue Boston Secretary
- American Society for Experimental Pathology New York March 28 31 Dr C Phillip Miller Jr 950 East 59th Street Chicago Secretary
- American Society for Pharmacology and Experimental Therapeutics New York March 27 31 Dr V E Henderson Medical Building University of Toronto Toronto Canada Secretary
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- California Medical Association Riverside April 30 May 3 Dr Emma W Pope 450 Sutter Street San Francisco Secretary
- District of Columbia Medical Society of the Washington May 2 Dr C B Conklin 1718 M Street N W Washington Secretary
- Federation of American Societies for Experimental Biology New York March 28 31 Dr Frank C Mann Mayo Clinic Rochester Minn Secretary
- Florida Medical Association Jacksonville April 30 May 2 Dr Shaler Richardson 111 West Adams Street Jacksonville Secretary
- Georgia Medical Association of Augusta May 8 11 Dr Allen H Bunce 139 Forrest Avenue N E Atlanta Secretary
- Illinois State Medical Society Springfield May 15 17 Dr Harold M Camp Lahl Building Monmouth Secretary
- Iowa State Medical Society Des Moines May 9 11 Dr Robert L Parker 3510 Sixth Avenue Des Moines Secretary
- Kansas Medical Society Wichita May 9 11 Dr J T Hasing 804 Huron Building Kansas City Secretary
- Louisiana State Medical Society Shreveport April 9 12 Dr P T Talbot 1430 Tulane Avenue New Orleans Secretary
- Maryland Medical and Chirurgical Faculty of Baltimore April 24 26 Dr Walter Dent Wise 1211 Cathedral Street Baltimore Secretary
- Mississippi State Medical Association Natchez May 8 10 Dr T M Dye McWilliams Building Clarksdale Secretary
- Missouri State Medical Association St Joseph May 7 10 Dr E J Goodwin 634 North Grand Boulevard St Louis Secretary
- National Tuberculosis Association Cincinnati May 14 17 Dr Charles J Hatfield Henry Phipps Institute Philadelphia Secretary
- New Hampshire Medical Society Manchester May 15 16 Dr C R Metcalf 5 South State Street Concord Secretary
- New York Medical Society of the State of Utica, May 14 16 Dr D S Dougherty 2 East 103d Street New York Secretary
- North Carolina Medical Society of the State of Pinehurst April 30 May 2 Dr L B McBrayer Southern Pines Secretary
- Northern Tri State Medical Association Flint Mich April 10 Dr Herbert E Randall 503 South Saginaw Street Flint Mich Secretary
- South Carolina Medical Association Charleston May 13 Dr E A Hines Seneca Secretary
- South Dakota State Medical Association, Mitchell May 14 16 Dr John F D Cook Langford Secretary
- Tennessee State Medical Association Chattanooga April 10 12 Dr H H Shoulters 706 Church Street Nashville Secretary
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Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

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- Epigastric Hernia L L Hill Jr Montgomery—p 193
Gonorrhea in the Female Child Report of Eighteen Cases J P Robertson Birmingham—p 196
Hormone Test for Pregnancy J O Morgan Gadsden—p 202
Ununited Fracture of the Neck of the Femur J D Sherrill Birmingham—p 204
The Changing Order C C Fargason Dadeville—p 206

American Heart Journal, St Louis

9 143 282 (Dec) 1933

- Nature of Vascular Communications Between Coronary Arteries and Chambers of the Heart J T Wear, S R Mettler, T G Klumpp and Louise J Zschiesche Cleveland—p 143
Arterial Blood Vascular Distribution to Left and Right Ventricles of the Human Heart L Gross and M A Kugel New York—p 165
*Cardiac Hypertrophy of Unknown Etiology in Young Adults Clinical and Pathologic Study of Three Cases R L Levy and L M Rousset New York—p 178
Heart in Myxedema Report of Two Cases P Hallock Minneapolis—p 196
Studies in Oscillometry A Friedlander, Cincinnati—p 212
*Use of Quinidine in Ambulatory Patients for the Prevention of Paroxysms of Auricular Flutter and Fibrillation with Especial Reference to Dosage and Effects on Intraventricular Conduction H Gold H L Otto and H Satchwell New York—p 219
Identification of Separate Components of the QRS Complex with Especial Reference to the So Called Prominent Q Wave in Lead III L M Hurxthal Boston—p 238
Clinical Dose and Effects of Digitalis Assayed by the Pigeon Method A B Stockton, San Francisco—p 248
*Effect of Adenosine on Cardiac Irregularities in Man A Jezer B S Oppenheimer and S P Schwartz New York—p 252
Electrocardiographic Study During a Paroxysm of Angina Pectoris G R Brown and D V Holman Montreal—p 259
Coronary Occlusion Due to Metastases from Carcinoma of the Breast Report of Case Coming to Necropsy Five Years After Radical Mastectomy T A Peppard and L M Larson Minneapolis—p 265
Paroxysmal Complete Auriculoventricular Heart Block Case Report A Sachs and R L Traynor Omaha—p 267

Cardiac Hypertrophy in Young Adults—Levy and Rousset describe three cases presenting an unfamiliar picture. The main features were great cardiac enlargement, intraventricular thrombosis with emboli to the viscera and death within a year after the symptoms were well established. There were no signs of valvular disease or arteriosclerosis, and the blood pressure was at the normal level or slightly below it. Microscopic examination of the myocardium showed hypertrophy of muscle fibers in all, infarcts in varying stages of degeneration and repair in two, and in one of these a curious hydropic degeneration of the cells of the cardiac muscle with vacuolization of the sarcoplasm. The third case showed only a few hemorrhages between the muscle bundles. No inflammatory changes or signs of arteriolar disease were observed. Though clinically the patients presented many essential features in common the lesions at necropsy were not identical. It was not possible to state whether these cases represented a single condition at different phases of its development or were entirely unrelated in their pathogenesis. The etiology remained obscure.

Quinidine for Prevention of Auricular Fibrillation—During the past two years Gold and his associates have followed the clinical course in twenty-one patients having paroxysmal auricular fibrillation or flutter. In several of those who received quinidine in varying doses—in some up to 50 grains (3.25 Gm) daily—the attacks remained uninfluenced while, in a few in whom the attacks appeared to have been diminished in frequency or abolished at one time or another the influence of the drug could only occasionally be definitely established.

Most of these patients were ambulatory. Depression of auriculoventricular conduction by quinidine usually does not play an important part in the therapeutic effects of the drug in auricular flutter and fibrillation. However, in one case that the authors report, depression of auriculoventricular conduction by large doses of quinidine was solely responsible for the almost complete symptomatic relief during a period of more than a year. Another unusual aspect of the action of quinidine in this patient was the fact that the frequency of the paroxysms of fibrillation or flutter were not diminished but were nearly doubled during this period. The probable mechanism of this unusual reaction to quinidine is discussed. A fixed daily dose of quinidine produces its full effects very early, so that, if it has not produced toxic effects in the first few days, it is unlikely that toxic effects from the direct action of the drug will result from its continued administration for long periods of time. Thus in one of their patients a daily dose of 60 grains (4 Gm) of quinidine sulphate prolonged the auriculoventricular conduction time by 20 per cent and the intraventricular conduction time by 30 per cent after the first few days, but the continued use of this dose for 364 days did not increase these effects further. Since quinidine is rapidly excreted and shows slight "cumulation," the matter of importance in dosage is the size of the daily dose rather than the total quantity given over a period of time. The authors present evidence in support of the view that the use of a small "maintenance dose" of quinidine to maintain the normal rhythm established with larger doses exerts no appreciable influence on the persistence of the normal rhythm in the ambulatory patient, and that in general more intense quinidine effects are necessary to overcome the influences that precipitate an attack of flutter or fibrillation in the ambulatory patient than to abolish an attack while the patient is at rest.

Yeast Nucleic Acid and Cardiac Irregularities—Jezer and his associates administered a yeast nucleic acid derivative (adenosin) intravenously in doses varying from 25 to 45 mg in eight patients who developed paroxysmal tachycardia while under observation at the hospital. In paroxysmal auricular flutter and in paroxysmal auricular fibrillation the drug increased the grade of auriculoventricular block for from forty to sixty seconds. The abnormal rhythm was not abolished. In paroxysmal tachycardia of auricular origin the drug temporarily abolished the ectopic rhythm in one case and was ineffective in restoring sinus rhythm in a second case. In paroxysmal tachycardia of supra-ventricular origin there was no effect on the rate or rhythm of the heart. Ventricular standstill for periods of from 1 to 9.2 seconds followed the administration of the drug in the patients having an abnormal rhythm of auricular origin. During these periods the patients experienced giddiness, faintness and precordial pain. The symptoms disappeared with the return of ventricular contractions. In man the yeast nucleic acid derivative is of doubtful therapeutic value in paroxysmal tachycardia of auricular origin and of no therapeutic value in the other ectopic rhythms that were studied by the authors.

American Journal of Cancer, New York

19 789 1080 (Dec) 1933

- Effect of Iodine Vapor on Growth of Fibroblasts of Embryonic Chick Heart and Malignant Tumor Cells in Vitro A Strickler and Ona M Fowler Philadelphia—p 789
Disturbance of Thyroid Mechanism and Its Effects on Tumor Growth in Mice M Levine and V H Kugel New York—p 817
Squamous Cell Carcinoma of the Skin B F Schreiner New York—p 829
*Multiple Myeloma Complicated by Intestinal Obstruction Due to Amyloid Infiltration of Small Intestine O S Randall Minneapolis—p 838
Failure of Ethyl Alcohol in Therapy of Spontaneous Mouse Cancer M C Marsh Buffalo—p 847

Multiple Myeloma Complicated by Intestinal Obstruction Due to Amyloid Infiltration—Randall presents a case of multiple myeloma in which the intestinal symptoms associated with increasing distention and audible and visible peristalsis and the marked presence of gas in the small intestine were characteristic of mechanical obstruction. He states that it was difficult to say what the etiologic factors were clinically, and even at operation diffuse metastasis to the small intestine was considered. From the postmortem observation it was evident that little functional activity could have taken

place. The walls of the intestine were rigid and anemic and intestinal contractions were consequently rendered ineffectual. The author believes that the explanation given by Lubarsch and Borchardt is applicable to his case. They believe that the infiltration of the musculature of the intestine with amyloid causes a paralysis of peristalsis to a large extent and acts as a mechanical obstruction. This is certainly a type of case that no known therapy, operative or otherwise, could benefit. In the author's case the amyloid was confined particularly to the circular muscle of the small intestine and none was found in the colon. In contrast to Huefer's case, there were no ulcerations in the mucosa and no amyloid in the villi or submucosa. There were large albuminous casts in the tubules of the kidneys, practically obstructing their lumens and in turn causing the epithelial cells to become swollen. Microscopic observations accounted for the clinical evidence of kidney damage. Furthermore, this picture may account for interpretation of the changes of the kidney in myeloma as a nephrosis, though in this case the condition appeared to be essentially an obstructive process. There was no amyloid found in the kidney nor was there any glomerular damage.

American J Obstetrics and Gynecology, St Louis

26 789 936 (Dec.) 1933

- Evaluation of Radiation Therapy in Malignant Disease of the Female Generative Tract. W. P. Healy. New York—p. 789.
Clinical and Experimental Study of Endometriosis. E. Allen, Chicago—p. 803.
The Calcium Problem in Pregnancy. C. B. Reed. Chicago—p. 814.
Five Hundred Women with Serious Heart Diseases Followed Through Pregnancy and Delivery. F. B. Carr. Worcester, Mass. and B. E. Hamilton. Boston—p. 824.
Trauma and Compensation in Gynecology and Obstetrics. J. R. Miller. Hartford, Conn.—p. 839.
Congenital Aspiration Pneumonia in Stillborn and New Born Infants. Analysis of One Hundred and Fifty Nine Necropsy Examinations. F. C. Helwig. Kansas City, Mo.—p. 849.
Changes in Urinary Tract During Pregnancy. I. J. Strumpf. New York—p. 857.
Fertility in the Male. I. Technic Problems in Establishing Standards of Fertility. D. L. Belding. Boston—p. 868.
Treatment of Postpartum Retrodisplacement of the Uterus. W. M. Findley. New York—p. 874.
*Amniography with Skiodan Injections. Preliminary Report. F. L. Adair and M. E. Davis. Chicago—p. 881.
*Chlorothymol as an Antiseptic in Obstetrics. Preliminary Report. A. C. Beck. Brooklyn—p. 885.
Spontaneous Rupture of Uterus After Myomectomy. R. A. Hurd. New York—p. 889.
Early Detection of Chorionepithelioma by Means of Anterior Pituitary Hormone Tests. Report of Case. M. A. Castallo. Providence, R. I.—p. 893.
Calcification of Uterus Associated with Missed or Incomplete Abortion. Two Cases. F. R. Smith. New York—p. 896.
Absence of Urethra Due to Obstetric Trauma. F. C. Holden. New York—p. 899.
Birth of a Giant Fetus. J. E. Hobbs and W. Scrivner. St. Louis—p. 902.
Spontaneous Rupture of Uterus with a Seven Months Pregnancy. A. A. Schenone. Brooklyn—p. 904.
Carcinoma of Both Tubes, Both Ovaries and the Corpus of the Uterus. C. Culbertson. Chicago—p. 906.
*Empirical Use of Blood Injections in the New Born to Lessen Brain Hemorrhage. W. L. Carr. New York—p. 906.
Tumor of Pelvis Resembling Embryonal Cell Carcinoma of the Ovary. M. T. Goldstine. Chicago—p. 908.
Parasitic Dermoid of the Ovary with Spontaneous Amputation of the Tube. J. P. Greenhill. Chicago—p. 909.
Postnatal Infection Due to Short Chain Hemolytic Streptococci. L. E. Frankenthal, Jr. Chicago—p. 910.

Amniography with Skiodan Injections.—Adair and Davis outline a method for amniography with skiodan in which the patient should be placed in the supine position. The bladder should be empty. The skin is sterilized at the site of the proposed puncture. Local infiltration anesthesia is used. The 40 per cent solution of skiodan should be warmed to body temperature and from 15 to 30 cc injected through a needle into the amniotic cavity. A 3 inch flexible 19 gage needle is used. The site on the abdomen should be selected with reference to the fetal position, and the needle inserted where there is a maximum of amniotic fluid and a minimum of fetal parts. It should be inserted only far enough to secure amniotic fluid which is drawn up into the syringe, mixed with the skiodan and re-injected. The patient should turn a few times after the needle is withdrawn to facilitate mixing the solution with the

amniotic fluid. A good diffusion is obtained within an hour and a roentgenogram may be taken at the expiration of that time, or sooner if necessary. The roentgenograms have usually consisted of a lateral and an anteroposterior view. The chief things that can be visualized by the presence of this radiopaque material are (1) the amniotic cavity and usually that portion which lies over the placenta, (2) the fetal soft parts, including at times the fetal rheneva, such as the cord, and (3) an intensified shadow of the fetal skeleton.

Chlorothymol as an Antiseptic in Obstetrics.—Beck used a 1:500 and 1:1,000 solution of chlorothymol in 20 per cent alcohol and 10 per cent glycerin in the preparation of the vulva for delivery in 164 cases. The patients did not complain of irritation from its use. The tissues did not show any evidence of irritation. Laboratory experiments indicate that the commonly used antiseptics when diluted sufficiently to become non-irritating are much less efficacious than nonirritating solutions of chlorothymol in 20 per cent alcohol and 10 per cent glycerin. The clinical results in the 164 cases in which chlorothymol was used were better than those following the use of mercurchrome and iodine in a control series of 164 cases in spite of the fact that a larger number of the various factors which might cause morbidity were noted in the chlorothymol group.

Blood Injections to Lessen Brain Hemorrhage.—Carr states that the employment of blood and blood serum intramuscularly in babies born under abnormal conditions of labor is apparently beneficial. The immediate effect is to stimulate respiration, lessen venous congestion and establish by lessening the pressure in the veins, a better balance in the systemic circulation. The babies in whom blood was injected show that this procedure is not injurious and may be used without injury. The author believes that injections of blood are indicated not only in cases of delay but also in babies with severe jaundice such as icterus neonatorum gravis.

American Journal of Pathology, Boston

8 827 990 (Nov.) 1933

- Melanoma Studies. III. Theory of Pigmented Moles. Their Relation to Evolution of Hair Follicles. G. F. Laidlaw and Margaret R. Murray. New York—p. 827.
*Cytology of Glioma Group with Especial Reference to Inclusion of Cells Derived from Invaded Tissue. L. B. Cox. Melbourne, Australia—p. 839.
Origin of One Type of Secondary Pneumonia. A. H. Moon. Philadelphia—p. 899.
Fibroma of the Breast. B. Halpert and D. L. Dial. New Haven, Conn.—p. 905.
Ilioacromi. Report of Case with Intracranial Metastases. F. A. Fender. Rochester, N. Y.—p. 909.
The Hydrogen Ion Concentration of Formalin. Factor in Fixation, Adjustment and Stabilization of Hydrogen Ion Concentration of Formalin Solutions. F. V. Burke. New York—p. 915.

Cytology of Glioma Group.—From his study of 120 intracranial tumors, including seventy gliomas, Cox concludes that names with an embryogenic significance do not in all cases give the true values of the cells described. This in particular applies to the medulloblast and to certain of the spongioblasts and astroblasts. The neuroblast, a cell that is difficult to identify, may be confused with included nerve cells, cells of the astroblast type, and even with certain anaplastic, rapidly subdividing cells. The nature of a tumor will frequently be interpreted more correctly by the assumption of anaplastic changes overtaking a well differentiated tissue rather than ascribing it to differentiation of embryonic cells. The medulloblastoma of childhood possesses certain qualities that suggest the possibility of an embryonic origin. The ordinary gliomas appear to fall into certain categories: (1) tumors of adult tissue (astrocytoma and its modifications, ependymoma and its modifications, oligodendroglioma, pinealoma and adult ganglioglioma), (2) highly anaplastic tumors that may occur independently or in association with any of the foregoing (glioblastoma multiforme), (3) transitional forms between the foregoing (astroblastoma, polar spongioblastoma), (4) medulloblastoma (possibly a true embryonic tumor) and (5) rare tumors of the type of medulloepithelioma and neuroepithelioma, concerning which no opinion is expressed here. The mitotic figure content of such tumors offers the most accurate index of their activity, rather than deductions derived from their resemblance to embryonic cells. The difficulty in distinguishing between truly neoplastic cells

and those that are derived from the glial tissue is discussed in some detail. The great advantage of postmortem material as opposed to operative fragments is apparent.

Fibroma of the Breast—Halpert and Dial report a case of fibroma of the breast in which the breast was the site of neoplastic growth on two previous occasions. The structure of the tumor removed at the first operation is not known. The growth removed at the second operation was a fibro-adenoma. The growth removed at the third operation was a pure fibroma in which the connective tissue closely resembled the connective tissue elements in the second growth. The question arises whether there is any causal relation between these growths or whether they are independent tumors arising at different times in the same breast. The latter seems to be the more plausible explanation, since there is no morphologic evidence that any of these growths were malignant. The tumor presented a sharply demarcated, oval, firm, elastic, lobulated mass measuring 4 by 5 by 6 cm. It cut with increased resistance and a gritty sensation, disclosing smooth, glistening, pearly white surfaces with a pattern of interlacing strands and whorls. It contained no glandular or adipose tissue. The breast tissue proper measured 6 by 8 by 10 cm. The nipple and areola appeared intact. Microscopic preparations showed the tumor to be composed of a fairly vascular, rather loose fibrous connective tissue containing no epithelial elements. It was surrounded by a thin but definite connective tissue capsule which separated the tumor from the surrounding normal tissue of the breast. The cell nuclei and the fibrils ran in interlacing streams and whorls. In some areas the connective tissue was as loose as embryonic tissue, in others it was fairly dense. The cell nuclei were spindle shaped and not hyperchromatic. Mitotic figures were scarce. No areas of necrosis were noted elsewhere in the preparations. When the patient was seen last, eight months following operation, there was no evidence of recurrence.

Am J Roentgenol & Rad Therapy, Springfield, Ill

30 711 846 (Dec) 1933

- The Future of Radiology as a Medical Specialty H K Pancoast Philadelphia—p 711
- Influences Affecting the Future of Roentgenology J T Murphy Toledo Ohio—p 718
- The Relation of the American Society for the Control of Cancer to Radiologists C C Little Bar Harbor Maine—p 723
- *Lipiodol in Bronchography Its Disadvantages Dangers and Uses J B Amberson Jr and H M Riggins New York—p 727
- Tuberculosis of the Knee Joint Comparison of Its Morbid Anatomy with Its Roentgenologic Manifestations R K Ghormley B R Kirklin and E A Bray Rochester Minn—p 747
- Congenital Absence of Superior Orbital Wall Associated with Pulsating Exophthalmos Report of Four Cases L T LeWald New York—p 756
- Pituitary Adenomas R C Moehlig Detroit—p 765
- Military Pulmonary Hemorrhages on Necropsy Roentgenograms of Children W E Anspach Chicago—p 768
- Further Choleystographic Studies in the Late Months of Pregnancy L Levin F C Beck and A H Aaron Buffalo—p 774
- Ileocecal Tuberculosis and the Double Contrast Enema Examination J Gershon Cohen Philadelphia—p 779
- The Appendix Morphologically Considered R A Rendich and B Ehrenpreis New York—p 791
- Separation of the Symphysis Pubis Report of Five Cases E J Berton Philadelphia—p 797
- Gastrohepatic Fistula Case Report C G Lyons Hines Ill—p 804
- Late Results from Combined Electrocoagulation and Irradiation of Superficial Cancers H H Hazen Washington D C—p 806
- Emphyseal Chart P C Hodges Chicago—p 809

Iodized Poppy-Seed Oil in Bronchography—Amberson and Riggins state that in most cases retained iodized poppy-seed oil is gradually discharged through the bronchi. Direct absorption through the lung occurs to only a slight degree, if at all. A slight exudative reaction usually occurs about deposits of the iodized oil in the healthy lung but this seems not to be harmful in the clinical sense. The transudation of edematous fluid may be considerable and this may account for the rapidly developing roentgenographic lobar opacity reported by some authors. The oil may be retained for days months or years in the pulmonary alveoli. From the roentgenologic point of view, this 'contrast medium infiltrate' is a diagnostic disadvantage. The persisting densities may impair the value of serial roentgenograms as guides for treatment. Disadvantages and dangers peculiar to the cricothyroid or transtracheal method of injection include the escape of oil into and indefinite retention

in the cervical and mediastinal tissues, the more or less serious infection of these tissues by escaping bronchial discharges, and less often, pain, dysphonia, edema of the glottis, dysphagia, subcutaneous emphysema and air embolism. Iodism is due mostly to the swallowing of the oil and absorption of iodine through the intestine. Usually it can be avoided by carefully injecting the oil in small amounts, adopting measures to prevent retention in the lungs, postural drainage of the bronchi after bronchography and, finally, the administration of a brisk saline purge. In cases of infectious pulmonary disease, mainly tuberculosis and acute or chronic suppurative conditions, dissemination or aggravation can be caused by the injection. The reasons for this are given. Serious results and several fatalities are placed on record. Cases are also cited to prove the potential—even fatal—risk of intratracheal injection of iodized oil in cases in which there is impaired cardiac or respiratory function from different causes. Rational and effective ways to avoid the disadvantages and hazards are described. By the adoption of these measures the many advantages of iodized poppy-seed oil bronchography can be achieved usually without harm to the patient.

Absence of Superior Orbital Wall Associated with Pulsating Exophthalmos—LeWald believes that congenital absence of the superior orbital wall causes pulsating exophthalmos. The condition is easily distinguished roentgenologically from sarcoma of the orbit, especially in view of the fact that there is usually deformity of the floor of the orbit in addition to the other bony changes. The inferior margin of the orbit may be lower than the corresponding region on the normal side. He reports four cases of congenital absence of the superior orbital wall, in one of which the diagnosis has been confirmed and a new orbital wall constructed by a bone transplant from the skull (Dandy). Two of the cases presented associated lesions due to the presence of diffuse neurofibromatosis (Recklinghausen's disease) and the other case, in addition to the associated Recklinghausen's disease, a congenital arterio-venous fistula of the right leg, causing localized gigantism, and a congenital deformity of the cervical spine. In the routine examination of roentgenograms of the head it is advisable for the roentgenologist to study carefully the bony outline of the orbits, in addition to a study of the nasal accessory sinuses. Enucleation of the eye, or ligation of the carotid artery, should never be performed in a case of pulsating exophthalmos, unless a roentgen examination has been made and shows no evidence of congenital absence of the superior orbital wall.

Annals of Otol, Rhinol and Laryngology, St Louis

42 961 1272 (Dec) 1933

- *Venous Circulation of Petrous Bone and Its Clinical Significance S L Ruskin New York—p 961
- Discussion of Cardiac Pulmonary and Other General Conditions Secondary to Chronic Nasal Sinus Infection J B Potts Omaha—p 1002
- Fulminating Laryngotracheobronchitis L Richards Boston—p 1014
- Study of Hydrogen Ion Concentration Nitrogen Content and Viscosity of Nasal Secretions Catherine C Buhrmester St Louis—p 1041
- Congenital Anomalies of Esophagus with Especial Reference to Congenitally Short Esophagus with a Portion of Stomach Above the Diaphragm L H Clerf and W F Manges Philadelphia—p 1058
- Phylogenic Development of the Cochlea M H Lurie Boston—p 1069
- Fibro Epithelial Tumors of Nose (Papillomas) and Their Relationship to Carcinoma E M Seydell Wichita Kan—p 1081
- Primary Carcinoma of the Lung Bronchoscopic Observations E A Loope Baltimore—p 1104
- *Otolaryngologic Conditions Wrongly Attributed to an Enlarged Thymus H M Janse Houston Texas—p 1110
- Some Clinical Observations on Nasal Hemorrhage D Roy Atlanta Ga—p 1117
- Study of Chronic Unexplained Cough with Aid of the Bronchoscope L E Wolfson and L A Golden Boston—p 1122
- Nonopaque Foreign Bodies in the Food and Air Passages C P Schenck, Fort Worth Texas—p 1128
- Significant Anatomic Features of the Auditory Mechanism with Especial Reference to the Late Fetus Dorothy Wolf St Louis—p 1136
- The Cause of Otosclerosis Ontogenesis of the Aural Capsule L K Guggenheim St Louis—p 1171
- *Suggested Modifications of the Laryngofissure Operation J M Lore New York—p 1205

Venous Circulation of Petrous Bone—Ruskin points out (1) that the venous pathways of the temporal bone play a leading part in the dissemination of infection from the tympanic cavity and the causation of intracranial complications (2) that early extension of involvement of the venous system can be

recognized clinically and should serve as a guide for early accurate intervention, (3) that the Gradenigo syndrome should be considered a symptom of venous engorgement of the group of tympanic veins emptying into the inferior petrosal sinus, and (4) that the syndrome of temporomaxillary orbital pain, trismus and edema of the lower lid, which he describes, is of similar significance with the Gradenigo syndrome but represents venous engorgement of the veins of the tympanic cavity draining anteriorly into the pterygoid plexus and middle meningeal vein. Clinically, he has shown that the early incision of the drum membrane and the induction of free bleeding from the middle ear afford relief from the symptoms and may obviate suppuration of the petrous pyramid. It must not be construed that paracentesis and free bleeding from the middle ear will relieve advanced involvement of the petrosa with suppuration and bone coalescence. One must bear in mind that the orbital and trigeminal symptoms may be induced by mechanisms affecting the pterygoid and middle meningeal venous systems other than of petrosal origin and must be carefully differentiated to avoid unwarranted surgical invasion of the petrous bone.

Otolaryngologic Conditions Wrongly Attributed to Enlarged Thymus—Janse reports six cases that could be and several that had been diagnosed as due to an enlarged thymus whereas the lesion was entirely confined to the larynx and pharynx. In every infant with laryngeal symptoms a direct laryngoscopic examination should be made. In the majority of these cases the etiologic factor will be found in the pharynx and larynx rather than the thymus, as is so often reported. The thymus shadow is found enlarged in more than 40 per cent of normal infants. The usual roentgenographic studies of the thymus are inaccurate and are apt to give false impressions. The size of the shadow of the thymus varies in the different phases of the cardiac and respiratory cycles. The author does not feel that deaths that occurred during or following anesthetics could be attributed to an enlarged thymus. Operation should be postponed and careful preoperative care should be given all patients who show evidence of infection of the upper respiratory tract, renal or cardiac disease, fever, marked anemia, malnutrition or any other condition that might increase the operative risk. The selection of a competent anesthetist cannot be too strongly advised. All allergic patients to be operated on should be tested for the anesthetic to be administered.

Modifications of the Laryngofissure Operation—The modifications of Lore of the laryngofissure operation are based on a minute study on forty cadavers, supplemented by operative experience. This operation is not recommended in advanced intrinsic cases of carcinoma. Local or general anesthesia may be used. If a preliminary tracheotomy is performed, two incisions are made in the midline. The incision for the tracheotomy is started at the lower border of the cricoid cartilage and extended to the upper border of the manubrium sterni. Should the length of the neck permit, the suprasternal space is avoided. The dissection is carried down in the midline to the pretracheal fascia and the isthmus of the thyroid, immediately below which the trachea will be opened. Before the tracheal rings are opened a few drops of from 5 to 10 per cent solution of cocaine are injected directly into the trachea. All bleeding must be controlled and all clamps removed. The trachea is opened. If the operation is to be continued under general anesthesia, a curved metal tube attached to a rubber tube is introduced into the trachea and the anesthesia continued through it. The rubber tube is fixed to the incised skin by means of a suture and light packing about the tube prevents leakage into the trachea. The thyrotomy skin incision is then made from the body of the hyoid bone to the upper border of the cricoid cartilage and down to the level of the superficial layer of the deep cervical fascia. The cartilage is cut through by means of the Clerf saw and the larynx is opened. A V-shaped incision is made in the thyrohyoid membrane. All bleeding points after removal of the mass are easily seen and ligated. Before the soft tissues and growth from the cartilage are dissected, a light gauze strip packing inserted into the trachea through the laryngofissure will prevent any secretions and blood from getting into the trachea. The dissection of the diseased tissue from the cartilage is best begun with a knife, the operator making

sure that the plane of cleavage between the perichondrium and the cartilage is reached. A Freer separator or any thin blunt dissector is used to continue the separation. This dissection must go wide of the growth, especially in the subglottic area. Then by means of curved scissors the entire mass is removed including with it or not, as the case may require, the vocal process or more of the arytenoid cartilage. The feeding tube is introduced through the nose before the larynx is closed. Before the wound is closed, all blood and secretions are aspirated from above the tracheal packing and the packing is removed. At no time has the author found it necessary to suture the incision in the thyrohyoid membrane. The two halves of the thyroid cartilage are allowed to come together. The muscles and then the fascia are brought together with interrupted sutures. The skin wound is closed by means of the so-called Stewart suture. A small gauze roll dressing is kept in place by means of stay sutures. The upper and lower parts of the tracheotomy wound are closed after a tracheotomy tube has been introduced and the usual dressings are applied. The tracheotomy tube is removed as soon as possible. While it is in place, careful and constant suction is to be used through it. All sutures are removed between the fifth and seventh days and the patient is allowed out of bed as soon as possible.

Archives of Dermatology and Syphilology, Chicago

28 765 918 (Dec.) 1933

- Relationship Between Lupus Erythematosus and Tuberculosis. Critical Review Based on Observations at Necropsy. H. Keil. New York.—p. 765.
- Nitritoid Crisis Due to Bismuth. Report of a Case. D. T. Gandy. Houston, Texas.—p. 780.
- Herpes Gestationis. Report of Case. R. L. Howard. Cleveland.—p. 782.
- Clinical Spectroscopy. Study of Biopsy Material Taken from Patients Receiving Gold Sodium Thiosulphate. L. E. Gaul and A. H. Staud. New York.—p. 790.
- Contact Eczema. Rubber Cements as Adhesive in Patch Testing. B. Shelmire. Dallas, Texas.—p. 795.
- Erythroplasia of Queyrat. Marion B. Sulzberger and D. L. Satenstein. New York.—p. 798.
- Onychogryphosis. Report of an Unusual Case. M. S. Wien and Minnie Oboler Perlstein. Chicago.—p. 807.
- Lymphogranuloma Inguinale of the Tongue and Cervical Glands. Report of a Case. D. Bloom. New York.—p. 810.
- Drug Eruption. Reaction to Bismuth and Gold Salts. Report of Case. H. Rattner. Chicago.—p. 820.
- Pityriasis Rosea. Report of Case Showing a Gigantic Herald Plaque with Unusual Manifestations. C. Greenhouse and Van A. H. Cornell. New York.—p. 823.
- Hypertrophic Striae Distensae. M. H. Ebert. Chicago.—p. 825.
- Fungicidal Properties of Certain Clinically Recognized Fungicides. Laboratory Determinations Using the Strickler Borneman Apparatus and the Hrenal Vacuum Vaporizer. A. Strickler. Philadelphia.—p. 836.
- Presence of Arsenic in Bismuth Preparations. E. R. Russell. Los Angeles.—p. 841.
- Attempted Immunization of Rabbits Against Experimental Syphilis. G. E. Wakerlin. Louisville, Ky.—p. 843.
- Quantitative Estimates of Hydrogen Sulphide in Lotions Used in Treatment of Acne. H. Goodman. New York.—p. 847.
- LXV—Pityrosporon of Malassez. M. F. Engman Jr. and O. E. Hagebusch. St. Louis.—p. 855.

Fungicides—The experiments of Strickler in developing a formula for the local treatment of epidermophytosis indicate that potassium iodide appears to possess the property of enhancing the fungicidal power of vaporized iodine. A 3 per cent dilution of salicylic acid and a 20 per cent dilution of benzoic acid seem capable of increasing the fungicidal properties of vaporized iodine to a slight degree. Boric acid was found capable of assisting vaporized iodine slightly. The control experiment with talc alone seemed to show that this substance does not possess any fungicidal or fungistatic properties. However, it may act as an additional barrier and it may be prudent in future chemotherapeutic investigations to use this or some other inert powder so as more closely to simulate experimentally the nonpenetrating mechanism of the human horny layer. The author proposes the following local application for epidermophytosis based on the laboratory fungicidal tests carried out in the research laboratories of the Skin and Cancer Hospital of Philadelphia, and used for months in its dermatologic clinic: 13 Gm. of iodine crystals, 19 Gm. of potassium iodide, 19 Gm. of salicylic acid, 38 Gm. of boric acid and enough 50 per cent alcohol to make 591 Gm. This preparation is applied as a paint once or twice a day.

Archives of Otolaryngology, Chicago

18 731 844 (Dec) 1933

- Pulmonary Symptoms Due to Esophageal Disease C Jackson and C L Jackson Philadelphia—p 731
- Decompression of the Facial Nerve Physiology of the Seventh and Ninth Nerves and Movements of the Lid in Facial Paralysis E C Sewall, San Francisco—p 746
- Effects of Drugs on Vestibular Reactions E L Ross and A Olsen, Chicago—p 753
- Should Fusospirochetal Infections Be Treated with Arsenicals? Report of Cases D T Smith Durham N C—p 760
- Chemical Composition of Pus From Sinuses Further Observations S Israel and H O Nicholas Houston Texas—p 770
- Mucormycosis of the Maxillary Sinus H N Stevenson, New Rochelle, N Y—p 775
- Laryngeal Nerves Surgical Importance in Relation to the Thyroid Arteries Thyroid Gland and Larynx E F Ziegelman, San Francisco—p 793
- Peculiar Form of Hyperplasia of the Mucous Membrane of the Upper Respiratory Tract H B Orton Newark, N J—p 809

Arch of Physical Therapy, X-Ray, Radium, Chicago

14 705 768 (Dec.) 1933

- Evolution in the Inorganic World A Bachem, Chicago—p 709
- *Effect of Photothermal Radiations on Cutaneous and Subcutaneous Temperatures Preliminary Report W Bierman, New York—p 717
- Erysipelas Treatment with Ultraviolet Light N E Titus New York—p 722
- Physical Characteristics of Diathermy Machines A Hemingway Minneapolis—p 728
- Physical Therapy in Mental Hospitals C B Gaffney Chicago—p 732

Effect of Photothermal Radiations on Cutaneous Temperatures—Bierman found that the skin of the forehead, as well as that covering the hands and feet, was able to endure the greatest amount of heat. The heating source was a 260 watt carbon filament lamp held fixed at a distance of 18 inches from the surface of the skin during the experiment. The subject determined his own tolerance. The temperatures developed on the surface of the skin and subcutaneously when different types of heating lamps were used to create heat to the limit of comfortable tolerance were determined by means of thermocouples. The needle containing the thermocouple was inserted under the skin for a distance of one-half inch, the projecting portion of the needle was covered with absorbent cotton. The accuracy of this thermocouple was found to vary within 0.1 degree F. The greatest subcutaneous temperature was caused by the 260 watt carbon filament lamp, 40.9 C (105.6 F) and the lowest by the infra-red lamp, 38.9 C (102 F). The author concludes that lamps which emanate luminous and near infra-red rays increase the temperature of the subcutaneous area more than lamps, the emanations of which are particularly in the far infra-red region.

California and Western Medicine, San Francisco

39 361 432 (Dec) 1933

- Insulin Free Pancreatic Extract and the Circulatory Hormone (Kalikrein of Frey and Kraut) Comparative Study of Their Effects on Angina Pectoris F R Nuzum and A H Elliot Santa Barbara—p 361
- Hyperpyrexia Baths and Epilepsy Chemical and Physiologic Responses of the Body to Hyperpyrexia Baths and Their Significance in the Epileptic Syndrome Helen Hopkins Los Angeles—p 364
- Carcinoma of the Colon—From a Roentgen Standpoint C B Bowen Oakland—p 368
- *Actinomycosis of the Kidney T S Kimball and R B Haining Los Angeles—p 370
- Clinical Tetanus Study of One Hundred and Thirty One Cases H I Vener A G Bower and J E McAllister Los Angeles—p 374
- The Problem of Dysmenorrhea L A Emge San Francisco—p 380
- *Bismuth Injections in Treatment of Warts Report of Bismuth Injections in Treatment of Sixty One Cases of Warts at the Cowell Memorial Hospital of the University of California C J Lunsford R R Thomson G W Binkley and D S Fox Oakland—p 385
- Female Bladder Injuries Incident to Surgery W E Stevens San Francisco—p 389
- Treatment of Neck Glands in Cancer of Lip Tongue and Mouth Study of Present Day Practice O H Pfueger San Francisco—p 391
- Human Amebiasis Review of Seven Hundred Cases Expressing One Thousand Nine Hundred and Sixty One Complaints L M Boyers Berkeley—p 397
- Carcinoma of the Breast Its Roentgen Treatment with Especial Reference to Inoperable Cases J M Rehfish and L H Garland San Francisco—p 401

Actinomycosis of the Kidney—Kimball and Haining report a case in which actinomycotic lesions were found in the left kidney and the right lung. If the multiple abscesses found at necropsy had been present in the roentgenograms taken

two months before death, suggestive shadows would surely have been observed. The authors conclude that the actinomycotic organisms reached the lung in less than two months. Probably the first attack on the kidney took place several months, possibly a few years, before the patient died. When actinomycosis affects the lungs primarily it tends to produce a large solitary abscess. The finding of eight or ten small discrete abscesses argues strongly for an actinomycotic pyemia, and in this case the source of the pyemia was probably the abscess of the left kidney or its extension along the spermatic cord. Actinomycosis of the kidney may break its confines by extension and distant metastasis. In this instance the only recorded clinical evidence that might have led to a careful investigation of the left kidney was left-sided, upper abdominal pain lasting more than a month. Actinomycosis confined to the kidney may remain practically symptomless even when a large portion of the kidney is involved. In the absence of suggestive history, the diagnosis of renal actinomycosis has been made by pyelographic indications of renal tumor, by the demonstration of actinomycetes in the urine and by the discovery of the fungus in postoperative sinuses. When it can be shown that actinomycosis is confined to one kidney, the prognosis is quite hopeful if nephrectomy can be performed. Supplementary measures of attested value are chiefly the administration of iodides locally and systemically, the use of radium in the wound and of x-rays over the area of the wound.

Bismuth Injections in Treatment of Warts—Lunsford and his associates treated sixty-one cases of warts with bismuth injections. In fourteen treatment was discontinued because of illness, local pain, interference with work and lack of cooperation, of the remaining forty-seven patients thirty-nine were adults and eight were children. Thirty-seven of the adults were given intramuscular injections of 1 cc of bismuth salicylate into the gluteal region at weekly intervals. Of the thirty-nine adults who cooperated, eleven were cured. Adults who were clinically cured received from one to sixteen injections of bismuth salicylate, with an average of 5.5 injections each. An average of 7.5 injections was given in those cases in which treatment failed, the greatest number being fourteen. Two adult patients were cured after one injection.

Canadian Public Health Journal, Toronto

24 555 596 (Dec) 1933

- Papworth The Parent Village Settlement for Tuberculosis H Rolleston Cambridge England—p 555
- *How to Reduce the Cancer Mortality J C Bloodgood Baltimore—p 562
- Saskatchewan's Program for Cancer Control R O Davison Regina Sask—p 566
- Rural School Sanitation W C Millar Toronto—p 572
- *Treatment of Vulvovaginitis in Children S C Peterson Winnipeg Manit—p 577
- Cross Connection Dangers in Plumbing G H Ferguson Ottawa Ont—p 580

How to Reduce the Cancer Mortality—According to Bloodgood, cancer never begins in a healthy spot. This abnormal spot must be looked on as a new growth or a tumor, but the cells at first, though abnormal, are not yet malignant. The usual verified cause of this abnormal spot not yet cancer is chronic inflammation and single or repeated injury. The cure of this spot will prevent cancer. In some instances it may be cured by removing the cause. In other instances not only the cause but the spot itself must be removed. The chief protection against cancer is the same as for heart disease—periodic precautionary examinations and measures by a member of the medical or dental profession selected while one is well. Knowledge is sufficient today and there are enough trained individuals in the two professions to accomplish this prevention and to increase the possibilities of a cure of the fully developed cancer. New discoveries are not needed to place cancer among the insignificant diseases. Today, if all persons would give the medical and dental professions an opportunity from birth to old age to attempt to protect them from heart disease and cancer, there is no question that life would be a little longer and with much less suffering.

Treatment of Vulvovaginitis in Children—Peterson treated thirty-five cases of gonorrheal vulvovaginitis in chil-

dren during the year 1931. The children were treated daily according to the following general schedule: 1. A 1,000 solution of acriflavine hydrochloride was injected into the urethra until the urine was repeatedly free from pus. 2. The entire vulvar mucous membrane was painted with a 2 per cent solution of mercurochrome. 3. The vagina was filled with an ointment of 1 per cent mercurochrome in equal parts of petrolatum and hydrous wool fat. A light pad and a T bandage were applied to retain the ointment. 4. A hot sitz bath of a duration of fifteen or twenty minutes was given daily. 5. The pelvis was baked in carbon lamp appliances from half an hour to an hour daily. 6. Potassium permanganate douches (1:10,000) were given when the discharge was excessively purulent or offensive. 7. Silver nitrate was applied to the urethra and vagina twice a week after the first month of treatment. 8. The hymen was incised when necessary for efficient drainage. 9. The cervix was inspected through an endoscope and when found to be affected was treated with a 2 per cent solution of acriflavine hydrochloride, 5 per cent mercurochrome or from 2 to 5 per cent silver nitrate. 10. After the first month of routine treatment, gonococcus mixed vaccine was given in four injections: first dose, 0.15 cc., on the third day; 0.2 cc. on the sixth day, 0.25 cc., and on the tenth day; 0.3 cc. 11. Cod liver oil was given three times a day during the winter months. Smears of the urethra, vagina and rectum were taken on admission and periodically during the treatment. When three or four smears were negative for pus as well as for gram-negative cocci, the children were put under observation for two or three weeks during which time they were examined every other day until discharged from the hospital. On discharge they were instructed to report for examination every two weeks for two or three months. No arthritis developed in any of these cases. There was not a single relapse and none of the children became "pelvis conscious."

Delaware State Medical Journal, Wilmington

5 275 294 (Dec.) 1933

Early Recognition of Cancer T. S. Cullen, Baltimore—p. 281

Illinois Medical Journal, Chicago

64 493 582 (Dec.) 1933

The Veterans Organizations and the Medical Profession F. O. Fredrickson, Chicago—p. 523

American Academy of Pediatrics in the State of Illinois G. E. Baxter, Chicago—p. 525

Pneumoperitoneum and Surgery in Management of Abdominal Adhesions B. H. Orr, Chicago—p. 529

Meningococcus Meningitis: Further Clinical Study M. P. Borovsky, Chicago—p. 532

Diabetes Mellitus and Essential Hypertension: Theory as to Their Etiology and Treatment J. H. Hutton, Chicago—p. 539

Treatment for General Paresis by Means of the Electric Cabinet: Arsenicals and Typhoid Vaccine E. T. Hoverson and G. W. Morrow, Kankakee—p. 547

Diathermy Electrode Based on Entirely New Principles H. E. Kimble and H. J. Holmquest, Chicago—p. 550

Roentgen Visualization of the Biliary Tree Following a Barium Meal H. A. Singer and D. H. Wagner, Chicago—p. 552

Innocent Bystander J. P. Simonds, Chicago—p. 555

Complicated Fractures of Both Bones of the Leg and Their Treatment E. B. Montgomery, Quincy—p. 557

Medical Management of Hepatic Disease C. A. Elliott, Chicago—p. 560

Effects of Aqueous Solutions on Nasal Ciliated Epithelium I. T. Barnett, Chicago—p. 562

Surgical Treatment of Spontaneous and Traumatic Detachment of the Retina C. F. Yerger, Chicago—p. 563

Trichomonas Vaginalis: Report of Three Hundred Cases in Pregnancy with Complete Puerperal Records E. A. Crown, Chicago—p. 568

Medical Leadership Among Lay Groups Lena K. Sadler, Chicago—p. 571

Diagnosis and Treatment of Anemias of Infancy A. F. Abt, Chicago—p. 572

Indiana State Medical Assn. Journal, Indianapolis

26 591 634 (Dec. 1) 1933

Considerations in the Management of Functional Disorders of Menstruation N. K. Forster, Hammond—p. 591

Infection in Petrous Pyramid J. W. Carmack, Indianapolis—p. 596

Treatment of Syphilis J. R. Brayton, Indianapolis—p. 597

Ulcerative Intestinal Tuberculosis A. E. Soudah, Indianapolis—p. 599

The Abdominal Triad L. A. Malone, Terre Haute—p. 602

Journal of Experimental Medicine, New York

58 649 766 (Dec. 1) 1933

Methods and Effects of Increasing Urinary Constituents in the Body F. W. Hartman, Detroit—p. 649

Cultivation of Pseudorabies Virus E. Traub, Princeton, N. J.—p. 663

Action of Type Specific Hemophilus Influenzae Antiserum Margaret Pittman, New York—p. 683

Concerning Relative Response to Blood Cains and Blood Losses and Habituation to Excess of Blood Pigment M. Dick, New York—p. 707

Chemoimmunologic Studies on Soluble Specific Substance of Pneumococcus I. Isolation and Properties of Acetyl Polysaccharide of Pneumococcus Type I O. T. Avery and W. F. Coebel, New York—p. 731

Journal of Nervous and Mental Disease, New York

78 581 712 (Dec.) 1933

Multiple Neurofibromatosis with Malignant Degeneration: Three Cases A. H. Jackson, Washington, Conn.—p. 581

Polycythemia Vera and Its Neuropsychiatric Features N. W. Winkelmann and M. A. Burns, Philadelphia—p. 597

Rigidity Following Ablation of Motor Cortex in Monkeys J. C. McKinley and N. J. Berkwitz, Minneapolis—p. 604

*Decerebrate Rigidity After Cranial Injury S. Vernon Willmantic, Conn.—p. 627

Pathology of Spasmodic Torticollis with Note on Respiratory Failure from Anesthesia in Chronic Encephalitis R. R. Grinker and A. E. Walker, Chicago—p. 630

Decerebrate Rigidity After Cranial Injury—Vernon reports a case of decerebrate rigidity in a man who was admitted to the hospital one hour after an automobile accident. When picked up, his entire body was noted to be in a rigid state. He was brought to the hospital unconscious and died. Necropsy revealed a man of about 25 in rigor mortis. There were scalp wounds and a depressed fracture of the skull on the right side. The depression was 2 cm. in diameter. A subdural hematoma lay beneath the depressed fracture, but there was no gross evidence of injury to the brain tissue in this area which was 1 inch posterior to the middle meningeal artery midway between the vertex and the level of the external meatus. About 5 cm. above the point of fracture there was a ruptured meningeal vein with considerable hemorrhage about it. Subarachnoid hemorrhage extended also over the cortex of the left hemisphere. Section of the brain revealed hemorrhage in the right optic thalamus about 1 cm. in diameter. Hemorrhage in the third ventricle appeared as a clot on the choroid plexus. Section of the pons revealed widely distributed punctate hemorrhage. The lungs showed pulmonary edema. The heart and abdominal viscera were normal. It was difficult to correlate the change found in the brain at necropsy with the clinical observations. However, it was apparent that hemorrhage was extensive enough to cause in effect transection of the brain stem. The diffuse hemorrhage in the pons probably was most responsible for this condition. There was a very distinct disturbance of temperature regulation since 109.4 F. was noted about five hours after the injury. Elevated temperature undoubtedly hastened the termination of function of the already injured nerve centers. It has been stated that pontile hemorrhage leads to high temperature.

Journal of Pediatrics, St. Louis

3 813 950 (Dec.) 1933

*Treatment of Chorea by Induced Fever Lucy Porter Sutton and Katherine G. Dodge, New York—p. 813

Treatment of Pneumonia in Infants and Children with Antipneumococcus Serum Rosa Lee Nemir, New York—p. 827

Syphilis and Prematurity with Especial Reference to Use of Stovarsol in Prophylactic and Curative Treatment of Congenital Syphilis A. C. Rambar, Chicago—p. 841

Growth Problems II Basal Metabolic Rate Variations in Relation to Body Build, Adolescence and Allergy in Children W. P. Lucas, Helen Brenton Pryor, C. Bost and S. T. Pope, Jr., San Francisco—p. 856

Multiple Congenital Rib and Spinal Deformities: Report of Case J. H. Shuen, Long Island City, N. Y.—p. 870

Vitamin D Deficiency Tetany in Infants Without Rickets II Bakwin and Ruth Morris Bakwin, New York—p. 880

Advantages of Strained Solids in the Early Months of Infancy M. M. Clavier, Boston—p. 883

Critical Clinical Study of Various Infant Foods III Fresh Whole Milk Modification Without Fat Deficiency A. G. De Sanctis, J. D. Craig and Helen L. Fales, New York—p. 891

*Chronic Interstitial Nephritis with Dwarfism: Case Report J. W. Ames and M. H. Black, Denver—p. 902

Treatment of Chorea by Induced Fever—Sutton and Dodge used intravenous injections of typhoid paratyphoid vaccine as a means of inducing fever in 150 attacks of chorea.

Comparison of the duration of chorea in the hospital in 150 attacks treated by other methods show that the duration of the attacks has been reduced from an average of 27.4 days in the mild untreated cases to 5.72, from 44 days in the untreated moderate cases to 8.56 and from 62.4 days in the severe untreated cases to 15.8 days, in the treated cases. Therefore the authors conclude that fever therapy is a satisfactory method of treating chorea. So far they have had about a 98 per cent follow up of their cases. The number of recurrences is relatively small, but since the treatment has been in use only about two and a half years and since chorea may recur after a lapse of a number of years, their present figures on recurrences have no final value.

Chronic Interstitial Nephritis with Dwarfism—Amesse and Black present a case of renal dwarfism in a girl of 4 whose mother was a morphine addict. The dwarfism is so symmetrical that the secondary or Brissaud type, in which pluriglandular insufficiency is paramount, can safely be excluded. The nonprotein nitrogen and the creatinine of the blood are moderately increased, but a disturbed relation between calcium and phosphorus is not shown. The most common symptom of renal rickets, genu valgum, is present, and the deformity has been much exaggerated during the past two months since the child's improved physical state permits more activity. While further evidence of rickets is absent, it has been recognized since the earliest observations of such conditions were recorded that the bone changes and the resulting deformities of this disease do not appear until relatively late. Mitchell gives the average age of onset in thirty-two cases as 5.16 years, and so many develop the syndrome at puberty that it is frequently known as the rickets of adolescence. Lathrop maintains that roentgenograms may be consistently negative for rickets in well defined cases, and others consider the skeletal changes quite independent of that disease.

Journal of Urology, Baltimore

30 639 754 (Dec) 1933

- Relation of Vitamin A and Vitamin D to Urinary Calculus Formation
A R Bliss Jr G R Livermore and E O Prather Jr, Memphis Tenn.—p 639
- Pelvic Leukoplakia in a Horseshoe Kidney L R Reynolds and N J Howard San Francisco—p 653
- Metastatic Tumors of the Ureters J D Kirshbaum Chicago—p 665
- Nonlosable Filiform G R Livermore Memphis Tenn.—p 679
- New Forward Looking Urethroscope O S Lowsley New York—p 681
- New Catheter Passing Device O S Lowsley New York—p 689
- New Cystoscope I Buerger New York—p 695
- Roentgen Visualization of Posterior Urethra R H Flocks Iowa City—p 711
- Presentation of a New Cautery Punch J R Caulk St Louis and E M Kackley Soda Springs Idaho—p 737

Roentgen Visualization of Posterior Urethra—Flocks describes a method for roentgenologic study of the male urethra and bladder. The bladder is filled with a 25 per cent solution of sodium iodide, and a cystogram is taken centering over the bladder with the patient in the dorsal position. The bladder is emptied completely and irrigated thoroughly with sterile water. A 30 cc Luer syringe is filled with an iodized oil and gum tragacanth mixture. The patient is placed in the oblique position with the tube centered over the base of the bladder, the right thigh is flexed to about 45 degrees and the left thigh is extended, the patient being on the right side. The bladder is filled slowly with air, which is stopped as soon as the patient has the first sensation of fullness of the bladder, then stereoscopic air cystograms are taken. About 30 cc of the air is removed with the syringe and the urethral catheter is removed while the terminal portion of the urethra is held closed with the left hand. The Luer syringe with the contrast medium is taken up in the right hand the adapter is inserted into the urethra and the urethra is held closed about the adapter with the left hand. The assistant places the lead plate over the operator's left hand and arm. The contrast medium is injected slowly into the urethra. After about 15 cc has been injected, a varying amount of resistance is felt owing to the contraction of the sphincter. The injection is continued slowly until about 20 cc has been injected and is continued while the first roentgenogram is taken. The second film is placed into position and the remainder of the contrast medium is injected while

this film is exposed. The syringe and the adapter are removed and a catheter is inserted into the bladder. The bladder and urethra are carefully washed out with sterile water. It is possible by the use of the cysto-urethrogram to determine quite accurately the nature of the anatomic deformity in the prostatic urethra and at the neck of the bladder.

Medical Bull. of Veterans' Adm., Washington, D C

10 178 (July) 1933

- Residual Effects of Warfare Gases Use of Phosgene Gas, with Report of Cases H L Gilchrist and P B Matz—p 1
- Development of Intravenous Urography B A Moyness Perry Point Md—p 37
- Bronchiectasis Its Prevalence and Importance H P Marvin—p 41
- Functional Circulatory Stasis of Cerebrospinal Axis A P Smith—p 44

Minnesota Medicine, St Paul

16 715 776 (Dec) 1933

- The Medical Profession Versus Racketeering J G Murray St Paul—p 715
- Modern Conception of Chronic Arthritis M J Shapiro Minneapolis—p 719
- General Management of Tuberculosis E S Mariette Oak Terrace—p 728
- First Infection Type Tuberculosis J A Myers Minneapolis—p 735
- Appendicitis in the Tuberculous L F Steffens Nopeming—p 742
- Reservoirs of Echinococcus in Minnesota W A Riley, St Paul—p 744
- Sarcoma of the Uterine Cervix M Nordland and L M Larson Minneapolis—p 745
- Management of Amebic Dysentery R E Rock St Paul—p 748

New England Journal of Medicine, Boston

209 1085 1136 (Nov 30) 1933

- Spontaneous Rupture of Stomach During Labor J R Miller Hartford Conn—p 1085
- *Use of Sodium Dehydrocholate as a Clinical Test of Velocity of Blood Flow S L Gargill Boston—p 1089
- Cancer of Male Generative Organs F L Hoffman Wellesley Hills Mass—p 1093
- Operative Curability of Carcinoma of Stomach L Parsons Boston—p 1096
- Functional Bundle Branch Block F B Carr, Worcester Mass—p 1101
- Studies of Reproduction in the Rat I Effect of Changes in Protein on Fertility Pregnancy and Lactation D Macomber Boston—p 1105
- The Boston Lying In Hospital Fifty Years Ago A Worcester Waltham Mass—p 1109
- Review of Gastrointestinal Surgery in 1932 M A McIver, Coopers town N Y—p 1113

Clinical Test of Velocity of Blood Flow—Gargill employed the following method in clinically testing the velocity of the flow of the blood. All tests were performed with the subjects in the recumbent position and under strict metabolic conditions. The contents of a 10 cc ampule of a 20 per cent solution of sodium dehydrocholate were aspirated in a 10 cc sterilized Luer syringe. A vein in the antecubital space of the arm was entered and 3 cc of sodium dehydrocholate was injected as rapidly as possible. The time taken for injection as well as the time of onset of the bitter taste were registered by means of a stop watch. The time elapsed from the beginning of injection to the onset of the bitter taste was recorded as the "arm to tongue circulation time." After an interval of one or two minutes another 3 cc of sodium dehydrocholate was injected and the circulation time was again measured. The last 4 cc of sodium dehydrocholate in the syringe was used to obtain a third measurement. These three measurements usually checked within one second or a fraction of a second. In fifty normal subjects the average arm to tongue circulation time was fifteen seconds. This compares favorably with the average arm to arm circulation time found in fifty-three normal persons by Blumgart, using the radioactive method. A crude pulmonary circulation time was obtained by injecting sodium dehydrocholate into the external jugular vein. The average jugular to tongue circulation time was 118 seconds in twelve normal subjects. The circulation time was measured with sodium dehydrocholate in various pathologic states, including hyperthyroidism, secondary anemia, arterial hypertension, pulmonary emphysema and congestive failure. The results were in accord with those obtained by Blumgart with the more accurate radioactive method. In the amounts utilized sodium dehydrocholate produced no untoward reactions in more than 150 patients. The sodium dehydrocholate test recommends

itself to the clinician by its simplicity, its safety and the readiness with which it can be repeated and used at the bedside or in the office. The simplicity and safety of the sodium dehydrocholate method should enable the clinician to make use of the measurement of the velocity of the flow of the blood as an additional aid in diseases associated with dyspnea and edema.

New York State Journal of Medicine, New York

33 1365 1422 (Dec 1) 1933

- *Preventing Loss of Weight in the New Born I N Kugelmass Ruth E L Berggren and Mildred Cummings, New York—p 1365
Treatment of Common Forms of Dropsy N B Foster New York—p 1373
Practical Application of Radiosensitivity and Tumor Grading D Quick New York—p 1376
Rat Bite Fever in Children Clinical Case F Vander Bogert, Schenectady—p 1379
Measles in Four Central New York Counties for 1932 T W Sears Syracuse—p 1381
Hypodynamic and Hyperdynamic Hearts A W Holmes Watkins Glen—p 1383
Granulopenia Case Report T H Argue and R J Shafer Corning—p 1385
Hearing Impairment in School Children R Beatrice Russell, Buffalo—p 1387
Renal Manifestations of Hydatid Disease Report of Case J H Borrell and J M Barnes Buffalo—p 1390

Preventing Loss of Weight in the New-Born—Kugelmass and his associates emphasize that the initial loss of weight in the new-born is the result of dehydration and semistarvation, and it can be prevented by the administration of a solution consisting of 6 per cent gelatin (pH 6.2), 3 per cent dextrose and 0.5 per cent sodium chloride at two hour intervals throughout the twenty-four hour cycle immediately after birth. The gelatin hydrates blood and tissues, it raises the heat of the body by virtue of its specific dynamic action, and it reduces the clotting time. Dextrose brings the new-born hypoglycemia to normal. Sodium chloride raises the initial low blood chloride and favors hydration. The average loss of weight in new-born infants receiving the hydrating solution was 17 per cent, the irreducible minimum in comparison with the average loss of 7 per cent. The characteristic clinical picture of the new born is a result of the shock of birth, more effectively combated by a hydrating solution than by milk mixtures the first two or three days of life. Preventing the loss of weight in the new-born produces rapid disappearance of the so-called physiologic apathy, somnolence and stupor secondary to the shock of birth and the compensated acidosis universally present.

Ohio State Medical Journal, Columbus

29 737 808 (Dec 1) 1933

- Throat and Ear Problems from a Pediatric Point of View C W Wyckoff Cleveland—p 757
Spinal Cord Changes in Pernicious Anemia C E Kiely Cincinnati—p 761
Mastoiditis and Its Bone and Joint Complications S S Quittner and R S Reich Cleveland—p 764
Chronic Encephalitis Associated with Gallbladder Infection S R Salzman Toledo—p 767
Lead Poisoning Followed by Diffuse Vascular Disease Z T Wirtschafter Cleveland—p 771

Public Health Reports, Washington, D C

48 1443 1464 (Dec 1) 1933

- Methylene Blue in Treatment of Hydrocyanic Acid Gas Poisoning J A Trautman—p 1443

48 1465 1486 (Dec 8) 1933

- Malaria in Narcotic Addicts at the United States Penitentiary Annex Fort Leavenworth Kansas C K Himmelsbach—p 1465
Specificity of Immunity Elicited by Mouse Sarcoma 180 H B Andervont—p 1472

48 1487 1512 (Dec 15) 1933

- Estimation of Tissue Phenols Distribution of Phenol in Tissues of Normal and of Poisoned Rabbit M I Smith—p 1487

Puerto Rico J Pub Health & Trop Med, San Juan

9 97 216 (Dec) 1933

- Larval Phase of Uncinariasis B K Ashford San Juan G C Payne and F Payne New York—p 97
Studies on Schistosomiasis Mansonii in Puerto Rico I History of Schistosomiasis in Puerto Rico E C Faust New Orleans—p 154
Observations on Dermatomyiasis in Puerto Rico Report on a Case of Chromoblastomycosis A L Carrion and E Koppisch San Juan—p 169
Studies of Relationship Between Atmospheric Phenomena and Human Physiology A Martinez Alvarez San Juan—p 210

Radiology, St Paul

21 513 612 (Dec) 1933

- Primary Malignant Tumors of the Foot Report of Thirty Seven Cases B F Schreiner and W H Wehr, Buffalo—p 513
Roentgen Treatment of Benign and Malignant Lesions of Prostate I E Schmidt T P Grauer and E L Jenkinson Chicago—p 521
Pulmonary Tuberculosis Roentgenologic Application of a Clinical Classification H K Taylor, New York—p 529
Effect of Roentgen Rays on Time of First Cleavage in Marine Invertebrate Eggs II Differential Recovery and Its Influence When Different Methods of Exposure Are Used P S Henshaw C T Henshaw and D S Francis New York—p 533
American Pioneers in Radium Therapy B G P Shafroff Brooklyn—p 541
*Scientific Control of Radiographic Results C Weyl S R Warren Jr and D B O'Neill Philadelphia—p 546
Pathogenesis of Acute Silicosis R Pomeranz Newark N J—p 556
New Contrast Medium for Use in Uterosalpingography Preliminary Report T Neustaedter D E Ehrlich, J C Du Bois and G R Blalock New York—p 568
Thoms Method of X Ray Pelvimetry and Cephalometry Discussion of Advantages and Case Reports J M Freiheit Waterbury, Conn—p 573
*Roentgenologic Diagnosis of Rupture of Liver and Spleen as Visualized by Thorotrast W F Burke and J P Madigan Washington D C—p 580

Scientific Control of Roentgenographic Results—Weyl and his associates describe tests that will aid roentgenologists in controlling variations within their laboratory which cause them difficulty in diagnosis and to collect data that may be analyzed for the purpose of standardizing radiographic technique. It is generally possible to arrange that the roentgen beam directed to about 1 square inch near a corner of each film shall be unobstructed. A two-step aluminum ladder, with steps one fourth and two-fourths inch thick, can be fixed in position in the cassette holder over the area of the film. For every roentgenogram taken there will be a record of density and of contrast in terms of these aluminum step thicknesses, which may be compared with other roentgenograms. Not only may this comparison be made between roentgenograms of a given type taken in one laboratory, but the results of several laboratories may also be compared. Analysis of the electrical problems concerned would be considerably facilitated by the collection of data from a number of laboratories throughout the country.

Roentgenologic Diagnosis of Rupture of Liver—Burke and Madigan point out that thorium dioxide sol (thorotrast) is of practical use in the diagnosis of traumatism of the liver and spleen when the physical signs are obscured by any cause whatever. It apparently exercises no deleterious effects, even when administered to patients having overwhelming infections, and may be administered intravenously immediately on indication of an intra-abdominal hemorrhage. Its use is not contra-indicated in injuries involving the liver and spleen. One half of the usual dose was sufficient to produce a shadow heavy enough for diagnosis, and a roentgenogram may be taken four hours after such an injection.

Texas State Journal of Medicine, Fort Worth

29 479 546 (Dec) 1933

- Addison's Disease Report of Two Cases Treated with Suprarenal Cortical Extract (Eschatin) Alvis E Greer Houston—p 483
Osgood Schlatter's Disease W E Huddleston Galveston—p 488
Treatment of Compound Fractures T E Christian, San Antonio—p 491
Use of Well Leg Traction in Fractures of the Lower Extremity J R Bost Houston—p 494
Open Reduction of Fractures H O Smith Marlin—p 502
Open Reduction of Fractures of Long Bones F C Goodwin El Paso—p 505
Resume of Some Personal Experiences in Fractures I Cohn New Orleans—p 508
Migraine R V Murray Austin—p 514
Short Wave X Rays and Radium in Treatment of Cancer R H Millwee Dallas—p 518
Grading of Cancer Its Relationship to Metastasis and Prognosis A C Broders Rochester Minn—p 520
Radical Mastoid Skin Graft J T Robison Austin—p 525
Treatment of Oral Pathologic Conditions W A Chernosky and M C Murphy, Temple—p 528

Wisconsin Medical Journal, Madison

32 801 872 (Dec) 1933

- Chronic Fevers J M Berkman Rochester Minn—p 809
Importance of Blood Grouping in Clinical and Legal Medicine A A Schaefer Milwaukee—p 816
Suitable Time for Surgery in Children I Schulz Milwaukee—p 820
Nasal Polyps with Radium After Removal W A Ford Sheboygan—p 824

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Pickett-Thomson Research Lab., London

9 1640 (Dec.) 1933

Influenza Part I with Especial Reference to the Part Played by Pfeiffer's Bacillus Streptococci Pneumococci etc., and the Virus Theory D. Thomson and R. Thomson—p. 1

British Journal of Dermatology and Syphilis, London

45 493 546 (Dec.) 1933

The Real Position of Willan and Bateman's Teaching in Regard to Eczema H. G. Adamson—p. 493

Identity of Adiponecrosis Subcutanea Neonatorum with Sclerema Neonatorum A. M. H. Gray—p. 498

*Infra Red Photography of Subcutaneous Veins Demonstration of Concealed Varices in Ulcer and Eczema of the Leg H. Haxthausen—p. 506

Pseudoxanthoma Elasticum S. E. Sweetzer and C. W. Laymon—p. 512

Infra-Red Photography of Subcutaneous Veins—Haxthausen emphasizes the fact that by infra-red photography it is possible to demonstrate varicose changes in the small and medium sized subcutaneous veins that can be recognized but indistinctly—or not at all—by direct observation or by ordinary photography. This type of varix is found in some cases together with varices of the large veins, while in other cases it constitutes the only form of varix present. In the latter cases, including several of ulcer and eczema of the leg, the foregoing venous changes represent presumably an important part of the condition that heretofore has been designated as "concealed" varices.

British Journal of Ophthalmology, London

17 705 768 (Dec.) 1933

Intra Ocular Color Filters of Vertebrates G. L. Walls and H. D. Judd—p. 705

Evolution of Ideas Concerning Retinal Detachment Within Last Five Years J. Gonin—p. 726

*Operation for Relief of Congenital Ptosis R. A. Greeves—p. 741

Operation for Relief of Congenital Ptosis—Greeves believes that a better result might be gained by attaching the lid to the superior rectus muscle, instead of the converse in operations for the relief of congenital ptosis. He devised the following operation, which may be performed under general or local anesthesia. A controlling suture is inserted in the conjunctiva, immediately above the cornea, and the eye is depressed as far as possible by its means. The superior rectus tendon and its attachment to the globe are then exposed by a horizontal incision through the conjunctiva and a squint hook is passed under the tendon, a silk thread is then pushed under the tendon and the hook withdrawn, the two ends of the thread being secured by Spencer Wells forceps. This thread is now used to control the eye in place of the preliminary conjunctival suture, which may be removed. Next, the upper lid is everted and the conjunctiva above the incision seized by forceps and dissected upward until the upper edge of the tarsal plate is exposed. This edge is gripped centrally by catch forceps, on each side of which a thin strip of tarsus is cut with a fine pair of bent scissors, from without inward and within outward, respectively, each strip being left attached centrally and the width of the uncut area of the tarsal plate between the strips being about the same as that of the superior rectus tendon. The strip of tarsal tissue should be as long as possible. A number 4 needle, with number 1 silk, is passed through the end of one of the strips and again through the corresponding edge of the superior rectus tendon, a similar suture is passed through the other strip and the other edge of the tendon. The sutures are drawn tight without being tied, in order to judge the relative positions of the eye and eyelid. The position of the edge of the lid should slightly overlap the upper part of the cornea. If the position of the lid is not correct, those parts of the sutures which have been passed through the tendon should be withdrawn and reinserted in the tendon in a suitable position. Great care must be taken to prevent exposure of the cornea during the healing stage. It is better not to sew the lids together. The best form of dressing is a sausage-shaped

pad placed over the upper lid and kept in place by strapping and a bandage. The sutures may be removed in about ten days.

British Journal of Urology, London

5 323 456 (Dec.) 1933

Tumors of the Renal Pelvis and Ureter S. Pascual—p. 323

Pyelography by the Descending Route Von Lichtenberg—p. 339

Surgery of the Neck of the Bladder G. Marion—p. 351

British Medical Journal, London

2 1007 1056 (Dec. 2) 1933

How Do Drugs Act? W. I. Brown—p. 1007

Housing Problem with Especial Reference to Present Position C. K. Millard—p. 1010

Vallecular Dysphagia J. E. G. McGibbon and J. H. Mather—p. 1013

Certain Intracranial Tumors Their Variability and Multiplicity W. E. C. Dickson—p. 1016

Fibrosarcoma of Suprarenal Gland B. S. Cran—p. 1018

*Treatment of Compound Fractures of the Tibia A. Simpson Smith—p. 1019

Lung Abscess Following Tonsillectomy F. T. Ranson and L. McGolrick—p. 1020

*Diverticulum of Duodenum D. Cromie—p. 1021

Treatment of Compound Fractures of Tibia—Simpson-Smith used the following treatment with unusual success in twenty cases of compound fractures. The patient is anesthetized and the limb is iodined from mid thigh to toes. The edge of the wound is closely excised and extended up and down the leg so that an incision of not more than 5 inches is made with its center over the seat of the fracture. The incision goes straight down to, but not through, the periosteum. Careful debridement is effected and the entire area is washed with acriflavine hydrochloride. The incision is continued in the connective tissues immediately above the periosteum round the subcutaneous surface of the tibia and is extended just over the anterior and postero-internal borders, so that 1 inch of bone is "cleared" on each side of the fracture. Lane's forceps are applied to the fragments in such a way that their teeth just grip these borders. An assistant pulls on the foot to secure the necessary amount of extension and the ends of the bone are again washed with acriflavine hydrochloride before they are apposed. A special bone clamp is applied to the already cleared fragments so that it does not disturb the lateral vascular surface of the tibia. Before screwing the instrument "home" the assistant pushes the foot firmly toward the knee in order to press the two fragments hard against each other, thus ensuring that their corresponding serrations interlock accurately. The clamp is fixed, the Lane's forceps are removed and an artificially rigid tibial shaft is thus produced. A sterile gauze roll 5 inches wide is wound round the leg at the site of the fracture above and below the clamp, so that the wound is completely enclosed. The assistant, with his flexed elbows on the operating table, puts the flat of one hand under the knee and the other under the heel. The rest of the limb, from toes to mid thigh, is invested in a skin tight plaster cast. A firm plaster cast is applied in adequate thickness up and down the limb, leaving the bone clamp projecting through its substance. A window is cut through the plaster and gauze around the clamp. The plaster is allowed to dry and the bone clamp is removed. The wound is sutured and a small gap is left at the lower end for drainage, but without incorporating a tube. Dressings and a bandage around the plaster complete the operation. Antitetanic and anti-gas gangrene serum are given as a routine. The plaster cast is removed in from six to eight weeks. Another smaller one is then applied from the toes to just below the knee, and a Böhler "boot" is incorporated. The patient can walk about in this iron for a few more weeks until the union is firm.

Diverticulum of Duodenum—Cromie reports a case of diverticulum of the duodenum in which the diverticulum proper was composed of a thin layer of muscle with the submucosa and mucosa and measured 2.9 cm across the base and 2.4 cm from the base to the apex. The serous coat was not attached to the pouch, but a fold of peritoneum lay in front of it. The symptoms of the author's case did not correspond to any of the five classic groups described by Bensaude, so it is doubtful if there is any definite symptomatology. The symptoms were initiated by the filling of the sac and relief followed its emptying. The vomiting was a predominant feature. The author

cannot see how medical treatment can be of much value if the symptoms are caused by the diverticulum. Diverticula that cause no symptoms should be left alone, but others should certainly be explored. The ideal treatment is excision, but if this is impossible the diverticulum may be invaginated. Complications may call for immediate laparotomy, as in any other abdominal emergency. The author's patient has been relieved of symptoms by operation on the diverticulum for two years.

Clinical Science, London

1 159 224 (Dec 21) 1933

Blood Pressure Observations with a New Type of Oscillometer G M Wishart—p 159

*Clinical Observations and Experiments Relating to Burning Pain in Extremities and to So Called Erythromelalgia in Particular T Lewis—p 175

Vasodilatation in the Hands and Feet in Response to Warming the Body G W Pickering and W Hess—p 213

Burning Pain in Extremities—Lewis suggests that the term erythromelalgia should be abandoned and that the name erythralgia be employed to designate a peculiar condition of painful redness of the skin, which is common to a number of diseases. The chief manifestations of patients displaying this condition in an extremity are as follows: 1 The skin of the extremity is reddened, and this reddening greatly deepens when the limb hangs down. The reddening of the skin is the result of a relatively toneless condition of the minute cutaneous vessels, and the deepening of the color on dependence is due to passive congestion and does not signify vasodilatation. 2 Burning pain is induced whenever the temperature of the skin rises to a certain level, normally insufficient to produce pain and this is so whether the heat is brought by an increased flow of the blood or is applied from outside. The same pain may be induced by extreme cold, local friction or tension. When it comes during walking it is chiefly the result of warmth and of friction. When it occurs in a limb allowed to hang down, it is due to hydrostatic vascular tension. There is no evidence that in what are called "attacks" a disturbance occurs in the central nervous system. In tissues in the "susceptible state" vasodilatation may be brought about a little more readily or more conspicuously. There is no evidence that there is any appreciable change in the flow of the blood in the normal foot on changing it from a horizontal to a hanging down position. Severe burning pain of inflamed fingers in Raynaud's disease can be caused by the quick warming of fingers occasioned by a return of the blood to them when they are cold. Normal fingers present the same phenomenon if the range of temperature change is sufficiently increased. Burning pain in the skin may follow firm stroking of the skin in some cases of urticaria factitia, and the stroked skin is subsequently unusually susceptible to warmth. Burning pain is considered to have a similar underlying basis, namely, the release from the damaged tissues of a natural substance, which acts on the pain nerve endings, lowering the threshold of these to tension and to heat, causing them to discharge pain impulses at times even under ordinary conditions of temperature.

Glasgow Medical Journal

2 193 236 (Dec) 1933

Chronic Hyperplastic Peritonitis with Chylous Ascites in Case of Rheumatic Carditis with Auricular Fibrillation of Over Fifteen Years Duration G A Allan and J F Heggie—p 193

Effect of Massage on Metabolism Survey D P Cuthbertson—p 200

Journal of Laryngology and Otology, Edinburgh

48 797 900 (Dec) 1933

*The Leaking Brain Abscess D McKenzie—p 797

Nasal Plastic Surgery Notes A B K Watkins—p 809

The Leaking Brain Abscess—McKenzie discusses the spontaneous rupture and gradual discharge of a brain abscess. He states that, while symptoms may be so mitigated by the leakage that the evolution of the disease is spun out, its progress continues to be downward and the end though delayed is seldom in doubt. Sooner or later the surgeon must intervene to improve drainage. The intervention will depend on the actual quantity of pus discharged and on the patient's general condition and particular symptoms. Relief to headache and pain even when complete and lasting is not sufficient to justify

a relaxation of vigilance, for a brain abscess may progress painlessly to a fatal issue. In choosing a site for drainage it is not wise to ignore the selection by nature of a certain point for drainage. Leakage, wherever it occurs, leads to the formation of a sinus with more or less firm and resistant walls. There is round the track an inflammatory zone shutting off the infected from the uninfected meningeal and brain tissues. Within the limits of this area the surgeon can make incisions and insert tubes without much risk of spreading the infection. The apparently out-of-the-way fistula may really represent the site of origin of the abscess and the stalk may actually be situated at that spot. In any case it would probably be wise to combine drainage through an outlying fistula with drainage through the apparent site of origin, whether it is the nasal sinus or the ear. Or the fistula might be selected to begin with and, if it failed to give the necessary relief, the original site could then be tried. When leakage is taking place through some inaccessible region, a direct opening should be made into the abscess. In the operation itself, safety consists in keeping as much as possible within the confines of the inflammatory zone round the discharging sinus. If the surgeon can offer sufficient drainage to the abscess without too rashly encroaching on the adjoining meninges and brain, he has done all that can be expected.

Lancet, London

2 1245 1300 (Dec 2) 1933

Arterial Disease of Extremities A D Wright—p 1245

*Acetylcholine in Paralytic Ileus A L Abel—p 1247

Atypical Teratoma and Spheroidal Celled Carcinoma of One Germinal Kind Associated with Eunuchoidism in an Apparent Female R S Aitken—p 1252

Action of Folliculin and Prolan on Reproductive Organs of Bat During Hibernation H Zondek—p 1256

Sorbitol (Sionon) for Diabetics W W Payne R D Lawrence and R A McCance—p 1257

Acetylcholine in Paralytic Ileus—Abel states that acetylcholine is essential for intestinal peristalsis. Factors which produce paresis or paralysis of the intestine do so either by a diminution of the intestinal content of acetylcholine or by increasing the threshold of the nerve impulse, thus rendering the normal quantity of acetylcholine insufficient. The administration of acetylcholine is therefore the correct treatment for these conditions. In some fifty apparently normal postlaparotomies he used acetylcholine as a routine, starting with 0.1 Gm thirty-six hours after the operation and repeating this dose every six hours until passage of flatus or feces occurs without enemas. This usually happens in from six to twelve hours, but as there was severe general peritonitis in many of these cases the author's impression has been that their postoperative course has given rise to less anxiety than it would have done without the acetylcholine. He feels that many more cases must yet be treated before advising acetylcholine as a routine in the postoperative treatment of every laparotomy. He has made it a practice to give these patients 0.1 Gm of acetylcholine hourly for six doses. Many unnecessary operations have been avoided and no untoward effects produced in organic obstruction cases. Most patients with severe postoperative distention, gas pains and paresis of the intestine are considerably improved by the administration of acetylcholine by intramuscular injection. In paralytic ileus, acetylcholine appears to be almost specific in curing the condition.

Medical Journal of Australia, Sydney

2 743 776 (Dec 2) 1933

Bacteriologic Investigation of Asylum Dysentery Occurring at Mount Park C Farran Ridge and Dora Lush—p 743

Summary of Cholecystography Normal and Pathologic Gallbladder D G Maitland—p 745

Monocytic Leukemia F Tidswell—p 752

Early Diagnosis of Cancer of Cervix Uteri C Coghlan—p 754

Therapy of Allergic Manifestations in Nasal Cavities Note H M Jay—p 755

Tubercle, London

15 97 144 (Dec) 1933

Operation of Plombage in Pulmonary Tuberculosis W Behrens—p 97

Memorandum on Asbestosis L R A Merewether—p 109

Condition in 1931 of Patients Discharged from the Trudeau Sanatorium from 1916 1930 F H Heise and W A P Hennigar—p 120

Evolution of Tuberculosis in the Human Body C A Stewart—p 123

Annales de Medecine, Paris

35 180 (Jan.) 1934

- Aleukemic Megakaryocytic Myelosis Contribution to Study of Hepato-splenic Syndromes M Fèvre P Croizat and A Guichard—p 5
Phosphoreosotic Polyneuritides H Roger and M Recordier—p 44
Clobular Chlorine Test of Chloruration in Azoemic Nephritides P Merklen and H Gounelle—p 64
Atypical Oxycephaly in Patient Presenting General Weak Mental Dystrophy P Michon and J Harmand—p 74

Phosphoreosotic Polyneuritides—Roger and Recordier made a study of three forms of polyneuritis, etiologically different but presenting the same symptomatology polyneuritis due to constant intake of creosote phosphate compounds, as in tuberculous patients, paralysis due to consumption of adulterated Jamaica ginger and polyneuritis due to administration of the abortifacient apiol (dimethylmethylene ether and allyl tetroxybenzene). These polyneuritides are characterized almost exclusively by motor symptoms of the paralytic type. They destroy only the Achilles tendon reflexes. Their evolution is long but habitually favorable. They are due to triorthocresyl phosphate, the specific action of which is demonstrated by its cumulative property. This substance was isolated from the extracts of ginger and from apiol compounds and administered to animals, in particular to the hen. The experiments showed a clinical picture analogous to that presented by man, with severe lesions of the peripheral nerves associated with slight alterations of the anterior horns of the spinal cord. The authors corroborate their results by referring to Smith, who for several consecutive days administered to rabbits lethal doses of phenolphosphate of triphenyl, tricresol, triorthocresol and triparacresyl phosphate and concluded that under these circumstances there is no accumulation and that the rabbits survive, while the triorthocresyl phosphate is accumulated in the organism.

Presse Medicale, Paris

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- Perfusion of Lung I Binet and Madeleine Marquis—p 129
Clinical Forms of Sylvian Vascular Spasms H Roger and P Sar radon—p 130
*Experiences and Reflections on Mechanism of Spinal Analgesia J Abadie—p 133

Mechanism of Spinal Analgesia—Abadie discusses five questions about the technic of intraspinal analgesia. The preliminary withdrawal of spinal fluid does not change the intraspinal pressure enough to alter materially the diffusion of the introduced anesthetic but produces a compensatory current toward the cranium which carries the anesthetic with it. The diffusion of various anesthetics depends in vitro on their specific gravities and on diffusible qualities apparently independent of the specific gravity. Application of in vitro observations to living intraspinal conditions cannot be made. Forceful injection, the author believes, causes the injected anesthetic to rise higher only when it is of greater density than the spinal fluid. The simplest technic possible should be used in spinal anesthesia until some of the points are better elucidated.

Schweizerische medizinische Wochenschrift, Basel

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Influence of Trichomonas in Vaginal Secretion on Course of Puerperium—Schellenberg reviews the literature, showing that the reports about the incidence of trichomonads in the vaginal secretion differ widely. The author's tests on parturient women revealed them present in 99 per cent of his cases. He compared the course of the puerperium in women with and without trichomonads in the vaginal secretion and found that the number of complications (increased temperature and prolongation of the puerperium) was only 0.8 per cent higher in the women with trichomonads than in those without. When only the temperature curves were taken into consideration it was found that the afebrile cases were but 1.6 per cent more frequent in the women without trichomonads in their vaginal secretion, but in spite of this the women with trichomonads

could leave the clinic on the tenth day in a larger percentage of cases than could the women without trichomonads. He is convinced that they are of no importance for the course of the puerperium and he is inclined to believe that they are harmless parasites. The author emphasizes that an aseptic parturient canal, that is, one which is free from exogenous micro organisms, is the most important factor in the prevention of puerperal complications. He thinks that during the last six weeks before delivery the following rules should be observed by the pregnant woman: 1 Coitus should be abstained from. 2 No vaginal douches should be taken without the physician's orders. 3 General baths should be dispensed with in favor of sponge baths. 4 If the use of public toilets is necessary, contamination should be guarded against. 5 Manipulation of the genitalia should be avoided and, if necessary, should be preceded by careful cleansing of the hands. 6 The woman should not be obliged to take care of members of the family who have suppurating wounds. During the six weeks following delivery there should be no coitus, no douches and no tub baths, only sponge baths.

Policlínico, Rome

41 152 (Jan 15) 1934 Surgical Section

- Ethylene Anesthesia F Alieri—p 1
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*Anatomic Changes of Gallbladder and Variations of Bacterial Flora of Bile in Cholecystogastro Enteric Anastomosis G Scollo—p 40

Electrolytes of Blood in Intestinal Occlusion—Cataliotti studied the alterations of the calcium, magnesium and phosphorus content of the blood in ten dogs in which experimental obstruction of the bowel was performed in high, middle and low sites. About twenty-four hours after operation there was a temporary lowering of the blood calcium content, and at the end of the experimentation the calcemic rate was higher than at the beginning. The increase in blood calcium was constant in all experiments and was not influenced by the seat of occlusion. The phosphorus in the blood was also diminished temporarily during the first twenty-four hours, but in its subsequent progressive rise it did not attain values superior to normal and was not influenced by the seat of occlusion. The magnesium increased immediately after operation and continued to increase indefinitely. The values of calcium and phosphorus tended to increase with the aggravation of the clinical picture. The results of the author and those obtained by Ruggeri confirm the report that intestinal occlusion, whether in high, low or medium sites, causes an increase in the calcium and phosphorus of the blood. Hepatic and renal alterations may have great importance for the variations of the blood calcium content. The liver actively participates in calcium metabolism and any alteration of the liver, even if only functional, renders it incapable of retaining its salts. Alterations in the kidney, whether anatomic or functional, show a notable diminution in the elimination of calcium salts and thus a great retention of them in the blood. When normal digestion is disturbed through defective biliary secretion, the excretion of phosphorus by the lower intestine is altered in the form of fecal tricalcic phosphate, and the phosphorus liberated from its combination with calcium, is absorbed and eliminated by the kidney. If the kidney is altered the phosphorus is retained in the blood in the form of alkaline phosphates and is therefore increased. The author states in conclusion that quantitative changes of the electrolytes calcium magnesium and phosphorus occur independently of the seat of occlusion.

Changes in Gallbladder in Cholecysto-Entero-Anastomosis—Scollo experimented on dogs with various types of anastomosis between the stomach, the gallbladder and the intestine and found that, if the animal survives, the cystic bile constantly contains pathogenic micro-organisms irrespective of the type and location of the anastomosis. The infections as well as the invasion of germs in the contents of the bladder are due more to the size of the anastomotic mouth and to the reflux from the digestive tube than to the segment of the digestive tube joined to the gallbladder. The author maintains that, the lower the location of the anastomosis in the gastro-enteric canal, the greater the danger of infection. Bacillus coli is the most commonly found micro organism in the cystic bile after anasto-

mosis Next in order are the staphylococcus and the streptococcus The bacterial flora tends to diminish progressively from the time of operation Cholecystogastro-entero anastomosis occasions notable anatomic changes in the gallbladder The gallbladder is transformed, through its new function of directly discharging the bile, into a canal similar in type to the common bile duct Histologically, it presents constant traces of inflammation, mainly localized in the mucosa and in the limitrophic zones of the neostomy These inflammations subside in time and the necrosis of the mucosa appearing toward the fiftieth day is replaced three months after operation by a regeneration hyperplastic in type coming from the zones of the adjacent healthy mucosa Biliary derivations, however, influenced by the mechanism of the histologic changes and the presence of bacterial stimuli and toxic irritants in the gallbladder, should be considered a favorable ground for the initiation of inflammatory processes due to micro organisms from other parts of the organism

Dermatologische Zeitschrift, Berlin

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Therapeutic Investigations and Processes of Spontaneous Cure in Gonorrhea A Proppe—p 177

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*Rare Complication Following Injection of Neosphenamine L S Sirota—p 198

Predisposition in Herpes Transferred by Inoculation with Consideration of Sex Age Temperature and Blood Groups H Hruszek—p 200

Rare Complication Following Injection of Neosphenamine—Sirota points out that in sensitized patients the intravenous injection of neosphenamine may produce pains in the region of the sacrum and coccyx with stiffness in the back The manifestation can be classified with the group of angioneurotic syndromes It appears that a preliminary subcutaneous injection of epinephrine (1 cc of 1:1000) is effective in preventing the complication The small number of cases that have been observed so far do not permit an explanation of the nature of the disturbance, but it is possible that sensitization plays a part

Klinische Wochenschrift, Berlin

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*Antipyretic Action of Digitalis Substances L Lendle—p 86

*Coagulation Time and Ovarian Function H Kustner and H Schulz—p 87

*Changes in ST Interval of Electrocardiogram Following Exertion Significance for Estimation of Cardiac Function A von Mentzingen—p 88

Changes in Anterior Lobe of Hypophysis and Ovary Following Treatment with Large Doses of Follicle Hormone W Hohlweg—p 92

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Insulin Spasms and Reticulo-Endothelial System L Dunner B Ostertag and H Lucke—p 101

Nature of Retarded Blood Coagulation in Jaundice Due to Obstruction A Barlik—p 102

Treatment of Strychnine Poisoning A K J Koumans—p 103

Insulin-Sugar Therapy in Experimental Hypophyseal Hyperthyroidism—Loeser reports the results of the simultaneous administration of the thyrotropic substance of the anterior hypophysis and of large doses of carbohydrate and the effects of insulin and sugar on the glycogen content of the hyperthyroidized liver The experiments were made on guinea-pigs He found that the glycogen deficiency of the liver produced by the increased activity of the thyroid reaches its maximum on the eleventh day of the injections of the thyrotropic substance At this time the liver is practically free from glycogen The simultaneous administration of large doses of carbohydrate (levulose) does not compensate for the loss of glycogen by the liver Administration of insulin and sugar to hyperthyroidized animals restores the glycogen supply of the liver The author thinks that the compensation of the glycogen deficiency following treatment with insulin and sugar makes it appear possible that the change in the carbohydrate metabolism

is to be found not in the hyperthyroidized liver alone but perhaps also in the pancreas and in the suprarenal system The insular apparatus of the pancreas showed no morphologic changes indicative of such an assumption However, recent investigations indicated that a hypertrophy of the suprarenal cortex always accompanies the experimental hyperthyroidism

Coagulation Time and Ovarian Function—Küstner and Schulz demonstrate that irradiation with red light rays produces changes in the otherwise rather constant blood coagulation time Since the changes do not develop in the absence of the ovaries they cannot be the result of a direct action on the blood but must be accomplished by way of the ovaries On the other hand, the change in the coagulation time following irradiation with red light rays presents a biologic test for the function of the ovaries, for only adequately functioning ovaries lead to a prolongation of the coagulation time Thus, a prolonged coagulation following irradiation with red light rays indicates normal function and reactivity of the ovaries, whereas an unchanged coagulation time indicates deficient or entirely lacking ovarian function The authors point out that this is a further proof for the great significance of the red rays for the biology of the secretory glands

Changes in ST Interval Following Exertion—Von Mentzingen describes the changes in the ST interval of patients and of normal persons following the exertion of bending the knees ten times She found that a leveling of this deflection indicates a functional and occasionally a reversible cardiac impairment and that the negativity of this wave generally indicates a severe lesion produced by a true myocarditis A heightening of the T wave is extremely rare following the work test and does not permit a definite interpretation

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*Best and Most Economic Treatment of Pernicious Anemia K Franke—p 127

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Pathogenesis and Clinical Aspects of Nontropical Sprue (Fat Resorption Disease) L Dunner H Hirschfeld and M Gerald—p 138

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Production of Diphtheria Toxin G Scheff and Irene P Scheff—p 146

Compulsion to Undergo Operation R Cordes—p 147

Thrombocyte Count—a Clinical Method? E Kaufmann—p 158

Economic Treatment of Pernicious Anemia—Franke compares the results obtained with fresh liver, liver preparations and stomach preparations in the treatment of 118 patients having pernicious anemia with the efficacy of arsenic and of blood transfusions in sixty-three patients He reaches the conclusion that the most effective treatment, particularly in the most severe forms is the combined use of liver juice and stomach juice It requires only half the time needed by treatment with liver juice only, with liver and blood transfusion or with injection of liver extracts The most suitable measure to retain the normalized condition (more than four million erythrocytes) is one weekly injection of from 5 to 10 cc of liver extract and daily oral medication with 3 Gm of reduced iron The author recommends the medication with iron during the continuous treatment because of the favorable effect on the general condition and on the nervous disorders, and because many patients cannot be kept above the four million mark without the administration of iron Stomach preparations alone did not meet the requirements more effectively than orally administered liver preparations The author compares the cost of the various methods of treatment He shows that liver treatment alone requires much more time and consequently is almost twice as expensive as the combined liver and stomach treatment For the continuous treatment liver and iron is much less expensive than is the use of fresh liver alone

Nycturia as Symptom of Central Nervous Disturbances—Jores designates as nycturia the condition in which the quantity of night urine is greater than that which is eliminated during the day. In a former report he had proved that, particularly in patients with cardiac and renal disorders, nycturia, the inverse type of water elimination, is extraordinarily frequent. However, observations on a large number of patients revealed that nycturia may also exist in the absence of cardiac and renal disturbances. He relates the clinical histories of three patients, which indicate that nycturia concurs with sleep disturbances, particularly of the narcoleptic or epileptic type. He mentions two patients with emaciation, lack of specific dynamic action, polyuria and high sodium chloride content of the urine, in whom disturbances in the sympathetic regulation of the hypophyseal-mesencephalic system were diagnosed. These cases indicate that the cause of the inverse type of urine elimination is to be found in the mesencephalon. The author shows that the majority of patients with gastric ulcer have nycturia, and in this connection he points out that, in patients with ulcer, disturbances of the sympathetic regulation particularly in the form of vagotony, play an important part. He cites another case, in which vagotonic symptoms concurred with nycturia, and in summarizing the different observations he emphasizes once more that the inverse type of water elimination, nycturia, is caused by a disturbance in the hypophyseal-mesencephalic system.

Medizinische Klinik, Berlin

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Active Immunity in Syphilis—Kollé and Prigge point out that the problem of immunity against syphilis is not solved. They show that symptomless infection, that is, general infection without the formation of primary lesions, plays an important part in this problem. The transmission of glandular material by inoculation is the only way to demonstrate the symptomless infection. The authors made systematic tests on syphilitic rabbits subjected to an intense arsphenamine treatment during either the early or the late period to determine whether the lack of development of a primary lesion is the sign of a local cutaneous immunity (chancere immunity) or of a true general immunity. One group of infected animals were subjected to arsphenamine therapy from three to eight months following infection. After completion of the arsphenamine treatment they were left alone for six months and then were exposed to reinfection. From six to eight months after this, their lymph nodes and testes were extirpated and inoculated into new animals. The controls were syphilitic animals that received arsphenamine therapy just like the animals of the first group, after the corresponding period they were not treated with syphilitic material but with normal material. These experiments proved that there is a chancere immunity but no true general immunity. The method of experimentation chosen by the authors also indicates how Chesney arrived at his erroneous conclusion that a true active immunity develops in syphilis. Chesney performed the reinfection too soon after the arsphenamine therapy, for the elimination of arsphenamine is drawn out over considerable periods and the arsphenamine still present shortly after the treatment prevents the multiplication of newly introduced spirochetes. The second cause of Chesney's erroneous results is that he transplanted the glandular material too soon after the reinfection. The authors point out that the absence of true immunity to syphilis refutes the objection that chemotherapy during the incipient period prevents the development of an immunity. There never exists such an immunity during an early or the late period.

Local Myxedema in Exophthalmic Goiter—Arzt reports the history of a woman who developed broad-based, firm tumors with a papillary surface on the extensor aspects of the legs.

The histologic picture indicated that the tumors were a local myxedema. The protrusion of the eyes and the statement that she underwent an operation for exophthalmic goiter led the author to classify the case with the cases described by Wilhelm Richter as local myxedema in exophthalmic goiter.

30 77 112 (Jan 19) 1934

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*Occurrence of Urea in Blood and in Cerebrospinal Fluid W Leopold—p 85

Closure Mechanism of Bladder and Rectum F Dietel—p 87

Two Cutaneous Carcinomas of Unusual Form and Genesis H Höltzemeier—p 88

*Stained Flocculation Reactions H Hecht—p 90

Dietary Treatment in Gynecology and Obstetrics A. Bauer—p 91

Pipet Apparatus for Examination of Blood Which Excludes Danger of Contagion C Bienias—p 94

Death as Result of Prolonged Cardioresenal Disease or of Accident? H Engel—p 95

Urea in Blood and in Cerebrospinal Fluid—Leopold shows that under physiologic conditions the urea content of the blood and that of the cerebrospinal fluid vary in individual cases. In the blood, the values fluctuate between 17 and 56 mg per hundred cubic centimeters and in the cerebrospinal fluid between 13 and 48 mg. The urea content of the cerebrospinal fluid is largely dependent on the urea content of the blood. However, the blood is not the only source of the urea found in the cerebrospinal fluid. Under certain conditions it is probable that at least a portion of the urea demonstrable in the cerebrospinal fluid is produced in the cerebrospinal fluid itself or in the central nervous system. Under physiologic conditions the cerebrospinal fluid generally contains less urea than the blood, as a rule about 85 per cent. The percentage increases in case of disturbances in the cerebrospinal fluid and decreases again as the condition improves. This observation, however, is of only theoretical significance. It does not permit conclusions about the existence of pathologic processes in the central nervous system, nor can it be utilized for the prognosis.

Stained Flocculation Reactions—Hecht points out that since the flocculation reactions are based on colloid chemical processes, the introduction of dye colloids could be tried in order to make the flocculation not only more clear but also more voluminous. The aim of his research was to devise a flocculation reaction in which the precipitating extract carries a portion of the dye along, so that, in case of a positive reaction, the fluid that remains after flocculation would be colored differently from that in a negative reaction (in not precipitated extract). The experiments were made primarily on the conglobation reaction of Hecht and Müller. However, the results indicate that they can be made on all flocculation tests of syphilis which employ alcoholic extracts without the addition of balsam (Sachs-Georgi reaction, Kahn reaction and so on). The method consists (1) in a selective staining of the extract with a dye that, following precipitation of the colloid extract, leaves the remaining fluid uncolored, and (2) in a contrast staining of the sodium chloride solution (fluid free from extract) with dyes that stain the colloid extract only slightly or not at all. Of the numerous lipid stains, sudan III was the only one that proved suitable. The concentration of the stain is determined by means of titration. Sudan is introduced in a powder bottle containing the extract. After shaking, the mixture is left to stand, and thus a saturated extract dye solution is obtained. Then the Hecht-Müller conglobation reaction is done according to the usual technic by setting up the undiluted stained extract and also dilutions of the stained extract with the unstained extract in various ratios.

Stained extract	5 cc	4 cc	3 cc	2 cc
Unstained extract	1 cc	1 cc	1 cc	1 cc

With this model it is easy to find the dilution in which the extract, in case of a positive reaction contains sufficient dye taken up by the precipitate so that the fluid is completely or almost completely clear, whereas in the nonflocculated extract (negative reaction) a reddish fluid is observable. As contrast stains, numerous dyes nonsoluble for fats can be used. Among others the author mentions Löffler's methylene blue. Here likewise titration is advisable. The stained sodium chloride solution should contain only so much contrast dye that during mixture with the dyed extract it does not reveal its own stain.

If in case of positive reaction the red stained extract is concentrated in the conglobate, the contrast stain must be clearly visible, whereas, in case of negative reaction, there usually is a turbid fluid. The reaction should be read against a white background.

Munchener medizinische Wochenschrift, Munich

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- *Treatment of Organic Esophageal Stenoses and of Cardiospasm G Lotheissen—p 41
- *Compression of Thorax, New Sign for Threatening Progress of Scoliosis K Bragard—p 45
- Risks of Pathology in Eugenics and Race Research E Hammer—p 46
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- New System of Silver Antiseptics and Chlorine Disinfection W Kruse and M Fischer—p 49
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- Fundamental Differences in Modern Psychoanalysis (Freud Adler Jung) E Heun—p 52
- Treatment of Hyperthyroidism or of Exophthalmic Goiter with Thyroid Katechin (Antihormonic Substance) E Brummann—p 57
- Effective Principle of Organ Extracts for Treatment of Vascular Spasms Tiemann—p 58
- Improvised Sideroscope Drenkhahn—p 59
- Hundred Years Ago in Laboratory of Johannes Muller F Bidder—p 60

Treatment of Esophageal Stenoses and of Cardiospasm—Lotheissen recommends progressive dilation for the treatment of cicatricial strictures of the esophagus, which frequently develop following corrosion with acids or other caustics. He states that in cases in which dilation fails esophagoplasty can be done, but he found that this is rarely necessary. He discusses strictures caused by tumors. Benign neoplasms, such as wartlike papillomas and myomas, rarely cause disturbances; only fibromas and lipomas occasionally become large enough to obstruct the esophagus. They can generally be detected by roentgenoscopy or esophagoscopy. In the course of esophagoscopy, pedicled polyps can usually be removed by means of the galvanocautery. In cancer of the esophagus, surgical removal is still the most reliable therapeutic method. The removal is comparatively easy only if the growth is in the cervical portion. Here the defect can be repaired by esophagoplasty. Because of a tendency to metastases the results are not often permanent. The majority of esophageal cancers develop within the thoracic cavity, and the results of resection are poor. By gradual dilation it is frequently possible to improve deglutition at least temporarily. If the patient refuses a gastric fistula, the use of the catheter may become necessary, but the latter procedure may cause undesirable hemorrhages and even may accelerate the growth of the cancer. Irradiation has not been very successful in the treatment of esophageal cancers. For the alleviation of pain the author recommends medication with silver nitrate. If thick mucus accumulates above the stricture and troubles the patient a tablespoonful of a 1:100 solution of sodium bicarbonate will make it more fluid, so that it will pass the stenosis. In case of painful deglutition an anesthetizing solution can be swallowed five minutes before eating. Spastic conditions of the esophagus, particularly cardiospasm, are much more amenable to treatment than are the organic stenoses. Cardiospasm becomes manifest during food intake and is the result of a disturbance in the innervation. Antispasmodics are helpful, but more important is the local treatment. Dilation instruments employing balloons are sometimes employed. The author evaluates several surgical methods, but he thinks that nonsurgical dilation should always be tried first.

Method for Detecting Tendency to Scoliosis—Bragard mentions symptoms such as fatigue after physical exercise, myogelosis in the erector spinae muscles, anemia and a tendency to sweating as frequently indicative of progressive scoliosis and describes a method that permits early detection of a tendency to scoliosis by testing the compression pain of the thorax. The patient lies on his back with the hands under his head and takes a deep breath. During expiration the examiner presses both hands forcefully to both sides of the thorax. In older children the hands are first applied to the side of the upper and middle ribs which means obliquely to the course of the ribs, and then the procedure is repeated over the middle and lower ribs which are pressed almost transversely. Then the patient is turned to the side, and each half of the thorax is compressed. Again

the hands are pressed obliquely, almost transversely to the course of the ribs. The hand that presses the back is at a slightly higher level, so that pressure and counterpressure strike the same ribs. The procedure must be repeated over the lower ribs if necessary. A healthy person experiences no discomfort from the compression of the thorax, provided he breathes properly. Persons who are threatened by progressive scoliosis complain of pain, which in high bilateral compression appears particularly in the costal cartilages along the sternum. If pressure is exerted lower down, the pain is most intense in the anterior axillary line. Pain on compression of the ribs between the fifth and the tenth is most significant. In unilateral compression the patients frequently state that one side hurts more than the other; the convex side more in the case of slight curvature and the concave side more in severe deformity of the thorax. The author thinks that the phenomenon is due to the bending of the ribs that have become elastic.

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- Changes in Eye Produced by Senility F Schieck—p 85
- Diagnosis and Differential Diagnosis of Renal Tumors R Demel—p 87
- Tonsillectomy in Endocarditis F Curtius W Dieker and E Wirth—p 89
- Posttraumatic Pareses in Region of Posterior Bundle of Brachial Plexus J Hempel—p 93
- Scarlet Fever Blanching Phenomenon W Wieck—p 94
- Botrioccephalus Intus Intoxicacion Special Case H Schwenicke—p 96
- Connection Between Bronchial Asthma and Weather A Evers and H Schultz—p 97
- Pipetting Secured Against Return Flow New Apparatus F P Leusden—p 100
- Is Meinicke's Clarification Reaction II Sufficient as Only Syphilis Reaction in Hospital? E Meinicke—p 100

Tonsillectomy in Endocarditis—Curtius and his associates performed tonsillectomy on forty-one patients with endocarditis. In twenty-nine they removed the tonsils during the nonfebrile interval and in twelve during the acute attack. They found that tonsillectomy is readily accomplished during the acute attack although hemorrhages and postoperative increases of temperature are more frequent than is the case in operations during the interval. Bacteriologic examination of the tonsils revealed hemolytic streptococci, particularly in the septic forms of the disease. In a case of endocarditis lenta in which *Streptococcus viridans* was demonstrated in the blood, this organism was not demonstrable in the tonsils. In two patients with endocarditis lenta, neither the blood nor the tonsils contained pathogenic microorganisms. The tonsillar microorganisms of two patients were examined for cardiotropic behavior, but such behavior could not be proved. Of twenty-three surviving patients who were reexamined later, only three complained of occasional difficulties in swallowing and of throat irritation. These symptoms were probably caused by nasal abnormalities that existed previous to the tonsillectomy. In cases of this type, disorders of the nose should be corrected. In eight cases of endocarditis lenta the tonsillectomy neither retarded nor checked the fatal course. Thirteen of twenty-three patients with endocarditis showed a disappearance of the cardiac symptoms together with the pharyngeal symptoms. Septic and rheumatic manifestations were favorably influenced in fourteen patients. In febrile florid endocarditis, tonsillectomy brought no advantages and the authors think that it should be done during the interval, when the patient is free from fever. They observed that existing cardiac lesions often improved after tonsillectomy. However they found that, if signs of decompensation existed before tonsillectomy was done, a continuous exacerbation may be expected. Involvement of the kidneys is no contraindication to tonsillectomy, but the renal symptoms as a rule were only slightly influenced by it. The subjective condition of the patients with endocarditis improved generally to the extent that the cardiac and pharyngeal symptoms improved. A discrepancy between the subjective and objective aspects could be traced in two patients to psychic factors.

Scarlet Fever Blanching Phenomenon—Wieck shows that the blanching phenomenon is a great help in the diagnosis of scarlet fever, and he thinks that this test should be made in every case. However, to perform it with the scarlet fever antistreptococcus serum involves dangers due to the allergizing factor of the horse serum. There is the possibility of perform-

ing it with convalescent serum, but, since the patients are usually children, the withdrawal of sufficient amounts of serum meets with difficulties. The third possibility is the use of normal serum. The fact that with increasing age there is a considerable increase in negative Dick reactions was an inducement to study the serums of older persons for their blanching capacity. The author obtained serums of thirty-seven persons, aged 40 or more, and he found that, even though they had not had scarlet fever their serum had an intense blanching capacity. The results obtained with these serums were superior to those produced with convalescent serum or with scarlet fever anti-streptococcus serum. A particular advantage of the normal serum is that it is obtainable in practically unrestricted quantities.

Zentralblatt für Gynäkologie, Leipzig

58 145 192 (Jan 20) 1934

Involvement of Fetal Tissues in Uterus in Experimental Hypersensibility to Protein. E. Junghans and H. Girsensohn—p 177
*Curative Action of Iodized Oil Filling of Uterus and Tubes in Sterile Women. G. K. F. Schultze—p 180

Curative Action of Iodized Oil in Tubes in Sterile Women.—The introduction of iodized oil into the uterus and the tubes of sterile women is resorted to primarily for diagnostic purposes, but Schultze shows that in a considerable number of cases it has also a therapeutic effect. He admits that in sterility the estimation of therapeutic results is difficult and that a critical attitude is necessary if self-deception is to be avoided. However, he is convinced that in twenty-one cases or in 13 per cent of those in which roentgenoscopy revealed that one or both tubes were passable, a causal connection must be assumed between the filling with iodized oil and the subsequent pregnancy. He discusses the factors that play a part in the therapeutic action of the iodized oil filling. It is probable that the introduction of the contrast medium presents a sort of fluid probing of the cervical canal. Moreover, the dilation of the uterine cavity, effected by the contrast filling, may play a part. But the author thinks that the therapeutic action of the contrast medium is due primarily to the action on the tubes. Certain observations seem to indicate that the iodized oil influences the function of the tubes by stimulating the peristaltic action.

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Malignant Granulosa Cell Tumor and Premature Sexual Development. E. Klasten—p 204

Leiomyoma of Small Intestine. J. S. Shapiro—p 215

New Surgical Method for Treatment of Prolapse. F. Kovacs—p 218

Formation of Artificial Vagina with Rectal Method According to Mandelstamm's Modification (Eight Further Cases). A. Mandelstamm—p 222

Twilight Sleep Induced with Dilaudid Scopalamine in Operative Gynecology. F. Jost—p 228

Pregnancy in Tubal Stump. Two Cases. O. von Schroeder—p 231

Malignant Granulosa Cell Tumor and Premature Sexual Development.—Klasten states that 48.7 per cent of granulosa cell tumors occur in women of the child-bearing period, 42.5 per cent in women of the menopausal age and 8.7 per cent in children of the prepubertal age. In a case observed by him of a girl, aged 9, he points out that, if the relations between sexual prematurity and the granulosa cell tumors are studied, two possibilities should be considered. There is the possibility of a constitutional sexual prematurity, which occasionally is hereditary and is caused by a genotypically precipitated growth impulse. In such cases of constitutional prematurity a granulosa cell tumor, as the result of a tissue anomaly in the form of a malformation of the granulosa epithelium, may become manifest as a coordinated symptom. The second possibility is the premature development of the sexual apparatus as the result of the secretory action of the granulosa cell tumor in persons with otherwise normal growth impulses. Aside from the hereditary occurrence of the first form the two types differ in that in the first the signs of sexual prematurity persist and develop further after extirpation of the tumor, while in the patients in whom the sexual prematurity is the result of the secretory action of the tumor it either disappears or at least does not develop further, provided there is no relapse. In the author's case the secondary sex characters were fully developed, but there was no indication of a hereditary predisposition to sexual prematurity.

Surgical Treatment of Prolapse.—The method described by Kovacs is based on the principle of median colporrhaphy. In the first stage of the operation, he resects from the posterior and anterior vaginal walls, in transverse direction and 1 cm away from the external uterine opening, mucous membrane flaps, which measure 2 cm on the narrow side and 3 cm on the wide side and approach the rim to within 1 cm. Each flap terminates laterally upward in a sagittal J or L shaped strip of from 1.5 to 2 cm in width, which in turn slants off into a point that is directed outward and ends in the external and median third of the vaginal wall. The two flaps are exact reflections of each other. The wound surfaces that have been formed in this fashion are joined in their entire length with knotted catgut threads, and the prolapse is eliminated. There remain on the one side of the septum, a vagina of normal width but shorter by 3.5 cm and, on the other side, a vaginal canal the width of a pencil, and also small cystoceles and rectoceles. The second phase of the operation consists in a thorough anterior but particularly posterior plastic repair. By means of reconstruction of the perineum and by curving the vaginal axis so that the concavity is directed forward, not only the cystoceles and rectoceles are eliminated but the vaginal orifice is narrowed. Moreover, at its external end the vagina is lengthened to the same extent it had been shortened by the septum in front of the mouth of the uterus. The anterior concavity of the vaginal tube, produced by the repair of the perineum, places the intra-abdominal pressure on the newly formed, muscular perineum instead of on the vulvar slit and thus the action of the vaginal septum is reinforced. The operation produces on one side of the septum a vaginal tube of normal width and length, and on the other side there remains a narrow canal. The discharge of uterine and vaginal secretions is possible through both. Between the vaginal part of the uterus and the transverse septum there remains a transverse canal, which opens into both tubes. The author performed this operation on fourteen patients and generally obtained excellent results. The operation may be performed on women of all ages but it is particularly advantageous for younger women, for the cohabitation capacity is retained and even conception is still possible. Pregnancy can be carried to term, but delivery must of course be done by cesarean section.

Sovetskaya Khirurgiya, Moscow

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Stones in Liver. I. G. Rufanov—p 3

*Functional Treatment of Compression Fractures of Vertebrae. V. Gorinevskaya and T. F. Dreving—p 13

Cervical Ribs and Their Clinical Significance. S. L. Doshoyants and E. V. Loskutova—p 36

*Blood Platelets in Purulent Infection. E. M. Girdin Finkinshteyn—p 46

Question of Hemorrhage from Corpus Luteum into Peritoneal Cavity. A. G. Butylin—p 62

Wrist of Smith Hammerer and Locksmith. B. V. Dmitriev—p 71

Symptoms and Operative Treatment of Cysticercus of Brain. G. P. Kornjanskij—p 81

Methods of Operating on Cysts of Upper Jaw. Clinical Evaluation. V. A. Aronson—p 91

Functional Treatment of Compression Fractures of Vertebrae.—Gorinevskaya and Dreving state that compression fractures of vertebrae constitute a characteristic trauma of workers engaged in building trades and as such demand special preventive measures. Complete restitution to full working capacity takes place in the majority of cases if correct treatment is applied. Cases complicated by total crushing of the spinal cord are utterly hopeless but constitute not more than one sixth of all cases. The author considers prolonged immobilization in plaster of Paris or leather jackets faulty, because it leads to atrophy of the bones, muscles and joints and thus prolongs the disability. A compression fracture of a vertebra is essentially an impacted fracture and Behler's suggestion that it be reduced does not accomplish its aim. The correct method from a physiologic point of view consists of systematic and methodical movements with due regard for the character of the fracture, the age, the occupation and the general condition of the patient. All exercises are carried out in the beginning in a horizontal position on an inclined plane. The movements consist of general physical exercises, which aim at strengthening of the muscles and improving the respiration and circulation. Special corrective exercises to strengthen the muscles of the spine, particularly

the extensors, are gradually added. The exercises are carried out according to a definite plan, with a definite dosage and a gradual increase in force and duration, training the patient to hold his vertebral column in a vertical position, to walk and to work. This method of functional treatment shortens considerably the period of disability. Massage and physical therapy are valuable aids in the functional treatment.

Blood Platelets in Purulent Infection—Girdin-Finkinshteyn found that infection is accompanied by oscillation in the number of blood platelets. This oscillation from the onset of the infection and following surgical intervention up to recovery is characterized by a certain regularity. It is influenced by the character, the course, the clinical picture and the outcome of the disease process. The blood platelet curve in acute purulent infection with a favorable course terminating in recovery is typical and is made up, after the operation, of two components, a rise followed later by diminution in the count down to normal. In a rapidly approaching lethal termination the platelet count falls abruptly and remains at a low level. In grave infections with alternating improvements and exacerbations terminating in death, the number of platelets falls with exacerbations and rises with improvement. The fall in the count always coinciding with the appearance of grave clinical manifestations. The more acute the course of infection the steeper the curve. Purulent infection was found to be accompanied by thrombocytosis in 80 per cent. The author found giant and tail-shaped forms in the majority of his patients. The two bore a proportional relation to the total number. These forms were found rising with the improvement in the disease process, falling with exacerbation and disappearing shortly before death. The number of giant and tail-shaped cells diminishes gradually as the patient recovers from the infection. The author concludes that the blood platelet count offers one more method of estimating the reaction of an organism to a purulent infection. A typical blood platelet curve with a typical change in the number of giant and tail-shaped cells points to a favorable outcome. Diminution in the count and disappearance of tail-shaped cells points to the gravity of the disease process. A sudden fall in blood platelets followed by persistent thrombopenia and disappearance of tail-shaped cells is indicative of the severity of the infection.

Finska Lakaresällskapetets Handlingar, Helsingfors

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- *Roentgen Symptom in Diverticulosis and Diverticulitis of Colon. G. Jansson—p. 1.
- *Contribution to Question of Irritant Effect of Iodized Oils in Subarachnoid Space. E. Ruin—p. 15.
- Ileus Due to Foreign Bodies. Two Cases. C. V. Sändelin—p. 22.
- Bronchial Asthma with Especial Regard to Allergic Form. Zaida Eriksson—p. 29.
- *Plastic Surgery for Pendulous Breasts. G. A. Björkenheim—p. 57.

Roentgen Symptom in Diverticulitis of Colon—In Jansson's case a pseudotumor had developed on the basis of a peridiverticulitis and perisigmoiditis. Careful roentgen examination is, he says, the only means of certain diagnosis in diverticulosis of the colon, and irrigoradioscopy, well carried out, is undoubtedly the best method, it is important that the contrast substance, which should be a thick fluid, be allowed to lie in the colon for one or two hours, so that the pouches may fill gradually. If diverticulitis accompanies the diverticulosis, the inflammatory process often extends to the mucous membrane of the colon causing changes in the mucous membrane relief and rigidity in the intestine. Diverticulitis seldom leads to cancer formation. When in case of tumor in the sigmoid flexure typical pouches are seen in the roentgenogram, with characteristic changes in the mucous membrane relief, and nutrition and appetite are good, the indications point to an inflammatory tumor due to diverticular sigmoiditis and perisigmoiditis.

Irritant Effect of Iodized Oils in Subarachnoid Space—Following myelography in Ruin's case of chronic adhesive arachnoiditis in which a 40 per cent iodized oil (iodipin) was used, paralysis affecting the rectum, bladder and left lower extremity occurred, the patient could not be discharged as tolerably recovered until four months after the myelography.

Plastic Surgery for Pendulous Breasts—After treating of the various operative methods for pendulous breasts Björken-

heim describes his case treated according to Joseph's second method. Sixteen days elapsed between the two sittings, and on resection 1,400 Gm. of tissue was removed from the breasts. The intervention was well borne and recovery uneventful.

Hospitaltidende, Copenhagen

77 29 56 (Jan. 9) 1934

- *Investigations on Intestinal Peristalsis Observed Through Window in Abdominal Wall. F. Schnohr—p. 29.
- Outfit of Urologic Instruments. O. Keller—p. 47.

Study of Intestinal Peristalsis—Schnohr inserted an oval cellophane window in the abdominal wall of twelve rabbits, when killed from two to three weeks later, the animals were perfectly well. In anoxemia or increased carbon dioxide concentration in the blood, violent contraction of the arteries in the intestine was seen, accompanied by immediate stopping of all intestinal movement. Solution of pituitary preparations repeatedly produced a peristalsis more violent than the normal intestinal contraction of an uncoordinated unphysiologic kind and of very short duration. Intravenous or intracardial hypertonic salt solutions (from 7 to 25 per cent) were usually able to produce in the paralyzed intestine long continued peristalsis of the same nature as the normal intestinal movements. The importance of this effect in the treatment of paralytic ileus is emphasized.

77 57 84 (Jan. 16) 1934

- Kienbock's Disease Treated with Extirpation of Os Lunatum. Fourteen Cases. A. Ringsted—p. 57.
- Pulsation in Right Carotid Artery in Arterial Hypertension. J. E. Holst—p. 79.

Kienbock's Disease Treated with Extirpation of Os Lunatum—In Ringsted's thirteen cases of Kienbock's disease, one bilateral examination from nine months to six years after operation shows that eight are well, three improved and three unchanged. The technic used consisted in dorsal removal of the semilunar bone, scraping off the cartilage of the bones articulating with the semilunar and transplantation of a sterile bone graft from the femur to the cavity.

Pulsation in Right Carotid Artery in Arterial Hypertension—Holst says that in a number of cases of arterial hypertension an abnormal pulsation arising from the common carotid artery is seen, either only on the right side of the neck or far more marked on the right side than on the left. He cites the seven cases found in the literature (Brown and Roundtree five and Beardwood, two) and reports two personal cases, of the nine cases, eight were in women. A shifting upward of the arch of the aorta and thus of the arterial branches originating from the arch leads to a reduction of the space between the two ends of the carotid, with consequent folding of the carotid and in certain cases, formation of an angular kind, the unilateral nature of the phenomenon depends on special conditions affecting the carotid on the right side.

Ugeskrift for Læger, Copenhagen

96 59 86 (Jan. 18) 1934

- *Significance of Athletic Exercises for Menstruation and Delivery. Review. K. Secher—p. 59.
- Determination of Quinine Resistant Lipases in Serum. Remarks on Technic and Sources of Error in Same. V. Genner—p. 63.
- Remarks on Artificial Respiration According to Holger Nielsen's Method. J. Lindbård—p. 67.

Athletic Exercises for Menstruation and Delivery—Secher summarizes as follows: 1. Apart from quite exceptional cases, athletic exercises usually are without harmful effect on the menstrual process. 2. Sometimes they have a marked favorable influence on certain forms of pain accompanying the process. 3. Physical exercises, except swimming during menstruation seem to be safe, although competitive exercises should be avoided at this time, but there are pronounced individual differences and especially during the first two days athletic exercises should be avoided if there is attendant discomfort. 4. There is no evidence pointing to any really unfavorable effect of athletics on delivery. 5. Athletics, especially in the more strenuous form such as training for competitive sports should be practiced only by perfectly healthy women, and disorders in the pelvic region particularly should be excluded. Physical exercises during the menopause are advised, as the increased activity of the organism apparently lessens the climacteric difficulties considerably.

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THE RESTORATION OF THE GENERAL PRACTITIONER

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In these rapidly changing times, any one who speaks of restoring anything that pertained to the old order may seem to be exceedingly rash. But recently more favorable things have been said of the general practitioner than for some time. During the economic depression he has fared better than the specialist, for more people have discovered that they could be treated in their homes, his overhead has not been high. Many consultants have changed their point of view and have condescended to make house calls. So, as far as medicine is concerned, the economic depression has automatically restored some of the old order. I have never liked the term general practitioner, for the term seems to convey the meaning of a wide, thin spread.

Osler in 1897 read a paper before the New York Academy of Medicine entitled "Internal Medicine as a Vocation" in which he said:

I wish there were another term to designate the wide field of medical practice which remains after the separation of surgery, midwifery and gynecology. Not itself a specialty though it embraces half a dozen, its cultivators cannot be called specialists but bear without reproach the good old name physician in contradistinction to general practitioners, surgeons, obstetricians and gynecologists. I have heard the fear expressed that in this country the sphere of the physician proper is becoming more and more restricted, and perhaps this is true, but I maintain (and I hope I can convince you) that the opportunities are still great and the laborers are scarcely sufficient to meet the demand.

At the outset I would like to emphasize the fact that the student of internal medicine cannot be a specialist. The manifestations of almost any one of the important diseases in the course of a few years will box the compass of the specialties. Typhoid fever for example, will not only go the rounds of those embraced in medicine proper but will carry its students far afield in morbid psychology and sometimes teach him, perhaps at the cost of the patient, a little surgery.

Osler had in mind when he prepared this address the medical consultant, for he continues "Each generation has to grow its own consultants." Samuel Mitchell, Swett, Alonzo Clark, Austin Flint, Fordyce Barker and Alfred Loomis served their day and passed on. Their work remains but enough of a great physician's experience dies with him to justify the saying

"There is no wisdom in the grave." The following quotation has much that indicates the factors that make a successful physician:

Much that made such a man what the community, to their highest profit, found him to be, dies with him. His inborn gifts and much of what was most valuable in his experience were necessarily incommunicable to others, thus depending much on his forgetting the process by which in particular cases he made up his mind, and its minute successive steps, but mainly, because no man can explain directly to another man how he does any one practical thing, the doing of which he, himself, has accomplished, not at once by imitation or by teaching, but by repeated personal trials and by missing much before ultimately hitting.

Of the successful consulting physicians of today, it will be found that many started in general practice or had their early training in the laboratory or clinic. Many of the most prominent have risen from the ranks of the general practitioner. Many consultants will rise in wrath when some one makes a remark reflecting on the general practitioner.

The medical consultant is the type that Osler had in mind—the physician. As I said in the beginning, I do not like the term general practitioner, and, in the address cited, Osler has applied the word physician to the medical consultant. The dictionary defines a doctor as one who practices medicine or surgery. The doctor that I wish to discuss practices medicine and surgery.

It is important in outlining plans to determine why graduates in medicine specialize. A little over 36 per cent of all graduates in medicine specialize. A large percentage of the graduates of some medical schools specialize. In the final report of the Committee on Medical Education and Hospitals it is stated that 75.1 per cent of the graduates of Johns Hopkins Medical School finally specialize. I have hesitated to give this figure, for the question that might arise is, With what authority does he read a paper dealing with the restoration of the doctor? On the other hand, having had some experience in this school, I might be able to say something as to why so many specialize. Johns Hopkins is followed by Harvard, 64.1 per cent of whose graduates specialize, by the University of Virginia, 61.5 per cent of whose graduates enter specialties, and by Stanford University School of Medicine with 55.8 per cent. A much lower percentage of the graduates of state universities enter the specialties, and I am rather surprised to find out that but 25.3 per cent of the graduates of the University and Bellevue Hospital Medical College and 26 per cent of the Jefferson Medical College take up special work. Several different methods have been suggested by which the ideal doctor can be developed.

Elling, in a paper read before the American Surgical Association in 1929, said that the problem of rural

Read before the Annual Congress on Medical Education, Licensure and Hospitals, Chicago, Feb. 12, 1934.

A discussion of this paper will be found in the transactions of the annual congress which appear in this issue of THE JOURNAL under the caption "News."

medicine has long been recognized as an important one, toward the solution of which the small medical college should especially devote its attention. To this end there has been evolved by the Albany Medical College a so-called five point program as follows:

1 By giving preference in the selection of medical students to those whose affiliations are in the district

2 By primarily training students for general practice and properly fitting them at moderate cost for such work

3 By providing its graduates and other hospital interns with data concerning opportunities and locations where doctors are needed

4 By cooperating with graduates and other physicians in the large district served by the school, giving them an opportunity to take graduate work and review advanced courses either formally or informally, as well as special work in all departments of the medical school

5 By suitable publicity informing rural communities of the advantage of employing their local doctor, who can care adequately for more than 90 per cent of their ills, and whose cooperation and interest is of the greatest importance in the care of the remaining 10 per cent

One of the most important features of this program is the maintenance of a liaison department between the hospital medical school, other hospitals and the profession, public health workers and those responsible for the sick poor of the surrounding territory. Such a department functions all the while and in an impartial and humanitarian manner, thus avoiding the temptation and criticism of commercialism. In this way it is possible to establish and maintain a relationship between the man in rural practice and an institution rather than with an individual, and an institution that functions at all times for the benefit of both patient and doctor.

In this institution a planned effort has been made to provide rural districts with doctors, and to provide instruction which will keep these doctors acquainted with the latest developments in medicine and surgery. In spite of these efforts, 41.8 per cent of the graduates of this medical school are engaged in the practice of the specialties.

In some institutions the development of a resident staff has led to specialization and I believe that the graduates of those hospital medical schools which have a resident staff will specialize, for from the day that they enter on the intern service most of them are looking forward to a position on the resident staff. After spending six or seven years in the hospital in one service they become specialists, and those in such a service early in their career have determined to specialize. Such an organization is intended to give opportunities to those who desire to specialize, and I suppose that in some instances almost 50 per cent of a graduating class has some such opportunities afforded them.

As doctors tend to settle in the larger communities, and those who locate in the larger communities tend to specialize, many different suggestions have been made which might encourage the recent graduate to locate in smaller communities. Physicians will continue to locate where there is the best demand for their services, and in medicine the law of supply and demand is still operative but not conformed to, for in many centers, especially where there are medical schools, graduates will begin practice in an overcrowded field and spend many lean years during which they are financially pinched and perennially discouraged. If on graduation they had moved to a center less bountifully supplied professionally, they would have made a livelihood much earlier and I believe that they would have advanced

further in their professional career, at least, they would have moved faster. If the plan to buy up marginal lands succeeds and these are transformed into parks and forest preserves, many doctors will be transported back into fairer zones and more specialists will develop than do at present.

Those who have been raised in small towns, judging from figures that have been compiled, have no great desire to return to small towns or less populous districts on graduation. It has been determined as a result of careful surveys that but between 2 and 3 per cent of those who come from communities of 1,000 or less returned to practice in areas of like population. In cases of students from towns of 5,000 or less, only 9 per cent returned, and the remainder located in the larger centers. Better opportunities to practice medicine as they have been taught, a worthy ambition, and higher financial rewards attract graduates to larger centers of population and the conditions and beliefs in the larger centers make specialization highly attractive to these graduates and, to restore the old order, the returns and conditions of life must be made more attractive.

The restoration of the doctor should begin in the medical school. What is it that a doctor should know? He should know how to make a diagnosis; he should know the natural course of disease and how to observe it and he should know what therapeutic measures should be instituted to meet the indication and when they are to be employed. During the past few years, emphasis has been laid on the laboratories. This was necessary because such rapid strides had been made in biochemistry, biophysics, bacteriology and the histologic examination of tissue. The laboratories have been obtained and now I believe more stress should be laid on the clinic. More clinical material is required, for in modern medical teaching the technic of diagnostic procedures is no longer simply demonstrated, but they are learned by the students and practiced by the student until these procedures can be used independently.

In teaching hospitals an endowment should provide the required number of free beds and the patient should be the patient of the student, who under strict supervision can assume charge. This is not possible under any scheme in which the patient pays full or half rates. Some have recently discovered that the pay patient can be used for teaching purposes and have tried to resurrect for expediency or because of exigencies of the economic depression a principle which died in the early eighties of the last century. I hope that the use of pay patients alone for teaching purposes cannot be even temporarily resuscitated.

The medical training which many students now receive makes the doctor dependent on hospitals, laboratory technicians, nurses, consultants and specialists. These distinctly influence the attitude of students and have a deciding influence in the development of specialism. The importance of physical examinations cannot be overemphasized, for the student of medicine who observes well, percusses well, hears acutely and feels intelligently has advanced far in the way of diagnostic ability.

With a due apportioning of diligence, the essentials of anatomy, physiology and pathology can be mastered. During the brief years of pupilage the details of the various branches cannot be grasped so that all cases can be accurately diagnosed and successfully treated. A deep knowledge of pathology is the foundation stone of diagnostic ability. Hamman, in the International

Clinics which he edits, makes some very pertinent remarks about the value of pathology. He says

In diagnosis the concept of tissue change predominates and the observation of function is of little value if it is divorced from the alteration of structure. It does happen that from the practical standpoint diagnosis leans more heavily upon anatomic changes than upon change of function, and our studies of function serve chiefly to allow us to decide accurately the character and extent of the structural lesions. It has been said that it is more important to gage the functional capacity of the heart and its power to recuperate than to decide to a nicety the character of the anatomic lesion. But the functional capacity of the heart and its power to recuperate depend in large measure upon the character of the lesion. This being true, the best way to study diagnosis is carefully to observe patients, from the data collected to draw inferences about the pathologic changes that are present and then to witness the verification or correction of these inferences at autopsy.

Physicians connected with large hospitals where autopsies are frequently performed are daily instructed but the doctor rarely has the opportunity to see post-mortems on the patients he has attended. This is a serious handicap to continued education. This brings up a discussion of how the continued education of the doctor is to be obtained, for this is one of the principal factors in his restoration.

During the past year, as President of the American Medical Association, it has been my privilege to visit many state societies and other medical associations and I have been struck with the earnest desire of those practicing in areas with small population and in centers far removed from one another to have demonstrations and discussions of the new things in medicine. Some of these men practice on what, I suppose, today, might be called marginal lands. But the desire for knowledge is just as active as is that of those practicing on more fertile soil. Some have suggested that the American Medical Association organize or sponsor some scheme by which parts of the Scientific Assembly might be shown, or some one sent out by the home office to carry the latest message. These doctors would willingly bear the expense. The work involved would be great but I think that an organization could be perfected which would provide educational facilities after graduation and provide for the patients ministered to by these doctors an extremely high quality of medical care. The lack of autopsies which make possible the check on diagnosis and the correction of errors would be hard to supply, and such knowledge cannot be imparted except by the clinical history with the citation of the changes in the cases on which the history is founded.

Every effort should be made to bring these practitioners into contact with hospital facilities. Unfortunately at the present time many of these men from the day they begin practice are excluded from hospital services, and I am quite sure that many of us would lose ambition and incentive if we had little or no opportunity to have free association with those whom not infrequently, we admire and have confidence in.

In a previous paper I have stated that cooperation should replace unrestrained competition. A ward should be set aside in general hospitals for the doctor of whom I am speaking, to which he might send patients requiring hospitalization. Such a ward could be properly supervised through the staff. The doctor would retain his patient. Work in such a ward would give him an opportunity to continue graduate work.

There should also be an adjustment of fees and the doctor should set a higher value on his services than he

does, because the public will hardly set a higher value on one's service than the doctor does himself. A change in fee schedule or an educational program might have such an effect. It is a rare occasion when a doctor will consent to a joint, itemized bill, and the financial status will not be improved until some such arrangement is made.

There may be considerable and honest diversity of opinion about the best method of medical practice. I believe that sometime in the not too distant future there will be a reversion to the old relation between patient and doctor when the doctor will make the examination and then decide what ancillary examinations are required, rather than act as referee, having all the data placed before him to be joined together. When the old methods return there will be more doctors and fewer specialists.

The medical profession is largely to blame for the development of specialism and the eclipse of the doctor, for during the past few years the patient has been educated to believe that the specialist is the last word, and as a result patients consult specialists first rather than the doctor. The licensing of specialists or the recognition of certain qualities which specialists should have will limit considerably their number and increase the number of doctors.

Surgically there are operations with which the doctor should be familiar. I shall name a few—appendicitis, hernia, empyema—which are emergencies. The doctor should be able to treat fractures, reduce dislocations and suture tendons and nerves. He should also have a sound knowledge of infections and their treatment. This is a limited therapeutic field and should be mastered. He should know his limitations as well as his abilities.

Osler in 1892 made a statement that applies with equal force forty-two years later.

In these days of aggressive self assertion when the stress of competition is so keen and the desire to make the most of oneself so universal, it may seem a little old fashioned to preach the necessity of humility, but I insist, for its own sake and for the sake of what it brings, that due humility should take the place of honor in the list. For its own sake since with it comes not only a reverence for truth, but also a proper estimation of the difficulties encountered in our search for it. More perhaps than any other professional man the doctor has a curious, shall I say morbid? sensitiveness to (what he regards) personal error. In a way this is right but it is too often accompanied by a cocksureness of opinion which if encouraged, leads him to so lively a conceit that the mere suggestion of a mistake under any circumstances is regarded as a reflection on his honor, a reflection equally resented, whether of lay or of professional origin. Start out with the conviction that absolute truth is hard to reach in matters relating to our fellow creatures, healthy or diseased that slips in observation are inevitable even with the best trained faculties that errors in judgment must occur in the practice of an art which consists largely in balancing possibilities—start, I say, with this attitude of mind and mistakes will be acknowledged and regretted, but instead of a slow process of self deception with ever increasing inability to recognize truth, you will draw from your errors the very lessons which will enable you to avoid their repetition.

Pellagra—Vitamin B, like vitamin B₁, occurs in yeast and cereal germ but it is also found in abundance in liver, eggs, milk, meat and green vegetables contain fair quantities. There is a good deal of evidence that the disease pellagra is in some way concerned with a shortage of this vitamin in the diet, although other dietetic faults probably contribute to the production of the disease.—Colwell S. J. *Vitamins in Clinical Medicine Practitioner* 132:15 (Jan) 1934.

THE OUTPATIENT CLINIC

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The free outpatient clinic has become a recognized part of the modern social welfare program. Started originally as a philanthropic movement for the relief of the ambulatory indigent sick, it has developed into an integral part of the entire hospital plan and lost its identity as a separate charitable entity.

At present there are four main functions of these clinics:

First, they materially reduce the number of hospitalization days in that they permit the discharge of many convalescing patients who are able to return to the outpatient department for dressings or other follow-up treatment, where they can be taken care of at much less expense than by continued residence in the hospital.

Second, through their service many patients are found who need hospitalization and are admitted to the hospital. While most of these enter the free wards, some surprisingly discover unsuspected funds for private rooms or pay wards. But whether they contribute financially or not, the more successfully treated and contented patients the better the reputation of the hospital in the community and the more generously is it supported. Hence this may be called the promotion function of clinics, and it is no inconsiderable one.

Third, there is the teaching function. It is rather the custom to classify hospitals as teaching and non-teaching hospitals, restricting the former qualification to those institutions connected with colleges or universities, whereas, as a matter of fact, all hospitals have, or at least should have, a very considerable educational influence not only on the medical profession but also on the public at large. Cushing in his address at the Ether Day Commemoration in the Massachusetts General Hospital, referred to the fact that hospitals in time acquire a definite personality just as do individuals. When one considers some of the famous hospitals of the world, such as the Hotel Dieu in Paris, the Allgemeines Krankenhaus of Vienna, the old Charité of Berlin, St. Bartholomews of London and, to come to this country, the Massachusetts General of Boston, Bellevue of New York, Blockley of Philadelphia and the Johns Hopkins Hospital of Baltimore, these names do not bring to mind thoughts of the great amount of charitable work done or the mass of patients treated but rather the long record of discoveries made of epoch making contributions to medical science and the development of leaders and teachers who have made medicine what it is today.

Every hospital should have before it such an ideal personality, and the closer it approximates that ideal the greater will be its reputation and its claim on the public for support, for it is being recognized that such hospitals in a community make for better doctors, raise the level of medical practice and elevate the standards of health in general. In this endeavor the outpatient clinics play a very definite part. The opportunities for self improvement and the gaining of medical experience in diagnosis and treatment of the wide variety of conditions met in these clinics have long

been recognized and appreciated by the ambitious younger practitioners, and staff appointments are eagerly sought. In the strictly teaching hospitals the teaching function of the clinic is even more emphasized. The medical student here is brought in direct contact with patients, he learns history taking, physical examination and treatment. In a well patronized and well organized clinic he will see a cross section of the medical practice of the community, which should be an excellent training for future practice. If possible, the student should be given the opportunity to follow patients from the clinic through their hospital care and back to the clinic after-treatment and thus obtain a complete picture of the case. Such teaching is invaluable and plays a very important part in the clinical years of the medical curriculum.

The fourth function of the outpatient clinic is its part in the social welfare program of today. There is no question that the relief of the indigent sick through these clinics is a very important part of this welfare program and not only is justifiable but fills an absolute need. On the other hand, criticism has arisen that the increase in number and growth in size of clinics has been so great that private practice of physicians has been encroached on and the economic status of practitioners has been injured. Doubtless there have been abuses in the past and still are in the present, in spite of earnest efforts made to eliminate them. Many clinics nowadays have well organized social service departments to investigate all those applying for treatment. This is necessary in justice not only to the practitioners but also to the community to avoid pauperizing those not really indigent. In these times, when many find it difficult to support an automobile or meet the instalments on a radio, the expense of medical treatment seems to many an unjust hardship, and often brazen effrontery and ingenious subterfuges are employed.

Continued vigilance and thorough investigation must be exercised to avoid this criticism. The habit of seeking relief is quickly established and hard to break. This is a danger to the self reliance and independence of the community, and the free clinics should not contribute to such dangerous social deterioration.

Practitioners of medicine have not a vested right in patients, but they do have a definite and necessary place in the social and economic scheme of life and a moral right to expect returns for many years of preparation for practice. They expect the competition of other practitioners and this has a wholesome effect in keeping up or improving the quality of service, but the giving of medical service by free clinics to those able to pay is unfair competition and every effort should be made to avoid it.

In recent years there has been a new development—the pay clinic. This has been a much discussed subject, and arguments for and against it have been often heatedly offered. It must be stated that my knowledge of these organizations is purely academic, and my remarks are intended to bring out discussion of the various aspects of the subject rather than to offer definite conclusions.

As it appears to me there are three main arguments for such clinics: first, as an aid to practitioners, second, as a measure of economic relief to individuals in moderate circumstances who may be able to pay a flat moderate fee for a complete physical and clinical examination but would be unable to pay for the various examinations and laboratory tests made separately,

third, the demonstration of methods of differential diagnosis in more or less obscure cases

Of these, the first seems to me the most valid, and theoretically it has many arguments for its justification. Many a conscientious practitioner, finding himself baffled by the unusual aspects of an individual case, would welcome the assistance of such a clinic. Otherwise he finds himself balked by the inability of the patient to pay for the various diagnostic tests required, or, if they are undertaken, the finances of the patient are exhausted and there is nothing left for the practitioner who is to carry on the real burden of treatment. This arouses a certain resentment, a sense of injustice, which is disturbing to even the most judicious minds, and in the long run both the good name of the practice of medicine and, especially, the patients suffer materially.

Theoretically, therefore, such a clinic would have a strong claim for its justification if it accepted only patients of the economic status described, referred by practitioners for aid in diagnosis, and referred them back to the practitioners for treatment. If such a plan could be carried out with the close cooperation of practitioners and the clinic it would undoubtedly work out to the great advantage of the patients, raise the standards of practice and enhance the reputation of the medical profession in general.

Unfortunately, this ideal condition does not seem always to be present. There are charges of lack of cooperation on both sides: practitioners complain of patients lost to them after being sent to the clinic and the clinics that the suggested treatments are not followed—with probably some truth on both sides. Patients impressed with the quality of service received in a clinic may insist on seeking treatment with the complaint, perhaps true, often not true, that their physician has failed to follow the recommended therapeutic measures.

Again, they may bring friends or acquaintances directly to the clinic for diagnosis.

It calls for constant vigilance, tact and diplomacy on the part of the management of the clinics, with careful supervision of the personnel, to meet these embarrassing situations.

It is one thing if they are frankly commercial institutions, with everything grist that comes to their mill, because then they can be properly evaluated, and they stand or fall according to the quality of the service rendered and the complaisance of the medical profession. It is quite another if the clinics claim altruistic motives or seek a place in the teaching program. In these instances, all the force of professional traditions and ethics should be invoked to keep their activities within the strict line of their avowed purpose of improving the practice of medicine. Only as they do this will they be justified in the eyes of the profession.

Secondly, there is the matter of meeting the economic needs of patients in moderate circumstances. The question immediately arises: Is this necessarily a responsibility of the medical profession? It is rather trite to say that everything is relative, but has not the importance of the relative importance of health and medical treatment rather been lost sight of in all this discussion?

In days gone by the family budget usually provided that of every dollar a certain amount would be allotted for rent, taxes, food, light, heat, clothing and other definite necessities. Thrifty families would see that

there would be a part left, even if small, for savings or provision for "a rainy day." In this there was thought of the possibility of illness and provision was made for it. The obligations of medical treatment were part of the planning as a possible necessity to be taken care of from this optional part of the dollar. In the last ten or fifteen years there has been an unrivaled organized commercial drive on this portion of the family budget. Luxuries such as automobiles, radios and electrical domestic appliances have come to be looked on practically as necessities, and especially since they are so attractively (seemingly) offered on the instalment plan of purchase the habit of saving has become a vanishing virtue. The thought of paying for illness seems indeed a hardship if it entails the giving up of an automobile, a radio or an electrical refrigerator. Do not the continued harping on the high costs of medical care and the efforts made to reduce these costs by lowering the professional charges encourage this state of mind of the public? Is there not danger that this move will foster the idea that all medical charges are unjust and should be taken care of by the state?

It is true that the costs of medical care have increased very materially in the last generation through better means of diagnosis and treatment, substantially to the advantage of the public. It is my belief, and that of many others who have given this matter thought, that in the general desire for more exact diagnoses there has been a trend to overemphasize the modern and often expensive laboratory and technical tests at the expense of the older methods of physical diagnosis and simple clinical tests. This necessarily has contributed somewhat to the increased costs, which could be reduced, at least to some extent, if students were trained more thoroughly in inspection, palpation, percussion, auscultation and simple laboratory tests and to use judgment when appealing for further help when it is actually needed. I would not appear to disparage the modern laboratory or technical accessory methods, in very many cases they are extremely helpful, even essential to correct diagnosis and treatment, but in some at least I believe they have been utilized unnecessarily, to the financial disadvantage of the patient, by failure of the practitioner to exercise proper skill in simpler means.

There is another point to be considered in this question of meeting the economic needs of the patient in moderate circumstances, and that is, What is the definition of moderate circumstances? If it includes that large group today that finds it difficult or at least finds itself hampered to pay for regular medical charges because of the desire for the luxuries so enticingly offered, I do not feel that this argument for the establishment of such clinics can be justified to the medical profession. On the other hand, every practitioner comes in contact with patients who need, at times, expert laboratory or technical means of diagnosis for whom the regular charges would be a hardship, and therefore the answer to the foregoing question should best be left to the family physician, than whom no one is in a better position to judge of the financial status of his clientele. This again would tie up the operations of the pay clinic with the practitioner to the mutual enhancement of medical practice and the best interests of the patients needing the services of such clinics. The closer this cooperation and the more strictly this policy is adhered to, the wider the recognition that will

be given to such clinics and the more their existence will be justified to the public and the medical profession.

The offering of the service of such clinics unreservedly to people of so-called moderate circumstances, however, unvouched for by their attending physicians, without restrictions, does not appear to me to be economically or professionally justifiable.

TEACHING VALUE OF THE PAY CLINIC

The curriculum of a modern medical college has become a very complicated one, and every proposed addition must be carefully scrutinized and evaluated before it can be adopted. For the average student the present course is a burdensome one, and with the great increase of medical knowledge and the development of medical specialties the danger has been recognized that in the effort to cover all the field of medicine in four years students would dissipate their energies and could at best acquire a superficial knowledge. This objection is met, at least in part, by the generally adopted plan of thorough instruction in the basic sciences in the pre-clinical years, followed in the clinical years by the general instruction in diagnosis and treatment in all departments of medicine so as to equip the average student with as broad a foundation as possible for general practice or for any specialty he may subsequently elect.

No student on graduation is fitted to engage in surgery, ophthalmology, dermatology or, strictly, internal medicine, and the necessity is recognized that further postgraduate work and often long training is essential before so engaging. There is no question as to the teaching value of demonstrating the differential diagnosis in obscure cases. Does not this type of teaching, however, fall into the category of advanced work and so really belong to postgraduate instruction?

Also is there not danger of distorting the value in the mind of medical students, not thus far familiar with the general incidence of these types of cases, and of over stressing the laboratory and technical methods of diagnosis already under a certain amount of criticism? Is it not more in line with the plan in other departments of teaching to drill thoroughly in the general methods of diagnosis and treatment, illustrating as thoroughly as possible with typical cases, so as to meet as far as can be foreseen the needs of the young practitioner, and leave the more obscure and rarer cases to postgraduate instruction?

These are questions which demand careful consideration when one seeks to evaluate the teaching value of the pay clinic, especially in connection with medical colleges, but to my mind such clinic teaching appears to be in the same category as advanced teaching in the specialties and thus belongs to postgraduate instruction rather than in the regular college curriculum.

SUMMARY

The operation of pay clinics is beset with so many difficulties and the criticisms that have arisen are so numerous that it must be said that many in the medical profession are very dubious as to their place in medical practice. Their many possibilities for good can be recognized, and their existence justified to the medical profession, according to the degree in which they cooperate with practitioners in improving medical practice and refrain from unfair competition.

Their teaching place would appear to be that of advanced medical instruction.

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THE IMPORTANCE OF INTRODUCING PSYCHIATRY INTO THE GEN- ERAL INTERNSHIP

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The final report of the commission on medical education¹ emphasizes the general need for revision of medical training by (1) bringing clinical methods into closer relation with preliminary sciences and with anatomy and physiology, (2) permeating all teaching with the idea of prevention and demonstration of its methods, (3) emphasis on the importance of the psychologic aspect of medicine and the treatment of the person rather than the disease, and (4) recognition of the concept of medicine as a social agency. Each of these recommendations will be furthered if the principles of psychiatry can be applied more generally through the medical course and in intern training.

I shall discuss the importance of psychiatry as a part of the intern's training from the following points of view: (1) the present status of psychiatry in medical school teaching and the attitude of the student toward it, (2) the part psychiatry plays in the present training of interns, (3) the methods of insuring a more adequate psychiatric training for the future intern, and (4) general recommendations and summary.

THE PRESENT STATUS OF PSYCHIATRY IN MEDICAL SCHOOL TEACHING AND THE ATTITUDE OF THE STUDENT TOWARD IT

Recent studies conducted by the National Committee for Mental Hygiene² indicate considerable inadequacy in the teaching of psychiatry, although much good work is being accomplished and many changes are now being made to meet better the requirements of this phase of medical education. For instance, it was found that the teaching of psychiatry was considered to be reasonably complete in thirteen grade A schools, while 42 per cent of the total group visited have not yet created clinical psychiatric facilities to be used in the general teaching schedule. Furthermore, there appears to be a lack of psychiatric teaching personnel in approximately 85 per cent of the schools visited. Many gaps and deficiencies were found in the present psychiatric curriculum, especially in the important preclinical years. This lack was further accentuated in terms of a general neglect of the social sciences during the college course. It can readily be seen, therefore, in a discussion of psychiatry as a part of the general internship, that a great deal must be done to improve undergraduate psychiatric teaching. Since the completion of this appraisal by the National Committee for Mental Hygiene, there has been encouraging evidence that approximately half of the medical schools are in the process of developing more adequate teaching facilities for psychiatry.

In many schools psychiatry is being accepted as a major division of the medical curriculum. The attitude of the deans of each medical school in relation to the studies mentioned was considered most favorable.

From Division of Psychiatric Education, National Committee for Mental Hygiene.

Read before the Annual Congress on Medical Education, Licensure and Hospitals, Chicago, Feb. 13, 1934.

¹ Final Report of the Commission on Medical Education, 1932.
² Noble, R. A. Psychiatry in Medical Education. National Committee for Mental Hygiene, 1932. Ebaugh, F. G. Psychiatric Education in America: a confidential report to the National Committee for Mental Hygiene, 1932. The Crisis in Psychiatric Education, J. A. M. A. 99:703-707 (Aug. 27) 1932. Present Status of the Teaching of Psychiatry, J. A. M. A. 81:214 (July) 1933.

for the future development of psychiatry. Their main criticisms concerned the past isolation of psychiatry. The main causes of this isolation of psychiatry I consider to be in relation to its general neglect in medical thinking and practice. In fact, many physicians and clinicians uninitiated to psychiatric points of view may actually be defensive toward psychiatry and impart this attitude to their students. The breakdown of overspecialization and overdepartmentalization and the presentation of psychiatry as a part of all fundamental medical training, with the development of liaison and correlation activities with other departments are now playing important roles in improving this situation. Psychiatry has been isolated also in terms of the institutional aspects of psychiatric work and the unfortunate tendency in some schools is to present the subject in terms of asylum diseases and end products. Such a presentation could not be inductive to the development of interest on the part of the student. This will be corrected by the development of well equipped psychiatric departments in general hospitals bringing psychiatry under the same roof with general medicine and by greater utilization in undergraduate and graduate teaching schedules of the existing psychopathic hospitals. Other attitudes toward psychiatry are emotionally determined, that is, the mistaken views that psychiatric terminology is considered too difficult or unintelligible and that psychiatry deals excessively with sex problems. Furthermore, the situation is distorted by the impression that psychiatrists in general neglect physical studies and that this field has attracted unstable individuals.

One cannot deny that the term "health" embraces a much broader concept and meaning than it ever has before. It was formerly felt that everything up to the eyebrows belonged to the consideration of the physician, while all above them was relegated to the cleric and philosopher. There has been a progressive tendency to get away from a mind and body entity and to accept the individual as a whole, a complex but unified singleness functioning as a "person," subjected to situations that produce disease demonstrable as such and expressing themselves in disturbance of organ behavior or to still other situations producing maladjustments resulting in behavior disorders of the entire organism, not merely a particular part of it. No physician need go far with his imagination to appreciate the clear-cut effect of so-called mental phenomena on the physical being. If he does, let him ask himself why he keeps from the patient injured in an automobile accident the fact that his partner was killed outright, or again, why does he insist on the most cheerful atmosphere for his convalescent's recuperation?

The etiology of the more common medical conditions—arteriosclerosis, angina pectoris, exophthalmic goiter, chorea, urticaria, hay fever and the like—present as etiologic possibilities "psychogenic factors." To the intern without psychiatric attitude and appreciation how is the term "psychogenic" going to be any more than an eleven letter word meaning "to have its origin in the mind?" He becomes cognizant after not too many weeks in a medical service that he is unable to find "pathology" to account for all symptoms and complaints presented. The pictures are not by any means "textbook," and chest thumping fails to reveal the mysteries surrounding the strange case. What then? Unless he is willing to consider the individual in his entirety, to evaluate his life situations and emotional responses in exhaustive investigative pursuit he is of

little service to his patient and may become defensive regarding his lack of psychiatric knowledge and scoff and belittle this field. Later his patients may leave him and go in desperation to the quack.

There have been and are, to be sure, psychiatric services in rotating internships. It is the unproductiveness of these services that has kept many present-day hospitals from offering contact with problems of mental health. Heretofore they consisted of dark, gloomy, barred corridors apart from the general wards where patients, attired in peculiar garb, sat lined against the wall for ten hours each day. Even today restraint is used in some of these wards. The intern comes, asks about voices, makes tests for "waxy flexibility," does a tube feeding and, with a feeling that he shares in a strange mysticism, flourishes the diagnosis "dementia praecox" across the record. I am not advising such intern training.

One chap who was entering a psychiatric service was asked by an associate what he was going to do with his "Osler" now that he was leaving medicine. This not uncommon attitude permeates the thinking of those not acquainted with modern psychologic medicine. The man coming into a psychiatric service must bring with him every bit of medical knowledge. His domain of concern becomes much broader and less mechanistic. He brings order and reason into his methods of approaching clinical problems rather than the too great dependability on instruments of precision. The following are some verbatim statements made by interns in a general hospital that has no psychiatric service included in the rotating internship. These statements were made to the consulting psychiatrist.³

I've got a patient who is running a high BMR and I just can't seem to get it down. She's on large doses of Lugol's solution and luminal, but every time the surgeon comes around he scares her by his gruff manner and the basal goes up so that we can't operate and then we have to start all over again. I wish he would stay away until we are ready to operate. Perhaps there is something emotional wrong that we could correct, but I don't know how to start.

I have a case that came in with a pain in his stomach that was sent in as an ulcer. When he started talking about wanting to buy ten farms and started fighting with the patient in the next bed, I knew there was something wrong, but didn't know where to begin. After consultation we knew that he had general paresis. In my school we didn't learn much about mental examination and of course we have none here.

I have got a case up on pediatrics. The kid cries all day and he has fainting spells. I am at a loss to know what to do. His father is a mean old cuss and his mother coddles him like an infant, but I can't find anything wrong with him.

We are all ready to operate on that girl for adhesions around the appendix but the chief surgeon can't make up his mind. She had an appendectomy two months ago but it didn't do her any good. She's a typical case in some ways but then there's so many other complaints—headache, dizziness, numbness of the fingers—and she seems pretty scared about it all. Maybe her personality has something to do with it.

How do you get these patients to talk to you? I have noticed the effect of the unburdening of their troubles but I just can't seem to get next to them. Maybe it's because I don't know where to start. Perhaps it's because I've had little or no psychiatry in school. Have you any books I can read on psychiatry? I know that I am going to get some of these patients when I finish my internship and I would like to know what to do. Of course, you can always give them luminal but that isn't always a panacea.

One might go on almost ad infinitum with arguments for a psychiatric service in the rotating internship, but

3 I am indebted for this material to Drs. Clarke H. Barnacle and Chester L. Reynolds of the Colorado Psychopathic Hospital staff.

I would stop with saying that it would broaden the intern's concept of "pathology", impress him with the tremendous complexity and interrelation of mental and nonmental factors of the human organism, revise his attitude toward mental disease as treatable processes offering hopeful prognosis, organize his own thinking to more orderliness, give him understanding to the great number of patients who will come to him for whom psychiatric intelligence is indicated, and finally but by no means least, enrich his own appreciation and joy of life

My previous experience, especially at the Philadelphia General Hospital, indicates that intern participation in psychiatry for a two months period is most practical and useful in the training schedule and is well appreciated by all groups and a recent communication from Dr. Turnbull, superintendent of the Philadelphia General Hospital, indicates that this point of view has continued during the past decade

THE PART PSYCHIATRY PLAYS IN THE PRESENT TRAINING OF INTERNS

At the present time there are, according to the Council on Medical Education and Hospitals of the American Medical Association, 7,357 interns serving in registered hospitals.⁴ Of these, 6,204 interns are serving in hospitals approved for internship by the American Medical Association. In a list of 689 hospitals approved by the American Medical Association there are eighty-five reporting departments for mental disease and sixteen hospitals definitely affiliated for psychopathic service, with an internship of 1,601, or 20.6 per cent of the total number receiving psychiatric service in approved hospitals

In the studies I conducted for the National Committee for Mental Hygiene there were fourteen psychopathic hospitals for institutes utilized by eighteen schools for teaching. Opportunity for intern training, however, was not given by all these hospitals although the teaching schedules in most centers arranged for valuable preparatory training in psychiatry. In addition, there were psychopathic wards in twenty-five hospitals which were utilized by twenty-six schools for instruction. Intern training was given in only thirteen of these hospitals

In addition, intern participation in psychiatry is made possible in many state hospitals. In many instances the opportunity for equivalent training is afforded during the senior year or through clerkships in the vacation months. This may be illustrated in the excellent schedules provided by Boston University, Tufts College, the University of Vermont and the University of Kansas. The students interviewed from these schools on the whole indicated a reasonable inoculation with the psychiatric point of view with basic knowledge pertaining to psychiatry as a phase of all medicine. One can anticipate in the future greater utilization of the state hospitals for intern training, preferably given following a general rotating internship, as is now utilized in the New York state hospital system. The development of well organized reception services in state hospitals such as is illustrated at the Boston State Hospital and St. Elizabeth's Hospital, where an excellently equipped medical and surgical unit is available, indicates possible expansions in the psychiatric training schedule with affiliation with the nearby general hospitals. I should not say, with the rapid changes now taking place in

developing psychiatric facilities, that there will be a dearth of places for recent graduates to go for psychiatric training

It is not my purpose here to discuss psychiatry as a specialty. That is a matter of postgraduate education and is being provided for through resident training and fellowship training. Here again is seen the great stimulus offered by the Council on Medical Education and Hospitals of the American Medical Association. The recent organization of the American Board of Psychiatry and Neurology indicates that rapid changes and improvement in personnel and teaching may be expected in the near future, which may be reflected in further intern participation in psychiatry

METHODS OF INSURING A MORE ADEQUATE PSYCHIATRIC TRAINING FOR THE FUTURE INTERN

In the studies that have been made to date there appears to be a reasonably unanimous opinion that psychiatry should take a fundamental place in the intern's training. There are numerous organization difficulties and undoubtedly many local situations at the present time which make it impossible to allot time to psychiatry in the period of twelve months' training. To the interns themselves this appears to be only too brief for covering medicine and surgery and their component problems. Psychiatry, however, can be introduced in many hospitals through an active consultation service in which the intern will have an opportunity for individual or group discussions concerning ward and outpatient clinic cases. The present development of liaison work with the departments of medicine, as noted in the following schools makes this a possibility: the University of Nebraska, Harvard University, Stanford University, Cornell University, Columbia University, Yale University, McGill University and the University of Colorado. The work of Dr. Noble at Yale is especially noteworthy in this connection, where liaison work with psychiatry is now active to the extent that ward rounds are made by the psychiatrist in the medical, surgical and pediatric departments. This work has been well received by the interns and residents at the New Haven Hospital and it is reported that it is now accepted as a fundamental part of their teaching schedule. Liaison work in connection with the department of pediatrics has developed in the University of Rochester, the University of Pittsburgh, the University of Buffalo, the Johns Hopkins University, the University of Cincinnati, the University of Nebraska, Cornell University, Columbia University, McGill University, Yale University and St. Louis University. The most outstanding example in this country is that at the Johns Hopkins University, where Dr. Leo Kanner, trained under Adolf Meyer, assumed the responsibility for a psychopediatric clinic at the Harriet Lane Home and conducts seminars and conferences with the interns on the straight service there. Active psychiatric consultation service in the general hospital has already proved an important method of introducing psychiatry into the intern schedule. Furthermore, general hospitals without psychiatric ward facilities can do much to further the training of interns through including child psychiatry in the outpatient clinics

Another possible method of introducing psychiatry is to increase the period of intern training from twelve months to eighteen or twenty-four months, allotting from two to four months to psychiatry. This should prove satisfactory and enable adequate representation

⁴ Medical Education in the United States and Canada. J. A. M. A. 101: 677 (Aug. 26) 1933

of this basic field I would strongly recommend that there should be greater utilization of the existing psychopathic hospitals for intern training. At the present time it is the exception for these hospitals to be used in the general intern training, although several offer excellent straight internships or house officerships, such as is shown at Phipps Psychiatric Clinic. It is possible, however, to utilize these institutions more for the general intern or at least for clinical clerkships during the senior year, which frequently may meet the need satisfactorily. Rappleye has offered another suggestion in his discussion of the large amount of time spent in surgical training, especially in the operating room, during the rotating internship. He feels that this time could be decreased, since surgical training and operating technic can be given in the training years required for this specialty. I would recommend that some of this time be given to psychiatry. If facilities are not available, the outpatient service and medical wards abound with opportunities for encountering various types of mental disorder. This work, of course, should be given by trained psychiatrists.

Adolf Meyer⁵ has recently given an excellent exposition of the apprenticeship method of graduate training in psychiatry. This should be established early during the internship. Rappleye wisely speaks of standards and not standardization in discussing the educational program of the internship. Since the internship is one of the most important parts of the basic preparation for the practice of medicine, it should reflect the changes that are now occurring in psychiatry as a phase of medical education. From this point of view, the content of the intern training in psychiatry over a minimum period of at least two months, preferably four, should cover the following, with the main objective of enabling the physician to recognize the rank and file of psychiatric problems that he will encounter in both later general and special practice. Every physician should know how to conduct a systematic mental examination for the detection of emotional disorders, mild delusional trends, neurotic developments and the like. This may be considered just as important for them as the ability to do a complete physical examination.

The psychobiologic point of view advocated by Adolf Meyer should be utilized. The following is considered a definition of psychobiology. Psychobiology is that science which deals with the individual as a whole, as a complex but unified entity functioning not as mind and body but as a unit expressing mental and non-mental behavior, these components are so interrelated and interdependent that they cannot be separated one from the other. As a "science" one presupposes that psychobiology shall submit itself to those laws of science set out in Koch's postulates and that as such the behavior of this organism may be scrutinized and best studied as any experiment, an "experiment of nature," for the conditions under which the behavior develops, its mode of working, and its course and modifiability. It is the level of psychobiologic functioning that one implies when speaking of mind, consciousness, thinking, or behavior with mentation.

In terms of the average rank and file of psychiatric patients encountered by the physician, the experience and clinical contacts of the intern should center around the following:

1 The minor psychoses, or the psychoneuroses. These include, in accordance with previous studies

made, between one third and one half of the problems of general medicine in which detailed, exhaustive studies from the point of view of the organic manifestations are not fruitful. A convenient classification of the psychoneuroses is that given by Culpin.

(a) The anxiety states which are considered to be the most frequently encountered are those in which the symptoms are grouped around a central core of anxiety and anxious expectation. The main symptoms are expressed in the anxiety attack and panic with fear of death, fear of insanity, fear of stroke with accompanying disturbance of one or many bodily functions—heart action, respiration, vasomotor innervation and the like. These patients may commonly complain of difficulty in breathing, precordial pains, drenching sweats, and gastro-intestinal upsets, and it is important to differentiate these anxiety attacks from organic conditions. The relationship of the genesis of the anxiety states with actual life experiences of the patient, frustrations in connection with many of the major life problems centering around parent-child relationships, school relationships, vocational, marital and sex maladjustments, religion and recreational adjustments is the most important and practical aspect. Furthermore, it does not help to remove the thyroid gland for such a patient, or to carry out a series of operations, which are found to be so frequent in all medical and surgical services. The diagnoses of part illnesses, such as gastric neuroses, cardiac neuroses and neurocirculatory asthenia, have little use in covering up the lack of understanding of the origin and treatment of these problems.

(b) The second group of the psychoneuroses comprises the substitutive disorders in which there are hysterical symptoms, usually expressed as motor phenomena, sensory phenomena or mental phenomena, such as shown in hysterical amnesic states and convulsive states. Dr. Barnacle, working in the Colorado General Hospital outpatient clinic, found that the psychoneuroses were by far the most frequent problems referred for him to study. He found that there was considerable interest and desire on the part of the younger staff members to treat these patients from every point of view.

(c) The obsessive states make up the third group. 2 The major psychoses. Among the problems of the major psychoses, the content of psychiatric training should provide experience regarding

(a) The organic reactions in which one can especially see the importance of the recognition of early signs of dementia paralytica—irritability, bradyphrenia, shown in changes in character and disposition of the patient, loss of weight, sleep disturbance—which may antedate the more profound classic signs of this disorder commonly present in the end stages. The clinical problems of malaria therapy of these patients and the essential follow-up procedures provide the intern with methods and social points of view that he can utilize generally.

(b) In a consideration of the disorders of the physiologic support for the brain through toxic disturbances, trauma, metabolic disturbances and the like, there is an irreducible minimum of knowledge that every medical man should have.

(c) The manic depressive psychoses are of very practical clinical importance in terms of early recognition as well as in relation to the problem of suicide,

⁵ Meyer, Adolf. Preparation for Psychiatry. Arch. Neurol. & Psychiat. 30: 1111 (Nov.) 1933.

which after all constitutes one of the most important social medical problems of today. The biologic equivalents of depression shown in fatigue, a sense of heightened effort, general retardation of energy output, loss of weight, sleep disturbance, and constipation should be promptly noted by every medical man as well as the existing type of mood disturbance. Furthermore, every medical man should realize the value of early therapy in the depressive group. Many problems are associated with states of elation and excitement, which will depend on early recognition to safeguard the patient properly from all points of view—social, medical and legal.

(d) There should be a reasonable understanding of the more sweeping personality distortions shown in the schizophrenic disorders, in which the patient shows projections of topics of personal sensitivity or dominant subjects to the environment and develops ideas of reference, delusions and hallucinations. It is in this group that are found more highly personal reference and significance in terms of the life experience of the patient.

(e) The paranoid group of psychoses present a great medical responsibility, especially in relation to early hospitalization.

(f) Likewise, the problem of mental deficiency and the constitutional deficit states should be recognized by the general practitioner.

The importance of the physician's attitude in approaching the patient, the development of rapport, reeducation procedures, and desensitization of the patient with the purpose of developing insight and understanding regarding the origin and nature of his symptoms, both physical and mental, cannot be over-emphasized in the intern's training. Opportunity for such training should be offered in a general internship. Medical education is a continuous process and the physician's experience in psychotherapy is increased from year to year in terms of his clinical contacts.

GENERAL RECOMMENDATIONS AND SUMMARY

1 Psychiatry should be represented in the general internship as part of the basic preparation for the practice of medicine.

2 Such participation of psychiatry in straight, rotating and mixed internships is now possible in most hospitals through

(a) Combined clerkships and internships and service in state hospitals during the summer months

(b) Active psychiatric consultation service in both ward and outpatient departments

(c) Liaison work between the various departments, especially with medicine and pediatrics

(d) The allotment of definite time for psychiatry, preferably from two to four months in rotating schedules

There should be greater utilization of the well equipped psychopathic and state hospitals, whereby affiliated schedules can be developed for intern training.

3 At the present time less than one fourth of the 7357 interns now in training have the benefit of psychiatric training. In general, these psychiatric services are well appreciated by the intern and accepted by the staff and administrators of these hospitals as an essential part of the basic training.

4 Psychiatric training in the future should be considered as a requirement for licensure. This will be a great educational step forward in protecting the public from the quack and further emphasizing the importance

of the psychologic aspect of all medicine as well as furthering greater cohesion and correlation between the various fields of medicine.

5 Introducing psychiatry through the general internship will be a great impetus to the changes now taking place in undergraduate and graduate psychiatric teaching schedules. It should play a role in breaking down the tendency for immature specialization in various fields and in the acceptance of psychiatry as a fundamental phase of all medicine.

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DYSMENORRHEA RELIEVED BY RESECTION OF PRESACRAL SYMPATHETIC NERVES

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Our satisfactory results in the treatment of peripheral vascular disease by sympathetic ganglionectomy and trunk resection have encouraged us to carry out investigations of diseases resulting from dysfunction of the sympathetic nervous system. The present report is a review of six cases of dysmenorrhea relieved by section of the presacral nerve, the operation described by Cotte in 1924.

HISTORICAL DATA

Jaboulay¹ is credited with making the first attempt to relieve pelvic pain by interrupting the afferent pathways in the sacral sympathetic chain. Ruggi² contributed to this investigation by performing abdominal sympathectomy for functional disturbances of the female genital organs, and he advised resection of the utero-ovarian plexus by the transperitoneal route. The results of Jaboulay's and Ruggi's operations were only partially successful, some patients were relieved, some were partially relieved, and others had recurrence of pain. Leriche³ introduced periarterial sympathectomy of the internal iliac artery as a means of relieving pain in cases of functional dysmenorrhea. This procedure was adopted and used by Cotte,⁴ Hallopeau⁵ and Michon.⁶ Cotte (1925) introduced the operation of resection of the superior hypogastric plexus (presacral nerve of Latarjet,⁷ or the prelumbar nerve of Elaut⁸), for functional dysmenorrhea, and reported excellent results. Since Cotte's operation is the more easily performed, it has been substituted for periarterial sympathectomy of the internal iliac artery. The same surgical

From the Section on Neurologic Surgery and the Division of Surgery, the Mayo Clinic.

1 Jaboulay. Le traitement de la névralgie pelvienne par la paralysie du sympathique sacré. *Lyon med* 90: 102-104 (Jan.) 1899.

2 Ruggi Giuseppe. La simpatectomia addominale utero-ovarica come mezzo di cura di alcune lesioni interne negli organi genitali della donna. *Bologna N. Zanichelli*, 1899.

3 Leriche R. Résultats de la sympathectomie faite sur les artères hypogastriques et ovariennes en gynécologie. *Presse med* 33: 465 (April 11) 1925.

4 Cotte Gaston. La sympathectomie hypogastrique a-t-elle sa place dans la thérapeutique gynécologique? *Presse med* 33: 98-99 (Jan. 24) 1925. Sur le traitement des dysménorrhées rebelles par la sympathectomie hypogastrique periarterielle ou la section du nerf presacré. *Lyon med* 135: 153-159 (Feb.) 1925.

5 Hallopeau P. Guérison d'une névralgie génitale a forme grave par la résection du plexus hypogastrique. *Bull. et mem. Soc. de chir. de Paris* 48: 1143-1147 (Nov. 8) 1922.

6 Michon Louis. Dix observations d'opération sur le sympathique pelvien chez la femme. *Lyon chir* 23: 459-469 1926.

7 Latarjet A. and Bonnet Paul. Le plexus hypogastrique chez l'homme. *Lyon chir* 9: 619-644 (June) 1913.

8 Elaut L. The Surgical Anatomy of the So Called Presacral Nerve. *Surg. Gynec. & Obst.* 55: 581-589 (Nov.) 1912.

procedure of presacral resection of nerves has been employed by Learmonth⁹ and others, in the treatment of cord bladder and painful bladder, and in Hirschsprung's disease, since the superior hypogastric plexus (the presacral nerve of Latarjet) contains nerve fibers conducting vasomotor responses to the vessels of the bladder, sigmoid and rectum, contracting impulses to the internal sphincter of the bladder and rectum, inhib-

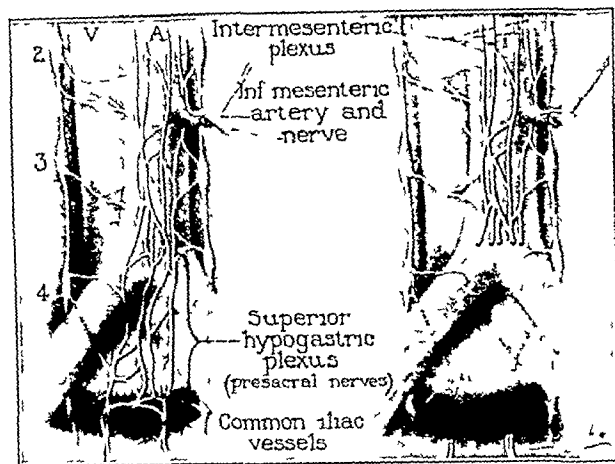


Fig 1—Left elevation of presacral nerves as they cross the bifurcation of the abdominal aorta. Right method of resection of presacral nerves.

ing impulses to musculature of the bladder and rectum, and contracting impulses to the urogenital trigon and afferent pain fibers.

Anatomy—Elaut stated, after a review of fifty cases, and of the anatomic works of Hovelacque,¹⁰ Latarjet Bonnet and others, that the presacral nerve has its origin in the aortic plexuses situated between the superior and inferior mesenteric arteries. The two nerves are arranged in parallel bundles associated with an oblique anastomosis running across the aorta to rejoin its partner on the opposite side (fig 1). The bundles sometimes run together on the anterior wall of the aorta for a distance of 1 cm, where they disunite into separate groups. To the intermesenteric nerves of Petit-Dutailis and Flandrin,¹¹ postganglionic lumbar sympathetic fibers are added, so that at the level of the inferior mesenteric artery the intermesenteric nerves divide into two distinct bundles: (1) the inferior mesenteric plexus running along the artery itself, and (2) the bundle continuing straight down on the anterior wall of the lower part of the aorta and below. This is the so-called plexus hypogastricus superior of Hovelacque and consists of two main bundles. In both bundles, several fine branches may be detected and separated from their neighbors. The two main bundles are parallel at a distance of about 1 cm from each other but have a definite tendency to join so as to make a distinct branch. Elaut stated that an incongruence arises in the description of Latarjet and Bonnet, since these authors make a distinction between the two sympathetic chains, the lateral vertebral chain and the prevertebral chain. Although the aorta divides into the common iliac arteries, the prevertebral chain does not divide in like manner. Most of the nerve elements assemble to form

a flattened and irregular cord composed of compact fasciculi united by short anastomosis and dense connective tissue. This particular nerve has been called the "nervous uterus magnus" by Tiedemann.¹² However, since this nerve bundle contains fibers to organs other than that of the uterus, it is usually called the presacral nerve. It enters the pelvis over the bifurcation of the aorta, crosses the left iliac vein, rises over the prominence of the promontory and is stretched on the anterior surface of the sacrum. For a distance of from 4 to 6 cm after it reaches the pelvis, the presacral nerve separates to form the two hypogastric nerves. Elaut stated, following his anatomic investigation, that the use of the term "nerve" in describing a plexus of the presacral nerve is inappropriate, since there are so many variations and the arrangements of the fibers in the nerve really form a plexus and therefore should be called the superior hypogastric plexus of Hovelacque. He further stated that the triangular mass of nerves situated between the common iliac arteries on the promontory receives a series of secondary connections from the inferior mesenteric plexus which lies within the pelvic mesocolon, which in turn lies at its left, and from the last ganglion of the lumbar chain. The presacral nerve (superior hypogastric plexus) in reality forms a trigon, which is situated between the common iliac arteries posterior to the peritoneum and on the anterior surface of the sacrum. It is readily exposed by incising the peritoneum in the median line from the bifurcation of the aorta downward for a distance of 8 cm (fig 2).

A few nerve filaments from the superior hypogastric plexuses course along the common iliac artery. The inferior hypogastric nerves that are a continuation of the principal bundles of fibers from the superior hypogastric plexus course obliquely from above downward in the lateral rectal space. They then follow the internal

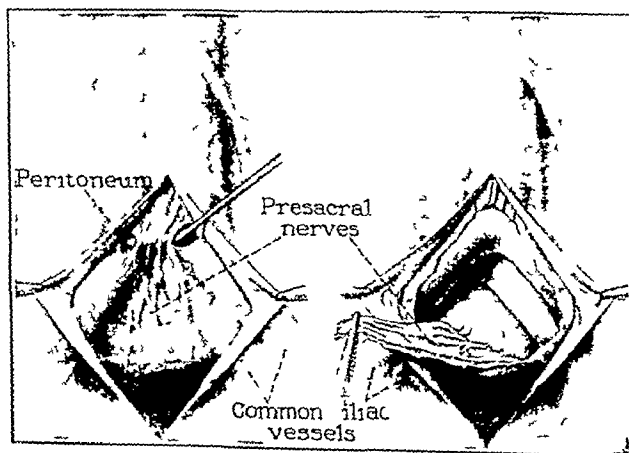


Fig 2—Left diagram of superior hypogastric plexus (presacral nerve) illustrating its position and relationships of the nerves. Right the portion resected.

iliac artery and give off branches with accompanying branches of these arteries, while a group of fibers from the inferior hypogastric nerve terminates in the musculature of the urogenital trigon, bladder and rectum. However, before doing so they pass through a ganglionic mass known as the hypogastric ganglion, which is situated in the superior pelvic space between the peritoneum and the fascia covering the levator ani muscles.

⁹ Learmonth J R. Neurosurgery in Diseases of the Urinary Bladder. *Am J Surg* 10: 270-274 (May) 1932.

¹⁰ Hovelacque A. Anatomie des nerfs crâniens et rachidiens et du système grand sympathique chez l'homme. Paris G. Doin 1926.

¹¹ Petit-Dutailis and Flandrin. Anatomie chirurgicale des nerfs du rein. *Bull et mem Soc. anat de Paris* 93: 635-647 (Oct-Nov) 1923.

¹² Tiedemann Fridericus. *Tabulae nervorum uteri*. Heidelberg A. Oswald 1822.

A secondary plexus forms on the anterior surface of the rectum, just posterior to the uterus and vagina and becomes intimately connected to the uterosacral ligaments

Uterus—Fontaine and Herrmann,¹³ in a review of the sympathetic innervation of the uterus, tubes and ovary, made the following statement: "The nerve fibers in the wall of the uterus are derived from the great plexus of Frankenhauser,¹⁴ which is situated on each side of the body of the uterus and the broad ligament. These plexuses are made up of fibers from both the hypogastric and sacral plexuses. The nerve fibers in the wall of the uterus are distributed mainly in the uterine musculature. Certain of the older investigators maintain that nerve fibers also terminate in relation to the uterine mucosa, but according to Kuntz¹⁵ most data now available do not support this view. It is Kuntz's belief that in all probability true ganglion cells have been observed in the wall of the uterus, which probably have become displaced from the ganglions in the uterovaginal plexus during the course of development."

Fallopian Tube—The fallopian tube is supplied by unmyelinated and myelinated fibers derived from the ovarian plexus. Kuntz stated that the bundles of nerve fibers penetrate the wall of the tube and give rise to branches, which are distributed to all layers except possibly the epithelium of the uterus.

Ovary—The ovary derives its nerve supply mainly from the ovarian plexus, which arises from intermesenteric and renal plexuses and follows the ovarian artery throughout its entire course. Hovelacque stated that three fibers arise from the middle of the renal plexus to join the ovarian plexus. The ovarian plexus enters the suspensory ligament of the ovary and divides into an external tubular branch, which supplies the fallopian tube and one or several internal branches that go to the hilus of the ovary. Five or six terminal filaments of the external tubular branch course through the broad ligament and reach the lateral border of the uterus.

Parasympathetic Nerves—Parasympathetic fibers arise from the visceral branches of the second, third and fourth sacral nerves. These fibers with cortical spinal nerves transmit to and receive impulses from the pelvic organs. They are intimately associated with the sympathetic fibers and take part in the plexiform arrangement about these organs.

Sympathetic Afferent Nerves—It has been generally assumed that all postganglionic sympathetic neurons are efferent fibers, but in the light of clinical results in the treatment of peripheral vascular and painful lesions of the extremities by sympathectomy, and the results obtained in the treatment of functional dysmenorrhea by resection of the presacral nerves, it might be assumed that afferent pain fibers are intermingled with the postganglionic fibers and reach the dorsal ganglion of the spinal roots by an antidromic course through the white ram communicantes.

The Physiologic Function of Pelvic Nerves—Fontaine and Herrmann stated that the hypogastric plexus exerts a vasoconstrictor action on the vessels of the

internal genital organs, whereas the parasympathetic nerves exert a vasodilatory effect. The sympathetic nerves inhibit the secretion of the genital glands and the parasympathetic nerves stimulate the glands to secretion. The exact control of the motility of the uterus is still unknown. Langley and Anderson¹⁶ demonstrated that the center of the rabbit's uterine contractions is situated between the tenth dorsal and the second lumbar segment of the spinal cord. Dahl considers the sympathetic fibers as the exciters, and the parasympathetic fibers the inhibitors of uterine contractions.

The Pelvic Sympathetic Nerves in Relation to Menstruation—Resection of the superior hypogastric plexus does not alter the normal menstrual cycle. Fontaine and Herrmann noted that an atypical or supplementary menstrual period will occur on about the second postoperative day if the last regular menstrual period ended four or five days prior to the resection of the superior hypogastric plexus. They said: "We are inclined to believe that this is the result of an intense uterine congestion which follows the pelvic sympathectomy, and so it should not be considered as a true menstrual period. The subsequent menstrual period appears about twenty-eight days after the preoperative period and not in relation to the supplementary postoperative hemorrhagic discharge from the uterus." They further stated that there are many cases on record in which normal parturition took place when patients had previously been subjected to resection of the superior hypogastric plexus for the relief of some painful condition in the pelvis. Resection of the extrinsic genital nerves does not alter the normal menstrual cycle, does not interfere with spontaneous parturition and does not produce glandular atrophy, chronic pelvic congestion or any disturbances of motor function of the bladder or rectum. This should be clinical evidence that these genital nerves of the sympathetic nervous system are sensory rather than motor.

Fontaine and Herrmann and Leriche stated their belief that the hypogastric plexuses carry the important pathways of sensation from the internal genital organs to the medullary center, and that resection of the superior hypogastric plexus above the hypogastric ganglion is a safe, simple and effective way of interrupting these pathways in the treatment of functional dysmenorrhea, as well as a method of treating other forms of severe pelvic pain. We agree that presacral fibers undoubtedly carry afferent sensations of pain, but it is our opinion that the relief of pain in functional dysmenorrhea is obtained not only by cutting the pain fibers but from interruption of efferent fibers in the presacral group, which supply the blood vessels in the genitalia and the musculature of the uterus.

In order to relieve all pain arising in the region of the ovaries, it would be necessary to strip the ovarian artery by periarterial sympathectomy or by dividing the ovarian artery. Thus, by resecting the presacral nerve in conjunction with periarterial sympathectomy of both ovarian arteries or by sectioning the arteries, it should be possible to relieve pain both in the uterus and in the ovaries.

Cotte has demonstrated in more than 200 cases that pelvic pain was more completely relieved when resec-

¹³ Fontaine, Rene and Herrmann, L. G. Clinical and Experimental Basis for Surgery of the Pelvic Sympathetic Nerves in Gynecology. Surg. Gynec. & Obst. 54: 133-163 (Feb.) 1932.

¹⁴ Frankenhauser, F. Die Nerven der Gebärmutter und ihre Endigungen in den glatten Muskelfasern. Ein Beitrag zur Anatomie und Gynäkologie. Jena, F. Mauke, 1867.

¹⁵ Kuntz, Albert. The Autonomic Nervous System. Philadelphia, Lea & Febiger, 1929.

¹⁶ Langley, J. N. and Anderson, H. K. The Innervation of the Pelvic and Adjoining Viscera. Part IV. The Internal Genital Organs. J. Physiol. 19: 122-130 (Dec. 30) 1895.

tion of the presacral nerve was combined with other procedures, such as uterine suspension, freeing of adhesions and removal of chronically infected tubes. We can fully subscribe to the suggestions made by Cotte, Fontaine and Herrmann, and Leriche, that gynecologic lesions should be treated before sympathectomy is considered. We therefore divide dysmenorrheas into two groups: the true functional type without organic lesions, and those which are complicated by gynecologic lesions. As a rule, therefore, these patients are operated on by both gynecologic and neurologic surgeons. Before any type of sympathectomy has been performed the surgeon explores the pelvis and corrects the pathologic condition, and if not sufficient pathologic change is found to explain the pain, resection of the presacral nerve is performed as a single operation, or it is combined with resection of the lumbar trunk or with periarterial sympathectomy of the ovarian artery.

SURGICAL CONSIDERATIONS

We have not often resected the presacral nerve, but after observing the results obtained in the six cases presented here we are convinced that the operation is far more useful than we had previously considered. Our results correspond to similar results reported by foreign and American surgeons.¹ Since the operations were performed in these six cases, other operations have been performed by our colleagues in the clinic, these will be reported later.

Before adopting the presacral nerve procedure, we employed in one case the periarterial sympathectomy to the common iliac artery, and the internal and external iliac arteries on the left side, for intractable pain that had developed ten months after subtotal hysterectomy had been performed for fibromyomas. The pain was continuous and excruciating, and radiated from the left iliac fossa to the rectum. The patient was a woman, aged 38, the wife of a physician. At the time of operation, June 12, 1929, many adhesions were encountered and the left ovary was found to be sclerotic. The ovary was removed, adhesions were broken down, and the arteries were denuded of their adventitious coat for a distance of 5 cm. The peritoneum was subsequently closed to cover all denuded areas but, in spite of the rather extensive dissection, relief was not obtained. The failure to relieve pain in this particular case may have been due to the patient's unstable nervous system rather than to an ineffectual operation, since she complained of many other discomforts. However, the experience discouraged us in continuing periarterial sympathectomy of the iliac artery.

REPORT OF CASES

CASE 1—A woman, aged 27, admitted to the Mayo Clinic May 28, 1928, had been married nine years and was the mother of four children. Painful menstruation had been present for three years previous to which the periods had always been regular; they then varied from three to four weeks. The flow was moderate and continued for from seven to eight days. The pelvic pain was more or less constant and was much worse the day preceding the period with some cessation during the flow.

Physical and laboratory examinations revealed nothing abnormal except for slight lacerations of the cervix and slight mucoid discharge. The pain was not relieved by douches or treatment of the cervix, and June 9, 1928, a diagnostic dilation and curettage with cautery punctures of the cervix was performed. This decreased the cervical discharge but failed to relieve the pelvic pain which was more pronounced in the

left side of the pelvis than in the right. Aug. 19, 1931, the patient was readmitted to the hospital and laparotomy was performed, which included removal of the appendix for chronic catarrhal appendicitis, resection of the presacral nerve and division of the left lumbar sympathetic chain above the first sacral ganglion.

The patient's convalescence was uneventful; the wound healed by primary union, and she was dismissed from the hospital on the fourteenth postoperative day. Her last report, March 6, 1933, stated that she had been completely relieved of pain and considered the result 100 per cent successful. There had been no change in the menstrual cycle except that it had become more regular, but the flow had increased and now continued the full eight days and occasionally an extra day. There had been no further pregnancies.

CASE 2—A single woman, aged 22, was admitted to the clinic July 5, 1929, complaining of painful menstruation since its onset at the age of 12 years, the pain had become much more severe in the two years previous to admission. The periods were regular, occurring every twenty-eight days, with a moderate flow lasting from five to six days. The cramping pains began ten days before onset of the flow, occurred every two hours and lasted from ten to twelve minutes, causing the patient to double up during the paroxysm.

The physical and laboratory examinations and the bimanual examination of the pelvis were negative. Diagnostic dilation and curettage with insertion of a Baldwin tube was advised.

At operation, Aug. 15, 1931, the cervix was found to be soft and was easily dilated. The uterine scrapings revealed an atrophic endometrium. A Baldwin tube was inserted through the cervical canal and sutured in place to be left there for two regular menstrual periods. Unfortunately this procedure failed to give relief and the patient continued to have recurrent pains with catamenia, in spite of the fact that tincture of belladonna had also been administered. She returned for numerous subsequent examinations and on the date of her last registration, June 11, 1932, she was advised to have a laparotomy with a view of performing resection of the presacral nerve.

Laparotomy was carried out, June 15, 1932. The uterus was of normal size and position, with a small myoma in the anterior wall. The adnexa were normal. The gynecologic surgeon stated that there was not sufficient pathologic change in the pelvis to explain the pain and resection of the presacral nerves was performed by the neurologic surgeon. Convalescence was uneventful and the patient was dismissed from the clinic, July 6.

Subsequent reports from the patient have all been favorable. The last one, received Feb. 27, 1933, stated that she menstruated every twenty-four days. The flow was shorter than previously, lasting approximately three and a half days, and it had decreased. We asked the patient to express in percentage the relief experienced, and she stated that it has been 100 per cent, for the first time in her life she had been free from pain during catamenia and her only discomfort now is a little tenderness in the small of the back during the first day of menstruation.

CASE 3—A schoolgirl, aged 17 years, was registered at the clinic, June 16, 1932, because of dysmenorrhea, which came on with the onset of the menstrual periods at the age of 12 years. Many types of treatment, including morphine hypodermically, had been tried.

General and laboratory examinations were negative. The hymen being intact, the pelvis was examined bimanually through the rectum. The patient was advised to have a pelvic examination under ether with dilation and curettage, to be followed by resection of the presacral nerves if the diagnostic curettage was negative.

June 18 the uterus was curetted. Aside from a slightly hypertrophied endometrium nothing was found to explain the dysmenorrhea, and laparotomy was immediately performed. The uterus was retroflexed but was easily replaced. A small hydatid cyst of Morgagni was found in the right tube and this was removed preliminary to resection of the presacral nerve. The operative convalescence was uneventful and the patient was dismissed from the clinic July 7.

The patient reported after the first two or three menstrual periods following sympathectomy that she had been conscious

¹⁷ Wetherell, F. S. Relief of Pelvic Pain by Sympathetic Neurectomy. To be published.

of some discomfort during catamenia but that the pain was only 50 per cent as severe as before the operation. With subsequent menstrual periods, the pain had gradually subsided and by March 4, 1933, her relief, estimated in percentage, was 95. The menstrual periods now lasted five days, whereas previously they had lasted seven days but the flow had been much more profuse since the operation. The patient's constipation had not been relieved by resection of the presacral nerve. Immediately following operation, two menstrual periods had been missed.

CASE 4—A woman, aged 18, a teacher, came to the clinic July 6, 1932, because of dysmenorrhea and symptoms of Raynaud's disease in the lower extremities. Slight vasomotor changes had also occurred in the hands. Symptoms of Raynaud's disease began in the winter of 1931 and again recurred in the autumn. During the winter the menstrual flow was irregular, it occurred every six to eight weeks, was scanty, lasted five days and was associated with cramping pains. In the summer the menstrual cycle was regular and only slight discomfort was experienced.

The patient's symptoms of Raynaud's disease responded favorably to the preoperative vaccine which indicated that she would receive benefit from bilateral lumbar sympathetic ganglionectomy and trunk resection. July 13 this operation was performed in conjunction with resection of the presacral nerve. The abdominal exploration was negative except for a cystic ovary on the left which contained about 3 cc of yellow, gelatinous fluid. The cyst was removed and the remaining portion of the ovary was preserved. Convalescence was without incident and the patient was dismissed from the clinic August 1.

Following operation, symptoms of Raynaud's disease that is, asphyxia followed by cyanosis and rubor disappeared completely and have not returned. March 8, 1933, the patient reported that her menstrual periods had been regular during the winter of 1933, the flow had lasted five days and was more profuse than before. She was free from cramps during catamenia but she was conscious of a backache. She evaluated the result obtained from operation as 75 per cent successful.

CASE 5—A woman, aged 18, a laboratory technician registered at the clinic, Nov. 11, 1930, complaining of dysmenorrhea which dated back to appendectomy performed five years previously. She had been examined at the clinic on numerous occasions before and since that date, because of illnesses such as tonsillitis, painful feet, trichophytosis, myopia and astigmatism, all of which had been more or less incidental to the painful menstrual periods. The various medications usually employed in the medical treatment of dysmenorrhea were given. Oct. 4, 1932, she returned to the clinic demanding surgical intervention.

On bimanual examination the uterus was found to be normal in size and movable in the anterior position. Menstruation was irregular, occurring about every five weeks, the flow continuing for four or five days. Severe cramps occurring two days before onset were often so severe that she was compelled to go to bed. She was advised to have a pelvic examination under ether and dilation and curettage of the uterus, with the understanding that, if definite lesions were not found in the pelvis, a laparotomy was to be performed followed by resection of the presacral nerve.

At operation, October 6, the cervix was found to be easily dilated and the uterine scrapings proved to be fairly normal. Exploration did not disclose pathologic change, the appendix had been cleanly removed with no unusual amount of adhesions, and the pelvic and abdominal organs were normal. Resection of the presacral nerve was carried out and the wound closed. The postoperative course was uneventful and the patient was dismissed from the clinic November 18.

The first menstrual period after sympathectomy was overdue one week and lasted only half as long as previously, which was from four to five days. The discomfort on the morning of onset was rather severe but by noon most of the symptoms had disappeared and the patient was able to be up and at work, whereas previously she had been compelled to remain in bed for two days during the catamenia. With each successive

menstrual period the discomfort became less. March 1, 1933, she admitted that she was completely relieved of pain during her menstrual periods, which now continue from three to four days with the flow about the same as before. This patient was married about a year before her operation but has had no children. She stated that she was free from pain during intercourse, which previously had been painful.

CASE 6—A woman, aged 22, a nurse, registered at the clinic Aug. 12, 1922, complaining of dysmenorrhea. She stated that the pain was localized in the left iliac region and was more or less constant throughout the month but was aggravated during menstruation. She too had been examined at the clinic previously for numerous discomforts, and appendectomy had been performed Dec. 26, 1928. The pelvic examination at that time revealed nothing abnormal. After trying a great variety of medical measures she again registered at the clinic Feb. 29, 1933, with the same complaint of dysmenorrhea and further medical measures were employed.

July 31, 1933, the presacral nerves on the promontory of the sacrum were dissected free and segments 5 cm long were removed. Convalescence was uneventful and the patient was dismissed from the clinic August 16, having had a normal menstrual period two weeks after the operation without any evidence of the old pain.

SUMMARY

The group of cases reported is too small to permit general conclusions, but the results obtained are so satisfactory that it seems justifiable to employ the procedure for patients suffering from dysmenorrhea who cannot be relieved by medical measures such as endocrine therapy, the administration of tincture of belladonna, occasional doses of codine catharsis or hot douches at the onset of the menstrual periods.

THE TEACHING OF INDUSTRIAL HYGIENE

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The New York State Health Commission, which was organized by President Franklin D. Roosevelt when he was governor of New York, recommended among other things in its report¹ that "additional courses in industrial hygiene be established in medical and public health schools."

SPECIAL SURVEY AND COOPERATIVE STUDY

From past experience in medical and public health teaching and administration and from the standpoint of present work in the field of industrial health service, I have been interested in making a survey of the present practices and recent trends in the teaching of industrial hygiene in the medical and public health schools of the United States and Canada. The study is based on written and printed material in the form of letters and school bulletins received from deans and other faculty members of the various colleges and universities. To all these persons individually and collectively, I express my sincere appreciation of the cooperative services they have rendered in contributing to this study.

DEFINITIONS AND CLASSIFICATIONS

The word hygiene is a much abused term. It may be defined as "the science of health and of its preservation." Moreover, the various classifications and sub-

¹Read before the Annual Congress on Medical Education and Licensure, Chicago, Feb. 13, 1934.
²Public Health in New York State, New York State Department of Health, Albany, 1932.

divisions of the general subject of hygiene have followed no well ordered plan. Thus one speaks of prenatal hygiene, infant hygiene, preschool hygiene, child hygiene and adult hygiene, relating to time factors in the development of human life, maternal hygiene, sex hygiene and mental hygiene, having to do with physiologic functions, and mouth hygiene, dental hygiene and ocular hygiene dealing with special anatomic structures. One also has come to associate three of the common divisions of hygiene with particular organized community activities including home hygiene, school hygiene and industrial hygiene, all three of which may be grouped together under institutional hygiene, having many factors and features in common. The words industrial hygiene also have been used carelessly and improperly in much medical thinking and writing. With no thought for their real meaning, the words industrial hygiene, industrial medicine and industrial or occupational diseases in many instances have been used erroneously and more or less interchangeably as synonymous terms.

Industrial hygiene may be defined as the science of health and of its preservation among workers in industry. It should involve primarily a program of health conservation and disease prevention. Industrial medicine, surgery, nursing, sanitation and health education are a few of the means for carrying out a program. Specific industrial or occupational diseases, poisonings and accidents are some of the conditions to be combated in any adequate program of industrial hygiene, but, taken by and large, they are not the most important disability problems in industry. The common cold and other diseases of the respiratory system, including pulmonary tuberculosis, the usual diseases of the digestive, nervous and circulatory systems, and the so-called degenerative diseases of advancing years are the conditions of paramount importance as causes of disability and loss of time from work. Industrial hygiene is not a matter primarily of combating poisons and bandaging fingers but rather of preventing the common diseases of adult life and, through education and other means, of building up positive health and encouraging the development of proper health habits among employees. Moreover, the common sickness hazard is much greater than the accident hazard in industry. As indicated in the report of the New York State Health Commission,¹ "the greatest opportunities for an industrial health service lie in health promotion activities in which the emphasis is on preventing rather than cure."

In view of the numerous "hygienes" and other specialties claiming recognition and knocking at the door of the medical school curriculum there is little wonder that the average dean looks on their proponents as big bad wolves ready to destroy the major fundamentals of medical education by the substitution of many minor subjects. In this connection, it is not without some degree of sympathy and trepidation that I approach the subject of the teaching of industrial hygiene.

ELEMENTS OF AN ADEQUATE INDUSTRIAL HEALTH PROGRAM

Before proceeding further with a consideration of the subject of instruction in industrial hygiene, it may be well briefly to bring into focus what it is wished to teach, in other words. What are the fundamental elements of an adequate industrial health program? An answer to this question may point the way to the subject matter and methods that logically should be

included in a well rounded plan for collegiate education on this subject.

From the standpoint of present practice in the larger companies, the industrial health program usually is organized as a part of the general personnel program under a vice president or other business official who is director of personnel and public relations of the company. The director of health and safety, the medical director, or whatever may be the title of the person directly in charge of health activities, reports as a rule to the personnel director or one of his assistants.

An outline of the sections, subdivisions and relative values of a personnel and industrial relations program, of which the health program usually is a part, was suggested by me² in 1932. A further detailed presentation of proposed industrial health programs for large and small companies was published in 1933.³ The scope of the present study does not permit of a repetition of these outlines. For a detailed description of an industrial health program and a new appraisal form or yardstick for the measurement of an industrial health service, as well as a brief account of the functions of and parts played by medical, nursing and allied services, reference is made to a recently published book⁴ on this subject.

The general subjects included in an industrial health program which should be covered in the teaching of industrial hygiene may be outlined briefly as follows:

- 1 Vital statistics activities including death, sickness and accident records, reports and studies of company employees.

- 2 Communicable disease control, including case investigations and records, medical and nursing service and specific immunization. Special attention to the prevention and control of tuberculosis among employees.

- 3 Occupational disease and accident control, including records, case investigations and reports, medical examinations and assurance of adequate treatment, observance of laws and regulations and education of employees on and protection against specific hazards.

- 4 Personal and environmental hygiene of office, shop, store, factory and outdoor field workers, including daily observation, periodic inspection, medical examinations (including pre-employment and periodic), assurance of adequate medical treatment, field or nursing visits, building and factory sanitation, lighting, heating and ventilation, food and milk control in cafeterias, health and safety education and publicity, and recreation and rest facilities.

- 5 Related subjects, including a consideration of the functions of an industrial physician and his relation to the management and working forces, the organization of company medical and nursing units and a brief review of the other features of a complete industrial personnel program, including various employment, educational, economic and cooperative activities, not the least of which have to do with provisions, such as benefits, compensation or insurance, against the risks of death, sickness, accidents and unemployment.

BEGINNINGS OF INSTRUCTION IN INDUSTRIAL HYGIENE

Just as public health and preventive medicine in general began largely with attention to environmental hygiene or sanitation and later developed into the "newer public health," which promoted personal hygiene to equal rank in importance with sanitation, so also industrial health has evolved from a primary interest in environmental hazards causing sickness and accidents in a few industries to an equal interest in the

² Bristol, L. D. An Appraisal Form for Industrial Health Service. *Am. J. Pub. Health* 22: 1263 (Dec.) 1932.
³ Bristol, L. D. Appraisal of Industrial Health Activities. *Industrial Med.* 2: 85 (Aug.) 1933.
⁴ Bristol, L. D. *Industrial Health Service*. Philadelphia: Lea & Febiger, 1933.

personal hygiene and health habits of the individual workers of all industries. The same evolution has been evident not only in the practice of industrial hygiene but also in education on this subject through books and organized courses and classes.

Publications—The first knowledge of and instruction in industrial hygiene came through books and other publications on specific occupational diseases.

TABLE 1—*Medical Schools That Give Separate Courses in Industrial Hygiene*

Schools	Courses
Chicago	Elective course in industrial medicine only under department of internal medicine
Cincinnati	Special short course for senior medical and graduate students
Colorado	Elective course for medical and graduate students under department of bacteriology and public health
Columbia	Separate courses in industrial medicine and industrial physiology under institute of public health, for candidates for public health degree
Harvard (School of Public Health)	Separate courses in industrial medicine and in industrial hygiene and sanitary engineering
Illinois	Separate course for seniors, lectures and demonstrations in cooperation with state department of public health
Johns Hopkins (School of Public Health)	Subject matter of industrial hygiene treated in several separate courses under department of physiologic hygiene
Long Island	Separate course of lectures in industrial hygiene for third year medical students under department of preventive medicine and community health
McGill (Canada)	Separate courses of lectures and demonstrations to third year medical students and graduate students
Michigan	Elective course in industrial hygiene open to medical students and candidates for public health degree
Pennsylvania	Separate course for graduate students and candidates for public health degree
Toronto, Canada (School of Hygiene)	Separate lecture and demonstration course for candidates for public health degree
Yale	Elective course for medical and public health students

Hippocrates, Galen, Pliny and others referred in their writings to certain occupations that resulted in sickness more or less as cause and effect. It was not until about 1700 that Ramazzini,⁵ an Italian, published the first book on diseases associated with special occupations. Following this work, various articles on occupational diseases appeared in medical and health literature, and other books and monographs were published by Thackrah, des Planches, Haffort, Meier, Delpech, Kussmaul, Eulenberg, Hirt and Layet from 1800 to 1875. Since then, numerous modern works on industrial hygiene have been published by English, French, German and American authors.

College Lectures and Courses—The organized teaching of industrial hygiene in the schools and colleges of this country started in the form of a few special lectures on this subject included in the regular courses on preventive medicine and public health. Kober at Georgetown Medical School in Washington, D. C., was one of the first who gave such lectures, as early as 1890. Beginning about 1905, Winslow gave instruction in industrial hygiene as a special course at the Massachusetts Institute of Technology, where such instruction has been continued by other teachers. Since then, various medical and public health schools throughout the United States and Canada have organized lectures, separate courses and special research in industrial hygiene.

⁵ Ramazzini. *De morbis artium et manuum*. Padua, 1700.

PRESENT PRACTICES IN THE TEACHING OF INDUSTRIAL HYGIENE

Based on letters, personal communications and published bulletins received from deans and other faculty members, an attempt has been made to outline briefly in the accompanying tables the present practice in the teaching of industrial hygiene in the medical and public health schools of the United States and Canada. This study does not include a few nonmedical colleges or schools that may give such instruction.

Separate Courses—Out of eighty-five medical and public health schools from which information was sought, sixty-six supplied data for this study. Of these sixty-six, there are only thirteen schools that give separate courses in industrial hygiene, as outlined in table 1.

Separate Lectures—Of the sixty-six supplying information, twenty-four medical schools assign one or more separate lectures to industrial hygiene in their general public health or hygiene courses. These schools with the number of lectures are given in table 2.

TABLE 2—*Medical Schools That Assign One or More Lectures to Industrial Hygiene in General Public Health or Hygiene Courses*

Schools	No. of Lectures
Baylor	6
Cincinnati	3
Cleveland	3
Georgetown	3
Harvard	23
Illinois	12
Indiana	23†
Iowa	8
Kennett	6-8
Medical College of Virginia	2
Michigan	2
New York Homeopathic	23
New York (University and Bellevue Hospital)	12
Pennsylvania	3
Pittsburgh	6-8
Queen's (Canada)	9†
Stanford	5†
Texas	12
Toronto (Canada)	12
Tufts	12
Washington (St. Louis)	2†
Western Ontario (Canada)	2†
West Virginia	2
Yale	3*

* See also under table 1.

† Referred to briefly in various other courses.

‡ Also five separate lectures on work of industrial accident commission.

TABLE 3—*Medical Schools That Give Brief Attention to Industrial Hygiene in General Public Health or Hygiene Courses*

Alberta (Canada)	Oregon
California*	South Carolina
Chicago†	Southern California
Colorado†	Syracuse
Cornell*	Tulane
George Washington	Vanderbilt*
Marquette	Wisconsin
Medical Evangelists (California)	Woman's Medical College (Pennsylvania)
Nebraska	
Ohio State	

* Referred to briefly in various other courses.

† See also under table 1.

General Instruction—Another group of medical schools, while not reporting the assignment of any definite time to industrial hygiene, gives brief attention to the subject in the general public health or hygiene courses. Eighteen such schools out of the sixty-six are listed in table 3.

Table 4 indicates the names of another group of twenty-one medical schools which, from information available, give no specific instruction in industrial

hygiene. However, in some of these institutions, instruction on closely related subjects is covered briefly in other courses.

Field Instruction and Surveys—It may be stated that field visits to industrial plants for inspection and surveys should be to the teaching of industrial hygiene, what hospital ward rounds are to the teaching of clinical medicine. The fifteen schools (twelve medical and three public health) listed in table 5 report that they make available such field trips to industrial plants as a

TABLE 4—*Medical Schools That Apparently Give no Specific Instruction in Industrial Hygiene*

Alabama*	McBarray
Albany†	Missouri
Boston	North Carolina*
Dartmouth*	Northwestern
Duke†	Oklahoma
Georgia	Rochester†
Howard	Saskatchewan (Canada)*
Iowa	Utah*
Johns Hopkins†	Virginia (Charlottesville)
Kansas	Western Reserve†
Loyola (Chicago)	

* Only two years of medical training

† Referred to briefly in various other courses

‡ See also under table 1

§ Instruction on industrial hygiene in school of public administration

part of their instruction in industrial hygiene. Other schools require at least occasional field investigations of industrial hazards, or brief inspections.

Clinics and Theses—In addition to regularly organized instruction and field trips, a few schools require written theses on subjects in industrial hygiene, and two or three, in cooperation with associated hospitals, have organized special clinics for industrial diseases. The use of additional outside specialists in industrial hygiene, as guest speakers, is a feature of the instruction in a few schools.

No information relative to the teaching of industrial hygiene was received from the following medical schools: Arkansas, Buffalo, Dalhousie (Canada), Detroit, Emory, Hahnemann, Laval (Canada), Louisiana, Manitoba (Canada), Maryland, Minnesota, Montreal (Canada), North Dakota, St. Louis, South Dakota, Temple, Tennessee, Vermont and Wake Forest. Some of these schools are located in more or less agricultural states or provinces with little interest in industrial hygiene, while a few are two year schools which include only fundamental preclinical subjects and courses. With one or two possible exceptions, it may safely be said that little or no instruction in industrial hygiene is given in these schools.

FUTURE OBJECTIVES AND DEVELOPMENT OF INSTRUCTION IN INDUSTRIAL HYGIENE

One of the objectives in training medical students for work in industrial hygiene which well might be a guide in the future, has been expressed as follows by one of the teachers in this subject:

Our work in industrial hygiene is so planned that our students may have some knowledge of the problem as one of prevention. It seems to me that for many years the work will be done for the most part by general men and that it is very important to send our men out with the prevention idea well hammered in.

Another teacher of industrial hygiene says:

Our conception of industrial hygiene is that it bears the same relationship to adult health that school hygiene bears to child health and we think that in many respects the teaching

of toxicology is less important than other things. We base our opinion on the fact that comparatively few industrial workers suffer from industrial poisoning, whereas a great number suffer from tuberculosis, cardiovascular disease and, not least of all, upper respiratory infections. With this viewpoint, we try to shape our lectures along the lines of adult hygiene.

One dean writes:

Personally I regard the subject of industrial hygiene as extremely important. I wish very much that more time could be devoted to it in the medical curriculum. The subject is one of growing importance. Not only the lay public but the profession in general is in need of education in this field.

Another states as follows:

With the coming of the depression our students who were preparing for work as plant physicians, and taking a number of courses, practically disappeared, but with the present social trend in medicine there is no doubt such men will reappear and it is our conviction that the general student in public health now should have more work in what may be called industrial hygiene.

Groups to be Reached and Available Instruction—There are three groups of medical students to be reached with instruction in industrial hygiene:

1 Those who expect to become private practitioners of medicine and surgery but who eventually may give part time to industrial health work.

2 Those who expect to take up general public health work on a full time basis in a state, city or county department of health.

3 Those who anticipate devoting full time to industrial health service as a specialty.

For the first group it would seem desirable to furnish instruction in medical schools preferably during the latter part of the course. This should be in the form of a separate course in industrial hygiene, or as a series of at least three or four lectures on industrial hygiene included in the general course on public health, preventive medicine or hygiene.

For those who may be included in the second and third groups of students mentioned, separate courses should be available, as graduate courses in departments or schools of public health, with more advanced courses

TABLE 5—*Medical Schools Which Report That They Make Available Field Trips to Industrial Plants as a Part of Their Instruction in Industrial Hygiene*

Cincinnati	Queen's (Canada)
Creighton	Southern California
Harvard (School of Public Health)	Toronto (Canada) (School of Hygiene)
Johns Hopkins (School of Public Health)	Vanderbilt
Long Island	Washington (St. Louis)
Louisville	Wisconsin
McGill (Canada)	Woman's Medical College (Pennsylvania)
Pennsylvania	

and research for those anticipating industrial hygiene as a specialty.

It also would seem desirable to make courses available for at least three groups of nonmedical students:

1 Those who seek degrees or certificates in public health for full time nonmedical health work.

2 Those seeking public health nursing degrees, particularly those expecting to go into industrial work.

3 Those who, as students or as lay business executives, wish to obtain training in a school or college of business administration including courses on industrial personnel administration and health.

For the first group of such nonmedical students, separate courses in industrial hygiene should be available in schools of public health. Such courses also should be available for prospective industrial nurses either in nursing schools or as open courses offered by members of the medical or public health faculty.

For business executives and beginning students of business administration, courses in industrial hygiene, suited to their preliminary training and needs, should be included in the curriculums of university schools of business administration. In larger universities having under their jurisdiction several different schools, such as medical, public health, business administration and nursing, the professor of industrial hygiene might well serve all the schools in teaching, correlation of staff activities and direction of research investigations.

Department Organization and Administration—One present weakness in the teaching of industrial hygiene in graduate schools of public health is that it may be masked or more or less hidden under some other group or departmental designation. The growing importance of industrial hygiene would seem to warrant, as soon as economically feasible, the placing of this branch of instruction "on its own feet" and under its own independent development—at least in schools of public health, through a separate department of industrial hygiene under a full time professor. In place of two or three administratively unrelated departments in schools of public health, it would seem to be in the interest of logical organization, coordination and administration to set up one department of industrial hygiene and to have the professor of industrial hygiene serve as a coordinator and interpreter of the different phases of the subject, including industrial medicine, which may be represented by subdivisions of the one department. Preferably such a teacher and department director should be a physician with previous experience in industrial health administration.

When feasible, such departments of industrial hygiene in schools of public health should maintain close working relations with the industries of the community to the end that some of the members of the medical and health staffs of local industrial organizations may be represented in the school teaching staff. A "practical" teacher of industrial hygiene who has industrial connections should be as valuable and necessary as a clinical teacher of medicine who has hospital connections. Medical and public health schools that give instruction on this subject also should cultivate the friendly cooperation of local industries in order to enhance their facilities for field training of students in industrial hygiene.

Proposed Museums of Hygiene—If I were to be suddenly transformed into a professor of industrial hygiene, or a dean of a medical or public health school, one of the first things I would be tempted to do would be to suggest the possible organization of a departmental museum of industrial hygiene or a school museum of general hygiene, in which a section on industrial hygiene could have a prominent place. Much emphasis has been put in medical education on museums of the dead, associated with departments and institutes of anatomy and pathology, why not, in connection with the departments and institutes or schools of hygiene, create museums that would have to do with the living and with keeping the living safe and well? With the cooperation of ethical commercial firms, permanent

museums containing exhibits having to do with the maintenance of health and safety and the prevention of sickness and accidents might be easily and inexpensively organized to the advantage of coming generations of medical and public health students. If brief and temporary health and safety exhibits are valuable and desirable in connection with medical association meetings, health association meetings and world exhibitions of progress, why may not museums on a small, carefully selected and permanent scale also be worth while as visual adjuncts to fundamental training in hygiene and preventive medicine? Moreover, if open to the public, such museums of hygiene would serve as permanent, community educational assets. If necessary, the interest and assistance of philanthropic foundations and funds might be enlisted to provide suitable space or buildings for such collegiate museums of hygiene.

Details of Instruction—In the foregoing statements with reference to the future objectives and the further development of instruction in industrial hygiene, an attempt has been made only to set forth a few general principles and to indicate some of the important phases of organization and administration. While some reference is made to the number and extent of lectures and courses in industrial hygiene, the exact details and character of such instruction necessarily must be worked out by various schools and departments on the basis of available facilities, local conditions and needs.

SUMMARY AND CONCLUSIONS

1 Of eighty-five medical and public health schools in the United States and Canada covered in this study, information has been received from sixty-six with reference to the teaching of industrial hygiene, of the sixty-six, only thirteen schools (ten medical and three public health) give separate courses in industrial hygiene, twenty-four medical schools assign one or more separate lectures to industrial hygiene in their general public health or hygiene courses, eighteen schools give only brief attention to industrial hygiene, and another twenty-one together with a number of schools unheard from, apparently give no instruction in this subject.

2 From this study, it is evident that a wide range of practice in the teaching of industrial hygiene exists at present among the various medical and public health schools throughout the United States and Canada. It is natural and reasonable to suppose that those schools and colleges associated with universities in the more populous urban and industrial states and provinces will have more demand on the part of students and more adequate facilities for instruction in industrial hygiene than will those located in rural and agricultural parts of the country. The further development of teaching and research on this subject in various institutions naturally must depend largely on such local conditions and requirements.

3 Field visits to industrial plants for inspections and surveys should be to the teaching of industrial hygiene what hospital ward rounds are to the teaching of clinical medicine, fifteen schools (twelve medical and three public health) report that they make such field trips available. Medical and public health schools that give instruction in this subject should cultivate the friendly cooperation of local industries in order to enhance their facilities for field training of students in industrial hygiene.

4 For those students who expect to become private practitioners of medicine and surgery but who eventually may give part time to industrial health work, it would seem desirable to furnish instruction in medical schools, preferably during the latter part of the course. This should be in the form of a separate course in industrial hygiene or a series of at least three or four lectures on industrial hygiene included in the general course on public health, preventive medicine or hygiene.

5 For those medical or nonmedical students who expect to take up general public health work on a full time basis or to specialize in industrial health service, separate courses should be available as graduate and advanced courses in departments or schools of public health.

6 For those students or lay business executives who wish to specialize or take graduate courses in business or personnel administration, courses in industrial hygiene adapted to the use of such students should be included in the curriculums of university schools of business administration.

7 Instruction in industrial hygiene, including industrial medicine, industrial sanitation, industrial toxicology and other subjects, at least in graduate schools of public health and when economically feasible, should be organized under one separate, independent department of industrial hygiene with a full time professor as coordinator and director. He should be a physician with experience in industrial health administration and in the larger universities he might also serve as the director or teacher of courses on this subject in medical, nursing, business or other schools.

8 Much emphasis in medical education has been put on museums of the dead, associated with departments and institutes of anatomy and pathology. It is suggested that, in connection with the departments, institutes or schools of hygiene, museums or exhibits be created which would have to do with the living, and with keeping the living safe and well. In such proposed museums, exhibits pertaining to industrial hygiene and safety should be assigned prominent locations.

9 Detailed subject matter and methods of teaching industrial hygiene must be based on local conditions, facilities and needs as well as on knowledge of the elements of an adequate industrial health program, a brief outline for which, based on an appraisal form for industrial health service, as recently developed by me, has been presented.

10 Industrial hygiene may be defined as the science of health and of its preservation among workers in industry. It should involve primarily a program of health conservation and of disease and accident prevention. It is not alone a matter of combating poisons and bandaging fingers but rather of preventing the common diseases and mishaps of adult life and through medical and nursing service sanitation education and other means of building up positive health and encouraging the development of proper health habits among working people in general.

11 Industrial hygiene including industrial medicine will become what physicians and medical educators help the business man and industrial worker to make it. In this connection opportunities and responsibilities are unlimited for the development of the right sort of leadership among future generations of medical students.

195 Broadway

THE LAXATIVE EFFECT OF A REGENERATED CELLULOSE IN THE DIET

ITS INFLUENCE ON MINERAL RETENTION

HARRIET MORGAN, PH D
CHICAGO

A balance experiment was conducted on eight subjects for the purpose of determining the laxative efficacy of a regenerated cellulose and its influence on mineral balance. An adequate diet was given for a nine day control period, with preliminary and collection periods. Then the same diet plus 20 Gm a day of (nitrogen-free, phosphorus-free and calcium-free) cellulose was given for a nine day test period with preliminary and collection periods. This paper briefly describes my experimental procedure and states my observations regarding the ingestion of a regenerated cellulose.

LAXATIVE EFFECT

Numerous writers on the subjects of constipation recognize the importance of food residues in promoting elimination. Great differences of opinion exist, however as to the best source and physical form of the roughage material to be used. Vegetables, fruits, bran and more recently, a purified cellulose in the form of prepared cereals have all been used to contribute an indigestible residuum to the diet. Few studies, however, can be found on the laxative effect of regenerated cellulose. Frey and his associates¹ in 1928 reported experiments with edible pure cellulose. Laxation was increased from an average of 0.88 bowel movement a day to 1.63 movements a day in orphanage children to whose diet 7 per cent of this cellulose was added. There were no harmful results. With rats, death resulted from adding to the diet 2.5 per cent of coarse rice cellulose or 25 per cent of an all bran prepared cereal. These workers did not state their method of preparing pure cellulose, and descriptions of the methods they probably used² are too general to give specific knowledge of preparation of the purified cellulose.

The nutrition laboratory at Cornell University obtained a cellulose, found to be calcium free, nitrogen free, and phosphorus free and containing 90 per cent crude fiber. The cellulose³ was ground through a mesh sieve, with holes 0.073 inch in diameter, and then sifted through a 10 mesh flour sieve. The ground and sifted product resembled coarse white corn meal. This cellulose had been fed with no detrimental effects to various species of animals throughout their life spans. In order to test the laxative potency and harmlessness of the material, I daily ingested 5, 10 and 20 Gm amounts in a series of three five-day experiments. The 5 and 10 Gm amounts had no laxative effect. Twenty grams of the cellulose was appreciably laxative. To determine whether the cellulose could be used advantageously and safely to supplement a low roughage diet of the type that tends to induce constipation, a human experiment was planned.

The data in this paper are taken from a thesis submitted by the author to the Graduate School Cornell University in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Acknowledgments are made to Dr C M McCay under whose direction the work was conducted to the students who cooperated in the experiment and to R LaT Cavanaugh Cornell University Medical College for advice and assistance in preparing the manuscript.

¹ Frey J W, Harding E R and Helmbold T R. Dietetic Investigation of Edible Pure Cellulose. M J & Rec 127: 585 (June 6) 1928.

² Hamor W A. U S patent number 1,495,789.

³ This regenerated cellulose was furnished through the courtesy of the Sylvania Industrial Corporation. Before being ground it presented the appearance of the well known cellophane.

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6 For those students or lay business executives who wish to specialize or take graduate courses in business or personnel administration, courses in industrial hygiene adapted to the use of such students should be included in the curriculums of university schools of business administration.

7 Instruction in industrial hygiene, including industrial medicine, industrial sanitation, industrial toxicology and other subjects, at least in graduate schools of public health and when economically feasible, should be organized under one separate, independent department of industrial hygiene with a full time professor as coordinator and director. He should be a physician with experience in industrial health administration and in the larger universities he might also serve as the director or teacher of courses on this subject in medical, nursing, business or other schools.

8 Much emphasis in medical education has been put on museums of the dead, associated with departments and institutes of anatomy and pathology. It is suggested that, in connection with the departments, institutes or schools of hygiene, museums or exhibits be created which would have to do with the living, and with keeping the living safe and well. In such proposed museums, exhibits pertaining to industrial hygiene and safety should be assigned prominent locations.

9 Detailed subject matter and methods of teaching industrial hygiene must be based on local conditions, facilities and needs as well as on knowledge of the elements of an adequate industrial health program, a brief outline for which, based on an appraisal form for industrial health service, as recently developed by me, has been presented.

10 Industrial hygiene may be defined as the science of health and of its preservation among workers in industry. It should involve primarily a program of health conservation and of disease and accident prevention. It is not alone a matter of combating poisons and bandaging fingers but rather of preventing the common diseases and mishaps of adult life and, through medical and nursing service, sanitation education and other means of building up positive health and encouraging the development of proper health habits among working people in general.

11 Industrial hygiene including industrial medicine, will become what physicians and medical educators help the business man and industrial worker to make it. In this connection opportunities and responsibilities are unlimited for the development of the right sort of leadership among future generations of medical students.

195 Broadway

THE LAXATIVE EFFECT OF A REGENERATED CELLULOSE IN THE DIET

ITS INFLUENCE ON MINERAL RETENTION

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CHICAGO

A balance experiment was conducted on eight subjects for the purpose of determining the laxative efficacy of a regenerated cellulose and its influence on mineral balance. An adequate diet was given for a nine day control period, with preliminary and collection periods. Then the same diet plus 20 Gm a day of (nitrogen-free, phosphorus-free and calcium-free) cellulose was given for a nine day test period, with preliminary and collection periods. This paper briefly describes my experimental procedure and states my observations regarding the ingestion of a regenerated cellulose.

LAXATIVE EFFECT

Numerous writers on the subjects of constipation recognize the importance of food residues in promoting elimination. Great differences of opinion exist, however as to the best source and physical form of the roughage material to be used. Vegetables, fruits, bran and more recently, a purified cellulose in the form of prepared cereals have all been used to contribute an indigestible residuum to the diet. Few studies, however, can be found on the laxative effect of regenerated cellulose. Frey and his associates¹ in 1928 reported experiments with edible pure cellulose. Laxation was increased from an average of 0.88 bowel movement a day to 1.63 movements a day in orphanage children to whose diet 7 per cent of this cellulose was added. There were no harmful results. With rats, death resulted from adding to the diet 2.5 per cent of coarse rice cellulose or 25 per cent of an all bran prepared cereal. These workers did not state their method of preparing pure cellulose, and descriptions of the methods they probably used² are too general to give specific knowledge of preparation of the purified cellulose.

The nutrition laboratory at Cornell University obtained a cellulose, found to be calcium free, nitrogen free, and phosphorus free and containing 90 per cent crude fiber. The cellulose³ was ground through a mesh sieve, with holes 0.073 inch in diameter, and then sifted through a 10 mesh flour sieve. The ground and sifted product resembled coarse white corn meal. This cellulose had been fed with no detrimental effects to various species of animals throughout their life spans. In order to test the laxative potency and harmlessness of the material, I daily ingested 5, 10 and 20 Gm amounts in a series of three five-day experiments. The 5 and 10 Gm amounts had no laxative effect. Twenty grams of the cellulose was appreciably laxative. To determine whether the cellulose could be used advantageously and safely to supplement a low roughage diet of the type that tends to induce constipation, a human experiment was planned.

The data in this paper are taken from a thesis submitted by the author to the Graduate School, Cornell University, in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Acknowledgments are made to Dr. C. M. McCay under whose direction the work was conducted to the students who cooperated in the experiment and to R. LaT. Cavanaugh, Cornell University Medical College for advice and assistance in preparing the manuscript.

¹ Frey, J. W., Harding, E. R. and Helmbold, T. R. Dietetic Investigation of Edible Pure Cellulose. *M. J. & Rec.* 127: 585 (June 6) 1928.

² Hamor, W. A. U. S. patent number 1,495,789.

³ This regenerated cellulose was furnished through the courtesy of the Sylvania Industrial Corporation. Before being ground it presented the appearance of the well known cellophane.

EXPERIMENT

Seven students and one technician between the ages of 22 and 35, who were known to be reliable and honest were chosen for the experiment. Care was taken to select women subjects who would not experience menstruation during the experiment, in order to eliminate error in the balance study. None of the subjects reported a history of chronic constipation. All continued their regular work and activity during the experiment.

A low roughage type of diet which tends to produce constipation was planned. The amount of food served each subject was previously calculated according to the subject's weight, sex and activity. The subjects were however allowed to choose to eat as much as they desired during a preliminary period, but the amount chosen remained constant thereafter until the end of the experiment. The end of this preliminary period was marked by the ingestion of a carmine capsule and its appearance in the stools and collections were continued for the five day test period, another carmine capsule marked the end of this period. The subjects were allowed to drink water at will but were required to measure and record the amount. Representative samples of the food items were collected, according to standard methods⁴ and stored for later analysis.

Urine and feces were collected and the number of bowel movements was recorded for two five-day periods. During the first (control) period the diet was fixed as described, during the second period 20 Gm of the regenerated cellulose described was added daily to the basal diet. The cellulose was eaten with the breakfast cereal with sugar and milk.

RESULTS

The criteria of laxative value were (1) the dry weight of feces evacuated, (2) the water content of the stools, (3) the daily number of defecations and the subject's impression of the ease and completeness of evacuation.

1 Dry Weight of Feces—During the cellulose period the increase in dry weight of feces evacuated by the eight subjects varied from 56 to 193 per cent. In no case was there a reduction. The composite average of the series of subjects show a 69 per cent increase in dry weight of total feces excreted during the nine day period.

2 Water Content of the Stools—In all except one of the subjects the total water excreted in the feces during the cellulose period was markedly increased. Because of the increase also in dry weight excreted however, the moisture percentage of the stools shows very little change between the control period and the test period. The composite average of the series shows a 1.29 per cent increase in water content. Since individuals varied between a 12 per cent reduction and a 15 per cent increase in the water content during the test period, this criterion is considered of less value than the other criteria. Incidentally, there was a considerably lessened water intake during the cellulose period, the total for eight subjects averaging 1,616 cc for the control period and 1,121 cc for the test period, or about 100 cc less a day.

3 Completeness of Evacuation—The number of defecations during a day is commonly accepted as

indicative of the degree of laxation or constipation. In the case of human beings, however, the mere record of the number of bowel movements may prove inadequate. Because of the effect of habit or "conditioning" on the defecation reflex as the result of the highly organized social life, a wide individual variation in the number of daily movements occurs, which is yet within limits of perfect health.

Recent investigations prove that the addition of fibrous material to the diet increases the number of defecations. For example, Frey and his associates⁵ report that the average daily number of evacuations for the children of the group eating cellulose once daily was increased from 0.91 before the test to 1.54 during the test. Cowgill and Anderson⁶ report that the number of defecations varied from 0.7 to 2.4 a day (when the basal diet had been markedly constipating in its effect). Rose and her associates⁷ report that the addition daily of 14 Gm of prepared bran to the breakfast cereal of an adequate diet of thirty-eight girls from 10 to 16 years of age resulted in definitely increased laxation in 50 per cent of the cases.

In this study there were twelve no-movement days reported in the basal diet period and only four no-movement days in the cellulose period. The average number of defecations for the group for the five day basal diet period was 5.75 and for the cellulose period 8.25 an increase of 2.5 bowel movements in five days. This is a reasonable and definite increase in laxation. The evacuations were said to be complete and no subject reported irritation of the rectum during the control or test period.

Throughout the experiment the subjects felt better than they felt normally. There was no variation in weight greater than 0.55 Kg in any subject between the beginning and end of the experimental period. Moreover, all subjects were pleasant and in good humor even though practically the same diet was eaten for eighteen days.

METABOLIC EQUILIBRIUM

To study the effects of cellulose ingestion on nitrogen and mineral retention, the metabolic equilibrium of nitrogen, calcium, phosphorus and the free ash in the feces were determined.

Nitrogen—All subjects were in positive nitrogen balance throughout both the control and the cellulose periods of the experiment. Significant variations in the nitrogen balances occurred however. 1 All three female subjects were in greater positive nitrogen balance during the cellulose period than without cellulose. 2 All five male subjects had a smaller positive nitrogen balance with cellulose. 3 The males showed this relative loss of nitrogen because the nitrogen excreted in the feces was increased (average increase 41 per cent) during the cellulose ingestion. (The balance remained positive because of reduced nitrogen excretion in the urine.) An average of the entire group shows that during the cellulose period the nitrogen of the feces was 4.3 per cent greater than during the control period. Although nitrogen balance remained positive, this indicates a definite trend toward increased fecal nitrogen excretion as the result of the ingestion of cellulose.

⁵ Cowgill G. R. and Anderson W. E. Laxative Effects of Wheat Bran and Washed Bran in Healthy Men. *J. A. M. A.* 98: 1866 (May 28) 1932.

⁶ Rose Mary S. MacLeod Grace Vahlteich Ella M. Funnell Esther H. and Newton Catharine L. The Influence of Bran on the Alimentary Tract. *J. Am. Dietet. A.* 8: 133 (July) 1932.

⁷ Total nitrogen in all samples was determined by the Kjeldahl method.

⁴ Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists ed. 3 Association of Official Agricultural Chemists Washington D. C. 1930. Leach A. E. Food Inspection and Analysis ed. 4 New York J. Wiley & Sons 1920.

Phosphorus—All eight subjects were in positive phosphorus balance during the control period. During the cellulose period, however, three of the subjects were in negative balance and one was in exact equilibrium. An analysis as to whether this was a disturbance of fecal or of urinary phosphorus shows that the group as a whole excreted 66 per cent more phosphorus in the feces during the test period than during the control period, the intake remaining the same. The urinary phosphorus increased 30.1 per cent during the cellulose ingestion. From these figures I can only say that for some cause which I will not attempt to explain phosphorus excretion was increased during the cellulose period in view of only a 66 per cent increase in fecal phosphorus. I can make no positive additional statement as regards the effect of cellulose on fecal phosphorus alone.

Calcium—Six of the eight subjects were in positive calcium balance during the control period and five of the eight were in negative calcium balance during the cellulose period. The composite calcium deficit of the entire group during the cellulose period was 12.9 per cent. Of this 12.5 per cent was a fecal calcium loss and 0.4 was urinary. This definite reversal of the calcium equilibrium might be attributed to many causes but in my experiment the only difference between the control and test periods was the daily ingestion of 20 Gm of cellulose. I infer therefore with only very few reservations that the cellulose caused an increased calcium elimination in the feces.

Ash¹⁰—Fecal ash consists of measurable amounts of calcium, phosphorus, iron, sulphur, chlorine, sodium, potassium and magnesium and smaller amounts of silicon. The total ash for this entire series of subjects was 215.9 Gm during the control period and 271.8 Gm during the cellulose period. This is an increase of 25.9 per cent as the result of cellulose. I have already considered the calcium and phosphorus components of this increase. I have shown that the amount of calcium in the feces increases during the cellulose-containing diet period by 12.9 per cent and the amount of phosphorus by 66 per cent. The other minerals contributing to "total ash" therefore show a composite increased excretion of 6.4 per cent during the cellulose period. Thus in addition to definite losses of nitrogen, calcium and phosphorus there is a sizable loss made up of iron, sulphur, chlorine, sodium, potassium, magnesium and silicon, as a result of incorporating into a standard diet 20 Gm of regenerated cellulose a day.

SUMMARY AND CONCLUSIONS

1 A balance experiment was conducted on eight subjects for the purpose of determining the laxative efficacy of regenerated cellulose and its influence on mineral balance. An adequate diet was given for a five day control period plus preliminary and collection periods to total nine days in all. The same diet plus 20 Gm of cellulose a day was given for a five day test period, plus preliminary and collection periods.

2 Twenty grams of the regenerated cellulose a day is definitely laxative, as evidenced by (1) increased weight of fecal material evacuated, (2) increased fecal

moisture, and (3) increased number of defecations, during the test period.

3 Cellulose ingestion caused a tendency toward increased excretion of nitrogen and a definite increase in the excretion of phosphorus, calcium and fecal total ash.

4 It is doubtful whether the laxative potency of the cellulose counterbalances its detrimental effect on mineral retention. The wisdom of giving a high roughage diet to children and subjects under conditions of marginal mineral intake is severely questioned.

5 These data afford but slight basis for predicting possible injurious effects of cellulose products when they are eaten over a long period of time.

848 North Dearborn Street

THE FORMATION OF CALCULI IN URETHRAL DIVERTICULA OF THE FEMALE

REPORT OF A CASE

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Calculus, whether primary or secondary, in a diverticulum of the female urethra is a condition that has received very scant mention in the literature.

The rarity of calculus in this location is due to several quite obvious reasons, the chief one being that vesical calculus per se is comparatively uncommon in women and that when it does occur a stone, even of considerable size, will usually pass naturally from the bladder. This is possible because the female urethra is so short, straight and easily dilatable, as emphasized by Stevens.¹

However, if a diverticulum is present in the urethra a migratory calculus may easily lodge within it. Much less commonly a stone forms in one of these pouches and it is this type of case that we report.

The urethral diverticulum in the female consists of a pouch or cavity situated in the urethrovaginal septum usually about the middle third and communicating by a narrow, often valve-like opening with the urethra. The contents of the diverticulum usually consist of urine and pus, the occurrence of calculus being rare.

CLASSIFICATION OF URINE POCKETS

There are various classifications of urine pockets connected with the urethra but the most practical of these designates all such pouches as

1 True diverticulum of the urethra—a diverticulum formed by protrusion of all the layers of the urethral wall.

2 False diverticulum of the urethra—a circumscribed dilatation in which the muscularis shows a break in continuity and in which the submucosa and mucosa protrude.

3 Incomplete urethrovaginal fistula. Here the term diverticulum cannot properly be used, as this type arises from solution of continuity of all layers of the urethral wall, it is connected with the urethra and ends blindly in the urethrovaginal septum. However, for the sake

⁸ Total phosphorus was determined by the method of Pemberton & F. Volumetric Analysis, ed. 11 Philadelphia: P. Blakiston's Son & Co. 1924. Food and fecal samples were first wet ashed; urinary phosphorus was determined without first being ashed.

⁹ The calcium was determined according to the method described by Morris, H. P., Nelson, J. W. and Palmer, L. S. The Quantitative Determination of Calcium, Magnesium and Phosphorus in Foodstuffs and Cattle Excreta. J. Indust. & Engin. Chem. (analytical edition) 3: 164 (April 15) 1931.

¹⁰ Total ash was determined according to the official method of agricultural chemists.

¹ Stevens, W. E. Diseases and Abnormalities of Female Urethra. California & West Med. 26: 471-475 (April) 1927.

of convenience, the term urine pocket, as suggested by Jarecki,² can be used to designate any of these pouches connected with the urethra

ETIOLOGY OF DIVERTICULA

In the etiology of diverticula, injury to the urethral floor during labor or by instrumentation is probably the most common factor. During labor, pressure of the child's head against the symphysis pubis is said to cause a crushing of the muscularis of the urethra, permitting a subsequent hernial protrusion of the submucosa and the mucosa.

Closure of the ducts of urethral glands, retention cysts resulting, is an occasional cause. Suppuration and ulceration into the urethra is the next step, and inflammation is maintained in the sac thus formed by urine trickling in at each micturition.

Blood cysts, vaginal cysts and suburethral abscesses (gonorrheal) pass through similar changes and communicate with the urethra.

In all these pathologic processes the final breaking through into the urethra most often occurs following the trauma of parturition.

Many authorities question the congenital theory of origin, but Hoehne,³ a German writer, reported in 1924 a case of urethral diverticulum in the female containing a large calculus that had apparently formed in the diverticulum. This cavity was lined with smooth mucous membrane which showed two longitudinal slits, separated by a septum 3 mm wide, leading into the lumen of the urethra. In view of this peculiar type of confluence with the urethra, Hoehne regarded his case as one of congenital diverticulum. Hoehne thinks it possible that para-urethral ducts analogous to the prostate in man may also in some cases lead into the middle third of the female urethra.

A diverticulum with a double orifice leading into the urethra was reported once previous to Hoehne's case by Veit⁴ at Leipzig in 1897, although in that case the diverticulum contained no stone. Veit believed that the origin was congenital and suggested that the diverticulum might have originated from Gartner's duct.



Fig 1—Calculus showing approximate size and its relation to surrounding structures

Fromme⁵ discovered in one of his cases a supernumerary ureter opening into a urine pocket. He looked on this finding as a corroboration of Veit's views as to the congenital origin of at least some diverticula of the female urethra.

REVIEW OF THE LITERATURE

In our review of the literature we have found that up until 1899 thirteen cases of calculus in a diverticulum of the female urethra had been reported. These cases were all discussed in the excellent treatise on the subject by the French writers Quenu and Pasteau.⁶

Since 1899 we have been able to find nine cases reported, making a total of twenty-two cases.

Of these twenty-two cases the stone formed around a foreign body in three instances. In the cases in



Fig 2—Number 6 French ureteral catheter coiled in urethral diverticulum

which there was no foreign body as a nucleus, all but two were cases in which the stone originated above and during migration became lodged in the urethra, subsequently forming a diverticulum. Urinary symptoms were prominent, of course, in all the cases in which a migratory stone or foreign body figured.

Only two cases were found, to which our case should now be added, in which no previous urinary symptoms were present and in which the stone was formed in a preexisting pouch or diverticulum. One of the reported cases³ was apparently a congenital diverticulum and in the other case⁷ a cavity was left following rupture into the urethra of an abscess of the anterior wall of the vagina. Symptoms due to the calculus did not make their appearance until ten years later in Nicholich's case.

REPORT OF CASE

F. R., a Negress, aged 41, admitted to the gynecologic service of the Atlantic City Hospital, complained of pain in the vagina of one and one-half years' duration. The onset of this pain was rather sudden, the pain was steady and aching in character, with periods of remission and periods of aggravation. However, she was conscious of the pain at all times.

There were absolutely no urinary symptoms at any time. The patient experienced no frequency, burning or pain on urination. There was no difficulty in micturition and no nocturia. About two months after the onset of the first symptoms the patient discovered a small lump in the anterior vaginal wall. This slowly increased in size and gradually became more annoying. The discomfort was increased by defecation and by coitus and when the patient was in the sitting posture. At the time of admission to the hospital the pain on sitting was so pronounced that the patient had been forced to give up her occupation of seamstress.

The past history contained nothing of note except an operation performed in a New York hospital five weeks before the initial onset of the symptoms described. The right ovary

6 Quenu and Pasteau. Study of Urethral Calculi in Women. *Ann. d. mal. d. org. genito-urin.* 14: 289-326. 1896.
7 Nicholich. G. Calculus in a Diverticulum of the Female Urethra. *Monatsb. f. Urol.* Berlin 6: 338-340. 1901.

2 Jarecki. Max. Concerning Diverticula and Other Urine Pockets of the Female Urethra. *Ztschr. f. urol. Chir.* 3: 241-273. 1914-1917.

3 Hoehne. Calculus Formation in the Female Urethra. *Zentralbl. f. Gynak.* 48: 223-224. 1924.

4 Veit cited by Jarecki.²

5 Fromme. F. Diverticula of the Urethra. *Ztschr. f. Geburtsh. u. Gynak.* 74: 143-148. 1913.

and the tube had been removed. However, the patient stated repeatedly that she had not had any urinary symptoms at this time or subsequently.

She had been married twenty-one years and had had several miscarriages but only one full term delivery. This had been thirteen years before the onset of the present illness and was a very difficult, prolonged labor in which forceps had been used.

The day after admission to the Atlantic City Hospital the patient was transferred to the urologic service. General physical examination was essentially negative. On vaginal examination a round mass could be palpated through the anterior wall of the vagina. This mass did not protrude into the vagina but could easily be felt in the region of the urethra. The small tumor was round, firm, slightly movable and quite tender.

A soft rubber catheter was introduced into the bladder without meeting any obstruction whatever in the urethra. The catheterized specimen of urine was straw colored turbid, and alkaline in reaction, with a specific gravity of 1.023. Neither sugar nor albumin was present, and the microscopic examination showed no pus cells, casts or red blood cells. No organisms were found in the urine.

A complete blood count on admission showed erythrocytes, 3,460,000, leukocytes, 5,300, hemoglobin, 70 per cent, color index, 1.0. The differential count was polymorphonuclear leukocytes, 41 per cent, small lymphocytes, 55 per cent, large lymphocytes, 2 per cent, eosinophils, 2 per cent.

The blood chemistry showed creatinine, 1.24 mg per hundred cubic centimeters, urea, 12 mg, and sugar 80 mg.

The coagulation time of the blood was six minutes.

The blood Wassermann and Kahn tests were negative.

Cystoscopy revealed an absolutely normal bladder. However, when the cystoscope was withdrawn into the urethra an opening into what appeared to be a diverticulum was seen on the left posterolateral wall of the urethra in about the middle third. A calculus could be distinctly seen in the pouch. The mucosa about the margins of the opening was normal in appearance, with no evidence of any inflammatory changes.

A plain roentgenogram was taken and a ureteral catheter then inserted into the pouch, after which 15 per cent sodium iodide was injected and another roentgenogram taken. The size of the pouch, the stone and its relations to the urethra and other structures are shown in the illustrations.



Fig 3—Diverticulum following the injection of a 15 per cent solution of sodium iodide through a ureteral catheter, showing approximate size of the pocket.

A diagnosis of calculus in a urethral diverticulum was made and five days later a suprapubic cystostomy was done for the purpose of diverting the urinary stream preparatory to removal of the stone and pouch.

The second operation was performed two weeks after the cystostomy. With the patient in the lithotomy position and a weighed vaginal retractor in place, a T shaped incision was made in the anterior vaginal wall, the crossed portion of the T being directly over the mass and the long portion of the T extending anteriorly. After the vaginal wall was incised the wall of the pouch was encountered and after the sac was freed

by careful blunt dissection the stone was removed and the pouch excised. The opening in the urethral wall was closed in one layer of interrupted sutures, fine chromic catgut being used. The vaginal wall was closed in the same manner except that number 2 chromic catgut was used.

The stone was analyzed with the following results. It was yellow, with reddish brown pigmentation, it was smooth and roughly oval, measuring 1.5 cm in length and 1.2 cm in greatest width, and weighed 1.145 Gm. Chemical analysis showed moisture, 19.5 per cent, organic debris, 2.5 per cent, tribasic calcium phosphate, 51.2 per cent, magnesium ammonium phosphate, 12.2 per cent, and trisodium phosphate, 8.8 per cent.

The stone gave no test for carbonates or urates and it will therefore be noted that it was composed entirely of the phosphates of calcium, magnesium and sodium.

We are indebted to Mr Herman Brown, chemist to the Research Institute of Cutaneous Medicine of Philadelphia, for this analysis.

The patient's convalescence was uneventful, the urethral and vaginal walls healing by first intention. On the sixteenth postoperative day French sounds (numbers 17, 20 and 24) were passed through the urethra with ease. There was no leakage of urine into the vagina at any time after the operation and on the eighteenth day the suprapubic tube was removed. The patient urinated with ease and without discomfort and was discharged as cured on the fiftieth day after operation.

She has been examined several times since leaving the hospital over a period of two years and the site of operation remains firm, with no tendency to fistula formation, and sounds up to and including number 28 French can be passed with ease. These examinations have included a cystoscopic and roentgenographic study of the upper urinary tract. This study proved to be negative.

SUMMARY

1 The formation of calculi in a diverticulum of the female urethra is a rare condition, only two authenticated cases, so far as we know, having been reported up to the present time.

2 We feel that the calculus in this case formed in a preexisting urine pocket. The patient's history is very definite regarding the entire absence of urinary symptoms, and a careful search of the literature failed to reveal a single instance of a migratory stone forming a diverticulum of the urethra, or lodging in a diverticulum that already existed, without causing urinary symptoms.

3 The etiology of the pouch is not certain. It may have been congenital, as its walls contained muscle tissue as well as the mucous and submucous coats. However, we are inclined to believe that the starting point in the pathogenesis was the trauma to the urethra caused by a difficult labor and instrumental delivery several years prior to the onset of the present trouble.

4 The treatment of these conditions is always surgical and is based on two principles: first, preliminary suprapubic drainage for the purpose of diverting the urinary stream, and, second, complete removal of the sac and repair of the urethral wall.

5 We feel that the excellent result obtained in this case was due to our strict application of these principles and also to the fact that the suprapubic tube was kept in place for eighteen days after the stone had been removed and the urethra repaired, thus preventing infection due to the urine and allowing firm union of the urethra to take place.

121 South Illinois Avenue.

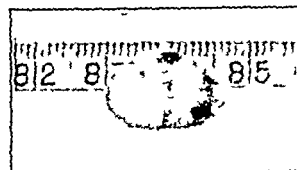


Fig 4—Appearance of calculus showing its shape and actual length in centimeters.

PURPURA HAEMORRHAGICA WITH
CEREBROSPINAL HEMORRHAGE

REPORT OF TWO CASES

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Although textbooks usually refer to the occurrence of cerebrospinal bleeding in purpura haemorrhagica, the association appears actually to have been recorded infrequently by clinicians and pathologists. Since Wagner's¹ comprehensive report in 1886, in which ten cases are collected, only nine additional scattered references comprising fifteen cases have been found.²

Case 1 in the present report would seem especially interesting in that the patient, who had purpura haemorrhagica, suffered two attacks of hemorrhage in the central nervous system and recovered from the first of these attacks under relatively simple treatment.

CASE 1—History.—O. A., an Italian housewife aged 24 admitted to the New Haven Hospital through the dental dispensary, April 27, 1932, complained of toothache and bleeding gums of two weeks' duration. For four months she had noted an unusually copious menstrual flow and a tendency to bruise readily. Two weeks before admission a persistent oozing of blood from the gums set in, and during this period the patient suffered several nosebleeds. She had vomited small clots of blood on a few occasions during the last week. There had been no other gastro-intestinal and no joint symptoms. Tarry stools were noted only since the day before admission.

The patient had gone uneventfully through childbirth eighteen months before. Her menses had frequently been irregular but always moderate in flow. In January and February, the first two months of the illness, the menstrual flow was suddenly doubled in volume and duration. In March and April there was amenorrhea.

Because of poverty the patient could seldom afford meat, and she had eaten practically no fresh fruit or vegetables for a year.

There was no history of hemorrhagic disease or of tuberculosis in the family. The mother, who was diabetic, had recently died of "blood poisoning."

Examination.—The patient was rational, alert and not acutely ill; the vital signs were normal. The skin and mucous membranes were pale. Her breath was foul, and the tongue was coated brown with old blood. The gums were blue but not spongy, and blood oozed freely from the gum margins around many of the badly carious teeth. A few petechiae were found on the soft palate and on the left palpebral conjunctiva. One small retinal hemorrhage was seen. Over the trunk and limbs were scattered numerous old and recent ecchymoses and several palpable subcutaneous hemorrhages. The spleen was uncertainly palpable. There were no neurologic nor other abnormalities. Pelvic examination confirmed the impression of a three months' pregnancy.

The blood count revealed a moderate anemia with 60 per cent hemoglobin and 3,440,000 red blood cells per cubic millimeter, of which 8 per cent were reticulocytes. Platelets numbered 90,000 per cubic millimeter. The bleeding time was six and one-half minutes; the coagulation time was eight minutes by the test tube method, and the clot showed poor retractility.

From the New Haven Hospital and the Department of Internal Medicine of the Yale University School of Medicine.

1. Wagner E. Deutsches Arch. f. klin. Med. 39: 431-490, 1886.

2. These include:

Osler William. Brit. M. J. 1: 517-525, 1914.
Longcope W. T. M. Clin. North America 3: 279-300 (Sept.) 1919.
Gordon, A. J. Nerv. & Ment. Dis. 50: 144-148 (Aug.) 1919.
Sheldon W. P. H. Quart. J. Med. 20: 353-370 (July) 1927.
Boitzeva E. A. Pediatriya 12: 358-359, 1928.
Meyer Jacob and Parker Morris. M. Clin. North America 13: 1205-1210 (March) 1930.
Szajna M. Polska gaz. lek. 10: 970-971 (Dec. 13) 1931.
Case 18072. Cabot Case Records. New England J. Med. 206: 356-357 (Feb. 18) 1932.
Lizier E. Riforma med. 48: 552-57 (April 9) 1932.

The guinea test was moderately positive on the stool and negative on the urine. The Kahn test of the blood was negative.

Course in Hospital.—The patient was started on a diet high in vitamin content and given 12 cc. of a 50 per cent solution of iron and ammonium citrate daily by mouth. During a period of twelve days on this treatment there was only a slight transient diminution of the bleeding.

On the third day the patient complained for the first time of the severe frontal headaches which were to recur with excruciating violence for almost a month. The hemorrhagic phenomena again increased and at the end of the first week nausea and the daily vomiting of fluid and clotted blood set in. On the twelfth day the patient received the first of six transfusions, each of 250 cc. of whole blood, which were given at daily intervals. Although a moderate improvement in the degree of anemia took place, there was no apparent influence on either the bleeding or the symptoms. In fact, during the series of transfusions the patient began to complain of aching pains in the legs, which soon became agonizing. Because of the severe persistent headaches and a slight rigidity of the neck, lumbar puncture was performed at the end of the third week. The fluid obtained was thick and dark red and contained 8,350,000 red blood cells per cubic millimeter. A repeated puncture at a higher level confirmed these observations. The withdrawal of fluid was followed within twenty-four hours by great amelioration of the headache, the vomiting and the pains in the legs, and with each of the four successive daily drainages the fluid cleared rapidly and the symptoms improved steadily. For two days following the last tap the patient felt unusually comfortable, but on the third morning her right thigh exhibited constant involuntary twitching movements of the adductor and flexor groups of muscles, this continued for three hours. Although the right knee jerk was hyperactive, no other pyramidal signs were elicited. At lumbar puncture the next day a clear fluid was obtained.

During the next few weeks all symptoms subsided rapidly, the bleeding stopped and the patient improved in strength and weight. Just before discharge from the hospital, seven weeks after admission, an abscessed tooth was extracted without unusual hemorrhage. At this time the bleeding time was normal but platelets were still noted to be rare in the blood smears.

Follow-up.—During the four succeeding months the patient returned frequently to the outpatient clinic and throughout this period she exhibited no purpuric signs. In November 1932 she was delivered easily and with a blood loss not exceeding 350 cc. On this admission the bleeding and clotting times and the clot character were normal, and platelets were abundant in the blood smears.

Two months after delivery purpuric spots reappeared in the skin, bleeding of the gums returned and the patient suffered spells of vertigo and fainting associated with excessive menstrual bleeding. The blood smear again contained only rare platelets. Although splenectomy had been advised repeatedly and was now urged, the patient postponed decision. On the evening of March 1 she felt vaguely ill, complained of headache and vomited several times. On attempting to arise during the night she found herself paralyzed on the left side.

Readmission.—The patient was stuporous on arrival at the hospital the next morning, but she was rational when aroused and complained of headache. The left arm and leg were paralyzed and reflexes could not be obtained. The spine was not stiff. Several fresh retinal hemorrhages were seen, blood oozed from the mouth and vagina and purpuric spots and subcutaneous hemorrhages were profusely scattered over the body.

The red blood cell count was now 4,100,000 and the hemoglobin 60 per cent. No platelets were seen in the blood smear. The bleeding time was eight and one-half minutes.

In spite of an intramuscular injection of 30 cc. and a transfusion of 450 cc. of whole blood, the patient sank steadily into coma; the respirations became Cheyne-Stokes in character, and the right arm exhibited occasional clonic convulsions. Later in the day all four limbs, especially those on the right, assumed an extensor type of rigidity, the neck grew slightly rigid, plantar stimulation evoked flexor responses and the right pupil

become dilated and fixed. With deepening coma and a temperature rising to 104 F, respirations ceased early the next morning. Shortly before death the blood pressure was recorded at 160 systolic and 75 diastolic, the pulse rate had continued all day in the vicinity of 80.

Because of the probably active cerebrospinal bleeding and in the absence of signs of definitely increased intracranial pressure lumbar puncture had been considered contraindicated. Permission for necropsy was denied.

Among the thirty-six cases of purpura haemorrhagica seen at the New Haven Hospital since 1922, of which five ended fatally, in only one other were there manifestations of presumable cerebrospinal hemorrhage. It is described briefly.

CASE 2—History—C. O., a woman aged 24, Irish, a telephone operator, walked into the hospital on the afternoon of Aug. 17, 1925. She complained of bleeding gums and of purpuric spots on the face which had developed insidiously during the preceding month. Except that her last menstrual period had been profuse and had lasted five days instead of the usual three, she had noted no other signs of illness. Her health in the past had always been good.

The patient's father had died of Bright's disease, her mother and three siblings were well.

Examination—The patient was fairly well nourished. Although her skin was pale, she did not look very ill. She was bleeding from the gums and a moderate number of petechiae were scattered over the face, the thorax and the legs. The spleen was not felt. Except for a pulse rate of 100, the vital signs were normal.

The red blood cells were diminished to 3,600,000 per cubic millimeter, the hemoglobin was 58 per cent. The bleeding time was prolonged to ten minutes and the clotting time to fourteen minutes. The blood clot showed no retraction at the end of twenty hours. An impression that the platelets in the blood smear were diminished in number was confirmed by a count of 120,000 per cubic millimeter. There was gross blood in the urine. The blood Kahn test was negative.

Course—During the night the patient became comatose. In the morning she was bleeding slowly from the mouth, the nose and the vagina. Several large subcutaneous hemorrhages had appeared along with an increased profusion of purpuric spots. A few retinal hemorrhages were seen.

At noon there occurred several generalized convulsions during which the head was turned to the right and both arms were drawn up in flexion over the chest.

An attempt at transfusion met with difficulties and only 160 cc of citrated blood could be given. Coma deepened rapidly. Cheyne-Stokes respiration set in, and death ensued in a few hours.

COMMENT

From a study of published reports and from his own unusual experience of five cases, Longcope² observed that in purpura the hemorrhages in the central nervous system are usually multiple and that they vary in size from petechiae to large extravasations of blood, which may cover an entire cerebral hemisphere or involve several lobes. Symptoms and signs of the hemorrhage will obviously vary widely, since they depend on the size and the location of the lesions, but most cases appear to fall into several easily discernible groups. One group presents chiefly the appearance of meningitis, with slight focal or generalized neurologic signs. Another group and probably the largest exhibits definite localizing signs, among which hemiplegia is common. A third group includes cases of coma, sometimes with convulsions. An occasional case offers no definite neurologic symptoms or signs, and the hemorrhage is discovered unexpectedly at necropsy.

In the former of the foregoing two cases it would seem probable that the bloody spinal fluid obtained

by lumbar puncture during the first hospital admission arose from meningeal bleeding. The sudden development of hemiplegia associated with recurrence of active purpura some months later suggests that an extensive hemorrhage occurred within the cerebrum at this time.

In the second case the period of observation was unfortunately too brief for satisfactory neurologic study, but the coma, convulsions and rapidly fatal course in the absence of localizing signs suggests either an intracerebral or a large subdural hemorrhage.

Although cerebrospinal hemorrhage in purpura usually implies a fatal prognosis, recovery from even large hemorrhages has been reported before (Wagner,¹ Longcope,² Meyer and Parker³). Recoveries seem commonest in the "meningitic group", none have been noted in the group with hemiplegia.

Clinical Notes, Suggestions and New Instruments

CALCIUM METABOLISM IN IDIOPATHIC HYPOPARATHYROIDISM

ALFRED GOERNER, M.D. AND GEORGE SAMUELSEN, BROOKLYN

Although Salvesen¹ concluded from his work on parathyroidectomized animals that the resulting calcium deficiency in the blood was due to an increased excretion of this element especially in the intestine, Greenwald and Gross² shortly found conclusive evidence that calcium excretion was in fact decreased after parathyroidectomy. They³ also showed that administration of the hormone increased the amount of the metal to be excreted. The latter result is directly opposed to Salvesen's idea that the internal secretion of the parathyroid aids in the absorption of calcium. Albright and Ellsworth,⁴ in their study of calcium metabolism in a person having an idiopathic hypoparathyroidism confirmed Greenwald's results. This study is interesting in that most other studies of calcium metabolism in parathyroid deficiency were made on animals with the glands removed or on human beings whose deficiency set in after a thyroidectomy. Albright, Bauer, Ropes and Aub⁵ also showed that, in normal persons on an inadequate calcium intake, the administration of the specific hormone increases urinary output of this element without materially changing the fecal excretion.

Greenwald⁶ observes that in parathyroid deficiency the calcium apparently leaves the blood to be deposited in the tissues perhaps the bones. Certainly no increased density of the bones was observed by Albright and Ellsworth⁴ in a boy with a long-standing idiopathic hypoparathyroidism, nor was there any found in the following instance. It is also interesting to note that they observed transient loss of consciousness in the individual under study and thus at times when he showed a low serum calcium, a similar reaction took place in the subject of our investigation at such times.

REPORT OF CASE

A girl, aged 18, entered the hospital, Jan. 9, 1933 for the relief of tetany occurring usually at the time of menstruation.

1 Salvesen H. A. Calcium Content of Blood. Norsk mag f Lægevidensk. 84: 1047 (Dec.) 1923.

2 Greenwald Isidor and Gross Joseph. The Effect of Thyroparathyroidectomy in Dogs on Excretion of Calcium, Phosphorus and Magnesium. J. Biol. Chem. 66: 185 (Nov.) 1925.

3 Greenwald Isidor and Gross Joseph. The Effect of Administration of a Potent Parathyroid Extract on Excretion of Nitrogen, Phosphorus, Calcium and Magnesium. J. Biol. Chem. 66: 217 (Nov.) 1925. The Effect of Long Administration of Parathyroid Extract on the Excretion of Phosphorus and Calcium. *ibid.* 68: 326 (May) 1926.

4 Albright Fuller and Ellsworth Read. Studies on the Physiology of the Parathyroid Glands. J. Clin. Investigation 7: 183 (June) 1929.

5 Albright Fuller, Bauer, Walter, Ropes Marion and Aub J. C. Studies of Calcium and Phosphorus Metabolism. J. Clin. Investigation 7: 139 (April) 1929.

6 Greenwald and Gross². Greenwald Isidor. The Prevention of Tetany of Parathyroidectomized Dogs. J. Biol. Chem. 82: 717 (June) 1929.

The family history was apparently of no significance. She stated that at the age of 4 years she had scarlet fever and, at the age of 7, otitis media and mastoiditis. A tonsillectomy was performed at 10 years because of recurring sore throats. Before the age of 10 she had had measles and chickenpox. Menstruation began at 14 with scanty flow and some dysmenorrhea. She began to have attacks of tetany at this time and described typical hand position and other signs. During 1930 she was treated at the Bellevue Hospital for fainting spells which lasted from half a minute to five minutes but after several weeks the attacks set in again. In April, 1932 she

TABLE 1—Calcium Oxide Balance with Patient on Milk Diet and Parathyroid Extract

Day*	Volume Urine Cc	Weight Feces Gm	Feces CaO Gm	Urine CaO, Gm	Milk CaO Gm	Total CaO Excreted Gm	Balance CaO Gm
4	1 000	26.7	2.652	0.147	4.38	2.709	+1.81
5	1 350	62.3	2.618	0.181	4.00	2.799	+1.201
6	1 600	151.7	2.601	0.170	4.08	2.771	+1.309
10	1 700	255.0	1.989	0.408	7.60	2.997	+1.208
11	1 400	959.0	3.241	0.470	4.70	3.661	+1.019
12	1 370	30.0	2.615	0.414	4.15	3.029	+1.121

* In these tables from the first to the sixth day inclusive the patient was on a diet of 2 liters of milk a day from the seventh to the twelfth day inclusive 20 units of parathyroid extract a day was given.

entered the Long Island College Hospital for relief of tetany and fainting spells. At that time she showed a positive Chvostek sign on both sides and a positive Trousseau sign. The spinal fluid showed 8 mm of pressure and a cell count of 3. A blood study showed secondary anemia. The serum calcium was 5 mg and the blood phosphorus 10 mg per hundred cubic centimeters. The spinal fluid and blood Wassermann tests were negative. After the patient was placed on parathyroid extract the symptoms disappeared and the serum calcium and phosphorus returned to normal.

She was discharged and placed on a high calcium regimen plus viosterol. June 14 she returned to the medical service for treatment of fainting spells on examination Chvostek's and Trousseau's signs were positive and the serum calcium was 6.6 mg per hundred cubic centimeters. In October she entered the hospital for the same reason the serum calcium being 6 mg. Her repeated entrance into the wards allowed

TABLE 2—Calcium Balance with Patient on Milk Diet and on Parathyroid Extract

Day	Feces Ca Gm	Urine Ca Gm	Milk Ca Gm	Total Ca Excreted Gm	Balance Ca Gm
4	1.994	0.105	7.150	1.999	+1.171
5	1.871	0.123	2.859	1.994	+0.866
6	1.439	0.121	2.916	1.560	+1.366
10	1.421	0.292	2.572	2.713	+0.859
11	2.317	0.380	3.323	1.617	+0.706
12	1.868	0.296	3.107	2.164	+0.943
Total 4, 5 and 6	5.204	0.349	8.901	5.553	
Total 10, 11, 12	5.606	0.888	9.002	6.404	

the trial of such measures as large doses of various calcium salts, ammonium chloride and viosterol, but the prophylactic use of these was of little avail in influencing the abnormal calcium metabolism. It was found that prophylactic doses of parathyroid extract alone prevented the return of tetany and loss of consciousness. Roentgenograms showed no increased density of the bony structures. The basal metabolic rate was normal.

In order to work out the calcium metabolism on this patient she was placed on a diet of 2 liters of milk a day. During a period of three days no tests were made but on the following three days the feces, urine and milk were analyzed for calcium content. This was done by igniting a definite amount of the substance to be tested dissolving the ash in hydrochloric acid neutralizing it with ammonium hydroxide, slightly reacidifying it and precipitating the calcium with ammonium

oxalate solution. The precipitate of calcium oxalate was ignited and weighed as calcium oxide.

This test was carried out when the patient was receiving no medication and repeated when she was receiving parathyroid extract.

The accompanying tables give the results of the analyses.

During the period comprising the seventh to the twelfth day inclusive the patient was receiving 20 units of parathyroid extract a day. In terms of the element calcium, the balance is shown in table 2.

It will be seen from the total calcium excreted in the feces for the first three days that it differs but slightly from the second three day period whereas the calcium excreted in the urine for the second period is more than double that of the first three days.

SUMMARY

The calcium metabolism of a young woman having an idiopathic hypoparathyroidism was studied. It being found that there was a positive calcium balance that was reduced by the administration of parathyroid extract.

The increased excretion of calcium as a result of the use of parathyroid extract appeared to be chiefly by way of the urine, very slight if any change took place in the fecal calcium content after the use of the hormone.

What becomes of the calcium stored in hypoparathyroidism is still an open question for apparently x-rays do not show increased density of the bones although this method may not be sufficiently delicate to show the amount that may be stored there.

350 Henry Street

EFFECT OF INTRAVENOUSLY INJECTED DEXTROSE ON THE RATE OF PROPULSION IN THE SMALL INTESTINE

J. P. QUIGLEY, PH.D. AND WILLIAM H. HIGHSTONE, B.S.
CLEVELAND

When oral alimentation is inexpedient or impossible, the intravenous administration of dextrose is often desirable to supply nutrition and to prevent or relieve acidosis and the like. This situation is especially prone to occur in patients having actual or latent gastro-intestinal disturbances. Clinicians may hesitate in the employment of intravenous dextrose if they have reason to believe that this procedure has a tendency to cause ileus. In spite of the need for information regarding the action of intravenous dextrose on intestinal motility investigations on this subject have been rare.

In 1924 Bulatao and Carlson¹ reported that in dogs intravenous injections of 50 per cent dextrose caused an inhibition of gastric hunger contractions. This conclusion has frequently been extended by inference to other portions of the gut. The belief has thus become current that intravenous injections of dextrose inhibit the entire gastro-intestinal tract. This is in spite of the observation of Hughson and Scarff² that gastro-intestinal motility was augmented in the cat by the intravenous administration of 25 per cent dextrose. Quigley and Hallaran³ investigated the subject and by means of the balloon method obtained definite evidence that the intravenous injection of doses ranging from 1 to 25 Gm of dextrose did not inhibit the empty stomach, the ileum or the colon of the normal dog. It was established that a transient inhibition may be produced if the injection is given rapidly or the animal is otherwise disturbed by the procedure. The absence of inhibitory action on gastric hunger motility was likewise demonstrated by

The expenses of this investigation were defrayed in part by a grant from the Therapeutic Research Committee of the American Medical Association.

From the Department of Physiology, Western Reserve University School of Medicine and the Department of Physiology and Pharmacology, Northwestern University Medical School.

1. Bulatao, E. and Carlson, A. J. Influence of Experimental Changes in Blood Sugar Level on Gastric Hunger Contractions. *Am. J. Physiol.* 69: 107-115 (June) 1924.

2. Hughson, W. and Scarff, J. E. The Influence of Intravenous Sodium Chloride on Intestinal Absorption and Peristalsis. *Bull. Johns Hopkins Hosp.* 35: 197-201 (July) 1924.

3. Quigley, J. P. and Hallaran, W. R. The Independence of Spontaneous Gastro-Intestinal Motility and Blood Sugar Levels. *Am. J. Physiol.* 100: 102-110 (March) 1932.

Mulinos⁴ Gage, Ochsner and Cutting⁵ recently reported that intravenous dextrose leads to a transient inhibition of the normal or obstructed ileum. They further reported that, if administered after insulin, dextrose produced augmented motility. These statements were so contradictory to our observations that we deemed it advisable to study the problem by a different technique.

In the ileus problem the effect of dextrose injections on the propulsive efficiency of the intestine is at least as important as the effect on nonpropulsive motility. It was therefore considered desirable to investigate the question from the standpoint of propulsion activity, especially since the balloon method as usually employed does not yield such information. We have studied the intestinal propulsive rate by the bolus method⁶, i. e., by repeatedly determining the time interval required for a small pliable rubber bolus to be pushed through a loop of the

TABLE 1—Number of Experiments in Which Propulsive Motility Was Inhibited Stimulated or Unchanged

Quantity of Dextrose		Effect During First 20 Minutes			Effect During 20.00 Minute Interval		
		Inhibition	Stimulation	Unchanged	Inhibition	Stimulation	Unchanged
100 cc 5% solution		2	3	2	3	2	2
100 cc 10% solution		3	8	1	2	7	3
30 cc 25% solution		0	3	3	0	4	2

intestine. Using four well trained unanesthetized dogs lying at ease on mattresses, we performed twenty-five experiments. To determine the normal propulsion rate we repeatedly introduced the bolus into the oral end of a jejunal Thury-Vella loop and timed its reappearance at the anal end. After suitable control propulsion rates were obtained, we carefully introduced the dextrose solution into the small saphenous vein and continued the determination of the propulsion rate. Cognizance was taken of the detailed precautions necessary to prevent the reactions that sometimes result after improper intravenous dextrose administration. The results of our bolus studies support the conclusions reached in our balloon experiments.³ Dextrose can be administered without decreasing propulsive activity; however, if the animal is disturbed by the injection or subsequently becomes restless, a lengthening (usually transient) of the propulsion time may be observed. On the other hand our experiments show that intravenous dextrose may even shorten propulsion time. This tends to support the statement of Hughson and Scarff⁷ that hypertonic dextrose, like hypertonic sodium chloride, augments motility. However, the changes in propulsion rate that did occur after dextrose were usually small in magnitude.

The results obtained in two typical experiments follow: (1) The normal rate for the passage of the bolus through a 9 inch loop of jejunum was in repeated control tests 3 3 3, 3 3 minutes, after 30 cc of 25 per cent dextrose it was 3 3, 2 3 1, 4, 2 3 3, 4, 4, 3, 3 minutes, (2) the normal rate 5 5 5 5 minutes, after 100 cc of 10 per cent dextrose 5 3 4 3, 4, 4 4 4 4 minutes. The data of our entire investigation are summarized in the accompanying table.

CONCLUSIONS

Intravenous injections of dextrose usually produce no pronounced change in the rate at which a bolus traverses a loop of the dog's jejunum. With hypertonic solutions however, augmented propulsion may follow. A delay in propulsion appears to be an atypical response. The contention that in latent or actual ileus intravenous dextrose properly prepared and administered is contraindicated because of an inhibitory action on the intestine appears to be unwarranted.

2109 Adelbert Road

- ⁴ Mulinos M. G. Influence of Experimental Alterations in the Blood Sugar Concentration on the Gastric Hunger Contractions. *Am J Physiol* 104: 371-378 (May) 1933.
⁵ Gage I. M., Ochsner Alton and Cutting R. A. Effect of Insulin and Dextrose on the Normal and on the Obstructed Intestine. *Arch Surg* 26: 658-683 (April) 1933.
⁶ Quigley J. P., Highstone W. H. and Ivy A. C. A Study of the Propulsive Activity of a Thury Vella Loop of Intestine to be published.
⁷ Hughson and Scarff⁷ Reid P. E. Effect of Hypertonic Sodium Chloride Intravenously on Intestinal Peristalsis. *Proc Soc Exper Biol* 29: 220-222 (Nov.) 1931.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
H. A. CARTER Secretary

PARASEPT NOT ACCEPTABLE

Dr. Schlosser's Heat Therapy, 302 West Eighty-Seventh Street, New York City, submitted a product called Parasept to the Council for consideration. The firm claims that this product is an antiseptic paraffin composition and is a good method of applying heat therapeutically to the body. A technique of application is proposed. First, olive oil is rubbed on the affected part. By means of a suitable brush, melted Parasept is applied quickly in layers until a thickness of approximately one-third inch has been obtained over the part. So covered with hot composition the part is wrapped in sheets and blankets and kept in that condition for approximately thirty minutes.

The Council investigated Parasept, following the directions as prescribed by the manufacturer. On first contact of the brush the burning hot sensation was soon replaced by a pleasant feeling of warmth. The composition was left on for the prescribed time. When the Parasept was removed the skin was warm and hyperemic, and this state persisted for about two and one-half hours after treatment.

Parasept was used in a clinic by a Council investigator on several patients, whose conditions were diagnosed as arthritis, myositis and neuritis. However, no relief of symptoms was reported that could not be explained by the physiologic action of heat. The investigator reported that he had been using paraffin applications for several years and that there was apparently no difference between the effects of Parasept and ordinary Paraffin.

Although the Council has recommended the therapeutic value of warm paraffin as a method of applying heat, it voted not to accept Parasept, because the advertising matter and descriptive literature contain misleading statements and because the Council's investigation indicated that the product did not possess any more therapeutic efficacy than that obtained from ordinary warm paraffin.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
PAUL NICHOLAS LEECH Secretary

OLEOTHESIN NOT ACCEPTABLE FOR N. N. R.

Oleothesin is manufactured by the Oleothesin Company of Buffalo, N. Y., and patented in the name of Oscar Hayen Stover of Buffalo (#1,907,392, May 2, 1933). It has been the subject of inquiry to the Council by reason of recent advertising. While the advertisements are noninformative regarding composition, they are not reticent concerning the alleged therapeutic attributes of the product. In fact, this broad, all-inclusive claim is made: "safe certain SURFACE ANESTHETIC." Eleven specific uses for the product appear, two of which are to

Desensitize skin at site of needle puncture particularly on children
Control pain associated with boils and carbuncles

Inquiry was made of the manufacturer whether or not the product was of secret composition and if not, a quantitative statement of its formula was requested. The reply denied secrecy and set forth the following formula:

	% by wt.
Procaine base	17.2
Alcohol	6.0
Olive oil	76.7
Lanolin	
Cresol	0.1
Flavors	

This is a formula the prescription for which might have been written on any suitable occasion by any practitioner from Maine to California. However, on May 2, 1933, a patent was issued

and so the mixture became an original, protected invention and any one writing such a prescription after that date, regardless of how frequently he had been using it before, would be liable to prosecution under the United States laws for patent infringement or would be obliged to contest the patent in court if the manufacturer so chose.

The increased penetrating power (through mucous membranes) and the solubility in oils and fats of procaine base, as compared with the hydrochloride, have been known since the work of O. Gros (in 1910) and verified by A. Laewen (1910, 1912) and Sollmann (1918). The base does not penetrate the intact integument and hence would be of no appreciable value in relieving the pain of boils, carbuncles or needle puncture. In a booklet entitled "Pharmacology and Technique" it is ingeniously implied that the product is the answer to a study of fifty years' duration.

There has been a continuous search since Koller's use of cocaine in 1884 for a drug to be used as a topical anesthetic possessing the ability to penetrate mucous membranes yet having low toxicity.

If Oleothesin is that long sought drug then the search should have ended twenty-three years earlier than the granting of the patent, with the publication of the actions and properties of procaine base by the aforementioned investigators. The product clearly represents another attempt to push a mixture of a thoroughly investigated, familiar and time-honored drug as something new, original and epoch making. It has been said that if common sense dictated the granting of patents such a mixture would not be patentable.

The Council declared Oleothesin not acceptable for New and Nonofficial Remedies because it is an unoriginal mixture of well known substances marketed under a misleading, suggestive trade name with no statement of its composition and under therapeutic claims that are too inclusive, exaggerated and unwarranted.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG, Secretary

CELLU BREAKFAST CRISP

A SPECIAL PURPOSE BREAKFAST FOOD FOR DIETS LOW IN SUGAR AND STARCH
(SWEETENED WITH SACCHARIN)

Manufacturer—Chicago Dietetic Supply House, Inc., Chicago

Description—A cereal substitute of little nutritive value prepared from washed bran, commercially pure powdered cellulose, mineral oil, India gum, sodium chloride, sodium bicarbonate, baking powder and saccharin (not more than 1 gram of soluble saccharin per 7½ ounce package but omitted when sold in states forbidding its use).

Manufacture—The dough is prepared as described under Cellu Wafers (THE JOURNAL, Feb 10, 1934, p 457). The soft dough is machine pressed into strands which are dried on large trays dried in moderately hot ovens and packed in wax-lined cartons.

Analysis (submitted by manufacturer) —	per cent
Moisture	2.8
Ash	4.2
Fat (essentially mineral oil) (ether extraction method)	27.7
Protein (N × 6.25)	3.9
Crude fiber	22.6
Available carbohydrates (calculated as starch—diastase method)	2.3
Unavailable carbohydrates other than crude fiber (by difference)	36.5

Calories—0.3 per gram 9 per ounce

Claims of Manufacturer—Cereal substitute of low food value, for adding bulk to low carbohydrate diets.

GOLDEN CROWN BRAND WHITE SYRUP

Manufacturer—Stewart, Son and Company, Baltimore

Description—A table syrup, corn syrup flavored with sucrose syrup.

Manufacture—Corn syrup and sucrose in definite proportions are mixed, heated to 74 C, filtered and automatically packed in cans.

Analysis (submitted by manufacturer) —

	per cent
Moisture	23.9
Ash	0.4
Fat (ether extract)	0.0
Protein (N × 6.25)	trace
Reducing sugars as dextrose before inversion	30.2
Dextrose (by fermentation method)	10.1
Sucrose (estimated from reducing sugars before and after inversion)	5.0
* Maltose (by fermentation method)	20.1
Dextrins (by difference)	40.5
Acidity as HCl	0.0
Sulphur dioxide	0.0005

* Indust. & Engin. Chem. 25: 98, 1933

(No methods are available for accurately determining the composition of syrups of this nature, therefore the foregoing analysis is roughly approximate.)

Calories—3 per gram, 85 per ounce

Claims of Manufacturer—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table.

ORANGE CRUSH CARBONATED BEVERAGE

(CARBONATED WATER, SUGAR, FRESH ORANGE JUICE, FLAVOR OF LIME, FRUIT ACID, ARTIFICIALLY COLORED)
CONTAINS ½% OF 1% SODIUM BENZOATE

Manufacturer—Orange Crush Company, Chicago

Description—Carbonated beverage prepared from carbonated water, sucrose, juice pulp and oil from entire oranges, citric acid (lemon juice), sodium benzoate (0.05 per cent) and United States Department of Agriculture certified color.

Manufacture—Oranges larger or smaller than standard for Eastern markets are mechanically washed, scrubbed, sorted, inspected, crushed by machine and all pulp, juice and part of the oil of the peel are removed, cane sugar is added. Concentrated lemon juice and United States Department of Agriculture certified food color are added to adjust the acidity and color. The mix is kept in paraffin lined barrels in cold storage until shipped each week to bottling plants, where it is mixed with carbonated water, sugar syrup and sodium benzoate and bottled.

Analysis (submitted by manufacturer) —

	per cent
Moisture	84.4
Total solids	15.6
Ash	0.04
Fat (ether extract)	0.02
Protein (N × 6.25)	0.6
Reducing sugar as invert sugar	2.0
Sucrose (copper reduction method)	11.9
Crude fiber	0.01
Carbohydrates (by difference)	14.6
Titratable acidity as citric acid	0.27
Sodium benzoate	0.05
United States Department of Agriculture certified food colors	trace

Calories—0.6 per gram 17 per ounce

Vitamins—Biologic assay shows that the final beverage retains essentially the vitamin C content of the orange juice used. 1 cc of orange juice to 21 cc of beverage.

Claims of Manufacturer—A refreshing and wholesome beverage.

HEIMAN'S BRAND SPARKLING CRYSTAL WHITE SYRUP

Distributor—Heiman Grocery Co., Trenton, Mo.

Packer—Bliss Syrup & Preserving Co., Kansas City, Mo.

Description—A table syrup, corn syrup sweetened with sucrose syrup and flavored with vanilla, the same as Bliss Pancake Crystal White Brand Syrup (Blend of Corn Syrup and Cane Sugar Syrup Flavored with Vanilla) (THE JOURNAL, Nov. 18, 1933, p 1635).

HOSPITAL SERVICE IN THE UNITED STATES

THIRTEENTH ANNUAL PRESENTATION OF HOSPITAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

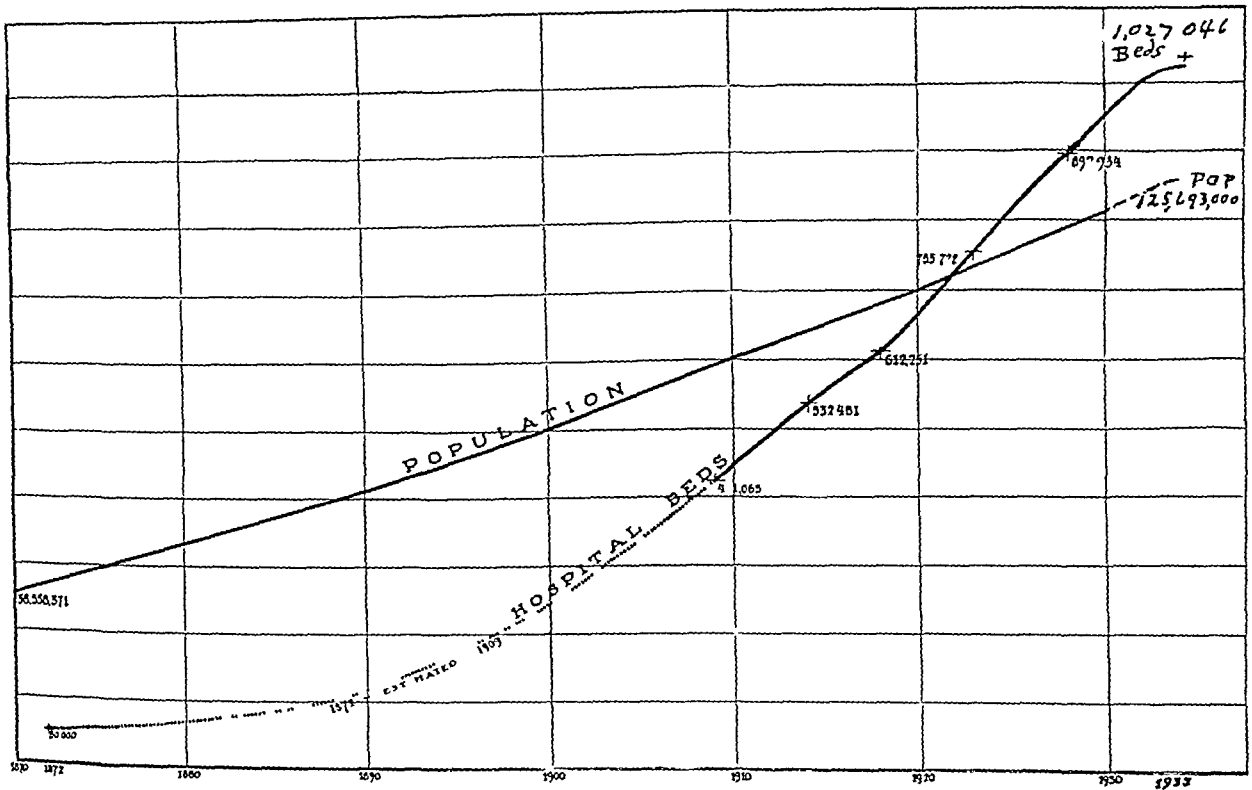
The desire to have this year's census of hospitals the most complete yet taken by the Council has been realized in a gratifying degree, thanks to the response of superintendents and others. The mass of classified information presented in these pages covers more than 97 per cent of all the recognized hospitals and sanatoriums in existence and represents more than 99 per cent of their aggregate bed capacity.

The census was begun late in 1933 and the reports were turned in near the end of 1933 and early in 1934.

There are now 6,437 hospitals having a capacity of 1,027,046 beds and 52,464 bassinets.

The increasing capacity of all hospitals, which has been mounting steadily at the rate of from 20,000 to 25,000 beds annually for the past twenty-five years, showed a slack in speed in the 1933 census for the first time, the increase in capacity for that year being only 12,692 beds over the preceding census.

Last year 7,037,982 persons, or 1 in 18, were bed patients in hospitals.



HOSPITAL CAPACITY AHEAD OF POPULATION

The above diagram reveals the rapid and striking increase in the number of hospital beds in contrast to the steady growth of population. Each of the vertical columns with dates at bottom represents a 10 year period. Each of the parallel horizontal lines represents 10,000,000 population or 100,000 hospital beds. Since around 1890 the growth in hospital beds has been quite marked as is shown by the abrupt upward curve. For approximately 25 years hospital beds have shown a steady regular increase at the rate of 20,000 to 25,000 beds per year until 1932. During 1932-33 the increase was only 12,692 beds. This slight slowing down in rate of increase of hospital beds during the past year reflected in the changed direction of the curve at the upper right hand corner of the diagram if allowed to continue for a few years would result in a more reasonable yet adequate supply of hospital beds in relation to population.

The figures obtained, therefore, reflect very nearly the conditions prevailing in hospitals for the calendar year 1933. In general the reports give evidence of having been prepared with greater accuracy than heretofore.

The list of hospitals on pages that follow gives the name, classification, approval and other data regarding all registered hospitals and related institutions rendering certain types of true hospital service.

The purpose of this article is, through the listing of hospitals and the compiled statistics, to furnish a source of information, statistical and otherwise. The following paragraphs are designed to present some of the most obvious facts.

There was an average of 216,775 idle beds, of which 155,021 were in general hospitals.

The total patient days in all hospitals numbered 295,748,915. The rate of occupancy in general hospitals was 59.9 per cent.

The average length of stay in general hospitals was fourteen days. It was thirteen days in church, individually owned, and nonprofit corporation hospitals.

The annual census finds that 709,276 babies were born in hospitals, as compared with 710,884 for the preceding year. One third of all births were in hospitals.

(Continued on page 1010)

Table 1.—Number and Capacity of Hospitals According to Agencies Owning or in Control

Marginal No	State	Federal				State				County				City				City and County				Total Government Owned*					
		Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census		
1	Alabama	5	1,266	5,538	1,070	8	5,219	5,302	50.6	6	6.9	44	9,901	46	4	3.0	26	5,098	168		23	7,404	25,869	6,719			
2	Arizona	19	1,711	48	10,724	1,346	2	963	2,067	10	440	29	3,247	307	3	193	20	2,806	81		14	3,140	77	14,331	2,631		
3	Arkansas	2	1,232	984	8.1	6	4,189	2,963	4,067	3	281	1	1,181	266	1	1	1	10,271	1		14	5,860	31	7,866	5,365		
4	California	18	6,649	23	33,044	4,779	16	22,155	32	18,346	21	0.9	42	127,066	11,288	2	110	10,271	1		102	47,681	536	20,013	38,001		
5	Colorado	4	2,404	10	5,441	1,388	8	9,907	5,887	3,820	4	210	17	2,323	142	1	7	30	6,263	409		22	10,488	42	13,407	9,409	
6	Connecticut	1	266	1	748	181	16	5,466	8,719	1,106	6	7	30	6,263	409	6	7	30	6,263	409		22	10,488	42	13,407	9,409	
7	Delaware	1	28	232	4	4	1,417	507	1,106																		
8	Dist of Columbia	9	8,137	62	20,504	7,640	2	202	281	284																	
9	Florida	4	502	4,413	763	4	4,578	3,408	4,370	6	467	38	6,161	301	1	6.0	4	1,020	483		12	9,689	116	26,605	8,907		
10	Georgia	8	1,840	12	11,101	1,511	6	6,482	3,364	6,300	3	1,40	10	1,991	77	7	734	94	14,013	41		23	6,521	166	29,773	5,711	
11	Idaho	4	462	1,369	288	5	1,417	870	1,200																		
12	Illinois	8	7,811	9	12,710	3,149	22	33,334	35	13,988	11	714	17	7,718	200	2	2,80	16	20,104	1,914		40	11,279	170	33,593	11,006	
13	Indiana	4	1,703	4	2,764	1,881	22	11,834	35	13,988	11	714	17	7,718	200	2	2,80	16	20,104	1,914		40	11,279	170	33,593	11,006	
14	Iowa	3	999	1,922	9.6	16	7,066	24	9,718	6,87	6	268	4	3,077	182	8	171	37	2,711	66		3	1,22	3	18	18	
15	Kansas	5	1,704	13	8,005	6.0	16	7,066	24	9,718	6,87	6	268	4	3,077	182	8	171	37	2,711	66		3	1,22	3	18	18
16	Kentucky	6	871	4,452	637	7	7,067	4,450	6,674	4	219	17	2,385	148	1	1,000	6	14,079	511		1	9	1	9	1	9	
17	Louisiana	3	1,364	5,471	1,106	7	7,067	93	60,917	8,122																	
18	Maine	3	446	2,089	2.0	6	3,490	931	3,436																		
19	Maryland	18	8,040	44	11,883	7,102	4	272	29	2,88	104																
20	Massachusetts	8	2,834	6	7,090	1,940	30	31,010	24	15,946	20,693	8	1,22	283	5,776	46	77,211	4,888									
21	Michigan	9	988	2,195	940	21	17,016	40	36,767	10,707	28	1,467	67	11,671	5,808	26	4,000	60,304	3,61								
22	Minnesota	8	1,707	28	5,724	1,268	17	13,424	40	14,063	12,414	1	1,68	3	3,524	1,47	10	1,009	63	14,873	706						
23	Mississippi	2	629	6	7,60	615	12	5,124	39	10,648	4,31	2	40	6	603	10	1	997	19	4,77	6,40						
24	Missouri	6	1,883	3	5,669	738	11	8,762	8	5,711	4,51	4	410	53	6,02	262	1	997	19	4,77	6,40						
25	Montana	7	642	41	4,206	337	1	2,335	1,098	2,665																	
26	Nebraska	5	310	2	5,116	202	12	7,230	31	0,189	5,460	9	248	8	2,425	260	3	66	7	263	16						
27	Nevada	3	92	3	974	53	1	32	88	318																	
28	New Hampshire	1	1,40	1,945	137	4	2,338	7	683	1,962																	
29	New Jersey	1	1,001	1,835	914	13	13,842	7	884	1,962																	
30	New Mexico	12	1,439	30	6,948	958	42	74,640	34	71,611	71,838	10	7,793	18	227	4,42	40	19,060	22,246	(22,18,27)							
31	New York	22	6,948	22	27,911	4,897	42	74,640	34	71,611	71,838	10	7,793	18	227	4,42	40	19,060	22,246	(22,18,27)							
32	North Carolina	3	948	8	3,779	727	7	7,521	2	1,212	0,970	11	97	21	2,194	589	3	296	31	3,787	10						
33	North Dakota	2	241	1	3,162	172	4	2,981	1	0,114	2,568	2	40	3	133	46	2	67	46	2							
34	Ohio	6	2,294	4	7,710	1,966	23	24,817	0	17,967	21,17	24	104	61	10,000	2,000	20	4,719	28	40,340	2,000						
35	Oklahoma	12	1,151	57	12,442	837	11	8,337	22	11,221	7,09	1	40	10	4,24	19	8	310	8	3,788	40						
36	Oregon	6	462	2	3,573	314	9	5,115	1	46,977	27,83	32	23,887	1,1	46,977	27,83	32	23,887	1,1	46,977	27,83						
37	Pennsylvania	6	2,240	1	7,150	1,691	32	23,887	1,1	46,977	27,83	32	23,887	1,1	46,977	27,83	32	23,887	1,1	46,977	27,83						
38	Rhode Island	2	247	2,290	250	7	4,369	49	2,90	4,291																	
39	South Carolina	3	500	11,198	394	6	4,328	3,449	4,174																		
40	South Dakota	10	1,078	22	5,922	827	4	2,640	619	2,70																	
41	Tennessee	1	1,191	4	4,243	86	9	5,733	5,90	5,012																	
42	Texas	12	2,236	29	10,636	1,70	1	1,236	6	11,493	13,240	14	35	76	5,89	7	9	1,003	107	20,969	6,00						
43	Utah	1	1,11	2	1,068	111	3	1,245	87	1,181																	
44	Vermont	1	67	914		5	1,410	469	1,313																		
45	Virginia	8	2,244	7	21,439	17,8	14	9,019	2	14,240	9,012	2	125	5	808	114	4	8,0	28	2,227	179						
46	Washington	13	2,440	11	10,754	1,846	9	6,901	21	9,014	4,468	10	1,097	15	5,669	1,101	3	430	6	1,311	2,3						
47	West Virginia	1	210	271	2	12	4,869	21	9,014	4,468																	
48	Wisconsin	4	1,437	14	6,090	1,104	14	5,949	4	1,626	2,76	9	12,097	60	19,667	11,162	11	6,6	74	6,707	217						
49	Wyoming	3	38	10	678	310	4	911	7	1,706	77	4	263	7	4,697	118											
50	Totals	265	75,635	502	324,160	50,726	537	479,640	925	483,118	473	77	11	80,410	2,220	406,921	69,047	711	67,631	1,027	71,611	7,40					
51	(1932)	301	74,151	401	326,028	47,984	508	442,001	1,014	461,753	417,212	11	84,334	2,116	784,20	71,089	388	69,531	1,207,096	7,82							
52	(1931)	231	69,170	301	301,140	47,981	570	419,252	846	388,984	304,978	508	77,371	1,012	745,256	62,802	704	63,161	1,178	689,529	40,811						
53	(1930)	288	67,581	274	300,499	46,973	581	406,909	788	389,270		407	71,610	1,108	60,90		704	63,064	1,246	47,850							
54	(1929)	292	68,901	290	46,073		584	387,706	78	334,042		487	63,019	1,385	2,991		727	67,126	1,091	1,410							
55	(1928)	291	67,166	117	47,037		569	369,749	813			484	63,231	1,297			727	67,126	1,091	1,410							
56	(1927)	301	60,444		41,937		569	369,749				484	63,231	1,297			727	67,126	1,091	1,410							
57	(1926)	296	58,860		31,937		601	392,208				467	46,671														

* Totals for all hospitals are given at end of table 2

Table 1—Number and Capacity of Hospitals According to Agencies Owning or in Control—Continued

Marginal No	State	Church			Fraternal			Industrial			Individual or Partnership			Independent Association			Total Non Government Owned			Marginal No		
		Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds		Patients Admitted	Average Census
1	Alabama	9	708	91	17,411	286	16	225	16	5,425	104	26	976	128	12,640	383	63	3,298	6,170	1,345	1	
2	Arizona	10	811	8	9,494	459	22	1	301	26	2,000	169	12	270	19	982	104	33	1,347	719	2	
3	Arkansas	9	1,023	97	1,215	303	3	172	6	9,959	83	36	54	59	5,027	1,345	53	2,587	213	883	3	
4	California	41	4,084	814	76,881	4,377	6	711	20	7,337	463	170	2,967	402	3,715	1,411	207	7,762	2,128	2,918	4	
5	Colorado	27	2,438	374	32,787	1,280	1	2	30	2,027	170	28	281	80	6,982	282	81	5,418	4,605	3,011	5	
6	Connecticut	6	1,128	104	26,201	791	1	2	30	2,027	170	11	294	6	1,982	181	63	6,994	940	1,073	6	
7	Delaware	5	734	117	17,460	507	1	2	30	2,027	170	11	294	6	1,982	181	9	6,887	1,006	1,000	7	
8	District of Columbia	5	602	94	7,647	293	2	100	4	5,977	38	5	83	4	8,917	47	21	2,522	77	7,876	8	
9	Florida	5	407	59	9,680	206	1	12	2,570	82	42	20	1,068	130	10,042	493	68	2,601	374	1,070	9	
10	Georgia	11	592	107	10,066	290	4	429	25	5,701	265	20	978	61	7,140	393	82	2,247	372	50,865	10	
11	Idaho	60	11,908	1,881	170,348	5,911	5	10	2,570	82	43	20	978	61	7,140	393	76	2,247	372	50,865	11	
12	Illinois	29	4,008	617	58,275	1,674	2	10	2,570	82	43	20	978	61	7,140	393	122	6,287	976	2,940	12	
13	Indiana	4	427	607	58,190	2,119	2	6	30	2,027	170	21	42	12	9,814	271	92	4,616	621	69,740	13	
14	Iowa	4	427	607	58,190	2,119	2	6	30	2,027	170	21	42	12	9,814	271	92	4,616	621	69,740	14	
15	Kansas	37	2,888	421	41,762	1,570	1	2	30	2,027	170	28	43	81	4,740	188	23	3,827	408	1,874	15	
16	Kentucky	17	1,921	211	25,921	1,040	2	40	1,430	60	22	613	69	6,985	27	174	70	4,457	331	62	16	
17	Louisiana	10	1,071	144	26,881	771	1	120	9	1,480	67	1	8	116	5,488	270	33	3,704	526	1,801	17	
18	Maine	9	1,461	41	5,383	181	1	120	9	1,480	67	1	8	116	5,488	270	33	3,704	526	1,801	18	
19	Maryland	9	1,461	41	5,383	181	1	120	9	1,480	67	1	8	116	5,488	270	33	3,704	526	1,801	19	
20	Massachusetts	18	2,422	38	40,598	1,002	1	60	2,422	38	40,598	1,002	1	60	2,422	38	33	3,704	526	1,801	20	
21	Michigan	11	3,876	649	54,221	1,916	1	50	118	24	1,102	109	46	926	138	10,864	261	48	9,924	471	69,619	21
22	Minnesota	8	1,718	531	62,449	1,951	1	60	2,422	38	40,598	1,002	1	60	2,422	38	147	17,384	1,615	1,148	22	
23	Mississippi	4	964	31	7,917	97	1	1	1	1	1	1	1	1	1	1	160	8,224	1,275	171	23	
24	Missouri	1	1,411	612	78,072	1,019	1	3	4	4	4	40	862	129	11,746	298	8	2,282	258	32,251	24	
25	Montana	22	1,707	263	22,226	714	1	13	8	2,537	72	14	241	44	2,793	87	44	2,706	360	30,147	25	
26	Nebraska	22	2,46	274	33,630	1,919	1	4	1	1	1	50	847	182	10,197	270	83	3,704	526	1,801	26	
27	Nevada	1	52	12	1,273	30	1	1	1	1	1	1	1	1	1	1	6	220	27	3,464	27	
28	New Hampshire	5	0	64	5,524	202	2	160	416	56	1	2	615	63	5,074	323	33	1,673	250	26,773	28	
29	New Jersey	50	1,578	303	67,900	2,296	2	160	416	56	1	2	615	63	5,074	323	122	12,910	1,871	201,783	29	
30	New Mexico	13	86	66	9,668	409	6	604	4	4,411	497	80	2	61	5,7	26,199	1,329	30	1,276	111	30	
31	New York	81	11,916	1,522	170,680	6,996	2	97	2,2	26	44	6	1,269	75	14,411	678	265	32,708	4,777	540,145	31	
32	North Carolina	17	1,016	140	16,385	558	3	604	4	4,411	497	80	2	61	5,7	26,199	1,329	414	47,760	6,460	31,640	32
33	North Dakota	10	1,410	217	22,777	722	2	97	2,2	26	44	6	1,269	75	14,411	678	265	32,708	4,777	540,145	33	
34	Ohio	48	7,077	1,046	109,050	4,018	2	105	12	1,24	23	1	10	10	10	10	189	16,080	2,164	236,732	34	
35	Oklahoma	8	777	139	13,427	401	2	31	1	163	7	1	60	1,703	219	24,637	643	17	746	94	148	35
36	Oregon	11	1,514	211	27,269	810	2	64	2	2,23	54	16	399	66	4,740	153	127	6,238	677	88,774	36	
37	Pennsylvania	44	6,617	810	88,066	4,197	5	355	1	1	1	49	1,237	183	9,100	576	296	3,867	4,071	471	35	
38	Rhode Island	1	392	43	9,810	246	1	1	1	1	1	4	73	9	9,21	44	59	1,171	478	47,012	37	
39	South Carolina	5	278	29	2,940	118	3	162	7	1,277	98	4	73	9	9,21	44	22	2,369	917	28,001	38	
40	South Dakota	14	97	134	10,728	434	3	162	7	1,277	98	4	73	9	9,21	44	22	2,369	917	28,001	39	
41	Tennessee	6	1,088	173	20,466	568	5	317	19	2,271	208	111	2,010	317	32,788	884	232	10,197	1,119	172,781	40	
42	Texas	7	789	416	64,461	1,724	3	162	7	1,277	98	4	73	9	9,21	44	23	10,197	1,119	172,781	41	
43	Utah	6	884	162	14,720	322	2	59	11	2,69	18	13	161	23	1,492	30	25	1,348	225	19,089	42	
44	Vermont	3	237	28	3,780	145	2	147	10	1,468	73	16	327	60	6,072	709	25	1,348	225	19,089	43	
45	Virginia	4	577	71	9,233	279	2	147	10	1,468	73	16	327	60	6,072	709	25	1,348	225	19,089	44	
46	Washington	23	2,880	470	40,163	1,900	1	1	1	1	1	50	74	334	334	1,774	83	4,945	5,6	79,966	45	
47	West Virginia	9	911	103	12,422	314	1	1	1	1	1	21	547	114	4,716	202	85	5,261	993	72,921	46	
48	Wisconsin	55	6,384	946	94,004	3,277	1	18	21	8	1	33	231	210	40,201	1,146	56	3,874	387	64,921	47	
49	Wyoming	2	45	10	497	11	1	1	1	1	1	3	62	100	6,844	207	136	9,013	1,457	136,175	48	
0	Totals	984	110,840	10,190	1,773,805	63,621	72	3,909	132	90,817	3,487	115	5,988	301	68,611	2,697	4,661	372	733	44,670	70	
51		1,001	117,515	10,125	1,918,214	67,111	72	4,550	152	101,390	3,760	118	6,666	373	78,016	2,897	4,758	314	987	41,572	71	
52		1,001	116,935	15,801	2,013,712	73,911	77	5,528	161	141,790	3,920	136	6,437	421	91,166	3,102	4,758	314	987	41,572	72	
53		1,001	116,935	15,801	2,013,712	73,911	77	5,528	161	141,790	3,920	136	6,437	421	91,166	3,102	4,758	314	987	41,572	73	
54		1,001	116,935	15,801	2,013,712	73,911	77	5,528	161	141,790	3,920	136	6,437	421	91,166	3,102	4,758	314	987	41,572	74	
55		1,001	116,935	15,801	2,013,712	73,911	77	5,528	161	141,790	3,920	136	6,437	421	91,166	3,102	4,758	314	987	41,572	75	
56		1,001	116,935	15,801	2,013,712	73,911	77	5,528	161	141,790	3,920	136	6,437	421	91,166	3,102	4,758	314	987	41,572	76	
57		1,001	116,935	15,801	2,013,712	73,911	77	5,528	161	141,790	3,920	136	6,437	421	91,166	3,102	4,758	314	987	41,572	77	

* Totals for all hospitals are given at end of table 2

Table 2.—Number and Capacity of Hospitals According to Type of Service, Together with Number of Patients Admitted

Table 2—Number and Capacity of Hospitals and Convalescent and Rest Homes, by State, 1913																									
Marginal No.	State	General				Nervous and Mental				Tuberculosis				Maternity				Industrial				Convalescent and Rest			
		Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census				
1	Alabama	62	3,843	62,646	1,877	5,937	3,692	4	244	261	1,077	159	1	10	350	10	1	10	350	10					
2	Alaska	34	1,439	10,211	1,021	1,035	2,600	10	1,731	9,810	1,599	64	1	7	7	9	1	7	7	9					
3	Arizona	74	2,974	20,000	22,163	4,101	14,531	22,879	41	4,621	4,714	387	1	42	6	35	1	42	6	35					
4	California	2,115	28,380	272,330	4,477	67,135	3,477	13	1,600	1,076	1,141	136	10	331	219	1,652	231	9	331	219					
5	Colorado	67	6,121	47,777	67,135	3,477	13,141	10,761	13	1,600	2,272	142	2	18	18	231	7	2	18	18					
6	Connecticut	75	5,914	62,107	134,799	14	8,690	3,707	8	1,604	2,272	111	2	130	59	2,870	54	2	130	59					
7	Delaware	9	603	106	14,777	421	2	1,273	412	1,084	2	144	2	270	2	2	2	2	270	2					
8	District of Columbia	16	4,745	394	92,342	3,611	5,172	5,493	2	270	2,544	2	41	33	51	22	1	41	33	51					
9	Florida	73	4,146	593	69,590	2,906	7	1,166	1,934	6,914	6	661	1,372	573	1	1	1	1	1	1					
10	Georgia	81	4,649	571	87,400	2,508	7	1,166	1,934	6,914	6	661	1,372	573	1	1	1	1	1	1					
11	Idaho	44	1,576	216	21,211	695	1	132	263	1,273	1	132	263	1,273	1	1	1	1	1	1					
12	Illinois	224	28,329	2,858	429,474	1,813	30	34,693	16,607	72,839	27	3,819	4,943	3,200	176	4	221	1,613	156	12					
13	Indiana	91	7,451	1,100	109,365	3,449	15	12,585	2,017	12,133	8	1,111	1,021	1,206	17	3	10	101	40	10					
14	Iowa	124	6,794	1,099	104,642	3,301	16	11,132	1,677	10,638	6	711	810	702	31	1	21	101	40	10					
15	Kansas	91	6,116	723	71,286	2,729	11	6,492	1,066	6,149	3	631	407	41	20	3	240	3,076	141	15					
16	Kentucky	73	4,632	494	69,150	2,383	8	6,564	1,891	6,475	1	1,002	1,422	924	70	1	30	327	24	17					
17	Louisiana	42	5,617	411	118,063	4,513	6	6,014	2,410	3,777	3	326	2,12	1,009	110	1	14	35	7	18					
18	Maine	36	2,897	414	41,069	1,665	4	3,040	531	702	5	530	466	476	1	1	14	35	7	18					
19	Maryland	35	5,969	588	66,405	4,001	19	9,339	3,137	8,738	9	1,347	1,996	1,261	14	1	14	35	7	18					
20	Massachusetts	152	19,859	2,630	298,445	13,974	32	27,670	9,191	29,851	31	477	3,755	3,660	20	2	10	404	414	21					
21	Michigan	162	14,102	1,822	221,838	8,244	14	20,076	7,700	19,164	25	3,066	3,638	7,214	14	1	11	101	201	22					
22	Minnesota	134	10,411	1,301	161,006	6,919	17	12,920	2,791	12,012	16	1,944	1,427	1,783	94	1	7	317	1,507	23					
23	Mississippi	65	2,823	369	47,166	961	4	4,593	1,801	4,114	2	524	372	306	8	3	30	327	24	17					
24	Missouri	94	9,949	1,732	1,849,52	5,811	18	1,412	3,040	12,322	7	1,441	1,299	1,111	27	1	1	400	19	24					
25	Montana	52	3,015	569	32,359	1,454	2	2,170	573	2,190	1	150	161	111	10	2	1	400	19	24					
26	Nebraska	88	4,416	547	61,820	2,299	5	9,161	1,144	4,968	1	160	131	154	27	4	1	400	19	24					
27	Nevada	13	4,617	71	4,895	279	1	325	83	318	2	210	159	177	67	1	1	400	19	24					
28	New Hampshire	35	1,909	209	29,031	1,122	2	2,400	618	2,932	1	22	16	221	8	1	1	400	19	24					
29	New Jersey	83	12,085	1,693	229,841	8,167	29	20,287	7,889	18,914	17	2,271	4,292	1,712	176	1	5	354	1,103	23					
30	New Mexico	29	1,774	126	17,853	703	2	776	270	714	1	125	928	825	6	1	5	354	1,103	23					
31	New York	30	49,523	6,330	883,248	6,190	72	79,722	30,060	73,529	10	10,445	14,377	9,701	1	1	27	1,01	9,900	104					
32	North Carolina	99	5,07	91	92,793	2,651	8	7,701	1,748	6,353	2	241	2,911	1,771	35	3	2	1,01	9,900	104					
33	North Dakota	43	2,017	316	37,219	1,022	2	2,678	410	2,938	1	211	189	220	15	1	2	1,01	9,900	104					
34	Ohio	133	18,107	9,178	274,181	10,146	33	2,765	7,243	24,900	20	3,114	3,537	2,531	214	2	3	100	9	1,2					
35	Oklahoma	100	4,919	567	74,456	2,472	6	7,190	2,749	6,134	13	454	3,2	4,714	214	1	2	31	1	10					
36	Oregon	52	3,479	467	57,836	1,906	6	4,970	1,212	4,544	4	403	403	410	20	1	2	40	01	21					
37	Pennsylvania	223	30,440	3,937	519,564	18,955	48	35,144	1,117	7,792	17	633	310	4,104	469	1	11	443	10	314					
38	Rhode Island	11	2,985	30	32,822	2,284	4	3,064	790	7,011	1	171	632	4,713	4	1	2	37	27	27					
39	South Carolina	44	2,812	251	49,875	1,600	3	4,003	1,166	7,909	6	82	738	414	13	1	1	113	104	41					
40	South Dakota	53	2,720	300	32,933	1,483	3	2,520	379	2,177	1	102	190	165	10	2	2	113	104	41					
41	Tennessee	65	5,380	502	92,404	3,044	9	6,418	2,734	5,781	8	1,081	976	931	18	1	1	113	104	41					
42	Texas	227	12,012	1,389	203,493	5,782	11	1,628	4,176	12,694	19	2,436	4,0	1,014	10	2	2	113	104	41					
43	Utah	27	1,624	237	23,036	908	3	1,247	267	1,188	1	109	209	148	10	1	1	113	104	41					
44	Vermont	22	1,144	177	20,915	623	4	1,910	791	1,899	1	109	209	148	10	1	1	113	104	41					
45	Virginia	77	8,848	538	104,569	4,016	8	8,018	2,741	8,211	7	1,119	1,112	1,063	10	2	1	113	104	41					
46	Washington	84	6,965	538	94,016	3,801	9	7,117	2,003	6,986	10	917	1,161	968	10	1	1	113	104	41					
47	West Virginia	60	4,314	421	70,077	1,887	5	3,664	1,764	3,701	7	710	5	697	10	1	1	113	104	41					
48	Wisconsin	170	11,593	1,615	107,771	6,474	51	14,001	4,801	17,910	21	2,041	1,941	1,785	5	1	1	113	104	41					
49	Wyoming	21	723	110	10,111	391	1	1,226	270	1,173	1	33	21	175	1	1	1	113	104	41					
50	Totals	(19,133)	4,277,356	713,477	608,071	512,231	602	621	499,048	170,517	474,737	497	70,682	81,127	60,031	134	7,916	4,008	82,340	4,717	70				
51		(19,122)	4,305,705	743,465	638,033	573,240	605	674	509,519	169,811	424,737	512	69,676	74	71,112	60,023	139	7,916	4,008	82,340	4,717	70			
52		(19,131)	4,300,333	743,465	638,033	573,240	605	674	509,519	169,811	424,737	512	69,676	74	71,112	60,023	139	7,916	4,008	82,340	4,717	70			
53		(19,130)	4,302,371	609,431	911	234,000	240,381	601	437,919	410,102	424,737	512	69,676	74	71,112	60,023	139	7,916	4,008	82,340	4,717	70			
54		(19,129)	4,308,537	634,421	715	234,000	240,381	601	437,919	410,102	424,737	512	69,676	74	71,112	60,023	139	7,916	4,008	82,340	4,717	70			
55		(19,128)	4,311,337	638,530	715	234,000	240,381	601	437,919	410,102	424,737	512	69,676	74	71,112	60,023	139	7,916	4,008	82,340	4,717	70			
56		(19,127)	4,312,334	639	715	234,000	240,381	601	437,919	410,102	424,737	512	69,676	74	71,112	60,023	139	7,916	4,008	82,340	4,717	70			

Table 2.—Number and Capacity of Hospitals According to Type of Service, Together with Number of Patients Admitted.—Continued

Marginal No	State	Isolation			Children s			Eye Ear Nose and Throat			Orthopedic			Hospital Departments of Institutions			All Other Hospitals			Totals					
		Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census				
1	Alabama	2	67	3	1,217	38																			
2	Arizona	1	76	420	0																				
3	Arkansas	2	2-8	5,701	165	2	50	7,700	14																
4	California	2	110	6																					
5	Colorado	2	98	708	30	1	147	18	2,982	111															
6	Connecticut	2	100	611	32																				
7	Delaware																								
8	Dist Columbia	1	182	6,008	112	2	114	5,992	61																
9	Florida	2	56	579	19																				
10	Georgia	1	50	2	706	24																			
11	Idaho	1	76	420	0																				
12	Illinois	3	508	3,46	274	3	324	24	7,462	272	2	275	5,710	177	2	275	5,710	177	2	275	5,710				
13	Indiana	1	10	24	2	1	70	3,676	248	1	7	300	3												
14	Iowa	4	102	3	517	17																			
15	Kansas																								
16	Kentucky	1	6	383	15	1	74	915	53																
17	Louisiana	1	24	60	3	1	100	450	67																
18	Maine	1	110	1,453	63																				
19	Maryland	6	212	2	708	67	6	590	8,518	400															
20	Massachusetts	3	999	6	1,96	80	2	284	6,892	263	1	1-0	1,138	78	2	310	673	282	3	124	570				
21	Michigan	3	6	79	4	1	70	729	18																
22	Minnesota	1	2-0	1,942	1-8	2	3-0	12	5,905	2-0	1	14	1,800	5	1	120	4-7	110	9	51	3,022				
23	Mississippi	1	3	62	6																				
24	Missouri	1	67	293	19																				
25	Montana	6	1,904	2	4,0-7	489	2	100	887	50	3	104	3	5,132	52	5	606	1,571	304	11	567				
26	Nebraska	1	39	473	10																				
27	Nevada	1	30	50	16																				
28	New Hampshire	1	67	293	19																				
29	New Jersey	8	1,157	17,745	782	5	729	39,10	541	573	10	764	44,181	404	14	1,941	11,645	413	7	4,137	40				
30	New Mexico	2	65	46	2	4	145	5	444	80	4	66	2,908	24	1	1-0	341	143	8	325	1,433				
31	New York	5	114	3	438	18	4	5-4	12	7,076	280	4	41	2	430	4	3	174	3-6	133	21				
32	North Carolina	1	70	617	17																				
33	North Dakota	1	50	37																					
34	Ohio	1	60	218	8																				
35	Oklahoma	1	70	617	17																				
36	Oregon	1	50	37																					
37	Pennsylvania	1	60	218	8																				
38	Rhode Island	2	110	1,284	3																				
39	South Carolina	1	50	37																					
40	South Dakota	1	50	37																					
41	Tennessee	1	50	37																					
42	Texas	1	60	218	8																				
43	Utah	1	50	37																					
44	Vermont	1	60	218	8																				
45	Virginia	2	110	1,284	3																				
46	Washington	1	50	37																					
47	West Virginia	1	50	37																					
48	Wisconsin	1	50	37																					
49	Wyoming	1	50	37																					
50	Totals	71	6,789	10,400	2,801	58	5,460	130,307	3,618	56	2,032	20	308,666	1,195	69	6,401	10	20,530	4,304	343	21,582	1,111	674	12,991	
51	(1923)	70	7,314	33	41,874	2,803	58	5,363	172	83,100	3,629	58	2,718	29	110,627	1,367	69	6,382	31,862	5,229	303	23,024	1,111	674	12,991
52	(1931)	86	7,603	50	40,210	2,837	60	5,463	273	83,410	3,623	64	2,774	27	113,767	1,444	69	6,382	37,842	5,131	494	24,121	1,111	674	12,991
53	(1930)	88	7,603	4	2,400	62	5,597	2-8	3,766	73	2,702	14	1,433	61	6,340	5,301	61	5,043	4,768	4,768	473	24,732	1,101	15,534	
54	(1929)	80	7,132	29	2,677	61	5,418	248	3,580	68	2,646	12	1,363	61	5,043	4,768	61	5,043	4,768	4,768	473	24,732	1,101	15,534	
55	(1925)	92	8,470	113	2,677	61	5,418	248	3,580	77	2,871	21	1,502	62	5,043	4,768	62	5,043	4,768	4,768	473	24,732	1,101	15,534	
56	(1927)	93	8,880		2,204	58	5,400		3,487	77	2,872		1,502	62	5,043	4,768	62	5,043	4,768	4,768	473	24,732	1,101	15,534	

(Continued from page 1005)

A change of bed capacity during the year was reported by 1,498 hospitals—an increase in 802 and a decrease in 696.

The capacity of hospitals in the United States has doubled in the past twenty years. In 1914 there were 532,481 beds, in 1933, 1,027,046 beds.

Total beds added in the last ten years were 271,325, of these 222,525 were built with public funds and 48,800 with private funds.

In the past ten years, from 1923 to 1933, governments, federal, state and local, added to their hospital facilities more than four and one-half times as many beds as nongovernment agencies.

However, 76 per cent of the capacity of all governmental hospitals is for treatment of tuberculosis and mental diseases.

The number of patients in all hospitals has not been diminished by the depression, in 1929 the average census was 726,766, in 1933 it was 810,271. In hard times more people go to tax-supported hospitals and fewer to other types of institutions.

Governmental hospitals were 88.9 per cent filled in 1929 and 90.1 per cent in 1933, nongovernment hospitals were 64.6 per cent filled in 1929 and only 55.3 per cent in 1933.

Idle beds for several past years have been as follows:

1923	202,550
1929	180,367
1930	192,487
1931	198,719
1932	205,909
1933	216,775

Hospitals have sent in the names of 126,261 physicians (duplicates eliminated) who have hospital connection.

Physicians comprise 36 per cent of all hospital superintendents, nurses 40 per cent and laymen 24 per cent.

Röntgen-ray departments number 4,677, with 3,487 run by physicians, 892 by other persons, the remainder not specified.

Among the 4,324 hospital laboratories, 2,878 are directed by pathologists or other physicians, 1,089 by other persons, remainder not specified.

In 1933, 1 person in 13 was an outpatient in a hospital, in 1929, 1 in 18, and in 1921, 1 in 35.

At the end of 1933 there were 677 approved hospitals offering 6,074 internships and 370 offering 2,438 residencies.

UNOCCUPIED BEDS IN HOSPITALS

Comparisons of bed occupancy between 1929 and 1933 are made in the accompanying table. The reasons for selecting the years 1929 and 1933 for comparison are obvious. The number of vacant beds in each of the several groups of hospitals as an average does not reflect conditions in individual hospitals but should be interesting facts for the consideration of those who may be contemplating the building of additional hospitals as well as those who bear the burden of taxation or philanthropy necessary to support existing hospitals.

Among the nongovernmental groups, church hospitals which maintained 37,785 idle beds in 1929, had 52,219 in 1933. Similarly, the other independent hospital associations carried 54,794 idle beds in 1929 and 71,305 in 1933. These nongovernmental hospitals are nearly all general which helps to explain the compara-

tively low rate of occupancy in hospitals not maintained by taxation.

The number of idle beds in general hospitals has reached the astonishing number of 155,021, having increased from 123,025 since 1929.

Unoccupied Beds in Hospitals

(I) According to Ownership or Control	Unoccupied Beds (Average)			
	1929	1930	1932	1933
Federal	13,863	13,052	16,161	18,969
State	21,664	20,030	25,779	24,119
County	12,625	13,046	13,445	11,773
City	14,688	15,184	11,969	11,774
City-county	2,507	2,607	2,219	2,234
Total governmental	65,357	64,909	69,199	67,799
Church	37,785	41,654	41,446	37,919
Fraternal	1,656	1,897	1,844	1,919
Industrial	2,107	3,145	3,111	3,301
Individual or partnership	17,773	18,609	19,440	19,639
Independent associations	54,794	58,233	64,509	61,905
Total nongovernmental	114,715	123,495	136,710	141,376
Total unoccupied beds—all hospitals	180,072	192,457	205,909	216,775
(II) According to Type of Service				
General	123,025	111,275	145,048	155,021
Nervous and mental	18,979	22,877	24,015	24,166
Tuberculosis	10,603	9,468	10,154	10,311
Maternity	2,072	2,401	2,745	3,119
Industrial	2,150	3,229	3,191	3,303
Convalescent and rest	1,846	2,340	1,913	1,657
Isolation	4,741	7,118	4,456	3,655
Children	1,857	1,841	1,774	1,855
Eye, ear, nose and throat	1,387	1,969	1,361	1,477
Orthopedic	1,177	1,045	1,353	1,491
Hospital departments of institutions	9,148	9,717	8,793	8,591
All other hospitals	2,364	2,197	1,089	1,175
Total unoccupied beds—all hospitals	180,072	192,457	205,909	216,775

OCCUPANCY OF HOSPITALS ACCORDING TO OWNERSHIP OR CONTROL

Table 1 shows occupancy in hospitals in 1933 by groups and it affords comparison with 1923. The groups under governmental hospitals are federal, state, county, city, and city-county, and the groups under nongovernmental hospitals are church, fraternal, industrial, individual or partnership, and independent associations.

Percentage of Beds Occupied in Hospitals According to Ownership or Control Showing Trend in Past Decade

	1923	1929	1930	1931	1932	1933
Federal	64.8	76.8	79.2	76.5	78.2	75.0
State	80.6	94.6	93.8	94.2	94.2	94.5
County	72.5	80.7	82.2	81.2	84.1	85.8
City	65.2	74.3	75.9	76.3	82.8	83.0
City-county	64.9	80.2	81.6	82.0	72.4	79.0
Governmental	79.4	88.9	88.8	88.7	89.8	90.1
Church	62.9	66.7	64.2	63.2	59.6	54.9
Fraternal	63.1	68.7	67.4	69.0	66.8	64.5
Industrial	53.7	54.4	53.1	48.2	47.7	44.4
Individual or partnership	59.9	54.2	51.7	48.7	45.6	41.1
Independent associations	64.0	60.9	65.4	64.3	61.3	58.0
Nongovernmental	69.8	64.6	63.2	61.9	59.2	55.3
All hospitals	73.1	80.1	79.8	79.6	79.7	78.8

In 1923 the only one of these governmental groups that showed an occupancy rate of more than 72.5 per cent was state hospitals, whose rate was 86.6 per cent. In 1933, not one of the governmental group showed less than 75 per cent occupancy, the figures for the latter year being federal, 75.0, state, 94.5, county,

85.8, city, 83.0, city-county, 75.5 The rate of occupancy for the entire governmental division advanced from 79.4 to 90.1

Among the nongovernmental groups, the average occupancy for all hospitals in the groups in 1923 was 62.8 per cent the lowest being industrial hospitals, 53.7, and the highest in the group being independent associations, 64.0 per cent In contrast, in 1933 the entire nongovernmental group had an occupancy of 55.3 per cent, the lowest being individual or partnership hospitals 41.1 per cent, and the industrial hospitals 44.4 per cent In 1933, church hospitals had an occupancy of 54.9 per cent, fraternal hospitals 64.5, and independent associations 58.5 per cent

Comparison between the rate of occupancy in any one year and that in other years may be readily made by reference to accompanying tables The rate in all the registered hospitals taken together advanced in ten years from 73.1 per cent to 78.8 per cent The rate of occupancy in all hospitals reached its highest peak in 1929, with 80.1 per cent The rate of occupancy in all hospitals taken together is not seriously affected by depression except that in such times a larger proportion of the patients go to the tax-supported hospitals

SHIFT FROM NONGOVERNMENTAL TO GOVERNMENTAL HOSPITAL SERVICES

During the past decade the number of hospital beds under governmental control increased as follows

- (a) Federal, 40 per cent
- (b) State, 52 per cent
- (c) County, 73 per cent
- (d) City, 8 per cent
- (e) City-county, 94 per cent

Total government beds increase, 47 per cent

The average census increased 67 per cent in government hospitals

In contrast

- (a) Church hospitals increased 49 per cent
 - (b) Fraternal hospitals increased 7 per cent
 - (c) Industrial hospitals increased 4 per cent
 - (d) Individual and partnership hospitals decreased 27 per cent
 - (e) Independent association hospitals increased 15 per cent
- Total nongovernment beds increased 17 per cent

During this time the average census in nongovernmental hospitals increased but 3 per cent

During the two years 1931-1933 the number of patients admitted to governmental hospitals increased 18 per cent, while those admitted to nongovernmental hospitals decreased 8 per cent

The total number of patients admitted to all hospitals is approximately the same for 1933 as for 1931, there being a decrease of 1.6 per cent

HOW HOSPITALS SHARED IN PATIENTS ADMITTED IN 1933

During the year covered by the present census, all registered hospitals admitted a total of 7,037,982 patients The proportion of this huge number of patients which each group of hospitals admitted is shown in the following tabulation

According to Ownership or Control

Federal	4.6 per cent	Church	24.9 per cent
State	6.8 per cent	Fraternal	0.5 per cent
County	5.7 per cent	Industrial	0.9 per cent
City	10.8 per cent	Individual or partnership	5.4 per cent
City-county	2.9 per cent	Independent associations	37.7 per cent

According to Types of Service

General	86.2 per cent
Nervous and mental	2.4 per cent
Tuberculosis	1.1 per cent
Maternity	1.1 per cent
Industrial	0.9 per cent
Convalescent and rest	0.3 per cent
Isolation	0.5 per cent
Children's	1.2 per cent
Eye, ear, nose and throat	1.5 per cent
Orthopedic	0.3 per cent
Institutional	2.1 per cent
All other hospitals	1.6 per cent

Governmental institutions admitted approximately 30 per cent of all hospital patients, nongovernmental institutions approximately 70 per cent As to types of service, general hospitals received all but about 13 per cent of all hospital patients admitted

Total Patient Days and Average Length of Stay in Hospitals According to Control

	1923	1929	1933	Percent age of Increase 1923 to 1933	Average Length of Stay Days 1931	1933
Federal	12,759,000	16,802,040	20,704,990	62.3	64	63
State	9,571,600	13,275,330	15,967,305	66.3	370	329
County	11,966,225	19,342,810	25,202,155	110.6	66	61
City	10,331,100	15,490,600	21,120,720	37.3	25	27
City-county	1,113,980	4,152,240	2,521,785	126.3	39	14
Total gov ernmental	136,785,210	188,663,020	228,517,010	67.0	113	106
Church	17,901,790	27,606,050	23,221,665	29.1	13	13
Fraternal	1,163,205	1,323,805	1,272,755	9.4	21	34
Industrial	1,123,835	1,301,595	962,505	14.3	12	14
Individual or partnership	9,095,445	7,520,460	5,017,290	49.8*	14	19
Independent associations	34,021,010	38,704,600	36,737,690	5.2	14	13
Total non governmental	60,108,330	76,606,565	67,231,900	3.2	14	13
Grand total, all hospitals	201,893,540	265,269,585	295,748,910	46.4	40	42

* Decrease

HOSPITALS ACCORDING TO TYPE OF SERVICE

Separate columns in the accompanying tables are used to show statistics for each of the several types of hospitals, giving the number of hospitals, their capacity in beds and bassinets, the number of patients admitted during the past year, and the average daily census These data are given by states as well as by totals At the bottom of the table are figures for the past seven years for comparison

Percentage of Beds Occupied in Hospitals According to Type of Service

	1920	1930	1931	1932	1933
General	65.5	64.7	64.4	63.3	59.9
Nervous and mental	95.7	94.8	94.6	94.9	95.1
Tuberculosis	82.7	85.5	80.0	85.4	80.0
Maternity	62.8	63.2	58.6	6.6	60.8
Industrial	54.6	50.0	48.1	47.4	41.2
Convalescent and rest	70.9	68.3	72.0	67.4	69.2
Isolation	36.1	32.7	33.6	39.0	41.2
Children's	60.9	67.0	69.9	67.8	60.9
Eye, ear, nose and throat	47.7	53.0	52.0	49.9	45.6
Orthopedic	80.2	83.5	78.1	79.4	76.9
Hospital departments of institutions	63.0	65.5	63.9	63.2	60.1
All other hospitals	74.6	78.3	69.2	74.0	79.0
Total hospitals	80.1	79.8	79.6	79.7	78.8

In addition to the three large groups of hospitals known as general, nervous and mental, and tuberculosis, all of which are on the increase, there are a number of types of special hospitals These special

hospitals are usually small and not very numerous. While the volume of their work does not nearly approach that of the large groups mentioned, it is nevertheless of great importance. Over a period of seven years for which reliable statistics have been obtained, an increase is shown in the work of maternity, children's and orthopedic hospitals, and a declining trend in the volume of work in industrial, convalescent and rest, isolation, and eye, ear, nose and throat hospitals.

Births in Hospitals

According to Ownership or Control	
Federal	1,070
State	16,145
County	37,215
City	71,336
City-county	11,913
Total governmental	141,699
Church	21,597
Fraternal	1,622
Industrial	3,175
Individual or partnership	30,120
Independent associations	310,718
Total nongovernmental	567,232
According to Types of Service	
General	649,880
Maternity	50,249
Industrial	3,181
Convalescent and rest	6
Isolation	1
Children's	670
Hospital departments of institutions	272
All other hospitals	8
Total—all hospitals	709,276

Maternity hospitals number 134 as compared with 178 seven years ago. During that time the capacity increased from 5,747 to 7,976 beds, and the average census of patients from 3,695 to 4,857. In the same period, occupancy dropped from 62.8 per cent to 60.8 per cent. During the past three years the number of patients admitted to maternity hospitals has decreased from 91,496 to 82,250, which is obviously a comparatively small decrease, considering conditions in those years. During the past six years in which our census included the number of bassinets, the maternity hospitals have increased their bassinets from 3,621 to 4,660. Since in the same period the general hospitals increased their bassinets from 38,339 to 47,008, there is no apparent indication that the maternity work is shifting either way as between the maternity hospitals and the maternity departments of general hospitals. State hospitals reported 16,145 births during last year and federal hospitals 5,070. Maternity hospitals are credited with about one tenth of the 709,276 births in all hospitals last year.

Orthopedic hospitals as a group are to be credited with a steady but not striking gain, having increased in number from 62 to 69 in the past seven years and in capacity from 5,595 to 6,461, but having decreased in the number of patients admitted from 37,842 to 26,530. No separate data have been obtained for the amount of orthopedic work that is done in general hospitals.

Among the groups of special hospitals showing a rather pronounced slump in volume of work are those operated by industries, which numbered 168 in 1927, 122 in 1932, and 118 in the present survey. The figures in the column for industrial hospitals show a decline in number of beds, number of bassinets, number of patients admitted, and the average census.

Convalescent and rest institutions, which numbered 159 in 1927 with a capacity of 8,143, now number 130, with a capacity of 5,489. Their average census has shrunk from 5,589 to 3,802. The convalescent and rest institutions as a group are not very clearly defined, the designation being used to include institutions properly so named as well as those that accommodate some aged or other chronically ill or mild nervous types and others who are disabled but not acutely ill.

The figures for isolation hospitals show a reduction in number from 98 to 71 since 1927, and in capacity from 8,895 to 6,789. Apparently little change has been made in the number of patients admitted and the average census of those institutions. The type of isolation hospitals rather commonly known to most large towns during the earlier years of the Hospital Register has been replaced by institutions fitted not only for isolation but also for the scientific study of contagious diseases.

Children's hospitals have held their own as to number, capacity and amount of work done since 1927, which might give reason to believe that in normal times they would increase. Their present number of 58 and capacity of 5,486, with admissions totaling 90,307 for 1933, is believed to fall far short of the aggregate of pediatric services in general hospitals.

The hospitalization of patients suffering from diseases of the eye, ear, nose and throat appears to be done largely in the general hospitals, although there are 56 special hospitals in this group, having a capacity of 2,622 beds and an average census of 1,195, whereas in 1927 there were 77 hospitals under this classification with an average census of 1,502 patients.

Each annual census has disclosed that a number of schools, orphanages and special types of homes no longer maintain hospital service for their inmates but send those that are acutely ill or injured to existing hospitals in the same town or community. This accounts for the reduction in number from 530 to 343.

Trends in the Past Decade, 1923-1933

	Hospitals		Beds and Bassinets		Beds		Bassinets		Average Census	
	1923	1933	1923	1933	1923	1933	1923	1933	1923	1933
Federal	220	291	51,849	7,633	502	34,937	56,776			
State	601	557	307,005	4,9,646	925	261,540	4,000,777			
County	465	511	46,771	80,410	2,220	39,750	69,041			
City	415	344	64,390	69,639	3,627	42,140	51,565			
City-county	57	69	4,701	9,143	541	3,052	6,909			
Total governmental	1,756	1,776	471,945	694,473	7,810	574,754	6,76,074			
Church	893	954	77,041	115,640	1,100	49,016	65,671			
Fraternal	97	72	5,043	5,390	132	3,181	3,481			
Industrial	146	115	5,730	5,035	371	3,079	2,637			
Individual or partnership	1,762	1,455	4,719	7,355	4,962	27,393	13,746			
Independent associations	2,196	2,055	149,341	172,011	23,004	95,614	100,006			
Total nongovernmental	5,094	4,661	283,774	339,573	44,049	178,379	184,107			
Grand total	6,830	6,437	755,722	1,027,046	12,859	753,133	810,181			

since 1927. Some of the institutions that do find it advantageous or necessary to maintain a hospital department, such as prisons, have been forced to increase the capacity of those departments so that the 343 now in existence have practically the same capacity as was found in the 530 that were in operation seven years ago—a little in excess of 21,000. The average census of institutional hospitals remains around 12,000, or about the same as that of seven years ago.

While the classification of hospitals that is used in table 2 accommodates nearly all of the 6,437 registered

hospitals and related institutions, there are still 103 hospitals that are of varied and special types not readily classified in the regular scheme. The figures regarding these hospitals are found in the column headed "All Other Hospitals." They include institutions devoted to the care of cancer, cardiac cases, diabetes, chronic diseases, goiter, and drug addiction, as well as a few for venereal treatments only, and some emergency and special surgical services. These institutions had an average census of 6,643 and admitted 114,849 patients during the year.

GENERAL HOSPITALS

In general, the rural communities for local purposes have general hospitals, while urban centers of population favor general hospitals but make it possible to

Analysis of General Hospitals

Federal	23
State	46
County	213
City	222
City-county	40
Total governmental	766
Church	838
Fraternal	2
Individual or partnership	1,091
Independent associations	1,527
Total nongovernmental	3,451
Total general hospitals	4,237

establish special ones. There are 4,237 general hospitals, as compared with 4,322 seven years ago. The decrease in number has been accompanied by a constant increase in capacity, since many general hospitals have been merged with others. The bed capacity, therefore, has increased from 345,364 to 386,713. This year's capacity showed a negligible loss of some 9,000 beds as compared to the capacity for 1932. The bassinets in general hospitals increased from 38,339 to 47,008 in the past six years, showing an increase of 420 bassinets in the past year (between the census of 1932 and that of 1933). General hospitals have now an average census of 231,692, which is 3,608 more than they had in 1927 but 18,803 less than in 1932. The average length of stay in all general hospitals as a group is thirteen days. By reference to table 2 it will be seen that the total patients admitted to general hospitals has declined a little each year since 1931, the first year in which the census revealed the number of patients admitted. Nevertheless, during the year 1933 covered by the last census the general hospitals admitted 6,071,512 patients, or more than 86 per cent of the total of 7,037,982 admitted to all types of hospitals. General hospitals, therefore, admitted 52 times as many patients as all other hospitals combined and 35 times the 170,833 patients entering mental hospitals, the nearest competitor to general hospitals in this particular. The total number of patient days in general hospitals, 84,567,580, is 6,863,095 below the patient days of the preceding year but 1,316,920 above the patient days for 1927. Bed occupancy in general hospitals was 65.5 per cent in 1927 and 59.9 per cent in 1933. General hospitals had 155,021 vacant beds, as an average, in 1933 as against 123,025 in 1927.

WHO OWNS THE GENERAL HOSPITALS?

The federal government operates 235 of the general hospitals, states, 46, counties, 213, cities, 222, and city

and county governments unite in the operation of 40 general hospitals. This makes a total of 756 general hospitals supported by public taxation.

Eight hundred and thirty-eight general hospitals are operated by church groups, 25 by fraternities, 1,091 by individuals and partnerships, and 1,527 by independent hospital corporations, making a total of 3,481 general hospitals that are under nongovernmental or "voluntary" control.

FOR PROFIT AND NOT FOR PROFIT

Those hospitals which are classified as independent associations are maintained by corporations that were formed for the express purpose of conducting the hospitals. They are independent because they are not conducted under the auspices of some other corporation as are church, industrial and governmental hospitals. The independent association hospitals number 2,055. Of these, 232 reported that they are incorporated for profit, 1,113 not for profit, and 710 did not make clear the exact nature of their corporate provision with regard to profit. Adding these 1,113 not for profit to the total number of 984 under church control gives a total of 2,097 hospitals incorporated not for profit, which is at least nine times the 232 that declared themselves incorporated for profit. It may be assumed that practically all of the individually owned and partnership hospitals, although not incorporated, are operated for profit.

TUBERCULOSIS HOSPITALS

Hospitals and sanatoriums for the treatment of tuberculosis seem to remain about stationary so far as the number of institutions designed for that purpose is concerned. There were 508 such hospitals in 1927 and there are 497 now. During that time the rated capacity, however, rose from 63,170 to 70,682, the increase being steady. There were 84,327 individuals admitted as patients during this census, an increase of 3,765 over the census of two years ago. The institutions for the treatment of tuberculosis in the state of New York reported 14,377 patients admitted, Pennsylvania, 6,232, Massachusetts, 5,375, California, 4,714, New Jersey, 4,302, Texas, 4,250, Arizona, 2,870, Colorado, 10,076, and New Mexico, 928. The agencies that maintain hospitals for the treatment of tuberculosis, together with the number of such institutions supported by each agency are as follows:

Federal	22	Church	22
State	62	Fraternal	6
County	18	Industrial	1
City	30	Individual or partnership	49
City-county	14	Independent associations	106
Total governmental	313	Total nongovernmental	184
Total tuberculosis hospitals			497

MENTAL HOSPITALS

Hospitals for mental diseases number 621, a decrease of only 3 from the preceding census. They have a total rated bed capacity of 498,955. This is an increase of 19,407 beds for the year, which represents some slackening in the rate of increase of these institutions due, no doubt, to the business conditions prevailing in these years. Mental hospitals admitted 170,833 patients as compared with 169,851 the preceding year. The average census, however, was 474,787, a sizable increase over 455,473 for the previous census. Some idea regarding the distribution of patients among the several types of nervous and mental institutions may be obtained from the following classification, which tells

what percentage of the total average census of patients was shared by each classification

Veterans Administration hospitals	2.7 per cent
Other federal institutions	1.2 per cent
State hospitals and asylums	67.2 per cent
State schools and colonies	14.8 per cent
Other state institutions	2.3 per cent
County and city institutions	8.3 per cent
Total governmental	96.5 per cent
Private endowed hospitals	0.4 per cent
Private sanatoriums	2.0 per cent
Other private institutions	1.1 per cent
Total nongovernmental	3.5 per cent

While the mental hospitals under government ownership care for 96.5 per cent of the average census of all mental hospitals, the private institutions care for 3.5 per cent. The more complete census reported last year indicated that with respect to total discharges these government institutions were credited with 75.8 per cent and the private institutions with 24.2 per cent.

HOSPITALS IN UNITED STATES POSSESSIONS

That hospitalization is assuming quite considerable proportions in the territorial possessions of the United States is attested by the presence of 215 hospitals in those possessions, 95 of which are in the Philippine Islands, 45 in Hawaii, 41 in Puerto Rico, 18 in Alaska, 10 in the Canal Zone, 5 in the Virgin Islands and 1 in Guam.

Hospitals in United States Possessions

	Hospitals	Patients Admitted	Beds	Base-line	Average Patients	Births
Alaska	18	3,541	518	61	219	2,09
Canal Zone	10	22,156	1,617	39	739	972
Guam	1	3,439	120		106	125
Hawaii	45	38,458	4,702	227	3,411	2,776
Philippine Islands	91	67,392	8,497	424	5,707	7,098
Puerto Rico	41	15,451	2,918	261	1,027	2,416
Virgin Islands	5	1,686	322	24	250	111
Totals	(1933) 215	152,053	18,794	1,036	12,442	13,757
	(1932) 204	119,326	18,335	729	12,872	8,416
	(1931) 202	104,844	17,901	651	12,498	7,148

The prompt response of these hospitals, like that of those on the continent, has contributed appreciably to the completeness of the census. The figures from those reports compiled here do not indicate any considerable expansion in building programs but show for the past two years an increase in number of patients admitted from 104,844 to 152,053. The average census of patients remains stationary, although the number of births in those hospitals for the two years increased from 7,548 to 13,757.

PHYSICIANS CONNECTED WITH HOSPITALS

The physicians whose names were supplied in this census as having hospital connections reached the grand total of 126,261. This is the net figure after the elimination of duplicate names from the list of staff members. Included in this are 2,312 superintendents, 7,970 interns, 2,348 resident physicians and 113,631 members of staffs. The lists of staff members includes those on regular, consulting, associate, courtesy and other types of staff designations. The census for 1932 found 113,730 physicians connected with hospitals, and in 1929 there were 90,903.

DIRECTORS OF PATHOLOGIC AND OF RADIOLOGIC DEPARTMENTS

Presented here for the first time are some arresting data pertaining to clinical laboratory and x-ray facilities. The compilation reveals that 4,324 hospitals supply laboratory service and 4,677 have x-ray departments

out of 6,437 total hospitals, or 67 per cent and 72 per cent, respectively. Beyond interest in actual number of laboratories is concern for competent medical supervision in both departments.

The District of Columbia is represented as having the best record in this regard, since nearly 100 per cent of the hospital laboratories reported in the District are said to be under adequate medical supervision. Nevada has less than one third of the reported laboratories under the direction of trained physicians. All other states say that over one half of the reported laboratories have doctors of medicine as directors.

Directors of Pathologic and of Radiologic Departments in Hospitals Having Those Departments

State	Hospitals Having Clinical Laboratories	Director of Clinical Lab.		Hospitals Having X-Ray Departments	Director of X-Ray Dept.	
		M.D.	Other and Undesignated		M.D.	Other and Undesignated
Alabama	46	39	14	66	49	13
Arizona	29	15	8	36	27	6
Arkansas	12	30	15	51	36	13
California	210	170	44	269	199	49
Colorado	64	45	15	68	61	15
Connecticut	41	47	3	51	44	4
Delaware	11	9	2	11	11	
Dist. of Columbia	21	22		21	21	
Florida	65	40	21	71	55	19
Georgia	87	50	22	84	62	11
Idaho	24	12	7	18	29	6
Illinois	211	170	58	267	189	59
Indiana	91	60	28	107	75	23
Iowa	116	65	28	129	82	37
Kansas	81	52	27	96	67	24
Kentucky	76	34	39	83	54	25
Louisiana	49	34	12	71	38	11
Maine	42	21	17	53	36	16
Maryland	11	38	13	55	40	11
Massachusetts	192	135	27	187	163	17
Michigan	148	102	39	180	133	26
Minnesota	132	84	31	156	109	29
Mississippi	5	24	25	62	40	18
Missouri	100	73	19	107	82	13
Montana	71	19	11	42	27	11
Nebraska	61	39	15	61	67	18
Nevada	5	1	2	13	4	6
New Hampshire	32	21	6	34	28	3
New Jersey	116	91	18	122	102	14
New Mexico	27	19	7	34	26	6
New York	402	331	52	422	271	35
North Carolina	109	63	38	116	85	21
North Dakota	31	14	14	35	20	12
Ohio	194	126	46	187	143	31
Oklahoma	93	50	34	101	63	35
Oregon	44	28	14	59	32	19
Pennsylvania	253	229	42	274	235	28
Rhode Island	21	15	4	18	18	
South Carolina	43	25	13	44	31	11
South Dakota	46	26	15	43	27	11
Tennessee	77	39	23	75	54	15
Texas	211	122	76	231	151	64
Utah	16	10	5	28	21	5
Vermont	20	14	4	23	20	2
Virginia	87	58	23	90	73	14
Washington	71	48	23	83	56	16
West Virginia	62	28	21	66	45	19
Wisconsin	133	74	44	145	91	34
Wyoming	16	9	5	23	12	6
Totals	4,324	2,878	1,089	4,677	3,487	692

Generally, the radiologic laboratories are more frequently supervised by specially qualified physicians than are the clinical laboratories.

DENTISTS CONNECTED WITH HOSPITALS

Nine hundred and sixty-eight hospitals reported that they have dentists in attendance. The number of dentists reported as having connections with hospitals is 3,018. There are 82 dental interns and 23 resident dentists.

SCHOOLS OF NURSING

In the list of registered hospitals contained in this issue, those schools of nursing that are accredited by the state board of nurse examiners are marked with a small diamond, those that are recognized for affiliated courses in nursing are marked with a dot in a circle.

Information regarding the schools of nursing was supplied by the hospitals themselves, their standing with the state boards of nurse examiners was attested by the respective boards in all states as of Jan 1 1934

There is a total of 1 760 schools of nursing, of which 1,606 have been reported as state accredited and 154 unaccredited The number of students enrolled was not ascertained in this census but was found to be increasing according to the annual census for 1932 At that time there were 1,934 schools of nursing, of which 1,656 were accredited and 278 unaccredited At that time the student enrolment in all of the 1,934 schools of nursing was 86,649

SUPERINTENDENTS OF HOSPITALS

In 1933, 36 per cent of all hospital executives were physicians, 40 per cent were nurses and 24 per cent were laymen, in 1926, 38 per cent were physicians, 24 per cent were nurses and 37 per cent were laymen There is an apparent tendency for physicians and nurses to occupy these positions As a general rule physicians are found occupying these positions in the larger hospitals, nurses in the smaller hospitals, and

Superintendents of Hospitals

State	M D	R N	Lay	Total	Changes Past Year
Alabama	27	47	11	86	7
Arizona	28	10	18	66	6
Arkansas	27	21	19	70	4
California	134	147	116	399	21
Colorado	37	33	30	100	11
Connecticut	34	29	22	85	9
Delaware	4	6	4	14	2
District of Columbia	18	7	6	31	2
Florida	28	41	22	91	11
Georgia	54	35	22	111	10
Idaho	23	16	12	51	10
Illinois	89	150	87	327	32
Indiana	37	61	43	141	14
Iowa	47	81	39	167	21
Kansas	34	66	26	127	14
Kentucky	45	41	17	104	6
Louisiana	23	26	13	62	5
Maine	2	42	5	70	8
Maryland	36	28	19	83	8
Massachusetts	103	135	42	280	18
Michigan	92	100	48	240	14
Minnesota	82	85	48	215	12
Mississippi	40	27	8	75	5
Missouri	66	49	33	148	23
Montana	18	26	17	62	9
Nebraska	41	41	22	104	8
Nevada	11	2	6	19	1
New Hampshire	8	20	7	35	3
New Jersey	62	55	57	174	11
New Mexico	24	11	11	46	3
New York	222	218	159	600	45
North Carolina	58	68	28	155	1
North Dakota	15	24	14	53	3
Ohio	86	103	77	266	26
Oklahoma	51	29	31	111	16
Oregon	24	37	15	76	8
Pennsylvania	110	137	123	370	27
Rhode Island	10	6	13	32	2
South Carolina	22	27	14	63	2
South Dakota	27	24	18	69	8
Tennessee	54	31	18	103	2
Texas	109	130	65	296	21
Utah	20	5	10	35	6
Vermont	10	20	2	32	3
Virginia	42	53	16	111	10
Washington	41	48	34	123	13
West Virginia	38	29	10	78	15
Wisconsin	50	97	77	224	16
Wyoming	10	13	2	25	1
Totals 1933	2 312	2 559	1 548	6 437	538
1926	2 048	1 676	2 528	6 896	

laymen acting as superintendents in the average sized hospitals There are quite a few exceptions to this rule A change of superintendents was made in 538 hospitals last year

OUTPATIENT DEPARTMENTS

The rather complete statistics on the outpatient departments gathered in the annual census of 1927 afford a means of comparison with the still more com-

plete figures resulting from the present survey An opportunity is also afforded to observe the effect of a serious business depression on the attendance at outpatient departments In reading these figures it should be borne in mind that only outpatient departments that are operated by hospitals or those that are closely affiliated are included

Outpatient Departments Comparing 1927 and 1933

State	Number of Outpatient Departments		Number of Outpatients		Number of Visits by Outpatients	
	1927	1933	1927	1933	1927	1933
Alabama	34	27	83 127	91,678	95 991	367 400
Arizona	41	27	171 92	77 299	33 085	257 350
Arkansas	17	20	8 041	32 130	10 910	56 890
California	116	133	538 569	538 499	762 819	2 204 870
Colorado	26	34	36 868	72 639	56 408	172 401
Connecticut	20	23	60 109	68 514	82 900	276 399
Delaware	10	10	20 346	19 807	3 424	52 592
District of Columbia	20	18	46 907	19 324	139 499	277 172
Florida	23	35	20 443	61 166	60 824	206 771
Georgia	35	46	164 654	187 903	335 026	814 100
Idaho	13	13	2 555	6 094	6 205	25 260
Illinois	97	112	3 57 044	514 182	471 063	2 772 407
Indiana	38	40	51 301	189 426	87 960	347 975
Iowa	35	37	44 511	50 933	52 576	106 568
Kansas	39	38	67 787	101 253	24 345	334 824
Kentucky	43	31	61 396	9 911	23 821	233 897
Louisiana	25	19	318 490	139 045	220 891	559 785
Maine	19	29	23 420	40 197	42 637	121 400
Maryland	40	37	111 089	240 806	476 891	729 97
Massachusetts	113	125	2 1 900	681 206	1 059 847	1 953 804
Michigan	73	93	275 443	204 890	710 568	1 337 345
Minnesota	49	49	145 306	161 091	223 491	484 337
Mississippi	20	24	34 048	42 770	27 803	79 202
Missouri	43	49	122 718	162 830	378 590	915 784
Montana	19	18	85 050	6 391	31 578	83 262
Nebraska	24	16	25 766	26 420	62 556	60 599
Nevada	7	6	6 904	4 397	14 963	44 615
New Hampshire	18	22	5 841	11 834	23 507	29 041
New Jersey	89	97	256 210	5 7 902	408 208	1 400 805
New Mexico	21	20	31 342	52 225	25 780	149 121
New York	216	267	1 528 776	2 16 711	3 907 752	7 743 191
North Carolina	63	75	62 422	148 783	52 282	240 305
North Dakota	8	9	8 117	33 037	960	27 464
Ohio	84	91	116 097	435 520	708 793	1 205 732
Oklahoma	34	42	73 611	139 669	106 007	350 501
Oregon	15	18	22 572	27 376	5 335	1 09 241
Pennsylvania	109	202	723 640	955 999	2 163 024	3 541 626
Rhode Island	18	16	40 788	58 670	124 490	268 293
South Carolina	18	20	39 509	52 416	63 579	108 251
South Dakota	18	19	22 194	31 308	50 599	103 836
Tennessee	27	37	81 343	131 231	153 281	411 320
Texas	73	77	106 315	202 089	179 667	854 67
Utah	8	12	32 221	6 754	19 145	64 550
Vermont	10	10	4 273	4 908	3 461	2 703
Virginia	40	46	94 689	88 732	129 666	323 484
Washington	41	35	67 903	118 082	51 680	293 636
West Virginia	28	29	40 660	77 222	42 717	131 307
Wisconsin	42	50	64 893	126 726	54 543	389 911
Wyoming	11	9	17 527	17 453	3 216	35 554
Totals	2 130	2 351	6 750 388	9 519 427	10 804 566	32 822 077

The accompanying tables tell the number of outpatient departments, the number of outpatients, and the number of visits made by those patients, during the years 1927 and 1933, respectively While the number of outpatient departments increased in that time from 2,130 to 2,351, or only 10 per cent, the number of patients increased 41 per cent, or from 6,750,388 to 9,519,427 The number of visits by outpatients increased 138 per cent, or from 13,804,566 to 32,822,077 Reference to the accompanying table will show the increase in number of departments, number of patients, and number of visits, both actual and by percentages, for different geographic sections of the country The North Atlantic, South Atlantic and North Central States made the largest showing in the percentage of increase in departments, number of patients and number of visits The South Central and Western states show almost no increase in number of outpatient departments and number of outpatients but an extremely heavy increase in the total number of visits

In respect to the number of departments and volume of work, New York is easily the leader among states,

with its 267 departments, 2,165,711 outpatients and 7,743,191 visits Pennsylvania reported 202 departments but dropped far behind New York in number of patients and visits Other states that reported large numbers of departments were California, 133, Massachusetts, 125, and Illinois, 112

Since the questionnaire that was used in the present census was purposely very brief in order to obtain a high percentage of returns, a definition of outpatient departments was not offered The questions read

Outpatient Departments According to Type of Service

General	1 664
Nervous and mental	120
Tuberculosis	170
Maternity	32
Industrial	92
Children s	37
Eye ear nose and throat	34
Orthopedic	78
Institutional	119
All other hospitals	40
Total outpatient departments	2 351

simply as follows "Is there an outpatient department, or dispensary, maintained by the hospital?

Total number of outpatients last fiscal year

Total visits by outpatients last fiscal year

That some hospitals should claim outpatient departments on account of having small special clinics or other small intermittent ambulatory services might be

The use of the outpatient departments for instruction purposes may be measured somewhat by the fact that a large majority of the 539 general hospitals that

Hospitals Not Registered by the American Medical Association

Alabama	5	Maine	6	Oklahoma	19
Arizona	1	Maryland	4	Oregon	19
Arkansas	9	Massachusetts	13	Pennsylvania	14
California	5	Michigan	17	Rhode Island	1
Colorado	20	Minnesota	7	South Carolina	0
Connecticut	1	Mississippi	2	South Dakota	0
Delaware		Missouri	20	Tennessee	9
Dist of Columbia		Montana	6	Texas	20
Florida	20	Nebraska	20	Utah	
Georgia	1	Nevada	1	Vermont	
Idaho	0	New Hampshire	1	Virginia	3
Illinois	41	New Jersey	6	Washington	18
Indiana	20	New Mexico	0	West Virginia	0
Iowa	17	New York	0	Wisconsin	10
Kansas	26	North Carolina	7	Wyoming	3
Kentucky	12	North Dakota	0		
Louisiana	1	Ohio	26	Totals	576

are approved for internships have outpatient departments in which valuable experience is gained by interns and by resident and attending physicians

METHODS OF REGISTERING AND APPROVING HOSPITALS

The inclusion of any hospital in the Register is an indication that evidence concerning irregular or unsafe practices in that hospital has not been available to the Council on Medical Education and Hospitals Con-

Increase in Outpatient Departments According to Geographic Districts

	Outpatient Departments		Per Cent of Increase	Number of Patients		Per Cent of Increase	Number of Visits		Per Cent of Increase
	1927	1933		1927	1933		1927	1933	
NORTH ATLANTIC STATES Conn Me Mass, N H N J N Y Pa R I, Vt	702	801	14	2 910 007	4 470 041	53	7 810 888	15 337 323	96
SOUTH ATLANTIC STATES Del D C Fla Ga Md N C S C Va W Va	287	306	17	624 270	1 010 109	71	1 334 808	2 934 134	120
NORTH CENTRAL STATES Ill Ind Ia Kan Mich, Minn, Mo, Neb N D Ohio S D Wis	500	608	10	1 321 267	2 137 621	62	2 820 340	8 147 012	180
SOUTH CENTRAL STATES Ala Ark Ky La, Miss Okla Tenn Texas	273	281	3	806 083	878 548	3	817 404	2 913 700	207
WESTERN STATES Ariz Calif Colo Idaho Mont Nev N M Ore Utah Wash Wyo	318	370	2	1 073 202	1,080,008	8*	1 010 117	3 400 808	240
	2 120	2 301	10	6 700 388	9 510 427	41	13 804 566	39 822 077	138

* Decrease

expected An analysis of the questionnaires on which outpatient departments were recorded shows that among the 2 351 departments 796 had a thousand patients or less for the entire year, 618 had from one thousand to five thousand 360 had from five thousand to twenty thousand, and 108 had over twenty thousand patients Four hundred and sixty-nine hospitals did not tell how many patients they had

While there has without doubt been a considerable increase in the work of outpatient departments during the last seven years the present volume of 32,822,077 visits is not so astonishing when one compares it with the inpatient departments, in which the total of the patient days was 295 748,915

Some outpatient departments have been opened up during the depression to enable the staff to keep in closer touch with financially affected patients who might otherwise go to free clinics On the other hand, some hospitals have closed their outpatient departments in order to cut down expenses

siderable investigation is carried out in the case of each hospital before it is admitted to the Register

First, hospitals supply information regarding their capacity, equipment, classification and list of staff Each member of the staff is then looked up in the bio-

Hospitals Sanatoriums and Related Institutions

	Hospitals	Beds	Basins	Patients Admitted	Average Census	Births
Hospitals and sanatoriums	5 028	8 06 824	50 074	6 022 300	660 190	698 074
Related institutions	1 409	1,0 722	2 430	415 677	140 016	11 907
Total registered hospitals	6 437	1 027 046	52 464	7 037 982	810 271	709 206

graphic files of the Association Information and advice are obtained from the secretaries and other members of the county medical societies, from state, city or county health departments, from the councilors

of the state medical associations for the district in which the hospital is located, and from other sources. Investigation of hospitals for internship and residency approval is more comprehensive than for registration.

A personal visit by a member of our staff of hospital examiners is made to each hospital approved, or applying for approval, for internships or for residencies. An increasing number of other hospitals are being inspected.

MATTERS OF INTEREST TO HOSPITALS TRAINING RESIDENTS OR INTERNS

Since the appearance of the last Hospital Number of *THE JOURNAL*, a few changes in methods have occurred affecting residency and internship approval which are of interest to hospitals. These new methods are designed to achieve more accurate registration of credit for internships and residencies served, or other desired results.

RESIDENCY APPROVAL

The most conspicuous changes in the past year have occurred in the field of residency training. Certification of specialists occupies, at present, a position of considerable importance in the eyes of the entire medical profession. The part that hospitals now play in the training of specialists is fully acknowledged. Many institutions offer extremely advantageous opportunities to physicians who expect to enter a limited field of practice.

It is not the Council's intention to emphasize unduly or to stimulate the production of specialists. It has been felt however, that periods of residency will be acceptable to special examining boards only as they fulfil certain basic requirements. It was to satisfy this obvious need, then, that revised regulations for the government of residency services in hospitals were adopted. The new "Essentials" will be sent on request.

The biographic file maintained by the American Medical Association covers every physician in the United States and is designed to provide a verified statement of his entire medical education, including internships and residencies. It will, if necessary, include records of other postgraduate work that may affect the qualifications of physicians in special fields. This body of information cannot be duplicated elsewhere, and it is reasonable to assume that examining boards may need to refer to it rather frequently for verification of submitted data.

Proper and accurate recording of the service of residents is of considerable importance and involves reporting the required information by all approved hospitals each year. It will be the practice, then, to receive annual statements from all institutions approved by the Council, as a basis for continued approval of residencies and as a means of keeping biographic data up to date. Internship hospitals have submitted statements of this nature for the past half dozen years.

INDIVIDUAL INVESTIGATIONS OF RESIDENCIES

Whereas formerly an institution was granted blanket approval of all residencies it might undertake to offer, now approval is extended only to individual residencies that have undergone individual scrutiny. Investigation of these positions is going on at the present time, by the annual report method for residencies previously approved, by application blanks for residencies wishing to be approved and by visits to hospitals by the Council's staff of hospital inspectors.

HOSPITALS REFUSED REGISTRATION

There are 576 institutions which, because of alleged unethical or questionable practices, admission to their staffs of members who are seriously unqualified, either morally or professionally, flagrant methods of advertising or for other valid reasons, are deemed unworthy of being included in any published list of reputable hospitals. The 576 unregistered institutions have only 16,685 beds, or 16 per cent of all hospital beds.

Application blanks for residency approval are carefully examined to determine the degree of compliance with the present regulations. In most instances, a personal visit by one of the staff precedes approval.

RESIDENCES IN PSYCHIATRIC AND TUBERCULOSIS HOSPITALS

The Council, in revising its residency regulations, realized that special hospitals, particularly psychiatric and tuberculosis institutions, provide excellent opportunities for special medical training, and that employment of personnel is on a different basis than residency appointments in general hospitals. The provision was made, in consequence, that the first three years of employment in a special hospital would be considered as a period of training and would qualify for the approval of the Council as a residency.

MIXED RESIDENCIES

At a recent meeting of the Council, it was decided that recognition may be extended to a classification known as "mixed residencies." This type of experience is expected to provide additional training for men who expect to go into general practice, as well as a broader basis for those who will limit their practice later on. A hospital desiring approval for mixed residencies must comply in all respects with the basic regulations for all residencies.

INTERNSHIP APPROVAL

There have been no concrete revisions in rulings of the Council in respect to internships alone. A number of trends have developed which have served to indicate that the character of intern training is changing. Consideration of these changes customarily takes place in the Educational Number of *THE JOURNAL*.

CHANGES IN METHOD OF LISTING APPROVED HOSPITALS

In the last Educational Number of *THE JOURNAL*, hospitals approved for residencies were grouped according to specialties. This represented a considerable advance in convenience at some sacrifice of information contained in former lists.

The Council has felt that additional information could well be given in its list of approved internship hospitals. It was thought that the intern, in consulting this list, should obtain some knowledge as to the proportion to total admissions which charity patients hold. This, of course, is in consideration of the advantages in teaching which interns obtain from this group of patients. It was also the general opinion that the list should indicate whether the internship is of the straight, mixed or full rotating type. Suitable data are now being received from all approved hospitals which will make such additions possible.

WHEN WITHDRAWAL OF COUNCIL APPROVAL BECOMES NECESSARY

There is often some misunderstanding or lack of information about the reasons for withdrawing Council approval of residencies or internships. These reasons may be set down here in order of frequency, with explanatory notations.

1 Approval is withdrawn, naturally, when a hospital abandons its teaching program. It is also withdrawn when a hospital for any reason, does not make its internships or residencies continuously available to applicants. This policy is necessary in order to keep the lists of approved hospitals accurate and to avoid many useless applications by eligible candidates. The Council, in reality, is approving opportunities for training, governed by certain established regulations and if these are not complied with, extension of approval is misleading and misdirected.

2 Approval is withdrawn when hospitals employ in any capacity irregular or cult practitioners, or use graduates of unrecognized medical schools as interns or residents. The reasons for this step are quite obvious. Most violations in this class are matters of carelessness on the part of administrators or intern committee. The Council has supplied all approved hospitals on several occasions with lists of approved medical colleges and there is now no plausible excuse for inadvertent selection of unqualified interns.

3 Notable departures from the established rulings governing the actual teaching of house officers result

in withdrawal of approval. Hospitals find most difficulty in observing the 15 per cent necropsy requirement, the presentation of clinical pathologic conferences, and the provision of suitable library facilities for the house staff.

REVISION IN COMPUTATION OF NECROPSIES

In view of handicaps under which certain metropolitan hospitals labor, a change was made in the Council's method of necropsy computation. All bodies removed from hospitals by coroners or medical examiners and, in consequence not available for necropsy performance in the presence of the interns, are not to be counted either as deaths or as necropsies. This will include all bodies removed from hospitals and directed to medical schools for dissection.

It will be remembered that the Council has disregarded stillbirths, either as deaths or as necropsies, in these computations. All other deaths and all other necropsies should be counted.

LIST OF GRADUATES FROM FOREIGN MEDICAL SCHOOLS AS INTERNS

Frequent inquiry is made as to the Council's attitude with respect to employment of foreign medical graduates as interns in approved hospitals. The Council is not in a position to endorse the educational qualifications of graduates of any foreign medical schools. It therefore recommends that graduates of approved medical schools in the United States and Canada should receive first choice in the selection of interns.

ESSENTIALS OF A REGISTERED HOSPITAL

Prepared by the Council on Medical Education and Hospitals of the American Medical Association

General Statement—The American Medical Association gives recognition to hospitals by admitting to the Hospital Register those that are found to qualify according to the essentials contained in the following paragraphs.

Registration is a basic distinction between all recognized hospitals and those that are refused recognition. It is a prerequisite to the consideration of a hospital for approval for interns or for residencies in specialties.

The registration of hospitals, the approval of hospitals for interns, approval for residencies in specialties, and all other service of the Association regarding hospitals is carried on by the Council on Medical Education and Hospitals.

It is the desire of the Council to cooperate in every way for the improvement of hospital service, whereby the sick and injured may be provided with scientific and ethical medical care.

The Council does not have nor does it assume legal authority over any hospital. It recognizes clearly that the officers in charge of such institutions have the unquestioned right to conduct the hospitals in any way they may deem wise. If a hospital desires to have its name appear on the American Medical Association Hospital Register and thus have the endorsement of that Association it should be willing to comply with the principles which the Council on Medical Education and Hospitals considers necessary.

Essentials of a Registered Hospital—Hospitals seeking admission to the register should have the following qualifications:

1 *Organization*—The organization should consist of a board of trustees or other supreme governing body having final authority and responsibility and an executive officer or superintendent to carry out the policies adopted by the governing body. The executive officer should be assisted by adequate competent personnel.

Regardless of the form of organization the hospital should function primarily in the interests of the sick and injured of the community.

2 *Staff*—This constitutes the most important essential. The staff should be organized and composed of regular physicians who are properly qualified as to training, licensure and ethical standing.

Staff membership and the use of the hospital's facilities must be limited to doctors in medicine. Where cult practitioners, osteopaths, chiropractors or other healers outside the scope of regular medicine are allowed to use the hospital's diagnostic facilities, to prescribe for or treat patients in the hospital, or to enter orders or other data on the case records, such a hospital obviously cannot be recognized or endorsed by the American Medical Association.

Regular staff conferences should be held at least monthly and preferably more often. All deaths that occur during the period intervening between meetings, perplexing cases, and patients who do not respond to treatment should be discussed. When postmortem examinations have been performed there should be a presentation of the clinical aspect of the patient and the postmortem observations. Interesting pathological specimens from surgery or removed at postmortem should be presented and discussed with regard to the preoperative or antemortem findings.

Minutes of staff conferences should be kept and filed with the hospital records. The activity of the staff as to scientific meetings and clinical and pathologic conferences is an index to the scientific mindedness and progressiveness of the group.

3 *Nurses*—A competent nursing staff should be provided by employing an adequate number of registered nurses who are graduates of schools of nursing recognized by the state board of nurse examiners or by maintaining such a school.

All nursing should be supervised by qualified registered graduates.

4 *Records*—An adequate record system should be maintained. No particular system or set of forms is recommended, since requirements are not the same under varying circumstances. The average case record should include at least a brief medical

history, physical examination, laboratory reports diagnosis operative record, progress notes, nurses' notes and summary. Case records should be complete in every department and reviewed and signed by the attending physicians before they are placed in the permanent file. Roentgenologic interpretations, pathologic descriptions and diagnoses of tissues removed in the operating room, and (when in autopsy) has been performed) a description of postmortem observations, should be included with the patient's record.

Case histories and physical examinations should be recorded in the patient's chart within twenty-four hours after the patient has been admitted to the hospital. A patient should not be operated on, except in the case of emergency, when the history, physical examination and routine laboratory work have not been completely recorded in the chart. The duty of recording these data falls on the attending physician and he should be held directly responsible for the case records.

Monthly and annual analyses of hospital service should be made in order that the staff may be in a position to improve its service.

5 Pharmacy—The handling of drugs should be adequately supervised and should comply with state laws.

6 Pathology—All tissues removed in the operating room should be examined, described and diagnosed by a competent pathologist excepting tissues, such as tonsils and teeth, in which the pathologic changes are quite obvious.

A physician-pathologist should be employed on a full time or part time basis. When this is not practicable arrangements

should be made with a consulting pathologist for tissue diagnosis, postmortem work and the interpretation of the more complicated tests and determinations in clinical and surgical pathology, as well as in general clinical laboratory work. The pathologist preferably should be one listed by the Council on Medical Education and Hospitals of the American Medical Association. The Council's list of physicians specializing in clinical pathology or pathology is available on application.

Autopsies—Every effort should be made to secure consent for autopsies, which should be performed by a pathologist or the best qualified other physician available.

7 Radiology—The hospital should provide or have ready access to radiologic equipment and service. When a full time or part time physician-roentgenologist cannot be employed, the services of such a consultant should be secured. Radiologic interpretations must be made only by a competent roentgenologist. A description of the roentgenologic examinations should be placed in the patient's chart. The physician-roentgenologist preferably should be one listed by the Council on Medical Education and Hospitals of the American Medical Association.

A list of physicians specializing in radiology and roentgenology is available on application.

8 Ethics—In order that a hospital may be eligible for registration it will, of course, be expected that the staff and management conform to the principles of medical ethics of the American Medical Association with regard to advertising, commissions division of fees secret remedies, extravagant claims, over-commercialization and in all other respects.

ESSENTIALS IN A HOSPITAL APPROVED FOR INTERNS

Prepared by the Council on Medical Education and Hospitals of the American Medical Association

I Hospitals Eligible for Approval

Only general hospitals are eligible which have at least 100 beds with a minimum daily average of 75 patients, and which provide a variety of medical, surgical, obstetrical and pediatric patients either in the hospital proper or through suitable affiliations with other institutions.

II The Hospital Staff

1 CHARACTER OF STAFF—There must be an organized staff of ethical physicians who hold the degree of doctor of medicine from acceptable medical schools, who are of unquestioned professional and moral integrity, who are proficient in general practice or in the special fields to which they devote themselves, who give personal attention to the patients under their charge and who will provide adequate facilities, instruction and that sympathetic cooperation without which interns and graduate students cannot obtain the practical training for which they are serving the hospital.

2 GRADUATES IN MEDICINE—The hospital must not only confine membership on its staff to reputable practitioners who have received the degree of doctor of medicine from medical schools considered acceptable by the Council on Medical Education and Hospitals of the American Medical Association, but also must apply this ruling to every person permitted to treat or prescribe for the sick in the hospital or in any of its departments. The ruling does not apply to the treatment of patients by nurses, masseurs, and other like assistants when acting under the orders of any physician on the attending staff.

3 STAFF CONFERENCES—The hospital staff shall conduct a regular monthly staff conference at which the work of the various hospital departments is considered and where interesting hospital cases and selected autopsy reports may be presented for general discussion. The interns should be expected to attend these meetings and take an active part.

III Laboratory

1 EQUIPMENT—There must be a clinical laboratory in the hospital equipped for the ordinary routine tests, and for the more technical bacteriologic, serologic, chemical, basal metabolic,

and tissue examinations. A competent physician-pathologist must be in charge of the laboratory, who shall supervise the work in general and personally examine all tissues from the operating rooms and furnish reports of gross or microscopic findings as indicated. Records must be kept in the laboratory of all work carried out by the department, and copies should be filed with the patient's clinical record.

2 AUTOPSIES—Inasmuch as the percent of autopsies has come to be recognized as an index of the educational activities in a hospital, no institution will be approved for the training of interns which does not have a record of autopsies of at least 15 per cent. The autopsies preferably should be performed in the hospital by or under the supervision of the hospital pathologist who has special knowledge of this type of work and who can furnish reports that include a summary of the clinical record and a detailed description of gross and microscopic findings.

3 AUTOPSY ROOM—The hospital must provide an autopsy room where postmortem examinations can be held in the presence of staff members and interns.

IV Department of Radiology

This department must be equipped for at least roentgenographic and roentgenoscopic procedures and must be directed by a physician-roentgenologist who is properly qualified for the work which the department purports to do. Records of the work carried out must be on file in the department, and copies should be filed with the clinical charts.

V Medical Library

There must be a working medical library, in charge of a librarian, which should contain a useful selection of late editions of standard text and reference books and current files of not less than ten of the better medical journals. The library should be inside the hospital building and be located where it is readily accessible to the interns and staff members. Collections of choice reference books in pathology and clinical diagnosis and in roentgen-ray work should be found respectively in the pathologic and roentgenologic departments.

VI Histories

1 COMPLETE HISTORIES—There must be complete histories, giving the patient's complaint, physical examination at time of admission to the hospital, preliminary diagnosis, laboratory

findings, description of operation, if any, progress notes, final diagnosis, condition on discharge and, in case of death, autopsy findings if secured

2 ENDORSEMENT OF HISTORIES—The histories should show by signatures or initials all persons writing them or parts thereof, as well as the staff members by whom the histories are verified. Likewise, all orders and progress notes should be initialed or signed

3 RECORDS—A competent clerk should have charge of the records pertaining to patients. To be of educational value the records must be so handled as to be readily accessible when desired for special study or reference work. There should be an alphabetical index of patients with cross files according to diagnoses, operations, etc. Lists should also be kept of patients according to departments, i. e., medical, surgical, obstetrical, pediatric, genito-urinary, gynecological, eye, ear, nose and throat, tuberculosis, etc., and of hospital days or daily average of patients, deaths and autopsies (under 48 hours and over 48 hours). Histories should be filed so as to be easily accessible. Complete monthly reports and annual summaries should be prepared covering the various hospital departments

VII Interns

1 PURPOSE OF INTERNSHIP—It is emphasized that the object of the general internship is to round out the medical graduate's training so as to enable him to enter into the general practice of medicine and not to equip him to enter directly on any specialty. For the latter he should obtain further and different instruction

2 INTERN SCHEDULE—The intern service should cover at least twelve months and should be so arranged as to furnish the interns adequate instruction in medicine, pediatrics, obstetrics, surgery and in the laboratory and x-ray departments. The interns should be selected from medical colleges rated in class A by the Council on Medical Education and Hospitals

3 WORK OF THE INTERNS

(a) *Histories*—The interns should personally record a history, a physical examination and their own diagnosis on private and ward patients on their service. The attending physician should in each instance check the intern's work, call attention to errors and supplement the clinical records with any additional findings. The interns in following the progress of the patient should enter progress notes on the chart and the patient's condition on discharge. When a hospital has a shortage of interns a provision should be made whereby the interns on duty may not be burdened by an unreasonable amount of history writing. In such instances it is recommended that a definite number of cases be assigned to the intern and that the other charts be completed by the attending physicians

It is especially emphasized that surgical charts should be completed promptly and except in emergencies before the patient is taken to the operating room. Unless this is done the educational value of the intern's work is considerably lessened

(b) *Medical Department*—This department should afford the interns an adequate amount of instruction in general medicine and pediatrics. Preferably there should also be facilities for the study of tuberculous, neuropsychiatric and contagious patients. In connection with the work in this department it is recommended that the interns be instructed in the feeding of both infants and adults as required in various diseases, and that they obtain a reasonable amount of technical experience under a trained dietitian

(c) *Obstetrical Department*—The intern should obtain practical experience in this department by personally delivering at least ten patients while on the service. He should assist at all other deliveries and not act as anesthetist for maternity patients while assigned to this department

(d) *Surgical Department*—It should be impressed upon the interns that it is more important for them to acquire skill in diagnosis and postoperative treatment than to learn technical operative procedures. However, in order that the interns may follow their cases closely they should be permitted to act as first assistant in the operating room whenever possible. To stimulate further interest on the part of the interns, it is also advisable, when an opportunity presents itself, to permit them

to perform surgical procedures under constant supervision. Surgical dressings should be assigned to the intern so that he may observe carefully the postoperative course

The intern should obtain instruction and experience in the administration of the various kinds of anesthetics under the supervision of experienced anesthetists

(e) *Laboratory Department*—The intern should have a definite laboratory course wherein he renews his acquaintance with routine examinations and gains instruction from the pathologist regarding the more technical procedures and tissue diagnoses. Interns in the hospital should be present and assist at autopsy procedures when possible, and should receive instruction in technique and in interpretation of findings. Every effort should be made that other assignments may not interfere with the interns' attendance

(f) *X-Ray Department*—The roentgenologist should instruct the interns by lectures and demonstrations in the technical, diagnostic and therapeutic use of x-rays

(g) *Outpatient Department*—When facilities are available in the outpatient department a regular service should be instituted for the interns if practicable, or else the work in this department should be carried out in conjunction with the respective services in the hospital

4 INSTRUCTION OF INTERNS—All attending physicians should allow sufficient time at rounds to check the interns' work and to instruct them in connection with their patients. Special attention should be given at this time to dangerously ill patients, and the advice of other physicians on the staff should also be sought

At least a weekly period should be arranged for conducting clinical-pathological conferences, x-ray lectures or other special lectures or clinics for the interns

The interns should be encouraged to read medical literature in connection with their patients and should preferably be assigned articles in the medical journals for special study and report

5 RECORDS OF INTERNS' WORK—State medical examining boards, medical schools and other agencies often desire detailed information regarding the interns' training and, therefore, each hospital should keep a weekly or monthly record of each intern's work. This information is most conveniently supplied to the superintendent or record office by the interns themselves on special forms where space is provided for the following: period covered, service, number of patients admitted on service, number of histories and physical examinations, number of anesthetics given, number of operations assisted at, number performed, number of deliveries attended, number performed, autopsies attended, hours in laboratory, lectures attended, clinics attended, etc.

6 RULES REGARDING INTERNS—The hospital should have a set of printed or written rules and regulations defining the rights, duties and privileges of the interns, a copy of which should be furnished to each intern

7 INTERNS' LIVING QUARTERS—The hospital shall provide reasonably comfortable living quarters for the interns with opportunities for recreation, both indoor and outdoor, appropriate to the locality and environment of the hospital

8 FAITHFUL SERVICE FROM INTERN EXPECTED—For all the privileges granted the intern it is understood that the hospital has the right to expect faithful service in return

The breaking of contracts by interns will be recorded against their standing in the files of the American Medical Association's office unless the interns can show just cause for such action.

VIII Admission to the Approved List

1 APPLICATION FOR APPROVAL—Hospitals that want to be accredited for intern training should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago

2 APPLICATION FOR APPROVAL OF INTERNSHIPS—Application blanks in duplicate will be supplied on request. These should be filled out carefully by the superintendent or by some staff member who is acquainted with the intern service in the hospital, and one copy returned to the office of the Council

HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION

The following list contains the names of 6,437 hospitals, sanatoriums and related institutions that are located in the United States and 215 in the insular possessions. It omits the names of 576 hospitals which, after investigation, were not accepted. The inclusion of the name of any institution may be taken as an indication that evidence concerning irregular or unsafe practices in that institution has not come to the attention of the Council on Medical Education and Hospitals. The list in each state is given in two sections: (1) hospitals and sanatoriums and (2) related institutions. The related institutions include some general hospitals lacking certain essentials, nursing homes, school infirmaries, prison infirmaries, custodial and other institutions designed to give some medical, nursing or convalescent care in an ethical and acceptable manner, but not strictly hospitals. In the statistics the two classifications are consolidated.

KEY TO SYMBOLS AND ABBREVIATIONS

- * Approved for general internship the fifth year in medicine, by the Council on Medical Education and Hospitals
- + Approved for certain residences in specialties for graduates in medicine who have already had a general internship or its equivalent in private practice

- ◊ School of nursing accredited by state board of nurse examiners
- Affiliated for nurse training on state accredited basis

The column headed "Type of Service" tells what diseases or conditions are treated in each institution, as follows:

Ca	Cancer	ENT	Eye, ear, nose and throat	Inst	Institutional	Orth	Orthopedic
Card	Cardiac	Gen	General	Mat	Maternity	SKCa	Skin and cancer
Child	Children	GTB	General and tuberculosis	MatCh	Maternity and children	TB	Tuberculosis
Chr	Chronic	Inc	Incurable	MeDe	Mentally deficient	TbIs	Tuberculosis and isolation
Conv	Convalescence and rest	Indus	Industrial	Ment	Mental	TbOr	Tuberculosis and orthopedic
Drug	Drug and alcoholic	Iso	Isolation	N&M	Nervous and mental	Ven	Veneral
Epi	Epileptic						

The column headed "Control" indicates for each institution the ownership control, or auspices under which it is conducted, as follows:

Chrch	Church	Indep	Independent hospital association	Part	Partnership
CyCo	City and county	IA	Office of Indian Affairs Department of the Interior	USPH	United States Public Health Service
Co	County	Indiv	Individual	Vet	Veterans Administration Facility
Fed	Federal	Indus	Industrial		
Frnt	Fraternal				

ALABAMA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Albertville 2,716—Marshall	Gen	Indiv	24	2	6	5	66	
Sand Mountain Infirm								
Alexander City 4,519—Tallapoosa	Gen	Indiv	54	4	14	8	320	
Russell Hospital								
Andalusia 5,154—Covington	Gen	Co	25	2		15		
Covington County Hosp								
Anniston, 22,345—Calhoun	Gen	City	66	4	84	22	1,040	
Garner Hospital								
Station Hospital	Gen	Army	50			22	744	2,634
Atmore 3,035—Escambia								
Atmore General Hospital	Gen	Indep	24	2	23	5	253	
Bellamy 317—Sumter								
Bellamy Hospital	Gen	Indiv	16	2	8	4	120	
Bessemer 20,721—Jefferson								
Bessemer General Hosp	Gen	Indep	72	4	33	22	471	
Birmingham 259,678—Jefferson								
Birmingham Baptist Hosp	Gen	Chrch	150	12		49	2,189	
Children's Hospital	Chil	Indep	50			29	838	4,360
Hill Crest Sanitarium	N&M	Indiv	50			27	278	
Hillman Hospital	Gen	Co	435	40	1,617	344	8,586	23,940
Jefferson Sanatorium	TB	Co	100			60	181	
Jefferson Hospital	Gen	Indep	210	16	84	66	2,889	3,438
Northwood Hospital	Gen	Chrch	113	12	198	60	2,412	
St. Vincent's Hospital	Gen	Part	137	18	392	60	2,802	
South Highlands Infirm								
Brewton 2,818—Escambia								
Brewton Memorial Hospital	Gen	Indiv	15	1		4		
Clanton 1,847—Chilton								
Central Alabama Hospital	Gen	Indep	30	2	4	12	218	
Decatur 15,532—Morgan								
Benevolent Society Hosp	Gen	Indep	44	3	44	19	615	
Dothan 16,946—Houston								
Dr. M. S. Davis Private								
Hospital	Gen	Indiv	50	6		17		
Fraser Ellis Hospital	Gen	Part	60	6	40	52	2,366	5,403
Moody Hospital	Gen	Indiv	94	6	33	52	1,489	9,477
Enterprise 3,702—Coffee								
Gibson Hospital	Gen	Indiv	19	2	16	4	177	1,500
Eufaula 5,008—Barbour								
Britt Infirm	Gen	Indiv	50	4	10	15	370	1,252
Saller Hospital	Gen	Indiv	50	6	11	12	416	
Fairfield 11,000—Jefferson								
Employees Hospital of the								
Tennessee Coal Iron and	Gen	Indus	287	23	380	147	4,987	8,468
Railroad Company								
Florida 2,550—Covington								
Young Infirm and Lake								
view Hospital	Gen	Indiv	40	4		11		
Florence 11,729—Lauderdale								
Eliza Coffee Mem Hosp	Gen	City	60	6	32	14	698	
Gadsden 24,042—Etowah								
Forrest General Hospital	Gen	Indep	80	12	42	27	840	1,030
Holy Name of Jesus Hosp	Gen	Chrch	70	6	61	30	1,775	
Greenville 2,000—Butler								
Spel's Hospital	Gen	Indiv	70	5	11	5	139	1,500
Stabler Infirm	Gen	Indiv	20	3	18	10	251	

ALABAMA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Huntsville 11,554—Madison								
Huntsville Hospital	Gen	Indep	75	8	51	15	760	
Jackson, 1,828—Clarke								
South Alabama Infirm	Gen	Indiv	14	4		4		
Jasper 5,313—Walker								
Walker County Hospital	Gen	Indep	45	2	49	30	1,036	
Langdale 510—Chambers								
Langdale Hospital	Surge	Indus	15			5		
Mobile, 68,202—Mobile								
City Hospital	Gen	City	124	18	312	95	2,500	11,844
Mobile County Tuber San								
tarium	TB	Indep	60			38	23	
Mobile Infirm	Gen	Indep	90	10	107	30	1,412	
Providence Infirm	Gen	Chrch	100	12	86	31	1,060	
U S Marine Hospital	Gen	USPH	114			90	817	2,476
Montgomery 66,070—Montgomery								
Highland Park Sanat	Gen	Indiv	40	12	159	20	1,072	458
Montgomery Tuber Sanat	TB	Indep	60			38	55	
St. Margaret's Hospital	Gen	Chrch	125	14	236	75	3,102	
Station Hospital	Gen	Army	25	6	14	11	452	3,816
Mt. Vernon 810—Mobile								
Searcy Hospital (col)	Ment	State	1,500			1,463	443	
Opelika 6,156—Lee								
East Alabama Hospital	Gen	Indep	30	3	21	6	309	
Roanoke 4,373—Randolph								
Knight Sanatorium	Gen	Indiv	32	3	9	11	219	
Scottsboro 2,304—Jackson								
Hodges Hospital	Gen	Indiv	20	2	6	10	160	
Selma 18,012—Dallas								
Burwell Infirm (col)	Gen	Indiv	25	4		7		
Goldsbey King Mem Hosp	Gen	Indep	52	12	38	24	987	
Good Samaritan Hosp (col)	Gen	Indep	35	2	15	10	464	
Selma Baptist Hospital	Gen	Chrch	60	7	254	16	1,150	
Vaughan Memorial Hosp	Gen	Indep	50	8		12		
Sheffield 6,221—Colbert								
Colbert County Hospital	Gen	Co	75	2	25	9	406	
Sylacauga, 4,115—Talladega								
Drummond Fraser Hospital	Gen	Indus	50	8	82	12	436	4,886
Sylacauga Infirm	Gen	Indep	46	4	48	11	368	1,560
Talladega 7,596—Talladega								
Citizens Hospital	Gen	Indep	50	5	28	13	717	
Troy 6,814—Pike								
Beard Memorial Hospital	Gen	Part	35	4	18	9	424	
Edge Hospital	Gen	Indiv	30	5	24	22	575	193
Tuscaloosa 20,639—Tuscaloosa								
Byrce Hospital	Ment	State	2,927			2,923	811	
Druid City Hospital	Gen	City	80	8		37	1,760	
Veterans Admin Facility	Gen	Vet	350			157	1,884	114
Tuskegee 3,314—Macon								
Veterans Admin Facility	Gen	Vet	1,154			750	1,441	65
(col)								
Tuskegee Institute 250—Macon								
John A. Andrew Memorial	Gen	Indep	75	5	31	50	2,215	
Hospital (col)*								

Key to symbols and abbreviations is at top of this page

ALABAMA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Alabama City 8544—Etowah	TB	Co	24			21	12	
Flowah Co Tuberc Sanat								
Altoona 1098—Etowah	Gen	Indiv	12	3	31	4	138	
Klein Hospital								
Birmingham 29078—Jefferson	Inst	State	30			4	1170	
Alabama Boys' Industrial School								
Children's Home Hospital (col)	Gen	Indep	17	3	7	9	409	1223
Miss Quinn's Nursing Home	Conv	Indep	10			10	300	
Salvation Army Home and Hospital	Mat	Chrch	50	30	65	16	100	
Demopolis, 4037—Marengo								
Hand Bailey Hospital	Gen	Indiv	14	4				
East Tallassee 2040—Tallapoosa								
Community Hospital	Gen	Indep	19	1	12	8	167	
Greensboro 1790—Hale								
Greensboro Hospital	Gen	Indep	8	1		8	66	
Mobile 68602—Mobile								
Allen Memorial Home	Mat	Chrch	20	2	134	6	137	
Mobile County Poor Asylum Hospital	Inst	Co	20			16		
Monroeville 1300—Monroe								
Monroeville Infirmary	Gen	Indiv	16		2	2	116	
Montevallo 1245—Shelby								
Peterson Hall	Inst	State	27			5	1361	
Montgomery 6609—Montgomery								
Eastern Star Hospital	Gen	Frat	20			15	225	
Fraternal Hospital (col)	Gen	Indiv	37	8	60	14	400	
Kilby Prison Hospital	Inst	State	50			26	1387	
Miriam Jackson Home	Inst	Chrch	20			4	602	
Mountain Creek 375—Chilton								
Jefferson Manly Falkner Soldiers Home	Inst	State	20			16		
Selma, 18012—Dallas								
Alabama Methodist Orphanage Hospital	Inst	Chrch	12			6	238	
Talladega 7596—Talladega								
Goodnow Hospital (col)	Inst	Indep	18	1		3	81	
Tuscaloosa 20609—Tuscaloosa								
Partlow State School	McDe	State	506			540	52	
Wetumpka 2377—Elmore								
State Convict Tuberc Hosp	TB	State	100			70	75	
Summary for Alabama			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			66	9701	7268	7101		
Related institutions			22	1091	799	7002		
Totals			88	10792	8067	78069		
Refused registration			5	107				

ARIZONA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Ajo 3030—Pima								
New Cornelia Mines Hosp	Gen	Indus	30	6		8		
Blisbee 8023—Cochise								
Copper Queen Hospital	Gen	Indus	30	6	82	14	487	
Douglas 9828—Cochise								
Cochise County Hospital	Gen	Co	90	6	40	40	802	50
Florence 1318—Pinal								
Pinal County Hospital	Gen	Co	20	1		10		
Ft Defiance 39—Apache								
Ft Defiance Sanatorium	TB	I A	26			28	116	
Southern Navajo General Hospital	Gen	I A	82	4	44	70	1523	2863
Ft Huachuca 1214—Cochise								
Station Hospital	Gen	Army	40		11	10	333	4290
Ganado 34—Apache								
Sage Memorial Hospital	Gen	Chrch	80	15	40	61	882	517
Globe 7157—Gila								
Gila County Hospital	Gen	Co	55	5	37	48	464	
Jerome 4932—Yavapai								
United Verde Copper Company Hospital	Gen	Indus	52	4	33	19	584	
Keams Canyon 36—Navajo								
Hopi General Hospital	Gen	I A	40	5	17	26	633	2690
Kingman 2030—Mohave								
Mohave County Hospital	Gen	Co	30	5	45	9	207	
Leupp 58—Coconino								
Leupp Indian Hospital	Gen	I A	50	1	8	30	809	8942
Mesa 3711—Maricopa								
South Side District Hosp	Gen	Indep	20	1	23	10	389	
Miami 7695—Gila								
Miami Inspiration Hospital	Gen	Indus	40	4	34	8	176	5440
Morenci 6175—Greenlee								
Ihale Dodge Hospital	Gen	Indus	16	3	7	5	180	1841
Nogales 6006—Santa Cruz								
St Joseph's Hospital	Gen	Chrch	24	2	7	5	150	
Phoenix 48118—Maricopa								
Arizona State Hospital	Inst	State	930			866	200	
Booker T Washington Memorial Hosp and Sanat (col)	Gen	Indiv	20	8	15	9	127	
Good Samaritan Hospital	Gen	Chrch	132	18	307	60	2157	
Phoenix Indian Hospital	Gen	I A	160	3	47	53	917	1000
Phoenix Indian Sanat	TB	I A	130			112	155	
Phoenix Sanatorium	TB	Indiv	75			10	50	
St Joseph's Hospital	Gen	Chrch	170	15	393	82	3086	
St Luke's Home	TB	Chrch	80			32	60	

ARIZONA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Prescott 5517—Yavapai								
Mercy Hospital	Gen	Chrch	20	8	30	9	300	
Pamsetgauf Sanatorium	TB	Indiv	20			12	70	
St Luke's in the Mountains	TB	Chrch	40			40		
Ray 2440—Pinal								
Ray Hospital	Gen	Indus	20	6	22	6	254	60
Sacaton 915—Pinal								
Pima Indian Hospital	Gen	I A	50	10	48	28	600	1000
Safford 1706—Craham								
Morris Squibb Hospital	Gen	Indiv	20	3	4	5	80	
San Carlos 48—Gila								
San Carlos Indian Hosp	Gen	I A	20	5	44	20	406	600
Sells 61—Pima								
Indian Onsets Hospital	Gen	I A	40	2	12	24	204	100
Superior 252—Pinal								
Magma Hospital	Gen	Indus	10	4	2	4	30	100
Tuba City 100—Coconino								
Western Navajo Hospital	Gen	I A	20		10	40	104	30
Tucson 2506—Pima								
Anson Rest Home	TB	Iart	0			10	18	
Barfield Sanatorium	TB	Indiv	22			12	31	
Desert Sanatorium and Institute of Research	Gen	Indep	80					
St Luke's in the Desert Sanatorium	TB	Chrch	30			18	40	
St Mary's Hospital and Sanatorium	G & TB	Chrch	160	10	100	0	200	
St Xavier Indian Sanat	TB	I A	30			20	20	
Southern Methodist Hospital and Sanatorium	C & TB	Chrch	70	12	10	24	900	
Southern Pacific Sanat	TB	Indus	84			40	67	
Veterans Admin Facility	G & TB	Vet	200			301	911	
Valentine 168—Mohave								
Truxton Canon Indian Hosp	Gen	I A	12	1	6		206	4
Whipple—Yavapai								
Veterans Admin Facility	C & TB	Vet	600			470	1301	100
Whitewater 52—Navajo								
It Apache Agency Hosp	Gen	I A	10	0	10	24	600	100
Williams 2166—Coconino								
Williams Hospital	Gen	Indiv	12	2	12	6	110	
Yuma 4022—Yuma								
It Yuma Indian Hospital	Gen	I A	20		10	9	200	1000
Yuma County General Hospital	Gen	Co	40	6	50	20	1000	
Related Institutions								
Chin Lee Co—Apache								
Chin Lee General Hospital	Gen	I A	20	1		11	466	
Flagstaff 3891—Coconino								
Coconino County Hospital	Inst	Co	18			13		
Merry Hospital	Gen	Indiv	14	3	20	8	20	
Florence 1318—Pinal								
Arizona State Prison Hosp	Inst	State	20			12		
Kayenta 10—Navajo								
Kayenta Sanatorium	Gen	I A	40	2		40	321	1000
McNary 114—Apache								
McNary Hospital	Gen	Indus	9	2		6		100
Phoenix 48118—Maricopa								
Harrisheim	Conv	Indiv	7			5		
Helen Lee Sanatorium	TB	Indiv	8			6	13	
Maricopa County Farm	Inst	Co	7			10		
Maricopa County Tubercu								
Jossis Hospital	TB	Co	37			37		
Prescott 5517—Yavapai								
Yavapai County Hospital	Inst	Co	80	1		60	16	
Tucson 2506—Pima								
Arizona State Elks Association Hospital	TB	Frat	40			12	20	
Comstock Hospital	TB	Indep	0			20	20	
La Casa del Encanto	Conv	Indiv	7			2		
Pima County Hospital	TB	Co	45			4	88	
Reardon Sanatorium	TB	Indiv	16			10	21	
Wickenburg 734—Maricopa								
Wickenburg Hospital	Gen	Indiv	11	3		4		
Summary for Arizona			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			17	4020	2940	2000		
Related institutions			17	415	404	1600		
Totals			34	4097	3200	2000		
Refused registration			3	61				

ARKANSAS

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Alexander 141—Pulaski								
McRae Memorial Sanatorium (col)	TB	State	30			30	50	60
Arkadelphia 3380—Clark								
Town and Hospital	Gen	Indiv	16	4	12	4	146	
Batesville 4484—Independence								
Dr Gray's Infirmary	Gen	Indiv	14			4	100	
Johnston and Craig Hosp	Gen	Part	10		5	3	180	
Bauxite 2200—Saline								
Republic Mining and Manufacturing Company Hosp	Gen	Indus	20		10	4	200	
Benton 3440—Saline								
Blakely's Sanitarium	Gen	Indiv	16	2	21	5	100	

Key to symbols and abbreviations is on page 1021

ARKANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Mytherville 10 008—Mississippi	Gen	City	40	3	13			
Mytherville Hospital	Gen	City	40	3	13			
Camden 7 23—Ouachita	Gen	Indep	20	9	80	7	411	
Camden Hospital	Gen	Indep	20	9	80	7	411	
Charleston 851—Franklin	Gen	Indiv	11		7	3	77	
Hollinger Hospital	Gen	Indiv	11		7	3	77	
Clarksville 8 031—Johnson	Gen	Indep	19	2		4		
Johnson County Hospital	Gen	Indep	19	2		4		
Conway 5 534—Faulkner	Gen	Indep	20	4	0	3	194	200
Faulkner County Hospital	Gen	Indep	20	4	0	3	194	200
Crossett 2 811—Ashley	Gen	Indus	20	6	27	12	268	2 000
Crossett Hospital	Gen	Indus	20	6	27	12	268	2 000
DeQueen 2 938—Sevier	Gen	Part	22	3	15	6	219	
Archer Hospital	Gen	Part	22	3	15	6	219	
Dumas 1 669—Decha	Gen	Indiv	10	1		3		
Dumas Hospital	Gen	Indiv	10	1		3		
El Dorado 16 471—Union	Gen	Part	22	10		14		
Henry O Rosamond Memorial Hospital	Gen	Part	22	10		14		
Warner Brown Hospital	Gen	Chrch	81	8	104	51	2 627	
Lureka Springs 2 976—Carroll	Don Sawyer Mem	Hosp Surg	Indep	20	4		5	170
Fayetteville 7 594—Washington	Gen	City	55	6	91	25	1,007	
Fayetteville City Hospital	Gen	City	55	6	91	25	1,007	
Ft Smith 81 429—Sebastian	Gen	Chrch	100	10	128	50	1 717	
St Edward's Mercy Hosp	Gen	Indiv	50	5	21	23	686	
St John's Hospital	Gen	Indiv	50	5	21	23	686	
Sparks Memorial Hospital	Gen	Indiv	86	14	43	10	602	
Helena 8 816—Phillips	Gen	Indep	38	4	42	16	743	
Helena Hospital	Gen	Indep	38	4	42	16	743	
Hope 6 008—Hempstead	Gen	Indiv	23	3	12	4	226	
Josephine Hospital	Gen	Indiv	23	3	12	4	226	
Julia Chester Hospital	Gen	Indep	20	4	14	6	240	
Hot Springs National Park 20 238—Garland	Gen	Fed	412		8	83	681	
Army and Navy Gen Hosp	Gen	Fed	412		8	83	681	
Leo N Levi Mem Hosp	Gen	Frat	70	3	41	40	680	3 837
Ozark Sanatorium	Gen	Indep	60	3		18		
St Joseph's Hospital	Gen	Chrch	144	6	36	51	1 901	
Woodmen of Union Hospital (col)	Gen	Frat	30			18		
Jonesboro 10 376—Craighead	Gen	Chrch	100	8	63	53	1 447	297
St Bernard's Hospital	Gen	Chrch	100	8	63	53	1 447	297
Lake Village 1 582—Chicot	Gen	Indiv	30	2	20	14	511	
Lake Village Infirmary	Gen	Indiv	30	2	20	14	511	
Little Rock 81 604—Pulaski	Arkansas Children's Home and Hospital	Chil	Indep	76		50	421	
Baptist State Hospital	Gen	Chrch	300	15	207	51	2 667	
Granite Mountain Hospital	Gen	Indiv	20	2	12	3	106	
Little Rock City Hosp	Gen	City	128	12	58	50	1 514	2 208
Missouri Pacific Hospital	Indus	Indus	135		33	1 232		
St Vincent's Infirmary	Gen	Chrch	131	10	233	90	3 274	
State Hospital	Gen	State	3 511		3 423	1 417		
Trinity Hospital	Gen	Indep	44	6	71	13	817	
United Friends Hospital (col)	Gen	Frat	32	3		5		
Magnolia 3 008—Columbia	Gen	Part	10	2	10	5	220	394
Magnolia Sanatorium	Gen	Part	10	2	10	5	220	394
Monticello 3 076—Drew	Gen	Indep	20		15	6		2 004
Naack Wilson Hospital	Gen	Indep	20		15	6		2 004
Morrilton 4 043—Conway	Gen	Chrch	18	2	12	11	306	
St Anthony's Hospital	Gen	Chrch	18	2	12	11	306	
Newport 4 547—Jackson	Surg	Part	16	2		4		
Newport Sanitarium	Surg	Part	16	2		4		
North Little Rock 19 418—Pulaski	Veterans Admin	Facility	820			768	303	
Paragould 5 966—Greene	Gen	Indep	30	3	24	6	300	
Dickson Memorial Sanit	Gen	Indep	30	3	24	6	300	
Parle 3 234—Logan	Gen	Indiv	20			10		1 124
Dr Jewell's Infirmary	Gen	Indiv	20			10		1 124
Pine Bluff 20 760—Jefferson	Gen	Chrch	70	6		14	721	
Davis Baptist Hospital	Gen	Chrch	70	6		14	721	
United Links Hosp (col)	Gen	Indep	40			5		
Prescott 3 033—Nevada	Gen	Indiv	40	3	32	18	571	
Corn Donnell Hospital	Gen	Indiv	40	3	32	18	571	
Russellville 5 623—Pope	ENT	Indiv	10			5	300	
Haney Fye Ear Nose and Throat Hospital	ENT	Indiv	10			5	300	
St Mary's Hospital	Gen	Indiv	50	6	8	28	1 000	800
Searey 3 385—White	Gen	Indiv	23	1	12	8	523	
Wakenight Sanitarium	Gen	Indiv	23	1	12	8	523	
Siloam Springs 2 378—Benton	Gen	City	10	2	13	6	175	
Siloam Springs City Hosp	Gen	City	10	2	13	6	175	
State Sanatorium—Logan	TB	State	20			20	543	
Arkansas Tuberculosis Sanatorium	TB	State	20			20	543	
Taylor 263—Columbia	Gen	Indiv	15			5	412	
Bertie Lee Horn Sanat	Gen	Indiv	15			5	412	
Texarkana 10 764—Miller	Gen	Chrch	70	10	70	20	1 004	
Michael Meagher Memorial Hospital	Gen	Chrch	70	10	70	20	1 004	
St Louis Southwestern Hospital	Indus	Indus	100			34	1 289	4 110
Related Institutions								
De Queen 2 938—Sevier	Gen	Indiv	10			4		
Children's Hospital	Gen	Indiv	10			4		
Ft Smith 31 429—Sebastian	Inst	Co	72			60		
Sebastian County Hospital	Inst	Co	72			60		
Little Rock 81 604—Pulaski	Inst	State	80			72	27	
Arkansas Confederate Home	Inst	State	18			5	60	
Arkansas School for the Blind	Inst	State	18			5	60	
Florence Crittenton Home	Mat	Indep	42	6	22	18	30	
Pulaski County Hospital	Gen	Co	200	10		183	647	

ARKANSAS—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Malvern 5 115—Hot Spring	Gen	Co	9	1		8		
Hot Spring County General Hospital	Gen	Co	9	1		8		
Newport, 4 547—Jackson	Gen	Indiv	6	2	4	3	100	
Dr Gray's Sanitarium	Gen	Indiv	6	2	4	3	100	
Rogers 3,554—Benton	Gen	Indiv	8	4	4	1	46	
Home Hospital	Gen	Indiv	8	4	4	1	46	
Rogers Sanitarium	Gen	Indiv	8	4	4	1	46	
Texarkana 10 764—Miller	Gen	Indiv	16	2		4		
Jamison Sanitarium (col)	Gen	Indiv	16	2		4		
Tucker, 210—Jefferson	Inst	State	20			12	736	
Arkansas State Penitentiary Hospital	Inst	State	20			12	736	
Summary for Arkansas			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			53	7 993	5 761	36 467		
Related institutions			12	487	287	2 611		
Totals			70	8 480	6 148	39 078		
Refused registration			9	189				

CALIFORNIA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Agnew 316—Santa Clara	Gen	State	2 084		2 681	1 969		
Agnew State Hospital	Gen	State	2 084		2 681	1 969		
Ahwahnee 25—Madera	TB	Co	108		98	97	15	
Ahwahnee Tri County Tuberculosis Sanatorium	TB	Co	108		98	97	15	
Alameda 30 023—Alameda	Gen	Indep	85	15	178	30	1 463	
Alameda Sanatorium on the South Shore	Gen	Indep	85	15	178	30	1 463	
Albany 8 569—Alameda	Gen	Part	27	10	61	12	392	
Humboldt Hospital	Gen	Part	27	10	61	12	392	
Alcatraz 171—San Francisco	Gen	Army	30			12	209	
Station Hospital	Gen	Army	30			12	209	
Alhambra 29 472—Los Angeles	Gen	Indep	40	10		14		
Alhambra Hospital	Gen	Indep	40	10		14		
Angel Island 406—Marin	Gen	Army	98			15	466	3 602
Station Hospital	Gen	Army	98			15	466	3 602
Antioch 3 063—Contra Costa	Gen	Indiv	15	4	37	5	284	
Antioch Hospital	Gen	Indiv	15	4	37	5	284	
Arcata 1 709—Humboldt	Gen	Chrch	22	4	20	9	349	
Trinity Hospital	Gen	Chrch	22	4	20	9	349	
Arlington 1 500—Riverside	Gen	Co	300	10	184	265	2 464	1 061
Riverside County Hospital	Gen	Co	300	10	184	265	2 464	1 061
Artesia 3 891—Los Angeles	Gen	Indiv	20	4	60	9	225	
Artesia Hospital	Gen	Indiv	20	4	60	9	225	
Auberry 183—Fresno	TB	Co	66			72	89	630
Wishah Sanatorium	TB	Co	66			72	89	630
Auburn 2 661—Placer	Gen	Part	20	4		18	560	
Highlands Sanitarium	Gen	Part	20	4		18	560	
Bakersfield 26 015—Kern	Gen	Indiv	40	5	4	5	200	
Bakersfield Emergency Hospital	Gen	Indiv	40	5	4	5	200	
Kern General Hospital	Gen	Co	964	16	402	346	5 577	
Mercy Hospital	Gen	Chrch	100	12	156	26	827	
San Joaquin Hospital	Gen	Indep	40	6	52	17	923	
Banning 7 52—Riverside	TB	Indiv	20			8	24	
Banning Hosp and Sanat	TB	Indiv	20			8	24	
Southern Sierras Sanat	TB	Indiv	35			16	26	
Bell 7 884—Los Angeles	Gen	Indiv	19	11	127	6	344	
Gage Hospital	Gen	Indiv	19	11	127	6	344	
Belmont 984—San Mateo	N&M	Indep	50			34	82	
Alexander Sanitarium	N&M	Indep	50			34	82	
California Sanatorium	TB	Indep	100			99	275	
Twin Pines Sanitarium	N&M	Indep	20			20	38	
Berkeley 82 109—Alameda	Gen	Indep	100	36	407	51	2 272	
Alta Bates Hospital	Gen	Indep	100	36	407	51	2 272	
Berkeley General Hospital	Gen	Indep	90	12	101	21	817	1 221
E V Cowell Memorial Hospital	Gen	State	100			36	1 748	10 742
Brawley 10 439—Imperial	Gen	Indiv	14	3	45	8	213	
Brawley Community Hosp	Gen	Indiv	14	3	45	8	213	
Burbank 16 662—Los Angeles	Gen	Indiv	36	8	53	14	430	158
Burbank Hospital	Gen	Indiv	36	8	53	14	430	158
Calhoga 1 000—Napa	TB	Indiv	40					
Silverado Sanatorium	TB	Indiv	40					
Carmel 2 260—Monterey	Gen	Indiv	13	5	19	5	172	
Grace Hospital	Gen	Indiv	13	5	19	5	172	
Grace Deere Velle Metabolic Clinic	Chr	Indep	25			8	195	130
Chico 7 961—Butte	Gen	Indiv	32	6	106	11	611	
Enloe Hospital	Gen	Indiv	32	6	106	11	611	
Colfax 912—Placer	(Unit of Colfax School for the Tuberculous)							
Buchnell Sanatorium	(Unit of Colfax School for the Tuberculous)							
Colfax Hospital	(Unit of Colfax School for the Tuberculous)							
Colfax School for the Tuberculous	(Unit of Colfax School for the Tuberculous)							
Housekeeping Cottage Colony	TB	Indiv	96			30	41	
Kathlamet Sanatorium	(Unit of Colfax School for the Tuberculous)							
Colusa 2 116—Colusa	(Unit of Colfax School for the Tuberculous)							
Colusa Memorial Hospital	Gen	Co	24	8	40	12	488	300
Compton 12 516—Los Angeles	N&M	Indep	100			79	180	
Compton Sanitarium	N&M	Indep	100			79	180	
Las Campanas Hospital	Gen	Indep	30	10	95	19	474	
Coronado 5 425—San Diego	Gen	Army	30			11	207	2 505
Station Hospital	Gen	Army	30			11	207	2 505

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Covina 2774—Los Angeles	Gen	Part	40	8	110	15	703		
Covina Hospital									
Crescent City 1720—Del Norte	Gen	Indep	10	5	17	7	240	163	
Knapp Hospital									
Culver City 5669—Los Angeles	Gen	Indep	50	17	85	6	376	1089	
University Hospital									
Dorris 762—Siskiyou	Gen	Part	12	3	11	3	84	417	
Butte Valley Clinic	Gen	Part	15	4		3			
Dorris Hospital									
Duarte 620—Los Angeles	TB	Indep	150			149	127	10	
Los Angeles Sanatorium									
Dunsmuir 2610—Siskiyou	Gen	Indep	17	4	6	8	32		
Dunsmuir Hospital and Sanatorium									
El Centro 8434—Imperial	Gen	Indiv	23	8	70	5	327		
La Solana Hospital									
El Monte 3479—Los Angeles	Mat	Indep	104	40	20	83	168		
Ruth Home									
Eureka 15752—Humboldt	Gen	Indep	42	8	52	16	560		
General Hospital	Gen	Co	103	13	177	102	120	1368	
Humboldt County Hospital									
Humboldt County School for the Tuberculous	TB	Co	6			49	97	43	
St Joseph Hospital	Gen	Chrch	63	12	102	19	904		
Ft Bragg 3022—Mendocino	Gen	Indep	25	5	16	4	102		
Redwood Coast Hospital									
Ft Jones 302—Siskiyou	Gen	Indiv	10	2	27	2	75	84	
Scott Valley Hospital									
French Camp 248—San Joaquin	Gen	Co	500	24	606	526	7764	17270	
San Joaquin Gen Hosp									
Fresno 52513—Fresno	Gen	Indep	12	12	241	12	2073		
Burnett Sanitarium									
Fresno County General Hospital	Gen	Co	500	16	561	432	5794	682	
St Agnes Hospital	Gen	Chrch	66	14	296	37	1267		
Sample Sanitarium	Gen	Indiv	28	6	47	7	308		
Fullerton 10860—Orange	Gen	Chrch	28	6	53	8	339		
Fullerton Hospital									
Gilroy 3502—Santa Clara	Gen	Indep	2	7	35	9	391	129	
Wheeler Hospital									
Glendale 62736—Los Angeles	Gen	Chrch	240	24	270	10	2135	12020	
Glendale Sanitarium and Hospital									
Physicians and Surgeons Hospital	Gen	Indep	72	20	31	28	1528		
Grass Valley, 3817—Nevada	Gen	Indiv	20	4	42	10	749	701	
W C Jones Mem Hospital									
Hanford 7028—Kings	Gen	Indep	30	6	42	6	209		
Hanford Sanitarium	Gen	Co	90	11	80	84	712		
Kings County Hospital	Gen	Chrch	20	6	20	4	114		
Sacred Heart Hospital									
Hayward 5530—Alameda	Gen	Indiv	17	4	71	6	334		
Hayward Hospital									
Healdsburg 2296—Sonoma	Gen	Indep	14	7	54	4	189		
Healdsburg General Hosp									
Hermosa Beach 4706—Los Angeles	Gen	Indep	27	9		7	270		
Hermosa Redondo Hospital									
Hobart Mills 516—Nevada	Gen	Indus	14	3	5	2			
Hobart Estate Company Hospital									
Hollister 3757—San Benito	Gen	Co	15	4	8	3	168		
Hazel Hawkins Memorial Hospital									
Hoopa 200—Humboldt	Gen	I A	36	5	37	19	293	4780	
Hoopa Valley Indian Hosp									
Huntington Park 24591—Los Angeles	Gen	Indep	30	10	316	19	832		
Mission Hospital									
Imola—Napa	Gen	State	3734			3147	768		
Napa State Hospital									
Indio 1875—Riverside	Gen	Indiv	20	4	61	15	637		
Coachella Valley Hospital									
Inglewood 19480—Los Angeles	Gen	Indiv	22	12		14			
Centinela Hospital									
Keene 164—Kern	TB	Co	100			86	83	1514	
Stony Brook Retreat									
King City 1483—Monterey	Gen	Indiv	14	2	11	6	124		
Community Hospital									
La Crescenta 1510—Los Angeles	TB	Indep	60			60	120		
Hillcrest Sanatorium									
La Vina—Los Angeles	TB	Indep	55			48	101	151	
La Vina Sanatorium									
Lindsay 3878—Tulare	Gen	Indiv	11	2	24	4	188		
Lindsay Hospital									
Livermore 3119—Alameda	TB	Co	18			178	196		
Arroyo Sanatorium	Gen	CyCo	30	4		12			
Hetch Hetchy Hospital	N&M	Indep	114			83	114		
Livermore Sanitarium	Gen	Indiv	12	3		5			
St Paul's Hospital	G&TB	Vet	318			207	39		
Veterans Admin Facility									
Lodi 6788—San Joaquin	Gen	Indiv	15	4	33	4	169		
Dr Buchanan's Sanitarium	Gen	Part	15	4	20	5	161		
Mason Hospital									
Loma Linda 2500—San Bernardino	Gen	Chrch	112	12	112	61	1644	17844	
Loma Linda Sanitarium and Hospital									
Long Beach 142032—Los Angeles	Gen	Indiv	26			12	529	1518	
Harriman Jones Clinic and Hospital	Gen	Indep	100	20	410	72	4617		
Long Beach Community Hospital									
St Mary's Long Beach Hospital	Gen	Chrch	60	10	130	28	779		
Seaside Hospital	Gen	Indep	275	48	891	102	4375	12062	

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Los Angeles 1288018—Los Angeles	TB	Indep	100			89	86	813	
Barlow Sanatorium									
California Babies Hospital	(Pediatric Dept)	Gen	Chrch	270	28	903	211	6509	11500
California Hospital*	Gen	Indep	210	40	924	166	645	19,67	
Cedars of Lebanon Hosp**	Chil	Indep	103			139	3645	10123	
Children's Hospital									
Ex Patients Home of the Jewish Consumptive Relief Association	TB	Indep	60			62	13		
Eye and Ear Hospital	TNT	Indep	21				2,400	8,213	
French Hospital	Gen	Indiv	60	20	276	29	1074		
Golden State Hospital+	Gen	Indiv	67	6		55	994	12,000	
Hollywood Clara Barton Memorial Hospital*	Gen	Indep	240	60	523	129	5077		
Hospital of the Good Samaritans	Gen	Chrch	380	45	462	161	4537		
Japanese Hospital	Gen	Indep	39	6	48	21	814		
Lincoln Hospital	Gen	Indep	29	8	140	10	523		
Los Angeles County General Hospital (Unit No 1)**	Gen	Co	1560	40	182	1790	26577	69,513	
Los Angeles County Psychopathic Hospital	(Ward of Los Angeles County General Hospital Unit No 1)								
Los Angeles Maternity Cottage	Mat	Indep	23	23	229	12	723	117	
Los Angeles Sanitarium	Gen	Indiv	20			5	110		
Methodist Hospital of Southern California	Gen	Chrch	240	40	707	82	3,267		
Orthopaedic Hosp School+	Orth	Indiv	85			73	1,566	6900	
Pahl Hospital	Gen	Indiv	15	3	40	9	380		
Queen of Angels Hosp	Gen	Chrch	200	40	591	119	4,060		
St Vincent's Hospital	Gen	Chrch	22	48	46	110	3771		
Santa Fe Coast Line Hospital*	Indus	Indus	10			119	2,015	3,360	
Southern California Sanitarium	Chr	Indiv	17			12	704		
Southwest General Hospital	Gen	Indiv	2	8		8			
Ferry Sanitarium Hospital	Gen	Indep	12	2		5			
White Memorial Hosp**	Gen	Chrch	10	2	519	76	3,637	10,991	
Los Banos 1875—Merced	Gen	Indiv	14	4	21	4	110		
Los Banos Hospital									
Los Catos 3165—Santa Clara	TB	Indiv	60			29	50		
Oaks Sanitarium									
Madera 400—Madera	Gen	Co	42	5		27	91	2,000	
Madera County Hospital	Gen	Indiv	19	4	72	9	323		
Madera Sanitarium									
Manor—Marin	TB	Indep	44			42	61		
Arquipa Sanatorium									
Mare Island 410—Solano	Gen	Nav	632			230	7,066	14,200	
U S Naval Hospital									
Martinez 600—Contra Costa	Gen	Co	210	10	177	198	2,102	240	
Contra Costa County Hosp	Gen	Co	20	5	58	11	483		
Martinez Community Hosp									
Marysville 573—Yuba	Gen	Indiv	20	9	58	14	513		
Rideout Memorial Hospital									
McCloud 1—Siskiyou	Gen	Indus	20	4	74	4	128		
McCloud Hospital									
Merced 7006—Merced	Gen	Indep	20	7	127	18	80		
Merced Hospital									
Modesto 13842—Stanislaus	Gen	Indiv	22	5	61	2	774		
McPheters Hospital	Gen	Indiv	21	8	100	17	60		
Robertson Hospital	Gen	Chrch	21	8	59	6	40		
St Mary's Hospital	Gen	Co	107	12	240	111	2,041	4,020	
Stanislaus County Hospital									
Monrovia 10800—Los Angeles	TB	Indiv	20			14	4	4	
Norumbega Sanatorium	Gen	Indiv	170			50	92	226	
Pottenger Sanat and Clinic+	TB								
Monterey 9141—Monterey	Gen	Indiv	14	4	19	3	166		
Fl Adobe Hospital	Gen	Indep	100	6	36	1	633	1,994	
Monterey Hospital	Gen	Army	54	1	5				
Station Hospital									
Monterey Park 6406—Los Angeles	Gen	Indep	23	8	102	15	644		
Carfield Hospital									
Murphy 563—Calaveras	TB	Co	180			19	157		
Bret Harte Sanatorium									
Napa 6437—Napa	Gen	Indiv	23	6	69	11	608	1,00	
Victory Hospital									
National City 7701—San Diego	Gen	Part	12			3	158		
Flwyn Sanitarium									
Paradise Valley Sanitarium and Hospital	Gen	Chrch	100	16	206	31	1,348	5,470	
Newman 1009—Stanislaus	Gen	Part	11	3	27	4	201		
Newman Hospital									
Norwalk 1517—Los Angeles	Gen	Indiv	22			2218	80	183	
Norwalk State Hospital									
Oakland 28403—Alameda	Chil	Indep	67			26	2,000	7,666	
Children's Hospital of the East Bay	Chil	Indep	90	16		46			
East Oakland Hospital									
Highland Hospital of Alameda County*	Gen	Co	208	26	1177	300	10777		
Peralta Hospital	Gen	Indep	124	32	507	60	2,670		
Providence Hospital	Gen	Chrch	212	30	366	60	2,401	2,0	
Samuel Merritt Hospital	Gen	Indep	160	18	771	89	3,580		
Olive View—Los Angeles	TB	Co	971			937	640		
Olive View Sanatorium									
Orange 8066—Orange	Gen	Chrch	262	12	231	218	2,860	11,54	
Orange County Hospital*	Gen	Chrch	100	20	203	40	970		
St Joseph Hospital									
Oxnard 6280—Ventura	Gen	Chrch	50	12	110	12	500		
St John's Hospital									
Pacolina 1012—Los Angeles									
Independent Order of Foresters Calif Tuber Sanit	TB	Frat	120			60			
Palo Alto 13652—Santa Clara	Gen	Indep	75	14	169	31	1875		
Palo Alto Hospital	Gen	Indep	75	14	169	31	1875		
Veterans Admin Facility	Ment	Vet	1010			900	899	643	

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Pasadena 76086—Los Angeles	Gen	Indep	80		64	243		
Las Encinas Sanitarium*	Gen	Indep	186	24	476	117	4 736	8 794
Pasadena Hospital*	Gen	Indep	70	18				
St Luke's Hospital	Gen	Chrch	34	14	201	7	297	200
Woman's Hospital	Mat	Indep						
Patton 215—San Bernardino	Mat	Indep						
Patton State Hospital	Mat	State	3 700		3 511	1 268		
Placerville 2 392—Fl Dorado	Gen	Indiv	21	3		7	310	
Placerville Sanatorium	Gen	Indiv						
Pomona 20 041—Los Angeles	Gen	Indep	82	21	171	33	1 291	
Pomona Valley Community Hospital	Gen	Indep						
Portola 1 010—Plumas	Gen	Indus	31	5	41	13	449	2 464
Western Pacific Ry Hosp	Gen	Indus						
Red Bluff 3 517—Tehama	Gen	Chrch	21	0	52	10	797	
St Elizabeth's Mercy Hosp	Gen	Chrch	61		12	47	237	
Tehama County Hospital	Gen	Co						
Redding 4 188—Shasta	Gen	Indiv	10	3		4		
Dozier Sanitarium	Gen	Indiv	22	4		9		
St Caroline Sanitarium	Gen	Indep						
Redwood City 8 902—San Mateo	TB	Indiv	71			35	56	
Canyon Sanatorium	TB	Co	103			60	81	
Hawser Health Home	TB	Co						
Richmond 9 093—Contra Costa	Gen	Indiv	20	7		15	660	
Cottage Hospital	Gen	Indep	50	14	63	10	432	
Hospital Richmond	Gen	Indep						
Riverside 29 606—Riverside	Gen	Indep	60	18	151	21	1 734	1 010
Riverside Community Hosp	Gen	Indep						
Sherman Institute Hospital	Gen	Indep	60			24	1 201	13 202
Rosemead 2 717—Los Angeles	Gen	Indep						
Alhambra Sanatorium	Gen	Indep	12			6	36	
Rose 1 311—Marin	Gen	Indep	60	8	108	31	705	760
Ross General Hospital	Gen	Indep						
Sacramento 63 700—Sacramento	Gen	Indep	174	27	294	56	2 144	923
Mater Misericordiae Hosp	Gen	Chrch	417	24	721	446	8 317	10 429
Sacramento Hospital*	Gen	Co	175	20	487	100	4 702	
Sutter Hospital	Gen	Indep						
Salinas 10 063—Monterey	Gen	Indiv	30	10	89	6	408	
Park Lane Hospital	Gen	Indiv	23	9	153	8	1 820	
Salinas Valley Hospital	Gen	Indiv						
San Bernardino 37 451—San Bernardino	Gen	Chrch	120	12	136	10	688	
St Bernardino's Hospital	Gen	Chrch						
San Bernardino County	Gen	Co	302	18	428	267	3 245	3 314
Charity Hospital**	Gen	Co						
San Diego 147 900—San Diego	Gen	Indep	81	18	108	15	717	
Emergency Hospital of San Diego	Gen	Indep	31	12	47	7	976	
Gracewood General Hospital	Gen	Indiv	281	40	842	147	5 942	236
Mercy Hospital	Gen	Chrch						
San Diego County General Hospital*	Gen	Co	640	32	680	479	6 660	9 319
Scripps Memorial Hospital	Gen	Indep	70	6	49	20	611	
Scripps Metabolic Clinic	Metab	Indep	28			14	1 160	
U S Naval Hospital	Gen	Navy	964			744	7 042	6 572
San Fernando 7 567—Los Angeles	Gen	Indiv	12	5	37	5	200	
San Fernando Hospital	Gen	Indiv						
Veterans Admin Facility	TB	Vet	2 0			216	300	3 36
San Francisco 63 394—San Francisco	Gen	Indep	62	9	64	24	559	171
Chinese Hospital	Gen	Indep	136	10	62	33	1 293	
Dante Sanatorium	Gen	Indep	220	16	297	122	3 528	321
Franklin Hospital	Gen	Frat	220	14	106	168	3 232	8 112
French Hospital*	Gen	Frat	29			14	889	2 020
Greene's Fye Hospital	ENT	Part						
Hospital for Children**	Gen	Indep	215	44	730	116	4 167	11 673
Letterman General Hospital	Gen	Army	600	10	128	648	6 095	5 987
Vary's Help Hospital*	Gen	Chrch	130	30	461	86	3 027	12 623
Mt Zion Hospital**	Gen	Indep	172	26	330	97	3 730	3 986
Park Sanitarium	Gen	Indep	30			14	483	
St Elizabeth's Infant Hos	Mat	Chrch	59	16	50	10	61	
St Francis Hospital	Gen	Indep	300	6	632	1 8	5 588	
St Joseph's Hospital	Gen	Chrch	215	23	473	129	4 420	
St Luke's Hospital**	Gen	Chrch	200	25	421	133	4 352	9 600
St Mary's Hospital**	Gen	Chrch	280	40	632	147	5 794	1 370
San Francisco Hospital**	Gen	CyCo	1 309	49	791	1 146	13 640	8 421
Shriners Hospital for Crip	Orth	Frat	60			60	320	715
pleid Children*								
Southern Pacific General	Indus	Indus	400			319	4 700	10 620
Hospital*								
Stanford University Hospi	Gen	Indep	312	26	434	139	6 118	9 881
tals (Including Lane Hos	Gen	Indep	60	12	87	42	3 826	12 647
pital)**	Gen	USPH	412			389	3 380	9 519
Sutter Hospital	Gen	State	200	32	388	149	5 230	
U S Marine Hospital	Gen	State						
Univ of Calif Hosp**	Gen	State						
Sanitarium 415—Napa	Gen	Chrch	140	6	59	61	1 442	
St Helena Sanit and Hosp	Gen	Chrch						
San Jacinto 1 346—Riverside	Gen	Indep	30	3	26	21	420	526
Soboba Indian Hospital	Gen	Indep						
San Jose 6 651—Santa Clara	TB	Indep	30			11	37	
Alum Rock Sanatorium	Gen	Chrch	100	21	342	64	2 308	
O'Connor Sanitarium*	Gen	Indep	156	24	434	50	2 490	
San Jose Hospital	Gen	Indep						
Santa Clara County Hos	Gen	Co	335	24	616	274	4 672	6 000
pital**	TB	Co	99			97	80	5 03
Santa Clara Sanatorium								
San Leandro 11 411—Alameda	G&TB	Co	900			688	1 494	
Fairmont Hospital of Ala								
ameda County*								
San Luis Obispo 8 016—San Luis Obispo	Gen	Indiv	20	4	20	8	280	
Mountain View Hospital	Gen	Indiv						
San Luis Obispo General	Gen	Co	57	8	107	30	1 015	
Hospital	Gen	Indiv	30	6	36	10	620	
San Luis Sanitarium								

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
San Mateo 13 444—San Mateo Community Hospital of San Mateo County	Gen	Co	181	10	134	127	1 677	2 378
Mills Memorial Hospital	Gen	Chrch	80	23	337	42	1 890	1 377
San Pedro—Los Angeles	Gen	Indep	88	22	538	49	2 009	802
San Pedro Hospital	Gen	Indep	53	2	5	9	400	2 020
Station Hospital	Gen	Army	367			143	2 836	
U S Ship Relief Hospital	Gen	Navy						
San Rafael 8 022—Marin	Gen	Indiv	36	11	127	20	786	
San Rafael Cottage Hosp	Gen	Indiv						
Santa Ana 20 322—Orange	Gen	Indep	50	20	104	20	886	
Santa Ana Valley Hospital	Gen	Indep						
Santa Barbara 73 617—Santa Barbara	Gen	Chrch	81	15	174	41	1 517	1 125
St Francis Hospital*	Gen	Chrch						
Santa Barbara Cottage Hos pital*	Gen	Indep	20	2		84	2 938	1 253
Santa Barbara Gen Hosp *	Gen	Co	210	10	126	172	1 691	
Santa Cruz 14 795—Santa Cruz	Gen	Indiv	31	10	40	10	384	
Hanly Hospital	Gen	Co	40	6	100	15	1 000	1 393
Santa Cruz County Hosp	Gen	Co						
Santa Monica 37 146—Los Angeles	Gen	Part	40	10	40	25	420	
St Catherine's Hospital	Gen	Indep	94	12	283	10	2 531	
Santa Monica Hospital	Gen	Indep	31	10	130	13	384	
Windsore Hospital	Gen	Indep						
Santa Rosa 10 636—Sonoma	Gen	Indiv	25	8	101	9	690	
General Hospital	Gen	Indiv	16	3	21	6	257	
Santa Rosa Hospital	Gen	Indiv						
Scott 2 024—Humboldt	Gen	Indus	62	4		10		560
Scott's Hospital	Gen	Indus						
Selma 3 047—Fresno	Gen	Indep	14	3	51	6	018	
Selma Sanitarium	Gen	Indep						
Sonoma 2 278—Tulumbne	Gen	Indiv	26	4		8		
Sierra Hospital	Gen	Indiv	24	3		12		
Sonoma Hospital	Gen	Indiv						
South Gate 19 632—Los Angeles	Gen	Indep	40	16	262	20	797	
Suburban Hospital	Gen	Indep						
South San Francisco 6 103—San Mateo	Gen	Indep	30	6		5		
South San Francisco Hosp	Gen	Indep						
Spaulding 39—Los Angeles	Nar	Drug	812			602		
Pacific Colony State cote Hospital	Nar	Drug						
Springville—Tulare								
Tulare Kings County Tuberculosis Hospital	TB	Co	90			82	179	500
Stockton 47 969—San Joaquin	Gen	Indep	77	12	231	38	1 663	231
Dameron Hospital*	Gen	Indep						
St Joseph's Home and Hos pital*	Gen	Chrch	120	15	220	44	1 775	189
Stockton State Hospital	Gen	Chrch	3 410			3 433	1 109	431
Susanville 1 318—Lassen	Gen	Indiv	50	6	70	7	459	920
Riverside Hospital	Gen	Indiv						
Tahoe 29—Mendocino	Gen	Indep						
Mendocino State Hospital	Gen	Indep						
Torrance 7 271—Los Angeles	Gen	Indep						
Jared Sidney Torrance Me morial Hospital	Gen	Indep	35	12	135	17	646	
Trona 776—San Bernardino	Gen	Indus	10	1	8	4	96	
Trona Hospital	Gen	Indus						
Tulare 6 207—Tulare	Gen	Indiv	20	3	24	4	101	
Belleview Hospital	Gen	Indiv	73	9	297	50	1 437	1 723
Tulare County Gen Hosp	Gen	Co	16	3	22	5	300	
Tulare Hospital	Gen	Indiv						
Turlock 4 216—Stanislaus	Gen	Chrch	40	8	81	17	506	
Emanuel Hospital	Gen	Indiv	15	8	24	4	194	
William Collins Hospital	Gen	Indiv						
Ventura 11 432—Ventura	Gen	Indep	65	12	79	15	949	
Foster Memorial Hospital	Gen	Indep	100	8	196	130		8 725
Ventura County Hospital	Gen	Co						
Vineburg 184—Sonoma	Gen	Indiv	15	2	50	3	1 000	
Burdale Hospital	Gen	Indiv						
Visalia 7 263—Tulare	Gen	Indep	30	4	68	7	419	
Kaweah Hospital	Gen	Indep						
Watsonville 8 344—Santa Cruz	Gen	Indiv	23	5	94	14	660	
Watsonville Hospital	Gen	Indiv						
Weed 4 227—Siskiyou	Gen	Indiv	24	4	24	5	240	
Weed Hospital	Gen	Indiv						
Weimar 32—Placer	TB	Co	404			446	339	
Welmar Joint Sanatorium	TB	Co						
West Los Angeles—Los Angeles	G&FB	Vet	1 232			983	4 589	
Veterans Admin Facility								
Westwood 4 062—Lassen	Gen	Indiv	30	6	60	8	140	945
Westwood Hospital	Gen	Indiv						
Willits 1 424—Mendocino	Gen	Indep	10	3	34	4	322	
Frank R Howard Memorial Hospital	Gen	Indep						
Woodland 5 342—Yolo	Gen	Indep	100	10	100	23	1 231	
Woodland Clinic Hospital	Gen	Indep						
Yosemite National Park 200—Mariposa	Gen	Fed	13	2	10	6	293	
Lewis Memorial Hospital	Gen	Fed						
Yreka 2 126—Siskiyou	Gen	Indiv						
Siskiyou County General Hospital	Gen	Co	50	5	82	18	822	
Yuba City 3 607—Sutter	Gen	Indiv	14	3	34	6	340	
Yuba City General Hosp	Gen	Indiv						
Related Institutions								
Alta Loma 11a—San Bernardino								
Our Lady of Lourdes Sana torium	TB	Indiv	25			8	20	
Alturas 2 338—Modoc								
Modoc County Hospital	Inst	Co	18			8	225	
Artesia 3 891—Los Angeles								
Dr Hansen's Sanitarium	N&M	Indiv	25			19		
Auburn 2 661—Placer								
Placer County Hospital	Gen	Co	120	4	40	100	500	

CALIFORNIA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Azusa 4 803—Los Angeles Physiotherapy Institute and Rural Rest Home	Conv Indiv		40		42	118		
Bakersfield 26 015—Kern R B Rees Hospital Trinity Hospital	Surg Indiv Gen Indiv		10 24	5	3 5	60		
Belmont 984—San Mateo Chas S Howard Founda- tion	TB Indiv N&M Indiv		20 20		16 9	20 49		
Reed Sanitarium								
Berkeley 82 109—Alameda California State Schools for the Deaf and Blind	Inst State		22		4	307		
Blythe 1 020—Riverside Frank Luke Memorial Hosp	Gen Indiv		7	4	3			
Chula Vista 3 869—San Diego McNabb Hosp and Sanit	Gen Indiv		30		20			
Claremont 2 719—Los Angeles Claremont Colleges Inflr- mary	Inst Indiv		24		4	18		
Coalinga 2 831—Fresno San Joaquin Hospital	Gen Indiv		10	4	3	106		
Colusa 2 116—Colusa Colusa County Hospital	Inst Co		60	2	53	216		
Corona 7 018—Riverside Corona Hospital	Gen Part		10	4	10	3	604	
Coronado 5 420—San Diego Coronado Hospital	Gen Indiv		12	6	20	4	214	
Crescent City, 1 720—Del Norte Del Norte County Hospital	Gen Co		10	2	9	5	70	1.0
Culver City 5 669—Los Angeles St Erne Sanitarium	N&M Indiv		40		8	96		
Decoto 519—Alameda Masonic Home Hospital	Inst Frat		0		1			
Dinuba 2 968—Tulare Dinuba Hospital	Gen Indiv		12	3	3			
El Cajon 1 000—San Diego El Cajon Hospital	Gen Part		6	"	"	1	0	
Eldridge 16—Sonoma Sonoma State Home	McDe State		2 447		2 44	20		
Eureka 1 752—Humboldt Humboldt County Isolation Hospital	Is Co		16		5	100		
Fowler 1 171—Fresno Fowler Sanitarium	Gen Indiv		"	"	20	3	72	
Glendale 62 736—Los Angeles Villa Shaw Rest Home	N&M Indiv		20		23			
Hawthorne 6 596—Los Angeles Hawthorne Hospital	Gen Indiv		10	"	5	251		
Hills 216—Siskiyou Hills Hospital	Gen Indiv		6	2	7	2	41	
Hollister, 3 737—San Benito San Benito County Hospital	Inst Co		60		20	308		
Hondo—Los Angeles Los Amigos Rancho Psy- chiatric Unit	Ment Co		502		500	243		
Indio 2 000—Riverside Metropolitan Water District Hospital	Indus Indus		31		New			
Keene 164—Kern Kern County Preventorium	TB Co		41		44	52		
Kingsburg 1 522—Fresno Kingsburg Sanitarium	Gen Indiv		8	2	17	4	176	
La Crescenta 1 510—Los Angeles Kimball Sanitarium	N&M Part		28		10			
La Mesa 2 513—San Diego La Mesa Sanatorium	TB Indiv		20		0	63		
Lincoln 2 094—Placer Joslin's Sanatorium	N&M Indiv		10		8	10		
Livermore 3 119—Alameda Del Valle Preventorium	TB Co		68		81	10		
Lone Pine 360—Inyo Lone Pine Hospital	Gen Indiv		7	4	17	2	82	
Los Angeles 1 239 048—Los Angeles Banksia Sanitarium	N&M Indiv		15		52	60		
Casa del Mar Sanitarium	N&M Indiv		22		22			
Century Rest Home	N&M Indiv		22		10	107		
Chas E Diet Sanitarium	Conv Indiv		12		7	12		
Doughty Sanatorium	TB Indiv		30	20	54	18	60	
Florence Crittenton Home	Mat Indiv		24		18			
Junior League Convalescent Home for Children	Conv Indiv		24		18			
Las Palmas Rest Home	N&M Indiv		10		6			
Los Angeles County Juve- nile Hall Ho pital	McDe Co		120		79	5 11		
Los Angeles Receiving Hos- pital	Emerg City		30					
Los Angeles Smallpox Quar- antine Hospital	Is Co		100		1	40		
Marshall Manor Sanitarium	N&M Part		20		15			
Mira Flores Sanitarium	N&M Indiv		14		10	3		
Re Haven	N&M Indiv		40		26	91		
St Barnabas House	Conv Chrch		14		10	89		
St Vincent's Maternity Home	Mat Indiv		10	10	3			
Salvation Army Women's Home and Hospital	Mat Chrch		60	40	130	44	182	
Southwest Maternity Hosp	Mat Indiv		9	9	3			
Wiltshire Rest Home	Conv Part		20		7			
Loyalton 837—Sierra Sierra Valley Ho pital	Gen Indiv		8	1	5	2	92	

CALIFORNIA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Manor—Marin Bothin Convalescent Home	Conv Indiv		20		50	681		
Manteca 1 614—San Joaquin Manteca Hospital	Gen Indiv		7	4	10	3	100	
Marysville 5 703—Yuba Yuba County Ho pital	Inst Co		98	6		78	931	
Merced 7 006—Merced Merced County Hospital	Gen Co		220	11	190	240	1 000	4 000
Monrovia 10 600—Los Angeles Maryknoll Sanatorium	FB Chrch		22		41	16	19	
Mountain View Rest Home	N&M Indiv		40		43	70		
Palm Grove Sanatorium	N&M Part		20		20			
Pine Rest Sanatorium	TB Indiv		18		6	94		
Montebello 5 490—Los Angeles Los Angeles Convalescent Home	Conv Indiv		0			40	760	
Mountain View 7 100—Santa Clara Mountain View Hospital and Sanitarium	Gen Indiv		8			1	200	
National City 7 001—San Diego Wilhelmine Home	N&M Indiv		10			8		
Nevada City 1 701—Nevada Nevada City Sanitarium	Gen Indiv		0	4	0	4	224	18
Nevada County Hospital	Gen Co		64		0	111		
Newport Beach 2 207—Orange Newport Beach Hospital	Gen Indiv		5	3	10	1	20	
Oakland 2 100—Alameda Fl Reposa Sanatorium	Conv Indiv		15			10		
Kings Daughters of Califor- nia Home for Incurables	Inc Chrch		120		12	118	90	70
Oakland Maternity Hosp	Mat Indiv		12	12	118	4	120	
Salvation Army Women's Home and Maternity Hosp	Mat Chrch		0	0	117	0	201	
Pacific Grove 5 550—Monterey Bayview Hospital	Gen Indiv		16	0	54	4	190	
Pasadena 76 086—Los Angeles Li Nido Pasadena Preven- torium	Conv Indiv		40			40	60	
Placerville 2 022—Florado El Dorado County Hosp	Inst Co		50	2	4	49	79	
Porterville 0 203—Tulare Mt Whitney Hospital	Gen Indiv		6	2	18	1	60	
Porterville Hospital	Gen Indiv		14	4	20	5	170	
Quincy 1 830—Plumas Plumas Industrial Hospital	Gen Indiv		6	1	2	1	0	
Redding 4 188—Shasta Shasta County Hospital	Gen Co		92	3	38	29	349	
Reposa 30—Sacramento Folsom Prison Hospital	Inst State		74			67	60	
Reinhold 2 717—Los Angeles Reinhold Lodge	N&M Part		40		20	100		
Rose 1 000—Marin The Cedars	McDe Part		76		30	4		
Salinas 10 260—Monterey Monterey County Hospital	Inst Co		109		01			
San Andreas 770—Calaveras San Andreas Hospital	Gen Indiv		0	2	4	1	20	
San Diego 147 090—San Diego Carter Sanitarium	N&M Indiv		0		2	2		
Fraser Sanitarium	Conv Indiv		21		6	100		
Lane Sanitarium	Conv Indiv		9		3	11		
Peterson's Sanitarium	N&M Indiv		18		3	37		
Rest Haven Preventorium	FB Indiv		60		50	94	1 000	
San Francisco 634 394—San Francisco Garden Nursing Home	Inc Indiv		01			40	40	
Creer Home	N&M Indiv		20		8			
Laguna Honda Home Inflr- mary	Inst CyCo		660			561	400	
San Francisco Emergency Hospital Service	Emerg CyCo		110	3	20	512	1 404	
San Francisco Polyclinic	Gen Indiv		12					
San Gabriel 7 024—Los Angeles Baldy View Sanitarium	N&M Part		50		40	36	24	
Mission Lodge Sanitarium	N&M Part		50					
San Jose 57 651—Santa Clara Beale Convalescent Home	N&M Indiv		10		8	10		
Sunnyholme Preventorium	TB Co		43		38	70	70	
San Mateo 13 444—San Mateo San Mateo Preventorium	TB Indiv		28		24	22		
San Quentin 328—Marin San Quentin Prison Hosp	Inst State		140		120	1 497		
San Rafael 8 022—Marin Marin County Tuberculosis Hospital	TB Co		14		16	7		
Santa Barbara 33 613—Santa Barbara La Loma Feliz	Chil Indiv		8		2	3		
Santa Monica 37 146—Los Angeles Santa Monica Diet Home	Conv Indiv		10		4	61		
Santa Monica Rest Home	N&M Indiv		52		52	60		
Santa Rosa 10 636—Sonoma Sonoma County Hospital	Gen Co		149	9	130	130	904	4
Saratoga 2 523—Santa Clara Odd Fellows Home	Inst Trst		41					
Sonoma 2 278—Tulume Tulume County Hospital	Gen Co		33	4	29	24	302	
Stanford University 720—Santa Clara Stanford Convalescent Home	Chil Indiv		70			70	228	
Suisun City 900—Solano Solano County Hospital	Inst Co		96	6		70		
Sunland—Los Angeles Sunland Sanatorium	TB Indiv		60		50	100		
Ventura 11 432—Ventura Ventura School for Girls	Inst State		15		5			

Key to symbols and abbreviations is on page 1021

CALIFORNIA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Verdugo City, 5 000—Los Angeles	N & M Indiv		60			46	47	
Rock Haven Sanitarium								
Veterans Home—Yuba								
Veterans Home Hospital	Inst State		250			167	619	
Waterman—Ulador								
Preston School of Industry Hospital	Inst State		40			22	1 416	
Weaverville 509—Trinity								
Trinity County Hospital	Gen Co		12			18		
Willows 2 024—Glenn								
Glenn County Hospital	Gen Co		45	1	1	70	119	
Wilmar—Los Angeles								
Jean G. McCracken Home	N & M Indiv		45			47		
Yuba City 3 600—Sutter								
Sutter County Hospital	Gen Co		64	6	7			
Summary for California			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			27	32 648	41 707	420 006		
Related institutions			124	8 405	6 510	100 055		
Totals			399	61 053	48 217	520 061		
Refused registration			82	2 602				

COLORADO

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Alamosa 5 10—Alamosa								
Lutheran Hospital	Gen Chrch		20	5	37	11	680	
Aspen 700—Pitkin								
Citizens Hospital	Gen Indep		20	3	6	5	90	
Boulder 11 225—Boulder								
Boulder Colorado Sanitarium and Hospital	Gen Chrch		101	6	44	12	1 033	61.0
Community Hospital	Gen Indep		60	6	65	12	511	
Brush 2 312—Morgan								
Elben Fzer Hospital	Gen Chrch		24	8	41	12	379	
Canon City 5 938—Fremont								
Graves Hospital	Gen Indiv		24	6		8	310	
Colorado Springs 33 237—El Paso								
Beth El General Hospital	Gen Chrch		92	12	329	16	2 252	307
Colorado Springs Psycho pathic Hospital	N & M Part		150			90	1 19	
Cragmor Sanatorium	TB Indep		130			66	68	
Crestone Heights Sanitarium and Hospital	Gen Indiv		22	5	35	7	242	
Glockner Sanatorium and Hospital	G & TB Chrch		150	13	121	142	1 272	
National M E Sanat for Tuberculosis	TB Chrch		75			53	69	
St Francis Hospital and Sanatorium	G & TB Chrch		170	8	107	70	963	
Sunnyrest Sanatorium	TB Indep		14			35	15	
Union Printers Home and Tuberculosis Sanat	G & TB Indep		176			164	95	
Cortez 921—Montezuma								
Johnson Hospital	Gen Indiv		14	1	22	7	401	
Cripple Creek 1 427—Teller								
Cripple Creek Hospital	Gen Indep		34	6	18	30	172	
Del Norte 1 410—Rio Grande								
St Joseph's Sanitarium	Gen Chrch		25	6	38	7	213	
Delta 2 938—Delta								
Western Slope Mem Hosp	Gen Indep		11	3	17	5	162	
Denver 287 861—Denver								
Bethesda Sanatorium	TB Chrch		68			35	38	
Beth Israel Hospital	Gen Chrch		5	10	37	27	646	
Childrens Hospital	Chil Indep		147	18		111	2 982	
Colorado General Hosp	Gen State		138	20	425	121	2 956	12 350
Colorado Psychopathic Hospital	Ment State		78			65	734	2 115
Denver General Hosp	Gen Cy Co		502	30	658	409	14 600	13 830
F Patients Tubercular Home	TB Indep		80			45	78	
Fitzsimons General Hosp	Gen Army		1 832	8	56	913	7 754	1 801
Mary H Donaldson Woman s Hospital of the Florence Crittenton Home	Mat Indep		27	15	703	14	502	
Mersey Hospital	Gen Chrch		200	25	330	102	3 68	
Mt Airy Sanitarium	N & M Indep		45			30	274	
National Jewish Hospital	TB Indep		250			275	212	742
Porter Sanitarium and Hosp	Gen Chrch		100	12	105	26	783	
Presbyterian Hospital	Gen Chrch		150	25	459	75	3 036	
St Anthony's Hospital	Gen Chrch		200	18	233	94	2 564	283
St Joseph's Hospital	Gen Chrch		200	25	259	132	3 743	
St Luke's Hospital	Gen Chrch		210	30	507	115	4 050	310
Sands House	TB Indep		45			11	25	
Steele Memorial Hospital	Iso Cy Co		85			0	662	
Durango 5 400—La Plata								
Mersey Hospital	Gen Chrch		42	8	44	19	776	
Edgewater 1 413—Jefferson								
Craig Colony	TB Indep		55			54		
Englewood 7 950—Arapahoe								
Swedish National Sanat	TB Indep		100			55		
Fairplay 221—Park								
Fairplay Hospital	Gen Indiv		11	2	3	7	241	2 000
Ft Logan 1 525—Arapahoe								
Station Hospital	Gen Army		48			6	613	1 945

COLORADO—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Ft Lyon 26—Bent								
Veterans Admin Facility	Ment TB Vet		500				400	808
Ft Morgan 4 423—Morgan								
Ft Morgan Hospital	Gen Indiv		25	6	61	11	478	
Glenwood Springs 1 825—Garfield								
Glenwood Springs Sanit	Gen Indep		25	6	10	10	225	
Dr Porter's Hospital	Gen Indiv		15	2	21	8	339	
Grand Junction 10 247—Mesa								
St Mary's Hospital	Gen Chrch		65	12	112	35	1 055	
Greeley 12 203—Weld								
Greeley Hospital	Gen Co		87	13	257	49	1 836	598
Weld County Hospital	Gen Co		70		2	50	125	
Hayden 554—Routt								
Solandt Memorial Hospital	Gen Indep		12	4	21	5	104	
Holyoke 1 226—Phillips								
Holyoke Hospital	Gen Indiv		10	2		4		725
La Junta 7 193—Otero								
A T & S F Railroad Hosp	Indus Indus		36			27	360	3 775
Menonite Hosp and Sanit	G & TB Chrch		70	10	105	18	697	303
Lamar 4 233—Prowers								
Charles Maxwell Hospital	Gen Indiv		50	7	65	12	502	
Las Animas 2 517—Bent								
Blackwill Hospital	Gen Indiv		12	4		7	174	
Leadville 3 771—Lake								
St Vincent Hospital	Gen Chrch		26	3	13	12	107	
Longmont 6 020—Boulder								
Longmont Hospital	Gen Indiv		33	7	32	12	431	648
Monte Vista 2 610—Rio Grande								
Monte Vista Hospital	Gen Part		12	4	20	4	169	
Montrose 3 506—Montrose								
Montrose Hospital	Gen Indiv		20	5	25	4	260	
St Luke's Hospital	Gen Indiv		12	2	28	4	162	
Oak Creek 1 211—Routt								
Oak Creek Hospital	Gen Indiv		10	2	14	5	131	
Rod Cross Hospital	Gen Indiv		12	2		5		
Ouray 707—Ouray								
Bates Hospital and Sanit	Gen Indiv		25	3	12	8	306	
Pueblo 50 096—Pueblo								
Colorado State Hospital	Ment State		3 120			2 829		
Corwin Hospital	Gen Indus		219	16	116	79	1 695	4 117
Parkview Hospital	Gen Indep		100	6	120	46	1 071	
St Mary Hospital	Gen Chrch		150	12	154	55	1 491	862
Woodcroft Hospital	N & M Indep		130			64	152	74
Rocky Ford 3 426—Otero								
Physicians Hospital	Gen Part		10	3	36	8	685	
Salida 5 065—Chaffee								
D & R G W Railroad Hospital	Gen Indus		81	4	19	50	872	1 283
Red Cross Hospital	Gen Indiv		40	3	14	17	446	
Spilva 500—Jefferson								
Sanat of the Jewish Con sumptives Relief Society	TB Indep		700			221	150	170
Steamboat Springs 1 198—Routt								
Steamboat Springs Hospital	Gen Indiv		10	4	20	4		
Sterling 7 185—Logan								
St Benedict Hospital	Gen Chrch		32	6	60	12	543	
Towaoc 60—Montezuma								
Ute Mountain Indian Hosp	Gen I A		24	2	16	9	275	1 060
Trinidad 11 732—Las Animas								
Mt San Rafael Hospital	Gen Chrch		65	10	95	30	1 015	158
Walsenburg 5 503—Huerfano								
Lamme Brothers Hospital	Gen Part		20	3	21	7	268	200
Wheat Ridge 1 030—Jefferson								
Evangelical Lutheran Sanit	TB Chrch		125			71	31	
Woodmen—El Paso								
Modern Woodmen of Amer	TB Frat		250			65	225	
Yuma 1 360—Yuma								
Lutheran Deaconess Hosp	Gen Chrch		12	3		3	125	
Related Institutions								
Boulder 11 225—Boulder								
Boulder County Hospital	Gen Co		45	4		55	344	
Mesa Vista Sanatorium	TB Part		30			16	16	
Breckenridge 436—Summit								
Summit County Hospital	Gen Co		10			1	8	18
Canon City 5 938—Fremont								
Colorado State Penitentiary Hospital	Inst State		22			18	1 116	
Collbran 341—Mesa								
Plateau Valley Cong Hosp	Gen Chrch		8	4	7	2	9	
Colorado Springs 33 237—El Paso								
Myron Stratton Home and Hospital	Inst Indep		20			14	14	200
Denver 287 861—Denver								
Costello Home	TB Indep		15			8		
St Francis Sanitarium	TB Chrch		16			13		
Salvation Army Women s Home and Hospital	Mat Chrch		8	12				
Englewood 7 950—Arapahoe								
Temple Sanatorium	TB Conv Indiv		27			20	125	
Fruita 1 653—Mesa								
Fruita Community Hosp	Gen Indep		8	1	6	2	81	
Golden 2 426—Jefferson								
Hospital—State Industrial School for Boys	Inst State		22			7	417	
Grand Junction 10 247—Mesa								
State Home and Training School for Mental Defec tives	MeDe State		280			255	14	
Homelake—Rio Grande								
Colorado State Soldiers and Sailors Home	Inst State		43			24	163	

COLORADO—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
La Veta 782—Huerfano	Gen	Indiv	8	2	6	2	65	100
La Veta Hospital								
Louisville, 6079—Boulder								
St Vrain Hospital	Gen	Indiv	11	4	25	4	207	
Loveland 5506—Larimer								
Loveland Hosp and Clinic	Gen	Part	10	5	23	4	205	
Namaqua Hospital	Gen	Indep	14	6		4		
Pueblo 5006—Pueblo								
City Isolation Hospital	Iso	City	13				46	
Ridge—Jefferson								
State Home and Training School for Mental Defectives	McDe	State	202			200		
Selbert 273—Mt Carson								
Selbert Hospital	Gen	Indiv	6	2	2	2	73	
Windsor 1532—Weld								
Bartz Memorial Hospital	Gen	Indiv	7	2	14	2	68	
Summary for Colorado			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			79	11 671	7 840	74 037		
Related institutions			21	579	619	1 305		
Totals			100	12 250	8 459	75 342		
Refused registration			20	694				

CONNECTICUT

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Bridgeport 146 716—Fairfield	Gen	Indep	376	74	1 294	217	7 568	
Bridgeport Hospital*o	Gen	Chrch	210	15	709	162	4 817	273
St Vincent's Hospital*o								
Bristol 28 431—Hartford	Gen	Indep	54	22	329	70	2 102	670
Bristol Hospital*o								
Canaan 565—Litchfield	Gen	Indep	25	6	43	8	261	74
Robert C Geer Men's Hosp								
Cromwell 2 814—Middlesex	Gen	Indiv	35			18	99	
Cromwell Hall								
Danbury 22 261—Fairfield	Gen	Indep	111	23	319	76	2 366	
Danbury Hospital*o								
Derby 10 788—New Haven	Gen	Indep	82	10	326	50	1 438	
Griffin Hospital*o								
Greens Farms 270—Fairfield	Gen	Indep	95			70	146	
Hall Brooke Sanitarium	Gen	Indep	95			70	146	
Greenwich 5 581—Fairfield	Gen	Indep	66			48	73	14
Blytheood								
Greenwich Hospital*o	Gen	Indep	101	24	298	65	2 070	1 100
Hartford 164 072—Hartford								
Cedarcrest Sanatorium	TB	State	289			282	174	
Charter Oak Private Hosp	Gen	Indep	14			7	15	
Hartford Hospital*o	Gen	Indep	675	85	1 666	456	13 571	
Hartford Municipal Hospital								
Dept of Communicable Diseases*o	Iso	City	65			25	120	
Mt Sinai Hospital	Gen	Indep	65	10	190	41	1 84	
Municipal Hospital*	Gen	City	175	30	411	161	3 055	3 755
Neuro Psychiatric Inst and Hospital of the Hartford Retreat*	Gen	Indep	200			155	317	
St Francis Hospital*o	Gen	Chrch	40	75	1 211	268	8 442	981
Wildwood Sanatorium	TB	Indep	10			43		
Manchester 5 700—Hartford								
Manchester Memorial Hosp	Gen	Indep	55	11	239	43	1 305	1 060
Meriden 38 481—New Haven								
Meriden Hospital*o	Gen	Indep	112	24	331	68	1 921	760
Undercliff Meriden State Tuberculosis Sanatorium*	TB	State	212			225	235	340
Middletown 24 554—Middlesex								
Connecticut State Hosp*o	Gen	Indep	3 200			3 189	744	100
Middlesex Hospital*o	Gen	Indep	135	25	430	100	2 828	
Milford 12 660—Milford								
Milford Hospital	Gen	Indep	50	15	106	12	640	78
New Britain 68 128—Hartford								
New Britain General Hosp*o	Gen	Indep	204	36	640	116	3 480	5 993
New Haven 162 655—New Haven								
Dr J H Evans Private Hospital	Gen	Indiv	10	4	20	3	97	
Grace Hospital*o	Gen	Indep	242	44	680	177	5 183	956
Hospital of St Raphael*o	Gen	Chrch	250	28	665	206	6 129	304
New Haven Hospital*o	Gen	Indep	468	42	715	314	6 701	26 753
Psychiatric Clinic Yale School of Medicine								
Newington 4 572—Hartford								
Newington Home for Crippled Children	Orth	Indep	210			150	120	309
Veterans Admin Facility	Gen	Vet	266			181	1 768	1 300
New London 29 640—New London								
Home Memorial Hospital	Gen	Indep	48	12	121	18	417	63
Lawrence and Memorial Associated Hospitals*o	Gen	Indep	101	42	475	115	2 643	
Dr Lena's Surgical Hosp	Surg	Indiv	24			17	738	
New Milford 4 700—Litchfield								
New Milford Hospital	Gen	Indep	35	10	104	15	406	
Newtown 452—Fairfield								
Fairfield State Hospital	Gen	Indep	500			238	386	
Niantic 1 697—New London								
The Seaside	TB	State	59			58	11	
Norwalk 26 010—Fairfield								
Norwalk General Hosp*o	Gen	Indep	142	23	411	78	3 039	

CONNECTICUT—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Norwich 23 021—New London								
Norwich State Hospital	Gen	State	2 923			2 771	1 000	
Norwich State Tuberculosis Sanatorium (Cleans on Thames)*o	TB	State	401			377	352	
William W Backus Hosp*o	Gen	Indep	127	23	319	79	2 096	937
Putnam 7 718—Windham								
Dry Kilnball Hospital	Gen	Indep	73	10	132	25	1 742	900
Rockville, 7 445—Tolland								
Rockville City Hospital	Gen	Indep	35	10	76	12	494	
Sharon 1 710—Litchfield								
Sharon Hospital	Gen	Indep	40	12	131	15	579	
Shelton 10 113—Fairfield								
Laurel Heights State Tuberculosis Sanatorium	TB	State	350			291	269	
South Norwalk 8 805—Fairfield								
Dr Wadsworth's Sanitarium	Gen	Indiv	35			15	10	
Stafford Springs 3 402—Tolland								
Cyril and Julia C Johnson Memorial Hospital	Gen	Indep	32	12	121	19	416	114
Stamford 46 346—Fairfield								
Dr Barnes Sanitarium	Gen	Indiv	60			40	107	
Stamford Hall	Gen	Indep	250			165		
Stamford Hospital*o	Gen	Indep	250	26	585	111	3 465	955
Iophasee Grange	Gen	Indep	25			14	165	
Hempsonville 5 25—Hartford								
Lincolnton—Dr Vail's Sanatorium	Gen	Indep	30			14		
Lorington 26 010—Litchfield								
Charlotte Hungerford Hosp	Gen	Indep	170	20	319	35	1 744	1 118
Wallingford 11 170—New Haven								
Gaylord Farm Sanatorium	TB	Indep	140			143	253	600
Waterbury 99 002—New Haven								
St Mary's Hospital*o	Gen	Chrch	220	44	81	153	6 342	8 856
Waterbury Hospital*o	Gen	Indep	221	36	556	160	4 231	5 000
West Haven 2 180—New Haven								
William Wirt Winchester Hospital								
(Included in New Haven Hospital)								
Westport 6 072—Fairfield								
Westport Sanitarium	Gen	Indep	90			62	90	
Williamville 12 102—Windham								
Windham Community Memorial Hospital	Gen	Indep	72	19		New		204
Winsted 7 443—Litchfield								
Litchfield County Hospital	Gen	Indep	64	11	123	35	956	
Related Institutions								
Bridgeport 146 716—Fairfield								
Enfieldwood Hospital	FbIs	City	150			61	643	
Hillside Home and Hospital	Inst	City	260			185	886	
Cheshire 2 265—New Haven								
Connecticut Reformatory	Inst	State	25			6		
Essex 2 777—Middlesex								
Pettipaug Lodge and Sanit	Conv	Indiv	18			10	16	
Greenwich 1 691—Fairfield								
Dr Bowman's Sanatorium	Conv	Indiv	15			10	7	
Crest View Sanitarium	Gen	Indep	22			18	10	
Municipal Hospital	TbIs	City	61			6	191	
Gulford 1 850—New Haven								
Calford Sanatorium	Gen	Indep	11	5		2	105	
Hamden 1 000—New Haven								
Children Community Center	Inst	Indep	22			24	210	
Manfield Depot 506—Tolland								
Manfield State Training School and Hospital	McDe	State	1 200			1 176	85	
Meriden 38 481—New Haven								
Connecticut School for Boys	Inst	State	70			4	325	
Middletown 24 554—Middlesex								
Long Lane Farm	Inst	State	9			5		
New Canaan 2 372—Fairfield								
Silver Hill	Nerv	Indep	10			6		
New Haven 162 655—New Haven								
Jewish Home for the Aged	Inst	Indep	25			28	98	
Springdale Home and Hosp	Inst	City	70			6	509	
Yale Infirmary	Inst	Indep	34					
New London 29 640—New London								
Connecticut College Infirmary	Inst	Indep	12			1	449	
Niantic 1 697—New London								
Connecticut State Farm for Women	Inst	State	60	12	48	45	175	
Noroton Heights 700—Fairfield								
Soldiers Hospital	Inst	State	125			122	160	
Springdale 663—Fairfield								
Nestledown Home	Conv	Indiv	12			8		
Stratford 19 212—Fairfield								
Sunnyside Sanitarium	Conv	Indiv	15			7	47	
West Hartford 24 941—Hartford								
St Agnes Home	Mat	Chrch	10	12	66	2	71	
West Haven 25 808—New Haven								
West Haven Conv Home	Conv	Indiv	6			3	12	
West Haven Maternity Home	Mat	Part	8	6	85	5	160	
Withersfield 7 512—Hartford								
Connecticut State Prison Hospital	Inst	State	30			21	227	
Woodmont 531—New Haven								
Woodmont Hall	Conv	Indep	15			4	21	
Summary for Connecticut			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			59	15 218	12 151	113 966		
Related institutions			26	2 264	1 852	5 350		
Totals			85	17 482	14 003	118 656		
Refused registration			1	35				

DELAWARE

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Dover 4500—Kent Kent General Hospital	Gen	Indep	40	8	118	22	878	
Farnhur 1332—New Castle Delaware State Hospital	Ment State		90			802	314	1277
Ft Dupont (Delaware City P O)—New Castle Station Hospital	Gen Army		28			7	272	910
Lewes 1922—Sussex Beebe Hospital	Gen	Indep	60	8	74	21	686	
Marshallton 600—New Castle Brandywine Sanatorium	TB State		112			92	59	10
Edgewood Sanatorium (col)	TB State		32			10	36	
Wilmington 3119—Sussex Marshall Hospital	Gen	Part	30		26	7	212	
Wilmington Emergency Hosp	Gen	Indep	29	6	58	20	519	310
Wilmington 100597—New Castle Delaware Hospital	Gen	Indep	176	24	264	129	4237	6609
Homeopathic Hospital	Gen	Indep	100	30	409	99	3383	5980
St Francis Hospital	Gen	Chrch	70	12	237	56	1711	1600
Wilmington General Hospital	Gen	Indep	115	18	300	71	2404	4820
Related Institutions								
Marshallton 600—New Castle Sunnybrook Cottage	Conv	Indep	22			22		64
Stockley 138—Sussex Delaware Colony	McDe	State	30			232		58
Summary for Delaware								
Hospitals and sanatoriums			Number	Beds		Average Patients	Patients Admitted	
Related Institutions			2	392		21	122	
Totals			14	2132		1639	14648	
Refused registration			0					

DISTRICT OF COLUMBIA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Washington 48689 Carson's Private Hosp (col)	Gen	Indiv	15	4	30	11	280	
Central Dispensary and Emergency Hospital	Gen	Indep	260			197	6537	46506
Cherry Chase Sanatorium	N&M	Indiv	22			18	62	
Children's Hospital	Child	Indiv	182			112	6006	11028
Columbia Hosp for Women and Lying In Asylum	Mat	Indep	120	70	1574	81	2742	2171
Eastern Dispensary and Cas- ualty Hospital	Gen	Indep	110	20	16	40	1515	6200
Episcopal Eye Ear and Throat Hospital	FNT	Chrch	100			60	5530	17875
Freedmen's Hospital (col)	Gen	Fed	316	86	747	232	4162	9319
Gallinger Municipal Hosp	Gen	City	750	54	1938	583	10620	
Garfield Memorial Hosp	Gen	Indep	218	43	670	156	10119	2989
Georgetown Univ Hosp	Gen	Indep	213	51	590	128	3817	4249
George Washington Univer- sity Hospital	Gen	Indep	92	18	391	63	2309	1531
National Homeopathic Hos- pital	Gen	Indep	60	20	214	32	1333	820
Providence Hospital	Gen	Chrch	230	30	526	147	4627	22062
St Elizabeths Hospital	Gen	Fed	409	4	5	340	1881	16430
St Elizabeths Hospital	Ment	Fed	484			4970	900	Atth
Sibley Memorial Hospital	Gen	Chrch	230	70	1707	190	5500	2828
Tuberculosis Hospital	TB	State	220			202	254	
U S Naval Hospital	Gen	Navy	328			822	2519	5137
Veterans Admin Facility	Gen	Vet	310			203	2430	5122
Walter Reed General Hosp	Gen	Army	1027	22	264	816	6931	
Washington Sanitarium and Hospital	Gen	Chrch	170	12	207	104	1773	3804
Related Institutions								
Washington 46889 Children's Summer Health Camp	TB	Indep	50			50		
District Training School (Laurel Mtd P O)	McDe	Fed	500			450		56
Florence Crittenton Home for the Aged and In- firm	Mat	Indep	10	10	41	3	128	
Kendall House Sanitarium	Inst	State	82			82	127	
National Training School for Boys Hospital	Conv	Indiv	22			10	102	
St John's Orphanage	Inst	Fed	20			15		
U S Soldiers Home Hosp	Inst	Chrch	1			1	56	
Washington Eye Ear and Throat Hospital	Inst	Army	500			292	1600	
Washington Home for In- curables	FNT	Indiv	14			1	362	0.2
	Inc	Indep	140			138	88	
Summary for District of Columbia								
Hospitals and sanatoriums			Number	Beds		Average Patients	Patients Admitted	
Related Institutions			10	1402		1049	107836	211
Totals			32	11441		10057	110381	
Refused registration			0					

FLORIDA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Arendin 4082—De Soto Arendin General Hospital	Gen	Indep	20	3	32	9	619	
Bartow 5269—Polk Bartow General Hospital	Gen	Indiv	20	5	29	6	340	
Polk County Hospital	Gen	Co	56	5	70	51	962	2,433
Bradenton 5986—Manatee Bradenton General Hospital	Gen	Indep	15	4	16	5	233	
Century 1520—Escambia Tuberville Hospital	Gen	Part	20	4	10	9	360	
Chattahoochee 400—Gadsden Florida State Hospital	Ment State		390			3809	1283	
Clearwater 7607—Pinellas Morton F Plant Hospital	Gen	Indep	35	10	48	9	3337	
Coral Gables 5607—Dade University Hospital	Gen	Indep	35	12	97	12	1087	
Dade City 1511—Pasco Dr T L Jackson's Hosp	Gen	Indiv	12	1	5	4	174	187
Daytona Beach 16058—Volusia Daytona Beach Sanitarium	Gen	Indiv	20	2	20	5	247	
Halifax District Hospital	Gen	Indep	125			26	911	1292
Halifax District Hospital (Colored Annex)	Gen	Indep	18	3		9	230	98
De Land 5246—Volusia De Land Memorial Hospital	Gen	Indep	26	11	46	5	206	
Ft Barrancas 30—Escambia Station Hospital	Gen	Army	30			8	205	1600
Ft Lauderdale 8666—Broward Memorial Hospital	Gen	Indep	30	7	62	12	503	200
Ft Myers 9082—Lee Lee Memorial Hospital	Gen	Indep	24	4	44	8	320	
Ft Pierce 4803—St Lucie Oakland Park Hospital	Gen	City	16	4		3		
Gainesville 10465—Alachua Alachua County Hospital	Gen	Co	65	10	87	18	704	272
Homestead 2319—Dade Post Graduate Hospital	Gen	Part	15	5		4	100	
Jacksonville 129549—Duval Brewster Hospital (col)	Gen	Chrch	75	9	89	28	672	4315
Duval County Hospital	Gen	Co	170	15	610	172	2838	8243
Dr Randolph's Sanitarium	N&M	Indiv	10			5	11	
Riverside Hospital	Gen	Indep	40	6	50	20	772	2241
St Luke's Hospital	Gen	Indep	153	22	366	65	2373	396
St Vincent's Hospital	Gen	Chrch	200	40	437	82	2600	
Key West 12831—Monroe U S Marine Hospital	Gen	USPH	65			99	768	1019
Lake City 4416—Columbia Lake Shore Hospital	Gen	Indep	15	5	26	7	280	
Veterans Admin Facility	Gen	Vet	307			270	2265	
Lakeland 18544—Polk Morrell Memorial Hospital	Gen	City	93	18	89	25	1004	
Manatee 3219—Manatee Riverside Hospital	Gen	Indiv	20	3	20	6	360	
Marianna 3372—Jackson Baltzell Hospital	Gen	Indiv	12	1	4	4	132	
Melbourne 2677—Brevard Brevard Hospital	Gen	Indep	12	2	13	5	161	
Miami 110637—Dade Biltmore Hospital	Gen	Indiv	30	6	21	4	140	
Dade County Hospital	Gen	Co	92	8	151	54	1474	5424
James M Jackson Memorial Hospital	Gen	City	300	30	480	232	7094	23143
Miami Retreat	N&M	Indiv	65			14	141	
Victoria Hospital	Gen	Indiv	62	12	240	25	1388	
Miami Beach 6494—Dade St Francis Hospital	Gen	Chrch	100	6	46	31	894	1200
Ocala 7981—Marion Munroe Memorial Hospital	Gen	CyCo	85	10	67	16	527	
Orlando 27330—Orange Florida Sanit and Hosp	Gen	Chrch	125	14	80	39	1105	2102
Orange General Hospital	Gen	Indep	150	20	231	69	2234	
Palatka 6500—Putnam Glendale Terrace Hospital	Gen	Part	16	4		6		
Mary Lawson Sanat (col)	Gen	Indiv	20	6	5	2	5	
Parkview Hospital	Gen	Indiv	26	6	18	4	112	800
Panama City 5402—Bay Panama City Hospital	Gen	Indep	15	2	21	3	246	
Whitfield Hospital	Gen	Indiv	20	5	22	3	171	
Pensacola 31570—Escambia Penacola Hospital	Gen	Chrch	112	15	183	41	1730	
U S Naval Hospital	Gen	Navy	190			130	1209	5715
Quincy 3788—Gadsden Gadsden County Hospital	Gen	Indep	22	4	22	6	276	
St Augustine 12112—St Johns East Coast Hospital	Gen	Indus	65	4	43	28	977	3623
Flagler Hospital	Gen	Indep	85	5	102	30	732	1024
St Petersburg 4040—Pinellas City Hospital (Mercy Hos- pital-col)	Gen	City	25	2	9	7	197	
City Hospital (Mound Park Hospital)	Gen	City	68	14	211	42	2238	
Sanford 10100—Seminole Fernald Laughton Hospital	Gen	Chrch	50	10	50	12	478	1663
Sarasota 8398—Sarasota Joseph Halton Hospital	Gen	Indep	20	6	60	7	426	
Sarasota Hospital	Gen	Indiv	10	5	17	4	140	
Sebring 2912—Highlands Sebring General Hospital	Gen	CyCo	60	12	38	20	321	
Sebring General Hospital	Gen	Indiv	10	2	5	3	138	
Dr Weems Hospital	Gen	Indiv	13	2	20	3	192	
Seminole (Clearwater P O)—Pinellas Veterans Admin Facility	Gen	Vet	100			New		168
Tallahassee 10700—Leon Johnston's Sanitarium	Gen	Indiv	20	6	28	11	341	

Key to symbols and abbreviations is on page 1021

FLORIDA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Tampa 101 161—Hillsborough	Gen	Irat	70	4	59	48	98	101
Centro Asturiano Hospital	Chil	Indep	26				7	401
Children's Hospital	Chil	Indep	12	12		27		
Dr H M Cook's Hospital	Gen	Indiv	169	2	62	109	780	7
Tampa Municipal Hosp	Cen	City	13	1	61	16	461	
Tampa Negro Hospital	Cen	City						
Umatilla 907—Lake								
Lake County Medical Cen	Cen	Indep	24	6	1	9	268	
West Palm Beach 26 610—Palm Beach	Cen	Indep	110	14		41	170	
Good Samaritan Hospital	Cen	Indep				18	1	
Pine Ridge Hospital (col)	Gen	Indep						
Related Institutions								
Brooksville 140—Hernando	Gen	Indiv	12	2				
Hernando General Hospital	Gen	Indiv						
Ft Myers 9082—Lee	Gen	Indep				2	1	
Jones Walker Hospital (col)	Gen	Indep						
Gainesville 10 46—Alachua						488	6	
Florida Farm Colony for Epileptic & Feeble-minded	MeDe	State						
Jacksonville 129 549—Duval								
Hope Haven Tuberculosis Preventorium	TbOr	Indep	20			20	70	
Largo 1 429—Pinellas								
Pinellas County Home	TB	Co	20			14	20	
Leesburg 4 113—Lake	Gen	Indiv	12	4	2	6	219	
Theresa Holland Clinic								
Miami 110 637—Dade	Gen	Indep	21	4	0	11	18	
Christian Hospital (col)	Conv	Indep	10			50	144	
Sun Ray Park Hotel & Sanit								
Orange Park 661—Clay								
Moosehaven Hospital	Inst	Frat	0			20	100	
Raiford 460—Union	Gen	State	60			60	1 600	
Florida State Farm Hosp								
St Petersburg 40 420—Pinellas	Orth	Indep	0			11	10	13
American Legion Hospital for Crippled Children	Conv	Indiv	18			10	50	
Earle Restorium								
Stuart 1 924—Martin	Cen	Indep	10		1	5	14	10
St Lucie Sanitarium								
Tallahassee 10 700—Leon								
Florida Agricultural and Mechanical College Hospital (col)	Cen	State	43	2	1	700	4 721	
Tampa 101 161—Hillsborough								
Hillsboro County Tuberculosis Sanatorium	TB	Co	64			1	8	
Mills Hospital	N & M	Indiv	10			12	120	100
Pine Heath Preventorium	TB	Indep	10			2	2	10
Tampa Sanitarium	Gen	Indiv	10					
Umatilla 907—Lake								
Harry Anna Memorial Home for Crippled Children	Orth	Indep	30			24	New	
Vero Beach 2 268—Indian River	Gen	Indiv	12	5	1	4	144	
Indian River Hospital								
Wauchula 2 574—Hardee	Gen	Indep	8		10	3	170	
Wauchula Infirmary								
Winter Haven 7 130—Polk	Cen	Indep	10	5		9	244	
Winter Haven General Hosp								
Summary for Florida								
Hospitals and sanatoriums			60	8 136		5 917	60 532	
Related institutions			22	1 046		804	4 662	
Totals			91	9 182		6 721	6 194	
Refused registration			20	62				

GEORGIA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Albany 14 507—Dougherty								
Phoebe Putney Memorial Hospital	Gen	Indep	44	0	78	16	881	
Alto 219—Habersham								
State Tuberculosis Sanat	TB	State	327			68	800	1 492
Americus 8 760—Sumter								
Americus and Sumter County Hospital	Cen	Indep	20	3	16	5	250	
Americus Colored Hospital	Gen	Indiv	50	8		17		
Athens 18 192—Clarke	Gen	Co	52	8	00	19	703	696
Athens General Hospital								
Fairhaven Tuberculosis Sanatorium	TB	Indep	36			19	24	
St Mary's Hospital	Gen	Indep	30	4	26	12	338	
Atlanta 360 691—Fulton								
Albert Steiner Clinic for Cancer and Allied Disease	Ca	City	30			21	616	2 308
Atlanta Hospital	Gen	Indiv	20	4	21	5	670	
Battle Hill Sanatorium	TB	CyCo	20			225	419	160
Blackman Sanatorium	Gen	Indiv	20			10	300	160
Crawford W Long Memorial Hospital	Gen	Indep	142	12	390	57	2 981	48
Douglas Infirmary (col)	Gen	Part	22			10		

GEORGIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Georgia Baptist Hospital	Gen	Chrch	130	10	2			87
Georgia Sanitarium	Gen	Indiv	10					
Grady Hospital (White Unit)	Gen	City	217	2	1 238	244	9,440	20 000
Grady Hospital (Colored Unit)	Cen	City	230	33	1 643	277	6 418	21 740
Henrietta Flegston Hospital for Children	Chil	Indep	50	2		54	766	
Jedmont Hospital	Gen	Indep	120	1	105	20	210	
St Joseph Infirmary	Gen	Chrch	125	1	150	48	194	
St Mary's Hospital	Mat	Indiv	16	18	12	12	12	
Veterans Admin Facility	Gen	Vet	210			187	1 641	10 570
William A Harris Memorial Hospital (col)	Gen	Indiv	12	2		1	229	171
Augusta 60 342—Richmond								
University Hospital	Gen	City	267	70	249	164	5 000	3 770
Veterans Admin Facility	Mat	Vet	94			81	70	4 100
Wilberford Hospital	Cen	Indep	50	4	4	16	1	
Bainbridge 6 141—Decatur								
Bainbridge Hospital	Surg	Indiv	22	1		22	40	
Riverside Hospital	Gen	Part	20	4		14	5	
Brunswick 14 022—Clynn								
Brunswick City Hospital	Cen	CyCo	64	8		18		
Calro 3 100—Grady								
Calro Hospital	Cen	Indiv	20	4		1		
Canton 2 822—Cherokee								
Cokers Hospital	Gen	Indep	20	2	37	12	400	
Cedartown 8 124—Polk								
Cedartown Hospital	Gen	Indiv	10	2		1	100	
Hall Chaudron Hospital	Gen	Indiv	10	2	14	1	100	
Whitely Hospital	Gen	Indiv	10	2	4	4	946	
Columbus 4 131—Macon								
Columbus City Hospital	Gen	CyCo	200	12	2 4	91	3 022	6 100
Cuthbert 1 200—Randolph								
Patterson Hospital	Cen	Indiv	20		18	1	21	
Dalton 8 160—Whitfield								
Hamilton Memorial Hosp	Cen	Indep	4			1		
Decatur 13 276—De Kalb								
Scottish Rite Hospital for Crippled Children	Orth	Frat	22			77	20	8 200
Donaldsonville 1 100—Stamok								
Chasens Hospital	Cen	Part	30	10	78	12	180	1 100
Dublin 6 681—Laurens								
Claxton Sanitarium	Gen	Indiv	20	2	56	11	344	
Eastman 3 022—Dodge								
Coleman Sanitarium	Gen	Indiv	20	2	9	6	200	
Filbert 4 600—Libert								
Libert County Hospital	Gen	CyCo	16		26	5	960	
Emory University—De Kalb								
Emory University Hosp	Gen	Indep	170	1	120	70	2 800	
Fitzgerald 6 412—Ben Hill								
Fitzgerald Hospital	Cen	Indep	20	4		10	50	
Ft Benning—Chattahoochee								
Station Hospital	Cen	Army	200	8	1 2	138	4 017	10 220
Ft McPherson 1 000—Fulton								
Station Hospital	Cen	Army	1 000	4	40	39	1 225	3 200
Ft Oglethorpe 1 100—Catoosa								
Station Hospital	Gen	Army	70			20	680	460
Ft Screven 17—Chatham								
Station Hospital	Gen	Army	40			10	30	418
Gainesville 8 624—Hall								
Downey Hospital	Cen	Indep	72	1	44	20	84	
Griffin 10 321—Spaulding								
R F Strickland and Son Memorial Hospital	Cen	Indiv	40		4	17	716	
Hoschton 427—Jackson								
Alben Clinic and Hospital	Cen	Part	10	2	4	4	131	
Jesup 2 301—Wayne								
Drs Colvin Ritch Sanitarium	Gen	Part	16	3	15	8	20	
Lagrange 20 131—Troup								
Dunson Hospital	Cen	City	30	6				
Macon 64 045—Bibb								
Hopewell Sanatorium	TB	CyCo	24			22	41	
Macon Hospital	Gen	CyCo	140	20	787	87	4 000	11 600
Middle Georgia Hospital	Gen	Indep	50	8		20	118	
Oglethorpe Private Infirmary	Cen	Indep	30	6	31	14	711	
Pumpelly Massenburg Sanat	Gen	Indep	26	5	30	7	341	
St Luke Hospital (col)	Gen	Indiv	12	1	10		10	
Marietta 7 608—Cobb								
Marietta Hospital	Gen	Indep	30	4		9		
Metter 1 494—Candler								
Metter Sanitarium	Gen	Indiv	10	2		2		
Milledgeville 5 504—Baldwin								
Allen's Invalid Home	N & M	Indiv	100			98	260	
Milledgeville City Hospital	Gen	Indep	40	6	29	29	64	
Milledgeville State Hosp	Mat	State	5 900			6 611	864	
Millen 2 527—Jenkins								
Millen Hospital	Gen	Indiv	22	4	12	1	319	
Monroe 3 700—Walton								
Walton County Hospital	Gen	Indep	16	1	6	4	180	100
Moultrie 8 027—Colquitt								
Edmonson Brannen Hosp	Gen	Part	12	2	6	6	26	
Newnan 6 886—Coweta								
Newnan Hospital	Gen	Indep	20	4	10	9	290	
Plains 609—Sumter								
Wise Sanitarium	Gen	Indep	60	2	9	9	305	
Rome 21 843—Floyd								
Harbin Hospital	Gen	Part	60	5	76	18	1 236	
McCall Hospital	Gen	Indep	60	10	145	18	2 440	600
Sandersville 3 011—Washington								
Rawlings Sanitarium	Cen	Indep	50	6		10	80	2 000

Key to symbols and abbreviations is on page 1021

GEORGIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Savannah 57 024—Chatham Central of Georgia Railway Hospital	Indus Indus		62		3	1 424	1 672	
Charity Hospital (col)	Gen Indep		39	10	216	47	2 238	288
Georgia Infirmary (col)	Gen Indep		70	6	227	56	1 822	
Oglethorpe Sanatorium	Gen Indiv		50	8	80	20	916	
St Joseph Hospital	Gen Chrch		7	12	126	11	1 134	
Telfair Hospital	Gen Indep		66	16	333	51	1 698	
U S Marine Hospital	Gen USPH		14			1 060	1 492	
Warren A Candler Hosp	Gen Chrch		70	10	17	42	2 047	570
Smyrna 1 178—Cobb Dr Brawner's Sanitarium	N & M Indiv		40			17		
Statesboro 3 096—Bulloch Van Duren's Sanit (col)	Gen Indiv		20		1	5	20	75
Stone Mountain 1 375—DeKalb Stone Mountain Sanitarium	N & M Indiv		30			18		60
Summerville 933—Chattooga Summerville-Trion Hospital	Gen Indep		20	6	17	6	31	1 120
Swainsboro 2 442—Emanuel Franklin's Sanitarium	Gen Indiv		20	2		5	110	
Thomasville 11 733—Thomas John D Archbold Memorial Hospital	Gen Indep		103	12	60	28	1 289	568
Tifton 3 390—Tift Coastal Plain Hospital	Gen Part		93	2		4		
Valdosta 13 432—Lowndes Frank Bird Hospital	Gen Indiv		22	3	1	7	330	
Little Griffin Private Hosp	Gen Indep		4	3	57	18	511	2 300
Washington 3 158—Wilkes Washington General Hosp	Gen Indep		20	2	12	6	228	
Waycross 15 510—Ware Atlantic Coast Line Hosp	Indus Indus		7			4	1 110	8 814
Ware County Hospital	Gen Co		62	8		32	1 242	2 800
Related Institutions								
Adel 1,06—Cook Adel Hospital	Gen Part		7			1		
Atlanta 360 691—Fulton Brook Haven Manor Sanat	N & M Indiv		12			3	27	
Florence Crittenton Home	Mat Indep		20	15	39	5	39	
U S Penitentiary Hosp	Inst Fed		179			10	1 406	
General Hospital & Clinic Ven	City		7			70	1 120	4 109
Barwick 499—Brooks Sanchez Private Sanitarium	Gen Indiv		15	2		4		
Cartersville 5 250—Bartow Dr Lowry's Emergency Hosp	Gen Indiv		8	4				
Cave Spring 723—Floyd Georgia School for the Deaf	Inst State		30			6	900	
Columbus 43 131—Muscogee Muscogee County Tubercu	TB Co		76			76		
Cordele 6 680—Crisp Cordelle Sanatorium	Gen Part		11			2	2	98
Gibbsville Hospital (col)	Gen Chrch		14	2	3	4	129	20
Gracewood 91—Richmond Georgia Training School for Mental Defectives	McDe State		233			70		
LaFayette 2 609—Walker LaFayette Sanitarium	Gen Indiv		10	2		1	70	
Walden 5 334—Baldwin Georgia State Penitentiary	Inst State		50			30		
Georgia State Penitentiary Tubercular Hospital	Inst State		75			75		
Moultrie 9 097—Colquitt Daniel Emergency Sanit	Gen Indiv		9	1		4		
Savannah 80 024—Chatham Alvan's Sunshine Preven	TB Indep		12			12		
Statesboro 3 096—Bulloch Statesboro Hospital	Gen Part		24	2		5		
Warm Springs 400—Meriwether Georgia Warm Springs Foundation	Orth Indep		86			70		
Summary for Georgia								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related institutions	93	12 362	9 880	94 239				
Totals	111	13 283	10 509	99 815				
Refused registration	1	14						

IDAHO

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
American Falls 1 980—Power Schlitz Memorial Hospital	Gen Co		16	4		6		
Blackfoot 3 199—Bingham Blackfoot General Hospital	Gen Indiv		15			8		
Boise 21 544—Ada St Alphonsus Hospital	Gen Chrch		120	10	106	49	1 605	198
St Luke's Hospital	Gen Chrch		100	14	318	76	2 721	
Veterans Admin Facility	Gen Vet		302			161	981	31
Bonner Ferry 1 418—Boundary Bonners Ferry Hospital	Gen Indep		20		32	5	283	

IDAHO—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Burley 3 826—Cassia Fremstad Hospital	Surg Indiv		10			2		
Coeur d Alene 8 707—Kootenai Lakeside Hospital	Gen Indiv		14	4	6	7	243	
Cottonwood 519—Idaho Our Lady of Consolation Hospital	Gen Chrch		14	4	10	6	308	
Ft Hall 190—Bingham Ft Hall Indian Agency Hospital	Gen I A		14	6	47	9	202	404
Gooding 1 092—Gooding Gooding County Hospital	Gen Cy Co		15	3	29	3		
Hailey 913—Blaine Hailey Clinical Hospital	Gen Indiv		10	6				
Idaho Falls 9 429—Bonnevill Idaho Falls Latter Day Saints Hospital	Gen Chrch		84	16	320	42	1 589	
Spencer Hospital	Gen Indep		35	6	67	16	1 011	500
Kellogg 4 124—Shoshone Wardner Hospital	Gen Indiv		18	2	14	6	270	839
Lapwai 416—Nez Perce St Lapwai Sanatorium	TB I A		132			118	122	372
Lava Hot Springs 944—Bannock Lava Hot Springs Municipal Sanitarium	Gen City		20	2				
Lewiston 9 403—Nez Perce St Joseph's Hospital	Gen Chrch		75	12	145	37	969	
White Hospital	Gen Indep		34	4	123	21	766	1 460
Montpeller, 2 436—Bear Lake Montpeller Hospital	Gen Indiv		30			11		
Moscow, 4 476—Latah Gritman Private Hospital	Gen Indiv		20	5	19	3	170	
Inland Empire Hospital	Gen Indiv		10	3	10	4	100	
Nampa 8 206—Canyon Mercy Hospital	Gen Chrch		46	6	70	14	442	
Nazarene Missionary Sanitarium and Institute	Gen Chrch		30		32	22	1 338	1 506
Orofino 1 048—Clearwater Orofino Hospital	Gen Part		30	4	7	10	334	
Pocatello 16 471—Bannock Pocatello General Hosp	Gen Cy Co		30	15	219	32	1 391	
St Anthony Mercy Hosp	Gen Chrch		40	10	199	23	734	
Potlatch 1 000—Latah Potlatch Hospital	Gen Indep		20	3	8	4	174	
Preston 3 381—Franklin General Memorial Hospital	Gen Indep		15	4	37	6	223	
Priest River 949—Bonner Priest River Hospital	Gen Part		10	2	2	5		300
Rexburg 3 048—Madison Emergency Hospital	Gen Indiv		12	2		5		
Rexburg General Hospital	Gen Indiv		12	2	20	4	335	
St Maries 1 996—Benewah St Maries Hospital	Gen Part		38	3	10	6	189	
Shoshone 3 290—Bonner Page Hospital	Gen Indiv		36	6	18	5	109	1 300
Parnell Hospital	Gen Indiv		20	6	11	2	26	
Soda Springs 831—Caribou Caribou County Hospital	Gen Co		26	3	15	20	504	
Twin Falls 8 787—Twin Falls Hospital	Gen Co		50	10	67	30	974	
Wallace 3 634—Shoshone Providence Hospital	Gen Chrch		40	10	64	14	723	
Wallace Hospital	Gen Part		50		14	10	366	
Wendell 720—Gooding St Valentine's Hospital	Gen Chrch		20	5	48	9	233	
Related Institutions								
Blackfoot, 3 199—Bingham Dr W W Beck Hospital	Gen Indiv		7	2	28	3	160	
State Hospital South	Mat State		487			470	130	
Boise 21 544—Ada Boise City Detention Hosp	Iso City		10			1	18	
Idaho State Soldiers Home Hospital	Inst State		35			10	60	
Salvation Army Women's Home and Hospital	Mat Chrch		8	15	102	2	101	
Ft Hall 190—Bingham Ft Hall Indian School Hospital	Gen I A		14			1	94	
Malad City 2 530—Owens Community Hospital	Gen Indep		7	4		3	100	
Moscow 4 476—Latah University of Idaho Infirmary	Inst State		10			7	306	
State School and Colony Orofino 1 078—Clearwater State Hospital North	Mat State		370			348	80	
St Maries 1 996—Benewah Dr Platt's Hospital	Gen Indiv		12	3	10	4	70	
Salmon 1 371—Lemhi Salmon General Hospital	Gen Part		9	3	3	1	64	
Spirit Lake 1 241—Kootenai Spirit Lake Hospital	Gen Part		10	2	4	1	12	310
Summary for Idaho								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related institutions	40	1 678	693	20 778				
Totals	13	1,494	1 304	1 303				
Refused registration	3	3 172	2 107	22 281				

Key to symbols and abbreviations is on page 1021

ILLINOIS

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Alton 30 151—Madison	Ment State		1,628		150	380		
Alton State Hospital	Gen Chrch		98		50	391		
St Anthony's Infirmary and Sanitarium	Gen Chrch		7	12	106	40	2,668	
St Joseph's Hospital	Gen Chrch		7	12	106	40	2,668	
Amboy 1972—Lee	Gen Indep		18	3	21	10	160	
Amboy Public Hospital	Gen Indep		18	3	21	10	160	
Anna 3 430—Union	Ment State		2,000		1,054	624		
Anna State Hospital	Gen City		15	4	6	190		
Hale Willard Mem Hosp	Gen Indiv		21	2	2	1	57	
Annawan 489—Henry	Gen Indiv		21	2	2	1	57	
J M Young Hospital	Gen Indiv		21	2	2	1	57	
Aurora 46 589—Kane	Gen Indiv		109	18	270	37	1,638	
Copley Hospital	Gen Indiv		109	18	270	37	1,638	
Kane County Spring Brook Sanitarium	TB Co		87		70	121	700	
Mercyville Sanitarium	N&M Chrch		160		122	167		
St Charles Hospital	Gen Chrch		100	20	248	42	1,480	298
St Joseph Mercy Hospital	Gen Chrch		120	20	257	50	1,860	
Batavia 5,045—Kane	N&M Indep		30		24	7		
Bellevue Place Sanitarium	TB Indep		4		40	49		
Pox River Sanitarium	TB Indep		4		40	49		
Belleville 28 425—Saint Clair	Gen Chrch		110	15	1	2,900		
St Elizabeth's Hospital	Gen Army		30		9	107		
Station Hospital	Gen Army		30		9	107		
Belvidere 8 123—Boone	Gen Indiv		30	10	70	8	981	
Highland Hospital	Gen Chrch		30	10	6	10	363	
St Joseph's Hospital	Gen Chrch		30	10	6	10	363	
Benton 8 219—Franklin	Gen Indiv		30	2	14			
Moore Hospital	Gen Indiv		30	2	14			
Berwyn 47,027—Cook	Gen Indiv		75	18	304	23	1,351	2,000
Berwyn Hospital	Gen Indiv		75	18	304	23	1,351	2,000
Bloomington 30 930—McLean	Gen Chrch		17	11	163	36	1,061	
Mennonite Hospital	Gen Chrch		200	20	302	118	3,776	
St Joseph Hospital	Gen Chrch		200	20	302	118	3,776	
Blue Island 16 534—Cook	Gen Chrch		85	15	229	35	1,590	
St Francis Hospital	Gen Chrch		85	15	229	35	1,590	
Breese 1 957—Clinton	Gen Chrch		20	2	21	10	358	
St Joseph Hospital	Gen Chrch		20	2	21	10	358	
Bushnell 2 850—McDonough	TB Co		30		30	21		
Fleming Sanatorium	TB Co		30		30	21		
Calro 13 532—Alexander	Gen Chrch		100	12	72	30	972	
St Mary's Hospital	Gen Chrch		100	12	72	30	972	
Canton 11 718—Fulton	Gen City		50	16	80	27	1,011	
Graham and Murphy Hosp	Gen Chrch		50	5	60	14	570	
Carbondale 7 528—Jackson	Gen Chrch		50	5	60	14	570	
Holden Memorial Hosp	Gen Chrch		50	5	60	14	570	
Carlinville 4,144—Macoupin	Gen Indiv		20	6	40	10	531	
Macoupin Hospital	Gen Indiv		20	6	40	10	531	
Carmi 2 932—White	Gen Indiv		10	2	3	127		
Carmi Hospital	Gen Indiv		10	2	3	127		
Centralia 12 583—Marion	Gen Chrch		45	4	42	18	739	
St Mary's Hospital	Gen Chrch		45	4	42	18	739	
Champaign 20 348—Champaign	Gen City		80	17	164	40	1,890	
Burnham City Hospital	Gen City		80	17	164	40	1,890	
Charleston 8 012—Coles	Gen Indiv		21	5	50	8	236	
M. A. Montgomery Memorial Sanatorium	Gen Part		23	4	16	8	250	
Oakwood Hospital	Gen Part		23	4	16	8	250	
Chicago 3 376 438—Cook	(Medical and Surgical Department of University of Chicago Clinics)							
Albert Merritt Billings Hospital	Gen Chrch		285		16	3,060		
Alexian Brothers Hosp	Gen Indiv		175	20	127	63	1,754	
American Hospital	Gen Indiv		120	24	180	40	1,752	
Auburn Park Hospital	Gen Chrch		325	20	432	190	4,560	
Augustana Hospital	Gen Indiv		100	36	372	43	2,263	1,304
Belmont Hospital	Gen Chrch		15	2	6	10	120	
Bethany Home Hospital	Gen Indiv		50	16	147	10	747	
Bethany Sanitarium and Hospital	Gen Indiv		50	16	147	10	747	
Boys Roberts Memorial Hospital for Children (Pediatric Department of University of Chicago Clinics)	Gen Indiv		40	6	23	14	292	
Burrows Hospital	Gen Indiv		75		4	947	11,001	
Chicago Eye Ear Nose and Throat Hospital	Gen Indiv		104		68	136		
Chicago Fresh Air Hosp	Gen Indiv		104		68	136		
Chicago Lying in Hospital and Dispensary	Mat Indiv		162	100	2,767	103	9,850	1,748
Chicago Memorial Hosp	Gen Indiv		88	20	288	43	1,821	1,048
Chicago Psychiatric Institute	N&M Indiv		110		52	207		
Chicago State Hospital	Ment State		4,103	4	6	4,080	1,682	676
Children's Memorial Hosp	Chil Indiv		264		177	4,112	18,578	
City of Chicago Municipal Tuberculosis Sanitarium	TB City		1,240		1,234	1,707	107,626	
Columbus Hospital	Gen Chrch		159	23	197	81	2,888	1,484
Cook Co Children's Hosp	(Included in Cook County Hospital)		3,300	115	4,650	2,544	63,018	
Cook County Hosp	Gen Co		175		140	5,110		
Cook County Psychopathic Hospital	N&M Co		120	20	388	66	2,480	
Edgewater Hospital	Gen Indiv		100	35	366	54	2,466	3,250
Englewood Hospital	Gen Indiv		100	35	366	54	2,466	3,250
Evangelical Deaconess Hospital	Gen Chrch		60	20	124	23	803	350
Evangelical Hospital	Gen Chrch		200	60	830	90	4,181	
Frances E Willard Hosp	Gen Indiv		114	26	428	47	2,344	794
Franklin Boulevard Hosp	Gen Indiv		60	24	191	31	1,579	
Garfield Park Community Hospital	Gen Indiv		196	32	430	61	2,757	5,728
Grant Hospital	Gen Indiv		231	40	803	104	4,202	2,136
Henrotin Hospital	Gen Indiv		75	8	90	36	1,384	24,703
Holy Cross Hospital	Gen Chrch		100	24	516	70	1,802	
Hospital of St Anthony de Padua	Gen Chrch		220	40	696	112	3,309	
Illinois Central Hospital	Gen Indiv		255	21	387	102	3,098	9,000

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Illinois Eye and Ear Infirmary	Gen Indiv		200		173	4,677	69,733	
Illinois Masonic Hosp	Gen Frat		150	20	263	64	2,949	2,004
Jackson Park Hospital	Gen Indiv		220	40	434	59	2,639	1,609
John B Murphy Hospital	Gen Chrch		100	23	329	40	1,490	893
Lake View Hospital	Gen Indiv		110	20	192	30	1,678	
La Rabida Jackson Park Sanatorium	Chil Indiv		56		20	161		
Lewis Memorial Maternity Hospital	Mat Chrch		126	126	2,302	70	2,658	9,661
Lutheran Deaconess Home and Hospital	Gen Chrch		173	42	522	77	3,969	
Lutheran Memorial Hosp	Gen Chrch		170	30	391	51	9,167	
Martha Washington Hosp	Gen Indiv		91	14	63	17	741	
Mercy Hospital	Gen Chrch		200	30	420	150	4,480	24,770
Michael Reese Hospital	Gen Indiv		508	71	1,304	370	11,729	90,433
Misericordia Hospital and Home for Infants	Mat Chrch		17	26	268	10	50	
Mother Cabrini Memorial Hospital	Gen Chrch		150	18	265	82	3,400	
Mt Sinai Hospital	Gen Indiv		100	44	639	90	4,104	5,517
Municipal Contagious Disease Hospital	Gen City		423		232	3,400		
Nancy Adele McIlwain Memorial Hospital (Orthopedic Department of University of Chicago Clinics)	Gen Indiv		14	2	7	7	1,016	
Nelson Morris Hospital (Included in Michael Reese Hospital)	Gen Indiv		14	2	7	7	1,016	
North Avenue Hospital	Gen Indiv		14	2	7	7	1,016	
Norwegian American Hospital	Gen Indiv		130	50	678	66	3,054	900
Parkway Sanitarium	N&M Indiv		50		20	160		
Passavant Memorial Hospital	Gen Indiv		200	48	466	83	3,160	24,916
Peoples Hospital	Gen Indiv		74	4	14	11	447	
Pinel Sanitarium	N&M Indiv		50		16	100		
Post Graduate Hospital and Medical School	Gen Indiv		85	3	11	12	66	
Presbyterian Hospital	Gen Chrch		412	60	705	238	9,086	48,110
Central Free Dispensary—23,716 outpatients	Gen Indiv		120	22	100	49	1,096	9,116
Provident Hosp (col)	Gen Indiv		130	40	771	84	3,996	1,062
Ravenswood Hospital	Gen Indiv		130	40	771	84	3,996	1,062
Research and Educational Hospital	Gen State		307	20	761	346	5,941	9,777
Roseland Community Hospital	Gen Indiv		101	32	420	51	9,666	2,890
St Anne's Hospital	Gen Chrch		234	60	996	130	3,710	9,033
St Bernard's Hospital	Gen Chrch		200	90	483	76	3,629	
St Elizabeth Hospital	Gen Chrch		200	90	483	76	3,629	
St Joseph Hospital	Gen Chrch		200	90	483	76	3,629	
St Luke's Hospital	Gen Indiv		600	32	795	249	9,190	10,664
St Mary of Nazareth Hospital	Gen Chrch		262	30	530	100	3,012	
St Vincent's Infant and Maternity Hospital	Mat Chrch		41	10	104	17	113	
Sarah Morris Hospital for Children (Included in Michael Reese Hosp)	Orth Frat		60		61	190	431	
Shriners Hospital for Crippled Children	Orth Frat		60		61	190	431	
South Chicago Community Hospital	Gen Indiv		75	20	144	23	1,031	
South Shore Hospital	Gen Indiv		100	27	269	4	1,923	
Swedish Covenant Hosp	Gen Chrch		100	42	611	6	2,400	946
U S Marine Hospital	Gen USPH		160		160	60	1,000	280
University Hospital	Gen Indiv		100	21	137	57	1,668	922
University of Chicago Clinics	Gen Indiv		406		214	5,404	91,000	
Washington Blvd Hosp	Gen Indiv		100	10	104	51	1,940	1,060
Washingtonian Home (Included in Martha Washington Hospital)	Gen Indiv		60	12	106	10	607	847
Welles Park Hospital	Gen Indiv		229	21	518	104	9,230	16,006
West Side Hospital	Gen Indiv		142	19	107	50	1,823	
Women and Children's Hospital	Gen Indiv		100	20	414	47	1,491	1,112
Woodlawn Hospital	Gen Indiv		140	32	820	49	2,312	
Chicago Heights 22 321—Cook	Gen Chrch		100	15	131	20	1,318	
St James Hospital	Gen Chrch		100	15	131	20	1,318	
Clinton 5 900—De Witt	Gen City		20	4	42	5	400	
Dr John Warner Hospital	Gen City		20	4	42	5	400	
Compton 277—Lee	Gen Indiv		10	2	7			
Compton Hospital	Gen Indiv		10	2	7			
Danville 36 760—Vermillion	Gen Indiv		100	12	119	54	1,770	3,330
Lake View Hospital	Gen Indiv		100	12	119	54	1,770	3,330
St Elizabeth Hospital	Gen Chrch		156	20	257	78	2,183	
Veterans Admin Facility	Gen Vet		562		471	1,503		
Decatur 57 510—Macon	Gen Indiv		141	24	397	67	2,574	1,400
Decatur and Macon County Hospital	Gen Indiv		141	24	397	67	2,574	1,400
Macon County Tuberculosis Sanatorium	TB Co		80		50	35	77	
St Mary's Hospital	Gen Chrch		131	22	416	116	3,406	9,891
Wabash Employees Hosp	Indus Indiv		85		59	1,334	9,891	
DeKalb 8 545—De Kalb	TB Co		41		30	29	144	
DeKalb County TB Sanat	Gen City		40	12	70	11	506	
DeKalb Public Hospital	Gen Chrch		50	8	64	11	400	
St Mary's Hospital	Gen Chrch		50	8	64	11	400	
Des Plaines 8 798—Cook	Gen Indiv		16	6	40	4	112	
Northwestern Hospital	Gen Indiv		16	6	40	4	112	
Dixon 9 908—Lee	Gen City		60	11	90	27	802	1,900
Dixon Public Hospital	Gen City		60	11	90	27	802	1,900
Du Quoin 7 593—Perry	Gen Indiv		60	5	56	18	514	
Marshall Browning Hosp	Gen Indiv		60	5	56	18	514	

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Edwardsville 623—Madison								
Madison County Tuberculo- sis Sanitarium	TB	Co	90			87	129	478
Filingham 498—Filingham								
St Anthony's Hospital	Gen	Chrch	70	6		72	822	
Flora 3029—Kane								
Flora State Hospital	Ment State		4 295		3 973	1 900		
Resthaven Sanitarium	N & M Indiv		75		15	9	61	
St Joseph's Hospital	Gen	Chrch	1 0 20	267	50	1 231	1 080	
Sherman Hospital	Gen	Indep	110	20	311	50	2 400	1 28
Flmhurst 1400—DuPage								
Flmhurst Hospital	Gen	Indep	70	18	20	31	1 747	
Evansville 6338—Cook								
Frankston Hospital	Gen	Indep	235	76	689	101	4 492	2 237
St Francis Hospital	Gen	Chrch	320	40	700	103	4 602	
Evergreen Park 1894—Cook								
Little Company of Mary Hospital	Gen	Chrch	150	24	47	4	1 049	217
Flora 4393—Clay								
Flora Hospital	Gen	Indiv	10	4	23	4	212	
Ft Sheridan 609—Lake								
Station Hospital	Gen	Army	116	4	47	66	1 08	9 804
Freeport 2204—Stephenson								
Evangelical Deaconess Hos- pital	Gen	Chrch	107	10	125	29	1 176	420
St Francis Hospital	Gen	Chrch	130	10	263	39	1 918	
Galesburg 2830—Knox								
Galesburg Cottage Hosp	Gen	Indep	82	18	186	32	1 076	468
St Mary's Hospital	Gen	Chrch	120	18	162	40	1 800	
Gene 3040—Henry								
J C Hammond City Hosp	Gen	City	1	5	42	5	104	
General 4607—Kane								
Community Hospital	Gen	Indep	67	18	16	24	824	
Gilman 1670—Iroquois								
Gilman Community Hosp	Gen	Indep	15	3		3		
Granite City 130—Madison								
St Elizabeth Hospital	Gen	Chrch	103	22	12	60	1 880	
Harrisburg 1162—Saline								
Harrisburg Hospital	Gen	Indep	30	1	6	9	400	74
Lightner Hospital	Gen	Indiv	35	6	30	10	824	
Harvard 900—McHenry								
Harvard Community Hosp	Gen	Part	21	5	40	7	191	
Harvey 1634—Cook								
Ingalls Memorial Hosp	Gen	Indep	90	2	272	21	1 110	
Herrin 970—Williamson								
Herrin Hospital	Gen	Part	40	5	31	18	501	
Highland 3319—Madison								
St Joseph's Hospital	Gen	Chrch	72	8	90	46	946	
Highland Park 1220—Lake								
Highland Park Hospital	Gen	Indep	5	17	176	17	881	
Hillsboro 4430—Montgomery								
Hillsboro Hospital	Gen	Indep	70	5	4	13	343	
Hines—Cook								
Veterans Admin Facility	Gen	Vet	1 773			1 327	7 29	22 804
Hinsdale 6925—DuPage								
Hinsdale Sanit and Hosp	Gen	Indep	128	11	165	49	1 229	8 788
Jacksonville 1747—Morgan								
Jacksonville State Ho p	Ment State		3 345			240	791	
Morgan County Tuberculosis Sanatorium	TB	Co	30			23	40	32
Norbury Sanatorium	N & M Indep		120			64	136	
Our Savior's Hospital	Gen	Chrch	80	12	124	31	1 160	918
Passavant Memorial Hosp	Gen	Chrch	75	12	91	35	904	481
Jerseyville 4709—Jersey								
Jerseyville Hospital	Gen	Indiv	12	5	28	4	68	
Joliet 4993—Will								
St Joseph's Hospital	Gen	Chrch	192	40	578	137	4 229	601
St. Cross Hospital	Gen	Indep	133	17	202	44	1 727	286
Will County Tuberculosis Sanatorium	TB	Co	100			88	52	
Kankakee 2060—Kankakee								
Kankakee State Hospital	Ment State		4 000			792	1 311	776
St Mary Hospital	Gen	Chrch	114	12	127	44	1 301	
Kendall 2501—Cook								
Kendallworth Sanitarium	N & M Indiv		20			16	14	
Kewanee 17093—Henry								
Kewanee Public Hospital	Gen	Indep	49	12	113	18	520	248
St Francis Hospital	Gen	Chrch	56	11	90	38	706	1 170
La Harpe 1100—Hancock								
La Harpe Hospital	Gen	Indep	12	3	20	3	106	
Lake Forest 6504—Lake								
Alice Home Hospital	Gen	Indep	42	8	113	16	633	
La Salle 13149—La Salle								
St Mary Hospital	Gen	Chrch	80	10	242	40	1 480	
Libertyville 3791—Lake								
Candler Memorial Hospital	Gen	Indep	20	6	42	7	285	
Lincoln 12850—Logan								
Evangelical Deaconess Hos- pital	Gen	Chrch	52	8	67	27	811	
St Clara's Hospital	Gen	Chrch	64	7	57	43	974	
Litchfield 609—Montgomery								
St Francis Hospital	Gen	Chrch	120	8	119	52	2 311	
Maclean, 700—Tazewell								
Oak Knoll Sanatorium	TB	Co	45			39	51	
Macomb 800—McDonough								
Maricopa Phelps Hospital	Gen	Indep	40	6	17	20	540	
St Francis Hospital	Gen	Chrch	75	10	121	40	1 100	
Manteno 1140—Kankakee								
Manteno State Hospital	Ment State		1 197			1 180	304	
Mattson 14631—Coles								
Memorial Methodist Hosp	Gen	Chrch	37	8	63	19	907	
Metairie Park 10741—Cook								
Westlake Hospital	Gen	Indep	84	16	209	17	1 006	
Mendota 4000—La Salle								
Harris Hospital	Gen	Indiv	20	3	18	6	230	

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Moline 32236—Rock Island								
Lutheran Hospital	Gen	Chrch	130	20	329	42	1 391	
Moline Public Hospital	Gen	City	133	22		50	1 600	
Monmouth 8606—Warren								
Monmouth Hospital	Gen	City	35	10	124	30	1,825	
Morris 6568—Grundy								
Morris Hospital	Gen	City	34	10	67	10	440	
Mt Vernon 12345—Jefferson								
Mt Vernon Hospital	Gen	Indiv	30	2		6	170	
Mowenaqua, 1478—Shelby								
Mowenaqua Hospital	Gen	Indiv	25	8		13		
Murphyboro 8182—Jackson								
St Andrew's Hospital	Gen	Chrch	50	4	24	30	406	295
Naperville 5118—DuPage								
Naperville Sanatorium	TB	Indep	88			58	96	
Normal 6768—McLean								
Normal Hospital	Gen	Chrch	81	15	120	44	1 873	
Normal Sanitarium	TB	Co	50			30	34	502
North Chicago 8466—Lake								
Veterans Admin Facility	Ment	Vet	1 135			1 114	210	
Oak Forest 50—Cook								
Cook County Infirmary	Gen	Co	1,004			1 016	1 871	
Cook County Tuberculosis Hospital	TB	Co	634	2		540	539	
Oak Park 63082—Cook								
Oak Park Hospital	Gen	Chrch	135	40	546	84	3 593	941
West Suburban Hospital	Gen	Indep	327	100	1 170	120	0 517	729
Olney 6140—Richland								
Olney Sanitarium	Gen	Indep	69	7	64	38	1 404	3 055
Ottawa 15094—La Salle								
Highland	TB	Co	60			34	34	300
Ottawa Tuberculosis Sanatorium	TB	Indep	100			29	50	
Ryburn Memorial Hosp	Gen	City	58	12	221	35	1 200	
Pana 583—Christian								
Huber Memorial Hospital	Gen	Chrch	40	10	40	21	060	208
Paris 8781—Edgar								
Paris Hospital	Gen	Indiv	35	6	18	24	065	
Pekin 16129—Tazewell								
Pekin Public Hospital	Gen	Indep	40	8	104	17	925	
Peoria 104960—Peoria								
John C Proctor Hospital	Gen	Indep	100	18	202	61	2 286	
Methodist Hospital of Central Illinois	Gen	Chrch	155	19	376	90	3 220	
Michell Farm	N & M	Indiv	26			11	28	
Peoria Municipal Tuberculosis Sanitarium	TB	City	93			92	128	719
Peoria Sanitarium	N & M	Indiv	25			8	64	
Peoria State Hospital	Ment State		2 700			2 605	721	
St Francis Hospital	Gen	Chrch	300	30	560	163	4,902	
Peru 9121—La Salle								
Peoples Hospital	Gen	Indep	0	10	105	28	934	
Pontiac 8272—Livingston								
Livingston County Sanat	TB	Co	38			37	82	169
St James Hospital	Gen	Chrch	40	12	132	13	840	
Princeton 4762—Bureau								
Julia Rackley Perry Memorial Hospital	Gen	City	40	6	77	14	407	
Quincy 39241—Adams								
Blessing Hospital	Gen	Indep	125	22	281	63	2 062	
Hillcrest	TB	Co	50			43	53	202
St Mary Hospital	Gen	Chrch	196	20	305	120	2 519	
Rantoul 155—Champaign								
Station Hospital	Gen	Army	50	5	5	14	642	1 200
Reid Bud 1208—Randolph								
St Clement's Hospital	Gen	Chrch	20	2	13	11	247	
Robinson 3608—Crawford								
Robinson Hospital	Gen	Part	20	5	11	3	103	
Rockford 5864—Winnebago								
Rockford Hospital	Gen	Indep	92	18	175	32	1 286	
Rockford Municipal Tuberculosis Sanatorium	TB	CyCo	122			110	165	892
St Anthony's Hospital	Gen	Chrch	160	35	408	80	2 741	
Swedish American Hosp	Cen	Indep	80	12	211	35	1,161	
Wilgus Sanitarium	N & M	Indiv	35			10	10	
Winnebago County Hosp	Gen	Co	105	6	203	58	1 629	1 420
Rock Island 37903—Rock Island								
Rock Island County Tuberculosis Sanatorium	TB	Co	60			60	73	269
St Anthony's Hospital	Gen	Chrch	150	18	196	8	2 904	1 288
Rushville 2388—Schuyler								
Culbertson Hospital	Gen	Indiv	20	5	14	3	100	
St Charles 5377—Kane								
St Charles City Hospital	Gen	Indep	20	6	36	5	178	
Sandwich 2011—DeKalb								
Horatio N Woodward Memorial Hospital	Gen	Indep	20	10	63	8	331	
Savanna 5086—Carroll								
Savanna Public Hospital	Gen	City	14	5	33	5	180	
Shelbyville 3491—Shelby								
Shelby County Hospital	Gen	Co	20		21	6	210	
Springfield 71864—Sangamon								
Palmer Sanatorium	TB	Indep	70			29	51	
St John's Hospital	Gen	Chrch	568	32	945	428	11 136	3 597
St John's Sanitarium	TbOr	Chrch	320			229	200	
Springfield Hospital	Gen	Chrch	80	15	200	49	1 642	
Spring Valley 5270—Bureau								
St Margaret's Hospital	Gen	Chrch	68	7	113	31	907	500
Sterling 10012—Whiteside								
Public Hospital	Gen	City	51	12	175	20	804	505
Streator 14728—La Salle								
St Mary's Hospital	Gen	Chrch	120	13	190	60	1 840	
Sublette 261—Lee								
Anger Maternity Hospital	Mat	Indiv	10	6	58	2	218	
Sycamore 4021—DeKalb								
Sycamore Municipal Hosp	Gen	City	20	6	39	6	431	

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Itasca 7316—Christian St. Vincent Hospital	Gen	Chrch	50	11	170	10	107	
Urbana 13060—Champaign	Gen	Indep	30	6	20	10	701	270
Carle Memorial Hospital	Gen	Co	50	8	96	19	667	110
Champaign County Hosp	Gen	Chrch	30	12	116	10	191	
Mersey Hospital	IB	Co	48					
The Outlook								
Vandalia 4342—Fayette	Gen	Indiv	20	6	50	14	420	
Mark Greer Hospital								
Waterman 590—DeKalb	Gen	Indiv	20	7	61	11	42	
East Side Hospital								
Watseka, 3144—Iroquois	Gen	Co	31	8	83	21	713	
Iroquois Hospital								
Waukegan 33490—Lake	Gen	Co	90	10	227	98	1442	2,490
Lake County General Hosp	Gen	Chrch	140	16	234	36	1,213	471
St. Therese's Hospital	Gen	Indep	76	14	221	31	1,150	
Victory Memorial Hospital								
White Hall 2928—Greene	Gen	Indep	10	5		5	261	
White Hall Hospital								
Winfield 445—DuPage	TB	Indep	110			86	116	148
Winfield Sanatorium	IB	Indep	50			0	61	200
Zane Sanatorium								
Woodstock 5471—McHenry	Gen	Indep	21	7	46	6	71	
Woodstock Public Hosp								
Zeigler 1816—Franklin	Gen	Indiv	16	2		7		
Zeigler Hospital								
Related Institutions								
Arrowsmith 279—McLean	Gen	Indiv	10	2	6	2	41	
L. M. Johnson Hospital								
Augusta 1011—Hancock	Gen	Indep	12	1	1	98		
Augusta Hospital								
Chatsworth 981—Livingston	Gen	Indiv	6	1		10		
Chatsworth Hospital								
Chicago 337648—Cook								
Angel Guardian Orphanage	Inst	Chrch	70				2.0	
Beulah Home and Maternity	Mat	Indep	40	74	40	13	80	
Hospital	Conv	Indiv	7			3		
Beverly Hills Rest Home								
Chicago Home for Convalescent Women and Children	Conv	Indep	6			3	421	
Chicago Home for Incurables	Inc	Indep	200			285	83	
Chicago Nursery and Half Orphan Asylum	Inst	Indep	20			6	404	
House of Correction Hosp	Gen	City	70	2		70	2,909	
Illinois Steel Company Hosp	Indus	Indus	0			8	36	2,461
Infirmiry of Clearing House								
Illinois Emergency Relief	Gen	Indep	250			240	1,836	
Isolation Hospital	San	Co	40			1	29	
Lawrence Hall	Inst	Chrch	20			5	140	
Marks Nathan Jewish Orphan Home	Inst	Indep	23			4	415	
Methodist Episcopal Old People's Home	Inst	Chrch	20			10	78	
Myran Sanitarium	N&M	Indiv	19			10	78	
St. Mary of Providence Institute	MeDe	Chrch	100			100	77	
Salvation Army Women's Home and Hospital	Mat	Chrch	20	12	148	14	211	
Washington and Jane Smith Home	Inst	Indep	21			6	168	
Dixon 9908—Lee	MeDe	State	120			62	1,100	
Dixon State Hospital								
Lidorado 4482—Saline	Gen	Indiv	16	1	4	1	1,10	
Ferrell Hospital								
Evanston 63338—Cook	Chil	Indep	24			20	2,3	
The Cradle								
Grove House for Convalescents	Conv	Indep	70			21	200	
Fairbury 2310—Livingston	Gen	City	8		32	108		
Fairbury Hospital								
Forest Park 14550—Cook	Inst	Indep	38			8		
German Old People's Home								
Geneva 4607—Kane	Inst	State	17			10	74	
State Training School for Girls								
Godfrey 201—Madison	MeDe	Indep	80			60	8	
Beverly Farm								
Henry, 1608—Marshall	Gen	Part	8	3	71	2	10	
Drs. Coggeshall and Dysart Hospital								
Hinsdale 6923—DuPage	Mat	Indep	20	10	30	8	44	
West Suburban Home for Girls								
Jacksonville 17747—Morgan	Inst	State	20			4	300	
Illinois School for the Blind	Inst	State	40			7	300	
Illinois School for the Deaf								
Knoxville 1867—Knox	Gen	Co	14			7		
Knox County Hospital								
Lincoln 12805—Logan	MeDe	State	340	6	11336	518		
Lincoln State School and Colony								
Mattoon 14631—Coles	Inst	Frat	66			4	114	
Independent Order Odd Fellows Old Folks Home Hosp								
McLeansboro 2162—Hamilton	Gen	Indiv	7			2		
McLeansboro Hospital								
Menard 22—Randolph	Ment	State	509			461	94	
Illinois Security Hospital	Inst	State	36			22	701	
Southern Illinois Penitentiary Hospital								
Vetropolis 5573—Massac	Gen	Indiv	9	2	4	4	130	
Fisher Hospital								

ILLINOIS—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Minook 1910—Woodford	IB	Co	12			9	8	
Woodford County Tubercular Sanatorium								
Monmouth 1510—Kane	Chil	Frat	60			30	991	
Moonsheart Hospital								
Mt. Prospect 122—Cook	Gen	Indep	20	4	10	3	220	890
Mt. Prospect General Hosp								
Normal 6748—McLean	Inst	State	70			12	160	
Soldiers and Sailors Children's School								
Paxton 2892—Ford	Gen	City	21			21	5185	
Paxton Community Hosp								
Peoria 10190—Peoria	IB	City	40			1	70	
Peoria Isolation Hospital								
Pontiac 872—Livingston	Inst	State	37			20	79	
Illinois State Reformatory								
Quincy 9211—Adams	Inst	State	250			209	997	
Illinois Soldiers and Sailors Home and Hospital								
St. Charles 5477—Kane	Inst	State	0			19	513	
St. Charles School for Boys								
Savanna 506—Carroll	Gen	Army	10			3	100	
Station Hospital								
Sullivan 239—Moultrie	Inst	Frat	90			70	100	
Illinois Masonic Home								
Toledo 723—Cumberland	Gen	Indiv	6	1		2		
Toledo Sanitarium								
Urbana 13060—Champaign	Inst	State	80			70		
McKinley University Hosp								
Wedron 202—La Salle	Conv	Chrch	70			37	600	40
St. Joseph's Health Resort								
West Chicago 3477—DuPage	Orth	Indep	170			100	1,100	
Country Home for Convalescent Crippled Children								
Whitton 7208—DuPage	N&M	Part	10			5		
Howe Home	N&M	Indiv	40			25		
Mary 1 Pogue Sanitarium	Gen	Part	20	12	20	8	64	94
Whitton Health Resort								
Wheeling 467—Cook	Gen	Indiv	9	5	12	3	240	
Wheeling Hospital								
Winnetka 12166—Cook	Conv	Indep	70			50		
North Shore Health Resort								
Summary for Illinois								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related institutions	27	60,275	4,611	46,911				
Totals	60	107,440	9,122	93,822				
Refused registration	41	1,361		4,004				

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Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Anderson 39804—Madison	Gen	Chrch	80	17	168	40	1,006	
St. John's Hickey Memorial Hospital								
Amelia 2600—Steuben	Gen	Indiv	20	4	2	8	40	
Cameron Hospital								
Argos 1211—Marshall	Gen	Indiv	10	2	18	6	317	
Kelly Hospital								
Auburn 1088—DeKalb	Gen	Indiv	20	7	17	10	140	
Dr. Bonnell M. Souder Hospital								
Batesville 2838—Ripley	Gen	Chrch	50	10	3	New	40	
Margaret Mary Hospital								
Bedford 11208—Lawrence	Gen	Indep	20	6		10	300	
Dunn Memorial Hospital								
Beech Grove 3552—Marion	Gen	Chrch	140	20	249	40	1,461	
St. Francis Hospital								
Bloomington 18227—Monroe	Gen	Indep	30	8	61	17	604	
Bloomington Hospital								
Bluffton 5074—Wells	Gen	Co	19			44	11	365
Wells County Hospital								
Brazil 8744—Clay	Gen	Co	0	12	44	14	507	470
Clay County Hospital								
Clinton 7936—Vernillion	Gen	Co	40	6	40	14	40	11
Vernillion County Hospital								
Columbus 9933—Bartholomew	Gen	Co	40	6	40	18	664	
Bartholomew County Hosp								
Crawfordsville 1030—Montgomery	Gen	Co	48	12	80	22	1,000	
Culver Hospital								
Crown Point 4046—Lake	TB	Co	200			190	1,100	
Lake County Tuberculosis Sanatorium								
Decatur 5156—Adams	Gen	Co	30	6	30	10	101	
Adams County Memorial Hospital								
East Chicago 54784—Lake	Gen	Chrch	200	60	200	77	2,942	
St. Catherine's Hospital								
Elkhart 32949—Elkhart	Gen	Indep	70	10	148	20	1,102	
Elkhart General Hospital								
Livewood 10630—Madison	Gen	Chrch	20	5	121	17	609	
Mersey Hospital								
Evanston 102249—Vanderburgh	TB	Co	120			100	141	471
Boehne Tuberculosis Hosp								
Evansville State Hospital	Ment	State	1,200			1,178	196	
Highland Private Hospital	Gen	Indiv	12			3	20	
Protestant Deaconess Hospital	Gen	Chrch	160	20	210	81	2,004	

INDIANA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
St Mary's Hospital	Gen	Chrch	125	12	110	61	330	10
St S. Marine Hospital	Gen	USPH	60			58	308	
Welborn Walker Hospital	Gen	Indlv	105	6	53	41	1,000	500
St Benjamin Harrison—Marion Station Hospital	Gen	Army	123	4	70	47	600	4,042
St Wayne 114 946—Allen								
Irene Byron Tuberculosis Sanatorium	TB	Co	100			176	784	780
Lutheran Hospital	Gen	Chrch	165	24	300	77	2,474	
Methodist Episcopal Hosp	Gen	Chrch	112	10	121	40	2,104	
St Joseph's Hospital	Gen	Chrch	243	57	501	117	3,688	
Frankfort 19 196—Clinton								
Clinton County Hospital	Gen	Co	43	7	54	12	404	
Carrett 4 425—DeKalb								
Sacred Heart Hospital	Gen	Chrch	48	7	22	18	523	
Carry 100 496—Lake								
Gary Hospital	Indus	Indus	100			31	226	3,431
Methodist Episcopal Hosp	Gen	Chrch	100	1	325	50	1,841	
St Antonio Hospital	Gen	Indep	50	6	19	20	700	
St John Hospital (col)	Gen	Indlv	15	0	47	7	213	102
St Mary's Mercy Hosp	Gen	Chrch	230	30	500	120	3,835	
Greencastle 4 613—Putnam								
Putnam County Hospital	Gen	Co	35	5	20	10	487	
Greensburg 5 702—Decatur								
Decatur County Memorial Hospital	Gen	Co	20	5	37		207	
Hammond 64 560—Lake								
Mount Mercy Sanitarium	N & M	Chrch	26			17	70	
St Margaret's Hospital	Gen	Chrch	214	36	418	90	646	
Hartford City 6 613—Blackford								
Blackford County Hospital	Gen	Co	30	5	49	14	329	
Huntington 13 490—Huntington								
Huntington County Hosp	Gen	Co	20	6	58	17	338	20
Indianapolis 364 161—Marion								
Central State Hospital	Ment	State	1,720			1,708	226	
Deaconess Hospital and Clinic	Gen	Chrch	130	16	81	15	462	70
Dr W B Fletcher's Sanatorium	N & M	Indep	50			17		
Indianapolis City Hosp	Gen	City	533	39	525	413	8,932	24,400
James Whitcomb Riley Hospital for Child (Affil)	Chil	State	270			243	3,676	2,041
Methodist Episcopal Hospital	Gen	Chrch	402	61	915	258	10,729	21,190
Norways Sanatorium	N & M	Indep	25			12	71	
Robt W Long Hospital (Affil)	Gen	State	107			108	2,124	1,383
St Vincent's Hospital	Gen	Chrch	260	35	417	118	4,014	
Veterans Admin Facility	Gen	Vet	152			120	1,260	3,084
William H Coleman Hospital for Women (Affil)	Mat	State	68	35	800	61	1,843	802
Jeffersonville 11 946—Clark								
Clark County Memorial Hospital	Gen	Co	30	6	46	17	409	
Kendallville 5 430—Noble								
Lakeside Hospital	Gen	City	20	12	55	12	300	
Kokomo 32 843—Howard								
Good Samaritan Hospital	Gen	Chrch	58	7	51	21	603	
La Fayette 26 940—Tippecanoe								
La Fayette Home Hosp	Gen	Indep	135	20	279	56	1,865	137
St Elizabeth Hospital	Gen	Chrch	225	20	272	100	2,763	
Wabash Valley Sanitarium	Gen	Indep	45	6	8	18	240	160
William Ross Sanatorium	TB	Co	45			41	59	230
La Porte 10 700—La Porte								
Fairview Hospital	Gen	Indep	28	8	81	24	833	97
Holy Family Hospital	Gen	Chrch	90	15	139	40	1,349	880
Lebanon 6 440—Boone								
Williams Hospital	Gen	Indlv	24	3	8	4	127	300
Witham Memorial Hospital	Gen	Co	20	5	40	13	290	
Inton 5 680—Greene								
Freeman Greene County Hospital	Gen	Co	25	4	24	10	316	
Logansport 18 508—Cass								
Cass County Hospital	Gen	Co	40	6	87	24	829	
Logansport State Hosp	Ment	State	1,682			1,586	200	
St Joseph's Hospital	Gen	Chrch	60	10	36	13	547	
Madison 6 530—Jefferson								
Kings Daughters Hospital	Gen	Chrch	27	6	32	10	385	
Marion 94 496—Grant								
Grant County Hospital	Gen	Indep	55	6	66	18	665	
Veterans Admin Facility	Ment	Vet	1,400			1,360	346	
Martinsville 4 962—Morgan								
Morgan County Memorial Hospital	Gen	Co	18	6	38	5	165	
Michigan City 26 735—La Porte								
Clinic Hospital	Gen	Indep	50	10	67	19	622	
St Anthony's Hospital	Gen	Chrch	100	15	136	27	1,308	82
Wishawaka 28 600—St Joseph								
St Joseph Hospital	Gen	Chrch	90	20	298	43	1,635	
Muncie 40 048—Delaware								
Ball Memorial Hospital	Gen	Indep	142	18	248	76	2,204	
New Albany 20 619—Floyd								
St Edward's Hospital	Gen	Chrch	100	14		30	1,028	
Newcastle 14 021—Henry								
Henry County Hospital	Gen	Co	50	5		16	912	
Newcastle Clinic Hospital	Gen	Indep	15	2	17	4	200	
Noblesville 4 811—Hamilton								
Hamilton County Hospital	Gen	Co	30	7	52	15	638	
North Madison 308—Jefferson								
Madison State Hospital	Ment	State	1,565			1,500	220	
Oakland 300—Marion								
Sunnyvale Sanatorium	TB	Co	261			204	202	531
Lero 10 30—Miami								
Duke's Miami County Memorial Hospital	Gen	Co	44	16	82	18	304	

INDIANA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Wabash Railroad Employees Hospital	Indus	Indus	50				0	
Plymouth 5 290—Marshall								
Marshall County Hospital	Gen	Co	20	6		10	372	
C L Morris Hospital	Gen	Part	18	6	12	8	208	
Portland 5 276—Jay								
Jay County Hospital	Gen	Indep	12	5	15	7	280	
Princeton 7 505—Gibson								
Methodist Episcopal Hospital	Gen	Chrch	30	5	54	11	487	
Rensselaer 2 708—Jasper								
Jasper County Hospital	Gen	Co	30	10	94	4	740	
Richmond 32 493—Wayne								
Reld Memorial Hospital	Gen	Indep	126	22	219	50	2,203	478
Richmond State Hospital	Ment	State	1,303			1,222	169	
Rochester 3 518—Fulton								
Woodlawn Hospital	Gen	Indlv	14	4	18	8	320	
Rockville 1 832—Parke								
Indiana State Sanatorium	TB	State	200			195	200	746
Rushville 5 700—Rush								
Rushville City Hospital	Gen	City	10	2	10	4	150	
Seymour 7 508—Jackson								
Schneck Memorial Hospital	Gen	Indep	23	3	50	15	300	
Shelbyville 10 618—Shelby								
W S Major Hospital	Gen	City	25	4	38	11	518	
South Bend 104 193—St Joseph								
Epworth Hospital	Gen	Indep	150	37	404	73	2,162	
Healthwin Hospital	TB	Co	210			204	208	3,332
Pennington Sanitarium	N & M	Part	18				77	
St Joseph Hospital	Gen	Chrch	120	22	306	60	1,807	1,004
Sullivan 5 306—Sullivan								
Mary Sherman Hospital	Gen	Co	50	10	43	18	660	
Teh City 4 573—Perry								
Parkview Hospital	Gen	Indlv	12	3	14	4	142	
Terre Haute 62 810—Vigo								
Hoover's Sanatorium (col)	Gen	Indlv	10	2	25	2	109	
St Anthony's Hospital	Gen	Chrch	161	23	321	68	2,639	
Union Hospital	Gen	Indep	120	20	236	74	2,469	
Union City 3 084—Randolph								
Union City Hospital	Gen	Indlv	13	4		8	300	
Valparaiso 8 009—Porter								
Christian Hospital	Gen	Indep	20	5	40	8	339	
Vincennes 17 564—Knox								
Good Samaritan Hospital	Gen	Co	90	6	70	30	1,000	
Wabash 8 840—Wabash								
Wabash County Hospital	Gen	Co	42	6	27	13	363	38
Warsaw 5 730—Kosciusko								
McDonald Hospital	Gen	Indlv	17	3	50	8	500	
Washington 9 070—Davless								
Davless County Hospital	Gen	Indep	50	6	54	14	667	
Winchester 4 487—Randolph								
Randolph County Hospital	Gen	Co	29	4	62	12	498	40
Wolf Lake 367—Noble								
Lucky Hospital	Gen	Part	20	4	17	8	280	600
Related Institutions								
Anderson 39 804—Madison								
Ella B Kehrner Hospital	TB	Co	100			30	75	
Butterville 400—Jennings								
Muscatauck Colony	MeDe	State	623			477	57	
Dillsboro 502—Dearborn								
Dillsboro Sanitarium	Gen	Indep	50			25		
St Wayne 114 946—Allen								
St Wayne and Allen County								
Isolation Hospital	Iso	Co	10			2	24	
St Wayne State School	MeDe	State	1,700			1,570	160	
Grace Convalescent Hcsp	Conv	Indlv	17			19	28	
Franklin 5 682—Johnson								
Eastern Star Hospital	Inst	Frat	74			50		
Greencastle 4 613—Putnam								
Indiana State Farm Hosp	Inst	State	20			8		
Greensburg 5 702—Decatur								
Odd Fellows Home Hospital	Inst	Frat	90			20	450	
Indianapolis 364 161—Marion								
Florence Crittenton Home	Mat	Indep	22	18	40	16	53	
Indiana Girls School	Inst	State	14			4		
Indianapolis Orphan Asylum	Inst	Indep	15			7	300	
Indiana State School for the Deaf	Inst	State	22			4	200	
Indiana Woman's Prison	Inst	State	10			3	20	
Julietta Insane Hospital	N & M	Co	300			341	100	
Knightstown 2 209—Henry								
Indiana Sailors and Soldiers Children's Home	Inst	State	35			4	1,435	
La Fayette 26 240—Tippecanoe								
Indiana State Soldiers Home Hospital	Inst	State	150			120	274	
Lagrange 1 640—Lagrange								
Erwin Hospital	Gen	Indlv	10	2	7	1	44	
Michigan City 26 735—La Porte								
Indiana Hospital for Insane Criminals	Ment	State	205			242		
Indiana State Prison Hosp	Inst	State	102			92	600	
Mooreville 1 910—Morgan								
Dr J E Comer's Hospital	Proct	Indlv	25			15	100	
Newcastle 14 027—Henry								
Indiana Village for Epileptics	Epil	State	874			874		
Pendleton 1 535—Madison								
Indiana State Reformatory Hospital	Inst	State	120			61	203	

Key to symbols and abbreviations is on page 1021

IOWA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Oskaloosa, 10 123—Mahaska Mercy Hospital	Gen	Part	35	5		0	702	
Ottumwa 28 010—Wapello	Gen	Indep	65	12	148	33	1 177	
Ottumwa Hospital	Gen	Chrch	75	12	112	50	1 211	7 0
St Joseph Hospital	TB	Co	51			60	140	1 7
Sunnyvale Sanatorium								
Parry, 5 881—Dallas								
Kings Daughters Hospital	Gen	Chrch	21	0	45	14	401	
Postville, 1 060—Allamakee								
Postville Hospital	Gen	Indiv	15	1		10		
Red Oak 5 718—Montgomery								
Murphy Memorial Hospital	Gen	Indiv	12	4	30	6	200	
Sheldon 3 320—O'Brien								
Cram Hospital	Gen	Indiv	12	1	10	3	80	
Myers Hospital	Gen	Indiv	20	6	20	4	130	124
Shenandoah 6 022—Page								
Henry and Catharine Hand Hospital	Gen	Indep	24	0	51	5	501	
Sibley 1 810—O'ceola								
O'ceola Hospital	Gen	Part	18	6	25	6	182	7 0
Sibley Hospital	Gen	Indiv	15	4	17	8	140	1 0
Sigourney 9 962—Keokuk								
Sigourney Hospital	Gen	Indiv	11	3	0	3	63	
Slough City 79 153—Woodbury								
Lutherna Hospital	Gen	Chrch	60	1	307	52	1 707	1 000
Methodist Hospital	Gen	Chrch	120	18	241	56	2 236	4 12
St Josephs Mercy Hosp *	Gen	Chrch	180	20	111	80	3 063	
St Vincents Hospital	Gen	Chrch	120	14	378	70	7 019	
Spencer, 5 019—Clay								
Spencer Hospital	Gen	Indep	12	2	33	7	330	
Toledo, 1 820—Tama								
Sac and Fox Tuberculosis Sanatorium	TB	I A	68			87	72	
Vinton, 3 312—Benton								
Virginia Gay Hospital	Gen	City	20	5	21	4	213	
Washington 4 814—Washington								
Washington County Hosp	Gen	Co	25	7	91	15	410	
Waterloo 46 191—Black Hawk								
Allen Memorial Hospital	Gen	Chrch	82	8	166	16	919	
Presbyterian Hospital	Gen	Indep	30	10	134	22	821	
St Francis Hospital	Gen	Chrch	70	10	170	40	1 709	
Waverly 3 612—Bremer								
St Joseph Mercy Hospital	Gen	Chrch	50	6	64	12	640	61
Webster City 7 024—Hamilton								
Hamilton County Public Hospital	Gen	Co	30	8	65	15	618	
West Union, 2 016—Fayette								
West Union Community Hospital	Gen	City	10	2	13	3	118	
Williamsburg, 1 219—Iowa								
Watts Hospital	Gen	Indiv	15	3	9	2	107	
Related Institutions								
Ames 10 261—Story								
Iowa State College Hosp	Inst	State	90			4	718	
Anamosa 3 879—Jones								
Reformatory Hospital	Inst	State	51			16	1 016	
Belmond 1 733—Wright								
Belmond Hospital	Gen	Indiv	8			2	137	
Bettendorf, 2 760—Scott								
Masonic Sanitarium	Conv	Frat	50			40	20	
Burlington 26 755—Des Moines								
Des Moines County Asylum	Ment	Co	66			60		
Carlton 2 578—Wright								
Tompkins and Walker Hosp	Gen	Part	10	2		2	50	
Clinton, 20 726—Clinton								
Clinton Isolation Hospital	Iso	CyCo	14				9	
Council Bluffs, 42 048—Pottawattamie								
City Isolation Hospital	Iso	City	10			5	78	
Iowa School for the Deaf								
Infirmary	Inst	State	35			14	602	
Davenport 60 751—Scott								
Iowa Soldiers Orphans Home Hospital	Inst	State	23	19		15	1 009	
St Elizabeths and St Johns Hospitals	(Nervous and Mental Units of Mercy Hosp)							
Des Moines 142 659—Polk								
Benedict Home	Mat	Indep	35	15	24	23	46	
Broadlawns Polk County Public Hosp (Contagious Department)	Iso	Co	60			12	201	
Salvation Army Rescue Home and Maternity Hosp	Mat	Chrch	51	30	82	7	142	
Hidora, 3 200—Hardin								
Iowa Training School for Boys Hospital	Inst	State	34			1	370	
Elkader 1 332—Clayton								
Clayton County Asylum	Ment	Co	50			43		
Ft Madison 13 770—Lee								
Iowa State Penitentiary Hospital	Inst	State	38			23	617	
Newwood 4 960—Mills								
Iowa Institution for Feeble-minded Children	MeDe	State	1 800			1 700	100	
Holstein 1 800—Iowa								
Holstein Hospital	Gen	Indiv	10	2	5	1	20	
Indiana 3 458—Warren								
Community Hospital	Gen	Indiv	6	3	14	2	60	
Iowa City 15 340—Johnson								
Rohrbacher Sanitarium	Gen	Indiv	5					
Van Chester 3 413—Delaware								
Kocher Hospital	Gen	Indiv	8		17	3	83	
Marshalltown 17 873—Marshall								
Iowa Soldiers Home Hosp	Inst	State	200			116	366	

IOWA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Mason City 27 704—Cerro Gordo								
Iowa Odd Fellows and Orphans Home Hospital	Gen	Frat	16			12	80	
Orange City 1 727—Sioux								
De Bey Hospital	Gen	Part	6			1		
Doornink Hospital	Gen	Indiv	10	3	4	2	91	
Osage 2 064—Mitchell								
Nissen Hospital	Gen	City	8	3		1	130	
Pringhar, 602—O'Brien								
Ward Memorial Hospital	Gen	Indiv	8	1				
Red Oak 5 778—Montgomery								
Powell School for Backward and Nervous Children	MeDe	Part	6			40	3	
Saylor (Des Moines P O)—Polk								
Polk County Hospital for Insane	Ment	Co	100					
Slough City 79 183—Woodbury								
City Detention Hospital	Iso	CyCo	18	3		4	179	
Toledo 1 821—Tama								
Iowa State Juvenile Home Hospital	Inst	State	25			18	916	
Waukon 2 526—Allamakee								
Hall Hospital	Mat	Indiv	10	8	55	2	62	
Rominger and Jeffries Emergency Hospital	Gen	Part	8			1	60	
Winterset 2 021—Madison								
Winterset Hospital	Gen	Indiv	14	5		7	200	
Woodward, 601—Dallas								
Hospital for Epileptics and School for Feeble-minded	MeDe	State	1 148			1 147	200	
Summary for Iowa								
Hospitals and sanatoriums			Number	Beds		Average Patients	Patients Admitted	
Related Institutions			129	17 164		11 268	107 500	
			3	4 378		3 600	8 819	
Totals			167	10 362		14 866	116 369	
Refused registration			17	474				

KANSAS

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Abilene 5 608—Dickinson								
Dickinson County Memorial Hospital	Gen	Indep	21	4	49	8	397	
Anthony 2 947—Harper								
Galloway Hospital	Gen	Indiv	35	9	185	20	800	
Arkansas City 13 946—Cowley								
Mercy Hospital	Gen	Indep	40	8		9		71
Stricklen Hospital	Gen	Indiv	28	5	21	5	360	
Atchison 13 024—Atchison								
Atchison Hospital	Gen	Indep	27	7	191	12	614	
Atwood 1 166—Rawlins								
Henneberger Hospital	Gen	Indiv	12	2	4	3	95	
Belleville, 2 383—Republic								
R G Patterson Memorial Hospital	Gen	Chrch	25	4	30	0	304	218
Beloit, 3 502—Mitchell								
Community Hospital	Gen	Indep	50	10	60	19	674	197
Bonner Springs, 1 837—Wyandotte								
Bonner Springs Sanitarium	Gen	Indiv	20			14	14	
Chanute 10 277—Neosho								
Johnson Hospital	Gen	Indiv	40	6	33	17	756	5 265
Coffeyville 16 193—Montgomery								
Southeastern Kansas Hosp	Gen	Indep	18	1	37	7	304	
Columbus 3 235—Cherokee								
Maud Norton Memorial City Hospital	Gen	City	15			6	5	212
Concordia, 5 792—Cloud								
St Josephs Hospital	Gen	Chrch	75	6	53	21	810	
Council Grove 2 694—Morris								
Council Grove Hospital	Gen	Part	10	2		5	210	
Dodge City 10 000—Ford								
St Anthony Hospital	Gen	Chrch	80	15		40	1 000	
Eldorado 10 311—Butler								
Susan B Allen Memorial Hospital	Gen	Indep	44	6	132	24	1 084	
Elkhart 1 430—Morton								
Tucker Hospital	Gen	Indep	16	2	8	3	112	
Flinthorth 2 072—Flinthorth								
Flinthorth Hospital	Gen	Indep	34	6	33	16	498	
Emporia 14 067—Lyon								
Newman Memorial County Hospital	Gen	Co	66	14	148	22	1 111	
St Marys Hospital	Gen	Chrch	50	10		20	240	
Ft Leavenworth, 5 020—Leavenworth								
Station Hospital	Gen	Army	150	5	56	61	1 197	5 831
Ft Riley, 2 010—Geary								
Station Hospital	Gen	Army	137	8	89	78	2 091	
Ft Scott 10 763—Bourbon								
Mercy Hospital	Gen	Chrch	100	10	117	69	1 840	
Garden City, 6 121—Finney								
Bailey Hospital	Gen	Indiv	10	3	15	6	124	
St Catharines Hospital	Gen	Chrch	50	0	192	21	792	
Girard 2 442—Crawford								
Girard General Hospital	Gen	City	10	2	16	5	152	
Goessel 116—Marion								
Mennonite Bethesda Hosp	Gen	Chrch	14	5	41	7	217	

KANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Goodland 3 026—Sherman Boothroy Memorial Hosp	Gen	Chrch	22	0	2	7	206	
Great Bend 5 548—Barton St Rose Hospital	Gen	Chrch	120	18	162	34	1 221	
Halsstead 1 373—Harvey Halsstead Hospital	Gen	Chrch	170	2	24	74	2 78	7
Hays 4 618—Hills Hays Protestant Hospital	Gen	Chrch	78	5	1	14	22	
St Anthony's Hospital	Gen	Chrch	100	2	216	59	1 5 1	
Holtsington 3 001—Barton Atkin Hospital	Gen	Indiv	14	2		5		
Horton 4 409—Brown Horton Hospital	Gen	Part	15	6	78	10	3	
Hutchinson 27 083—Reno Grace Hospital	Gen	Chrch	110	17	416	44	1 88	291
St Elizabeth's Mercy Hosp	Gen	Chrch	50	12	167	20	810	1
Independence 12 782—Montgomery Mercy Hospital	Gen	Chrch	100	1	52	2	770	
Junction City 7 407—Geary Junction City Municipal Hospital	Gen	City	24	12	71	12	432	
Kansas City 121 857—Wyandotte Bell Memorial Hospital	Gen	State	227	23	317	18	4 492	2 019
Bethany Methodist Hosp	Gen	Chrch	120	2	297	69	2 464	
Douglass Hosp (col)	Gen	Chrch	25	2		10		
Crandview Sanitarium	N&M	Indiv	57			1	111	
Providence Hospital	Gen	Chrch	66	14	178	2	1 46	862
St Margaret's Hospital	Gen	Chrch	235	1	18	146	2 816	
Larned 3 537—Pawnee Larned Hospital	Gen	Indep	1	2	52	6	267	
Larned State Hospital	Gen	State	1 000			816	273	
Lawrence 13 726—Douglas Lawrence Hospital	Gen	Indep	70	0		1	1 50	1 500
Lawrence Memorial Hosp	Gen	City	72	10		2		
Leavenworth 17 466—Leavenworth Cushing Memorial Hosp	Gen	Indep	75	10	80	2	681	174
St John's Hospital	Gen	Chrch	60	10	76	22	710	40
Liberal 5 294—Seward Epworth Hospital	Gen	Chrch	42	0	9	14	4	144
Lincoln 1 732—Lincoln City Hospital	Gen	Indiv	10	1		3		
Little River 618—Rice Hoffman Memorial Hospital	Gen	City	18	2	7	0	18	
Lyons 2 939—Rice Lyons Hospital	Gen	Indep	18	4	0	8	20	
Manhattan 10 136—Riley Charlotte Swift Memorial Hospital	Gen	Indep	50	10	41	11	4 1	484
Maryville 4 013—Marshall Randell Hospital	Gen	Indiv	16	0		6		
McPherson 6 147—McPherson McPherson County Hosp	Gen	Co	60	1	100	27	1 092	104
Mulvane 1 042—Sumner A T & S F Railway Hosp	Indus	Indus	50		3	640	916	
Nashville 234—Kingman Nashville Hospital	Gen	Indiv	12	1	6	0		167
Newton 11 034—Harvey Axtell Christian Hospital	Gen	Chrch	46	12	81	22	934	774
Bethel Deaconess Hospital	Gen	Chrch	48	12	148	7	744	605
Norton 2 767—Norton Laird Memorial Hospital	Gen	Chrch	24	8	30	6	274	
State Sanatorium for Tuberculosis	TB	State	200			212	199	148
Oswatimie 4 440—Miami Oswatimie State Hosp	Gen	State	1 600			1 600	08	
Ottawa 9 633—Franklin Ransom Memorial Hospital	Gen	Co	40	12	104	14	538	110
Parsons 14 903—Labette Mercy Hospital	Gen	Chrch	70	5	41	17	366	
M K T Railroad Employees Hospital	Indus	Indus	50			22	376	906
State Hospital for Pileptics	Epil	State	808			701	110	
Pittsburg 18 145—Crawford Mt Carmel Hospital	Gen	Chrch	75	5	59	39	1 140	
Pratt 6 322—Pratt Minnescah Hospital	Gen	Indep	20	6	17	4	240	
Quinter 570—Gove Quinter Hospital and Sanitarium	Gen	Indiv	10	5	34	4	124	
Ransom 431—Ness Mid West Hospital	Gen	Indiv	10	5		4		
Sabetha 2 332—Nemaha St Anthony Murdock Memorial Hospital	Gen	Chrch	100	11	54	30	1 210	
Salina 20 155—Saline Asbury Protestant Hosp	Gen	Chrch	48	10	227	2	728	9
St John's Hospital	Gen	Chrch	50	11	109	32	896	
Smith Center 1 736—Smith Funk's Private Hospital	Gen	Indiv	10	1		3		
Spearsville 703—Ford Perkins Hospital	Gen	Indep	10	3	10	5	184	
Stafford 1 614—Stafford Community Hospital	Gen	Part	18	3	26	6	163	
Sterling 1 868—Rice Sterling Hospital	Gen	Indep	20	3	19	7	369	
Syracuse 1 383—Hamilton Donohue Memorial Hosp	Gen	Co	20	6	56	8	292	

KANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Topeka 64 120—Shawnee A T & S F Railway Hospital	Indus	Indus	140			88	2 010	
Christ's Hospital	Gen	Chrch	70	20	19	44	1 344	
Hillcrest Sanatorium	TB	Co	60			4	164	
June O Stormont Hosp	Gen	Indep	75	10	108	41	1 440	
Munroe Sanitarium	N&M	Indep	50			26	97	
St Francis Hospital	Gen	Chrch	70	12	101	1	1 534	
Security Benefit Home and Hospital	Gen	Frnt	200			61	1 440	
Topeka State Hospital	Gen	State	1 527			1 518	279	
Veterans Administration Home	Gen	Vet	1 201			200	1 201	
Veterans Admin Facility	Gen	Vet	1 201			200	1 201	
Wamego 1 647—Pottawatomie Gen Hospital	Gen	City	1	4	36	0	30	
Wellington 7 400—Sumner Hatcher Hospital	Gen	Indep	20	5	20	9	324	
St Luke's Hospital	Gen	Indep	20	8	47	7	321	
Wichita 111 110—Sedgwick Coffman Hospital	Gen	Indiv	15	2	25	7	300	
St Francis Hospital	Gen	Chrch	325	20	370	110	3 114	661
Sedgwick County Tubercu Jos's Sanitarium	TB	Co	40			44	44	
Veterans Admin Facility	Gen	Vet	180			New		
Wesley Hospital	Gen	Chrch	209	20	20	124	2 006	1 576
Wichita Hospital	Gen	Chrch	105	14	201	7	2 100	106
Winfield 9 378—Cowley St Mary's Hospital	Gen	Chrch	44	0	40	30	770	
William Newton Memorial Hospital	Gen	City	43	10	87	10	20	511
Related Institutions								
Ashland 1 272—Clark Ashland Hospital	Gen	Indep	10	4	40	4	72	
Atch on 17 024—Atch on Prospect Park Sanitarium	N&M	Indiv	22			2	1	46
Ellsworth 2 072—Ellsworth Mother Blackdyke Home and Hospital	Inst	State	33			10	10	
Ft Dodge 51—Ford Kansas State Soldiers Home	Inst	State	36			20	19	
Humboldt 2 558—Allen Dr J. A. S. Emergency Hospital	Gen	Indiv	10	2		1		
Lin Ing 812—Leavenworth Asylum for Dangerous Insane	Gen	State	70			73	8	
Kansas State Penitentiary	Inst	State	55			26	86	
Lawrence 13 726—Douglas Haskell Institute Hospital	Inst	IA	46			6	626	
Watkins Memorial Hosp	Inst	State	46			11	997	
Leavenworth 17 466—Leavenworth County Hospital	Inst	Co	27			27		
Ferguson Sanitarium	N&M	Indiv	25			14		
United States Penitentiary	Inst	Fed	180			136	2 754	
Lebanon 723—Smith Lebanon Hospital	Gen	Indiv	10	3	6	1	64	
Lincoln 1 732—Lincoln Lincoln Hospital	Gen	Indiv	7	4	10	2	28	
Manhattan 10 136—Riley Kansas State College Hosp	Inst	State	30			1	202	
Marion 1 659—Marion Marion Hospital	Gen	Indep	10	1		1		
Marysville 4 013—Marshall Marysville Hospital	Gen	Indiv	10	2	12	3	100	
Norwich 4 17—Kingman Norwich Hospital	Gen	Indiv	6	2	6	3	70	
Olathe 3 636—Johnson State School for the Deaf	Inst	State	19			3		
Parsons 14 903—Labette Parsons Hospital and Maternity Home	Gen	Indiv	8	2	12	5	18	
Scott City 1 544—Scott Scott City Hospital	Gen	Indiv	9	6	20	2	80	
Topeka 64 120—Shawnee Methodist Episcopal Home for the Aged	Inst	Chrch	60			59	112	
Nella Johns Memorial Hospital (col)	Inst	State	20	1		2		
Wichita 111 110—Sedgwick Salvation Army Home and Hospital	Mat	Chrch	70	19	132	69	189	
Suburban Rest Sanitarium	Conv	Indiv	20			12	80	
Wichita Children's Home	Inst	Indep	20			5	100	
Winfield 9 378—Cowley State Training School	MeDe	State	1 092			1 011	81	
Summary for Kansas								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related institutions	98	10 708	7 832	73 528				
	29	3 181	1,927	9 991				
Totals	127	13 889	9 759	83 519				
Refused registration	26	572						

Key to symbols and abbreviations is on page 1021

KENTUCKY—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Bushbets	Number of Births	Average Patients	Patients Admitted	Outpatients
Marysville 6 507—Mason Haystack Hospital	Cen	Indep	39	6	15	12	408	
Michenerboro 10 350—Bull Middleboro Hospital	Gen	Indep	50	3		17		
Mt Sterling 4 350—Montgomery Mary Chiles Hospital	Cen	City	16	3	11	6	233	
Murray 2 891—Calloway Keys Houston Clinic Hosp	Gen	Part	25	4	15	8	208	3 000
Win Mason Memorial Hospital	Gen	Indep	65	5	11	28	593	2 190
Outwood—Christian Veterans Admin Facility	TB	Vet	375			310	783	
Owensboro 22 75—Davies Owensboro City Hospital	Gen	City	100	10	110	32	1,230	
Pachah 33 541—McCracken Fwart Pureell Isolation Hospital	(Included in	Riverside						
Illinois Central Hospital	Gen	Indus	90	4		23	1 147	4 288
Riverside Hospital	Gen	City	112	12	164	21	1 195	1 045
Palmerville 2 411—Johnson Adamsville Hospital	Gen	Indep	70	4	17	18	562	1 000
Paris 6 204—Bourbon W W Massie Memorial Hospital	Gen	City	46	4	51	17	449	
Pewee Valley 82—Oldham Pewee Valley Sanitarium and Hospital	Gen	Indep	22	3	11	5	100	
Pikeville 3 376—Pike Methodist Hospital	Gen	Chrch	45	5	22	18	838	
Pineville 3 567—Ball Pineville Community Hosp	Gen	Indep	30	1	6	8	310	
Princeton 4 764—Caldwell Princeton Hospital	Gen	Indep	15	3		5		
Richmond 6 495—Madison Gibson Hospital	Gen	Indiv	20		5	4	148	
Pattie A Clay Infirmary U S Public Health Service	Gen	Indep	35	4	20	19	672	
Trachoma Hospital	Trach	USPH	38			36		830
Seco 1 150—Letcher Seco Hospital	Gen	Indiv	10		3	4	400	
Shelbyville 4 033—Shelby Kings Daughters Hospital	Gen	Chrch	35	6	43	15	400	
Somerseset 5 506—Pulaski Somerses General Hospital	Gen	Indep	20	3		6	277	
Versailles 2 244—Woodford Woodford County Memorial Hospital	Gen	CyCo	25	4	43	12	375	
Waverly Hills—Jefferson Waverly Hills Sanatorium	TB	CyCo	500			477	445	
Winchester 8 233—Clark Cla k County Hospital	Gen	Indep	35	5	50	12	600	
Guerrant Clinic and Hosp	Gen	Indep	25	3		5	211	2 190
Related Institutions								
Danville 6 720—Boyle Kentucky School for the Deaf Hospital	Inst	State	40			5		
Earlington 3 309—Hopkins West Kentucky Hospital	Indus	Indus	10					
Faddyville, 1 990—Lyon Kentucky Penitentiary Hosp	Inst	State	30			3		
Heming, 1 389—Letcher Fleming Hospital	Indus	Indus	10			1	30	
Florence 450—Boone Highway Medical Hospital	Gen	Indiv	25	4		4		
Frankfort 11 626—Franklin Kentucky State Reformatory Hospital	Inst	State	95			82	3 000	
State Institution for the Feeble-minded	McDe	State	807			699	62	
Fulton 3 502—Fulton Curdin Nell Hospital	Gen	Indiv	8	7	7	1	42	
Grayson 1,022—Carter I Q Stoval Memorial Hospital	Gen	Indiv	10	1	3	5	106	
Guerrant 27—Breathitt Highland Institution Hosp	Gen	Chrch	8			1	60	
Hopkinsville 10 746—Christian Western State Hospital	Ment	State	1 900			1,770	96	
Lakeland, 65—Jefferson Central State Hospital	Ment	State	2 346			2 322	613	
Iexington 45 736—Fayette Eastern State Hospital	Ment	State	1 800			1,752	612	
Louisville 307,745—Jefferson Kings Daughters Home for Incurables	Ine	Chrch	98			87	23	
Susan Speed Davis Home and Hospital	MatCh	Chrch	28	7	80	20	180	
Paducah 33 541—McCracken McCracken County Tuberculosis Sanitarium	TB	Co	20			10	18	
Pure Valley 582—Oldham Kentucky Confederate Inf	Inst	State	28			7	9	
Shelbyville 4 033—Shelby Old Masons Home of Kentucky Hospital	Inst	Frat	21			4		
Smiths Grove 718—Warren Lucy T Owen Hospital	Gen	Indiv	10	1	1	1	28	
Somerseset 5 506—Pulaski Pulaski County Hospital	Gen	Indep	12	2		3	150	-
Summary for Kentucky			Number	Beds	Average Patients		Patients Admitted	
Hospitals and sanatoriums			84	6 077	3,560		73,429	
Related institutions			20	7,174	6 772		5 029	
Totals			104	13 251	10 332		78 458	
Refused registration								

Key to symbols and abbreviations is on page 1021

LOUISIANA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Alexandria 23,020—Rapid	Gen Chrch		26	5		24		
Baptist Hospital	Gen Vct		439			379	1,581	
Veterans Admin Facility	Gen Indiv		2	5	16	5	29	200
Bastrop 5121—Morehouse	Gen Indiv		69	6	36	36	1,351	
Baton Rouge 30720—East Baton Rouge	Gen Indep		100	10	194	3	2,315	
Baton Rouge General Hosp	Gen Chrch		100	10	194	3	2,315	
Our Lady of the Lake Sanitarium	Gen Chrch		100	10	194	3	2,315	
Bogalusa 14 029—Washington	Gen Indus		82	12	210	61	2,617	3,650
Elizabeth Sullivan Memorial Hospital	Gen Indus		82	12	210	61	2,617	3,650
Carville 308—Iberville	Gen Indiv		42			769	78	
U S Marine Hospital	Gen Indiv		42			769	78	
Converse 291—Sabine	Gen Indiv		42			769	78	
Allen Sanitarium	Gen Indiv		42			769	78	
Covington 5 008—St Tammany	Gen Indiv		42			769	78	
New Levee Sanitarium	Gen Indiv		42			769	78	
Crowley 7 636—Acadia	Gen Indiv		42			769	78	
Crowley Sanitarium	Gen Indiv		42			769	78	
De Ridder 3 737—Beauregard	Gen Indiv		42			769	78	
De Ridder Sanitarium	Gen Indiv		42			769	78	
Elizabeth 3 000—Allen	Gen Indiv		42			769	78	
Industrial Lumber Company Hospital	Gen Indiv		42			769	78	
Luncheon 3 597—St Landry	Gen Indiv		42			769	78	
Luncheon Clinic and Hospital	Gen Indiv		42			769	78	
Ferriday 2 502—Concordia	Gen Indiv		42			769	78	
Ferriday Hospital	Gen Indiv		42			769	78	
Greenwell Springs—East Baton Rouge	Gen Indiv		42			769	78	
Greenwell Springs Sanit	Gen Indiv		42			769	78	
Haynesville 2 541—Chalborne	Gen Indiv		42			769	78	
Haynesville Hospital	Gen Indiv		42			769	78	
Jackson 3 960—East Feliciana	Gen Indiv		42			769	78	
East Louisiana State Hos	Gen Indiv		42			769	78	
Lafayette 14 635—Lafayette	Gen Indiv		42			769	78	
Lafayette Sanitarium	Gen Indiv		42			769	78	
St John Hospital	Gen Indiv		42			769	78	
Lake Charles 16 791—Calcasieu	Gen Indiv		42			769	78	
St Patrick's Sanitarium	Gen Indiv		42			769	78	
Leconte 1,247—Rapid	Gen Indiv		42			769	78	
Leconte Sanitarium	Gen Indiv		42			769	78	
Mansfield 3 87—De Soto	Gen Indiv		42			769	78	
Mansfield Sanitarium	Gen Indiv		42			769	78	
Minden 5 623—Webster	Gen Indiv		42			769	78	
Minden Sanitarium	Gen Indiv		42			769	78	
Monroe 26 023—Ouachita	Gen Indiv		42			769	78	
St Francis Sanitarium	Gen Indiv		42			769	78	
Vaughan Wright Bendel Clinic	Gen Indiv		42			769	78	
Natchitoches 4 547—Natchitoches	Gen Indiv		42			769	78	
Natchitoches Hospital	Gen Indiv		42			769	78	
New Iberia 8 003—Iberia	Gen Indiv		42			769	78	
Dauterive Hospital	Gen Indiv		42			769	78	
New Orleans 458 762—Orleans	Gen Indiv		42			769	78	
Charity Hospital	Gen Indiv		42			769	78	
City Hospital for Mental Diseases	Gen Indiv		42			769	78	
Delgado Memorial Hospital	Gen Indiv		42			769	78	
De Paul Sanitarium	Gen Indiv		42			769	78	
Eye Ear Nose and Throat Hospital	Gen Indiv		42			769	78	
Flint Goodridge Hospital of Dillard Univ (col)	Gen Indiv		42			769	78	
French Hospital	Gen Indiv		42			769	78	
Hotel Dieu Hospital	Gen Indiv		42			769	78	
Illinois Central Hospital	Gen Indiv		42			769	78	
John Dibert Memorial Tuberculosis Hospital	Gen Indiv		42			769	78	
Mary Hospital for Mental Diseases	Gen Indiv		42			769	78	
New Orleans Hospital and Dispensary for Women and Children	Gen Indiv		42			769	78	
Richard Milliken Memorial Hospital	Gen Indiv		42			769	78	
Southern Baptist Hosp	Gen Indiv		42			769	78	
Touro Infirmary	Gen Indiv		42			769	78	
U S Marine Hospital	Gen Indiv		42			769	78	
Opelousas 6 290—St Landry	Gen Indiv		42			769	78	
St Landry Sanitarium	Gen Indiv		42			769	78	
St Rita's Infirmary	Gen Indiv		42			769	78	
Patterson 2 206—St Mary	Gen Indiv		42			769	78	
St Mary Hospital	Gen Indiv		42			769	78	
Plaquemine 3 612—Rapid	Gen Indiv		42			769	78	
Central Louisiana State Hospital	Gen Indiv		42			769	78	
Plaquemine 5 124—Iberville	Gen Indiv		42			769	78	
Plaquemine Sanitarium	Gen Indiv		42			769	78	
Ruston 4 400—Lincoln	Gen Indiv		42			769	78	
Ruston Lincoln Sanitarium	Gen Indiv		42			769	78	
Shreveport 78 630—Caddo	Gen Indiv		42			769	78	
Highland Sanitarium	Gen Indiv		42			769	78	
North Louisiana Sanit	Gen Indiv		42			769	78	
Pines Sanitarium	Gen Indiv		42			769	78	
J E Schumpert Memorial Sanitarium	Gen Indiv		42			769	78	
Shreveport Charity Hosp	Gen Indiv		42			769	78	
Shriners Hospital for Crippled Children	Gen Indiv		42			769	78	
Tri State Hospital	Gen Indiv		42			769	78	
Winnboro 1 965—Franklin	Gen Indiv		42			769	78	
Winnboro Sanitarium	Gen Indiv		42			769	78	

LOUISIANA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Alexandria 2,020—Rapid	Gen Chrch		26	5		24		
State Colony and Training School	Gen Vct		439			379	1,581	
Angola, 18—West Feliciana	Gen Indiv		2	5	16	5	29	200
Louisiana State Penitentiary	Gen Indiv		69	6	36	36	1,351	
Breaux Bridge 1 790—St Martin	Gen Indiv		100	10	194	3	2,315	
St Paul Hospital	Gen Indiv		100	10	194	3	2,315	
New Orleans 4 872—Orleans	Gen Indiv		100	10	194	3	2,315	
Isolation Hospital	Gen Indiv		100	10	194	3	2,315	
New Orleans Convalescent Home	Gen Indiv		100	10	194	3	2,315	
New Orleans Home	Gen Indiv		100	10	194	3	2,315	
Orleans Tuberculosis Hosp	Gen Indiv		100	10	194	3	2,315	
St Anna's Asylum	Gen Indiv		100	10	194	3	2,315	
Summary for Louisiana								
Hospitals and sanatoriums								
Related institutions								
Totals								
Refused registration								

MAINE

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Inpatients	Patients Admitted	Outpatients
Augusta 17 10—Kennebec								
Augusta General Hospital	Gen	Indep	71	14	179	34	1 045	100
Augusta State Hospital	Gen	Indep	1 760			1 246	2 54	
Veterans Admin Facility	Gen	Indep	2 10			1 86	833	413
Bangor 25 749—Penobscot								
Bangor Sanatorium	Ind	Indep	70			19	31	
Bangor State Hospital	Gen	Indep	6 0			96	228	
Eastern Maine General Hospital	Gen	Indep	10	14	83	121	3 293	9 000
Palma Private Hospital	Gen	Indiv	10	5		8		
Bar Harbor 4 46—Hancock								
Mount Desert Island Hosp	Gen	Indep	30	4	1	16	70	
Bar Mills 10—York								
Buxton Hollis Hospital	Gen	Indiv	12	2	8	4	1 10	3 00
Bath 9 110—Sagadahoc								
Bath City Hospital	Gen	Indep	50	10	77	19	508	
Belfast 4 993—Waldo								
Bradbury Memorial Hosp	Gen	Indep	20	5	4	6	2 00	
Waldo County General Hospital								
Biddeford 17 633—York	Gen	Indep	45	6	40	20	570	900
Trull Hospital	Gen	Part	40	10		70	635	300
Webber Hospital	Gen	Indep	50	10	144	70	960	1 225
Blue Hill 1 439—Hancock								
Blue Hill Memorial Hospital	Gen	Indep	20	6		17	376	534
Boothbay Harbor 2 066—Lincoln								
St Andrew's Hospital	Gen	Indep	20	4	1	2	121	100
Brunswick 6 144—Cumberland								
Brunswick Hospital	Gen	Indiv	46	6		20		
Calais 5 400—Washington								
Calais Hospital	Gen	Indiv	50	5	57	31	903	
Cape Cottage 33—Cumberland								
Station Hospital	Gen	Army	50			11	6 34	1 000
Caribou 7 245—Aroostook								
Cary Memorial Hospital	Gen	City	40	10	89	18	1 37	
Castine 7 6—Hancock								
Castine Community Hosp	Gen	Indep	10	6		8	310	
Eagle Lake 1 780—Aroostook								
Northern Maine General Hospital	Gen	Chrch	32			22	308	
Ellsworth 3 57—Hancock								
Hurley Private Hospital	Gen	Indiv	70	5	27	8		
Fairfield 3 730—Somerset								
Central Maine Sanatorium	TB	State	184			178	210	904
Farmington 1 737—Franklin								
Franklin County Memorial Hospital	Gen	Indep	49	10	74	16	592	779
Ft Fairfield 2 616—Aroostook								
Fort Fairfield Clinic	Gen	Indep	18	5	24	7	330	
Gardiner 5 600—Kennebec								
Gardiner General Hospital	Gen	Indep	40	10	160	10	592	247
Greenville Junction 34—Piscataquis								
Charles A Dean Hospital	Gen	Indep	20	4	27	6	209	
Greenwood Mountain—Oxford								
Western Maine Sanatorium	TB	State	1 00			146	108	1 68
Houlton 6 560—Aroostook								
Aroostook Hospital	Gen	Indep	40	8	73	23	764	
Mudigan Memorial Hosp	Gen	Chrch	30	7	61	10	470	
Lewiston 34 948—Androscoggin								
Central Maine General Hospital	Gen	Indep	151	28	294	89	2 448	232
St Mary's General Hosp	Gen	Chrch	1 00	12	131	92	2 100	2 771
Old Town 7 286—Penobscot								
Deering Private Hospital	Gen	Indiv	10	2	6	3	50	
Portland 70 810—Cumberland								
Children's Hospital	Chil	Indep	100			67	459	1 910
Farrington Hospital	Gen	City	100	8		70		
Dr Leighton's Private Hosp	Mat	Indiv	16	16	110	12	348	
Maine Eye and Ear Infirmary								
Gen	Gen	Indep	110	20	263	83	2 141	16 077
Maine General Hospital	Gen	Indep	2 0	27	402	191	4 838	3 680
Queen's Hospital	Gen	Chrch	48	12	94	27	692	

MAINE—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
St Barnabas Hospital	Gen	Indiv	75	15	174	51	1,791	
State Street Hospital	Gen	Indep	72	12		34	804	
U S Marine Hospital	Gen	USPH	72			71	632	1,061
Presque Isle 4662—Aroostook	Gen	Indep	118			112	92	
Northern Maine Sanatorium	TB	State	60	10	110	30	1,001	172
Presque Isle General Hosp	Gen	Indep	60	7	87	27	281	689
Rockland 9075—Knox	Gen	Indep	60	7	87	27	281	689
Knox County General Hospital	Gen	Indep	60	7	87	27	281	689
Rumford 10310—Oxford	Gen	Indep	75	8	118	30	828	120
Rumford Community Hosp	Gen	Indep	75	8	118	30	828	120
Sanford, 13392—York	Gen	Indep	42	8	41	10	50	52
Henrietta D Goodall Hosp	Gen	Indep	42	8	41	10	50	52
Shawhegan 6433—Somerset	Gen	Indiv	40	5	14	78	1,334	300
Kennebec Valley Hospital	Gen	Indiv	40	5	14	78	1,334	300
Waterville 15434—Kennebec	Gen	Indiv	22	3	38	17	403	
Finn City Hospital	Gen	Indiv	22	3	38	17	403	
Sisters Hospital	Gen	Chrch	30	6	44	18	713	
Thayer Hospital	Gen	Indep	30	6	44	18	713	
Westbrook 10507—Cumberland	Gen	Indiv	18	5	12	8	372	
Westbrook Hospital	Gen	Indiv	18	5	12	8	372	
York Village 1,230—York	Gen	Indep	20	6	33	7	296	147
York Hospital	Gen	Indep	20	6	33	7	296	147
Related Institutions								
Auburn 18571—Androscoggin	Gen	Indiv	10	6	44	5	107	
Auburn Private Hospital	Gen	Indiv	10	6	44	5	107	
Bangor 23749—Penobscot	Gen	Indiv	20	2	4	4	161	
Bellows Private Hospital	Gen	Indiv	20	2	4	4	161	
Friendship Hospital	Gen	Indiv	12	5	17	5	176	
Laura Purcell Hospital	Gen	Indiv	10	6	1	1	10	
Stinson Private Hospital	Gen	Indiv	20	11	43	6	218	
Bridgton 2639—Cumberland	Gen	Indep	3	4	8	1	18	
Northern Cumberland Memorial Hospital	Gen	Indep	3	4	8	1	18	
Dover Foxcroft 3750—Piscataquis	Gen	Indiv	9	3	12	2	100	
Dover Foxcroft Hospital	Gen	Indiv	9	3	12	2	100	
East Parktonfield 306—York	TB	Indep	50			20	21	
Restland	TB	Indep	50			20	21	
Freeport 913—Cumberland	Gen	Part	8	2	13	3	78	
Freeport Hospital	Gen	Part	8	2	13	3	78	
Mars Hill 1837—Aroostook	Gen	Indiv	8	2		2	100	
Mars Hill Hospital	Gen	Indiv	8	2		2	100	
Millinocket 5830—Penobscot	Gen	Indiv	7	5		4		
Bryant Hospital	Gen	Indiv	7	5		4		
Portland 70810—Cumberland	Gen	Indiv	24			3	50	
Portland Isolation Cottage	Gen	Indiv	14			7	31	
Dr C P Westcott Sanat	Gen	Indiv	14			7	31	
Foxwald 462—Cumberland	Gen	Indiv	820			789	39	
Pownall State School	Gen	Indiv	820			789	39	
Strong 838—Franklin	Gen	Indiv	10			6	488	
Dr Bell's Private Hospital	Gen	Indiv	10			6	488	
Union 1060—Knox	Gen	Indiv	30			23	10	
Jones Sanitarium	Gen	Indiv	30			23	10	
Summary for Maine								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related Institutions	53	5,241	4,189	41,338				
Totals	69	6,627	5,206	44,046				
Refused registration	6	130						

MARYLAND

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Abertown Proving Ground 215—Harford	Gen	Army	12			3	131	
Station Hospital	Gen	Army	12			3	131	
Annapolis 12531—Anne Arundel	Gen	State	78	14	207	47	1,071	2,341
Annapolis Emergency Hosp	Gen	State	78	14	207	47	1,071	2,341
U S Naval Hospital	Gen	Navy	165			62	1,205	
Baltimore 804874—Baltimore City	Gen	City	746	10	123	601	5,244	4,711
Baltimore City Hospitals (General)**	Gen	City	746	10	123	601	5,244	4,711
Baltimore City Hospitals (Psychopathic)*	Gen	City	325			300	338	
Baltimore City Hospitals (Tuberculosis)*	TB	City	182			111	439	
Baltimore Eye, Ear and Throat Charity Hospital	ENT	Indep	60			25	2,410	6,097
Bon Secours Hospital	Gen	Chrch	106	26	228	50	1,434	423
Children's Hosp School	Orth	Indep	120			66	263	
Church Home and Infirmary**	Gen	Chrch	162	19	307	103	2,511	573
Franklin Square Hospital	Gen	Indiv	114	15	266	77	2,103	
Gaudry Sanitarium	N&M	Indiv	45			33	14	
Hospital for Women**	Gen	Indep	111	24	624	91	1,562	1,912
Howard A Kelly Hospital	Sk	Ca	27			6	189	1,182
James Lawrence Kernan Hospital and Industrial School for Crippled Children	Orth	Indep	80			72	147	2,333
Johns Hopkins Hospital**	Gen	Indep	900	71	1,165	571	11,948	18,574
Johnston Memorial Children's Hospital	(Children's Dept of Union Memorial Hosp)	Gen	207	21	386	164	4,159	3,331
Maryland General Hosp**	Gen	Chrch	241	23	413	200	4,763	11,881
Mercy Hospital**	N&M	Chrch	600			600	86	
Mt Hope Retreat	(Psychiatric Dept of Johns Hopkins Hosp)	Gen	600			600	86	
Philips Psychiatric Clinic	(Psychiatric Dept of Johns Hopkins Hosp)	Gen	600			600	86	
Presbyterian Eye, Ear and Throat Charity Hospital	ENT	Chrch	40			9	2,168	9,079

MARYLAND—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Prosser Hospital and Dispensary (col)**	Gen	Indep	120	9	138	92	1,499	1,931
St Agnes Hospital**	Gen	Chrch	187	18	267	144	2,297	2,349
St Joseph's Hospital**	Gen	Chrch	255	35	568	145	4,188	5,021
Sinal Hospital**	Gen	Indep	229	40	691	165	4,438	3,990
South Baltimore General Hospital**	Gen	Indep	100	15	135	65	2,008	8,298
Sydenham Hospital	Gen	Indep	110			63	1,453	
Union Memorial Hosp**	Gen	Indep	312	24	288	219	5,282	5,538
U S Marine Hospital	Gen	USPH	700			191	1,580	6,798
University Hospital**	Gen	State	210	21	400	186	5,113	38,190
Volunteers of America Hosp	Gen	Indep	40	12		20		
West Baltimore General Hospital**	Gen	Indep	165	35	263	88	2,066	2,091
Cambridge 8544—Dorchester	Gen	Indep	75	14	123	74	874	818
Cambridge Maryland Hosp	Gen	Indep	75	14	123	74	874	818
Eastern Shore State Hosp	Gen	State	313			328	81	
Catonsville 4560—Baltimore	Gen	USPH	700			191	1,580	6,798
Harlem Lodge	N&M	Indiv	70			19	47	
Spring Grove State Hosp	Gen	State	1,700			1,700	630	
Crisfield 3830—Somerset	Gen	Indep	165	35	263	88	2,066	2,091
Edward W McCready Memorial Hospital	Gen	Co	75	5	40	18	376	
Crownsville (Waterbury P O)—Anne Arundel	Gen	Co	75	5	40	18	376	
Crownsville State Hospital (col)	Gen	Co	75	5	40	18	376	
Cumberland 37747—Allegany	Gen	Co	75	5	40	18	376	
Allegany County Tuberculosis Sanatorium	TB	Indep	22			14	29	
Allegany Hospital of the Sisters of Charity	Gen	Chrch	90	10	206	17	1,781	682
Memorial Hospital	Gen	CyCo	125	20	248	72	2,352	
Paston 4092—Talbot	Gen	Indep	82	19	198	57	1,890	1,172
Emergency Hospital	Gen	Indep	82	19	198	57	1,890	1,172
Edgewood 110—Harford	Gen	Army	60			15	605	4,772
Station Hospital	Gen	Army	60			15	605	4,772
Ilkton 3331—Cecil	Gen	Indep	41	8	11	92	701	341
Union Hospital of Cecil County	Gen	Indep	41	8	11	92	701	341
Filleott City 1216—Howard	Gen	Indep	25			15		
Patapasco Manor Sanitarium	N&M	Indep	25			15		
Ft George G Meade—Anne Arundel	Gen	Army	100	4	32	36	776	6,000
Station Hospital	Gen	Army	100	4	32	36	776	6,000
Ft Howard 485—Baltimore	Gen	Army	27			7	331	2,201
Station Hospital	Gen	Army	27			7	331	2,201
Ft Washington 415—Prince Georges	Gen	Army	28			9	355	3,101
Station Hospital	Gen	Army	28			9	355	3,101
Frederick 14434—Frederick	Gen	Indep	113	12	97	45	1,599	219
Frederick City Hospital	Gen	Indep	113	12	97	45	1,599	219
Frostburg 5588—Allegany	Gen	State	35	5	40	18	482	100
State General Miner's Hosp	Gen	State	35	5	40	18	482	100
Hagerstown 30861—Washington	Gen	Co	107	18	164	70	2,177	1,377
Washington County Hosp	Gen	Co	107	18	164	70	2,177	1,377
Havre de Grace 395—Harford	Gen	City	42	10	120	70	1,015	2,043
Havre de Grace Hospital	Gen	City	42	10	120	70	1,015	2,043
Henryton 27—Carroll	TB	State	156			146	208	
Maryland Tuberculosis Sanatorium (col)	TB	State	156			146	208	
Ilamsville 72—Frederick	N&M	Indiv	21			23	14	
Riggs Cottage Sanitarium	N&M	Indiv	21			23	14	
Laurel 2532—Prince Georges	N&M	Indep	75			60	250	
Laurel Sanitarium	N&M	Indep	75			60	250	
Mount Wilson—Baltimore	TB	State	168			167	172	
Mt Wilson Branch Maryland Tuberculosis Sanat	TB	State	168			167	172	
Olney 83—Montgomery	Gen	Indep	38	8	79	30	1,099	
Montgomery County General Hospital	Gen	Indep	38	8	79	30	1,099	
Perry Point 80—Cecil	Gen	Indep	1015			1,014	289	
Veterans Admin Facility	Gen	Indep	1015			1,014	289	
Prince Frederick 200—Calvert	Gen	Co	40	6		15	305	
Calvert County Hospital	Gen	Co	40	6		15	305	
Reisterstown 1030—Baltimore	TB	Indep	60			58	45	
Mt Pleasant	TB	Indep	60			58	45	
Rockville 1423—Montgomery	N&M	Indiv	33			27	69	
Chestnut Lodge Sanitarium	N&M	Indiv	33			27	69	
Salisbury 1097—Wicomico	TB	State	710			468	761	
Maryland Tuberculosis Sanatorium Eastern Shore Branch	TB	State	710			468	761	
Peninsula General Hosp	Gen	Indep	92	16	273	64	2,007	548
State Sanatorium 260—Frederick	Gen	Indep	92	16	273	64	2,007	548
Maryland Tuberculosis Sanatorium	TB	State	710			468	761	
Sylvestre 661—Carroll	Gen	Indep	2,600			2,996	491	
Springfield State Hospital	Gen	Indep	2,600			2,996	491	
Towson 3500—Baltimore	Gen	Indep	2,600			2,996	491	
Albany Manor	Gen	Indiv	25			16	57	
Hospital for Consumptives	TB	Indep	186			191	230	
Sheppard and Enoch Pratt Hospital**	N&M	Indep	700			271	378	
Related Institutions								
Baltimore 804874—Baltimore City	Gen	City	746	10	123	601	5,244	4,711
Baltimore City Jail Hosp	Inst	City	24			7	252	
Edgewood Sanitarium	Conv	Indiv	27			18		
Happy Hills Convalescent Home for Children	Conv	Indep	60			50	222	
Home for Incurables	Inc	Indep	117			117	30	
Maryland Penitentiary Hosp	Inst	State	44			33	444	
Cheltenham (Brandywine P O)—Prince Georges	Inst	State	20			6	25	
House of Reformation (col)	Inst	State	20			6	25	
Cumberland 37747—Allegany	Gen	Co	75	5	40	18	376	
Sylvan Retreat	Gen	Co	75	5	40	18	376	

Key to symbols and abbreviations is on page 1021

MARYLAND—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Filleott City 1216—Howard Beth Hillel Sanitarium and Howard School	MeDe	Indep	50			11		
Frederick 14434—Frederick Maryland State School for the Deaf	Inst	State	10			3		
Hytassille, 4264—Prince Georges Pinehurst Sanitarium	1B	Indiv	24			17	60	
Jessups 161—Howard Hill Top School	MeDe	Part	24			20		
Maryland House of Correction Hospital	Inst	State	47			24	82	
Leonardtown 697—St. Marys St. Marys County Hospital	Gen	Indep	3	6	70	5	182	
Loch Raven 82—Baltimore Maryland Training School	Inst	State	8			1	62	
Owings Mills 215—Baltimore Rosewood State Training School	MeDe	State	1000			1060		
Relay 2000—Baltimore Relay Sanitarium	N&M	Part	4			18	78	
Rockville 1422—Montgomery Waverley Sanatorium	Cont	Indiv	20			14		
Summary for Maryland								
Hospitals and sanatoriums			67	15,749		1,066	97,04	
Related institutions			18	1,707		1,489	2,71	
Totals			85	17,456		14,552	100,75	
Refused registration			4	81				

MASSACHUSETTS

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Aeushnet 4092—Bristol Aeushnet Sanitarium and Hospital	Gen	Indiv	70	16	69	16	3,1	4,0
Adams 12,697—Berkshire W. B. Plunkett Memorial Hospital	Gen	City	48	15	14	2	645	
Amesbury 11,899—Essex Amesbury Hospital	Gen	City	70	6	61	18	872	
Arlington 36,094—Middlesex Ring Sanatorium and Hospital	N&M	Indep	60			37	220	10
Symmes Arlington Hosp. O Littleboro 21,769—Bristol Bristol County Tuberculosis Hospital	TB	Co	60			59	78	14
Sturdy Memorial Hospital	Gen	Indep	102	23	780	41	1,321	
Ayer 3,060—Middlesex Community Memorial Hosp	Gen	Indep	22	7	79	11	3,5	2,1
Bedford 2,603—Middlesex Veterans Admin. Facility	Ment	Vet	81			71	244	
Belmont 21,748—Middlesex McLean Hospital	N&M	Indep	232			208	17	
Beverly 2,086—Essex Beverly Hospital	Gen	Indep	121	20	322	97	2,720	7,8
Boston 781,188—Suffolk Adams Nervine	Nerv	Indep	36			2	157	
Bay State Hospital	Gen	Indep	21	6	49	15	575	
Beth Israel Hospital	Gen	Indep	200			137	4,59	5,457
Boston City Hospital	Gen	City	1,641	201	3,322	1,471	40,718	770
Boston Floating Hosp.	Chil	Indep	60			40	1,368	
Boston Lying In Hospital	Mat	Indep	217	217	3,045	141	3,606	5,952
Boston Psychopathic Hosp.	Ment	State	110			80	1,948	1,504
Boston Sanatorium	TB	City	616			574	331	
Boston State Hospital	Ment	State	2,000			2,140	777	
Carney Hospital	Gen	Chrch	100	20	2,9	102	2,574	14,048
Channing Home	TB	Indep	25			23	51	
Children's Hospital	Chil	Indep	283			182	5,842	18,438
Collis P. Huntington Memorial Hospital	Sk	Ca	Indep	25		17	1,016	1,017
Emerson Hospital	Gen	Indep	35	20	179	21	676	
Evangeline Booth Maternity Hospital and Home	Mat	Chrch	30	35	492	42	782	
Faulkner Hospital	Gen	City	129	21	450	94	2,750	
Fenway Hospital	Gen	Part	40	4	10	25	1,081	
Glenside (Sanatorium) Hosp	N&M	Indep	70			64	175	30
Greater Boston Blum Cholin Hospital	Chr	Indep	42			25	78	
Harley Private Hospital	Gen	Indiv	60	21	40	47	1,829	
Hart Private Hospital	Gen	Indiv	60	25	120	13	462	
House of the Good Samaritan	Card	Ca	Indep	81		55	206	274
Infants Hospital	Chil	Indep	60			42	845	
Long Island Hospital	Gen	City	553	5	50	43	1,124	36,500
MacLeod Hospital	Gen	Indep	25	5	10	14	411	
Massachusetts Eye and Ear Infirmary	ENT	Indep	219	12		142	7,596	23,696
Massachusetts General Hospital	Gen	Indep	405			372	7,845	42,818
Massachusetts General Hospital (The Baker Memorial)	Gen	Indep	189	31	196	119	3,425	
Massachusetts Memorial Hospital	Gen	Indep	331	32	827	250	6,764	6,709
Massachusetts Women's Hospital	Gen	Indep	61	20	280	39	876	

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
New England Baptist Hospital	Gen	Indep	150	25	20	103	4,084	
New England Deaconess Hospital	Gen	Chrch	325			187	5,119	618
New England Hospital for Women and Children	Gen	Indep	15	7	118	104	9,97	9,60
Peter Bent Brigham Hospital	Gen	Indep	240			187	4,220	8,17
Riverbank Hospital	Gen	Indiv	12	6	8	5	205	
Robert Breck Brigham Hosp	Gen	Indep	115			58	325	
Roxbury Hospital and Clinic	Gen	Chrch	50	0	66	12	1,06	9,07
St. Elizabeth's Hospital	Gen	Chrch	250	50	863	159	5,196	19,622
St. Margaret's Hospital	Gen	Chrch	50	74	454	27	916	
St. Mary's Maternity Hospital	Mat	Chrch	12	12	142	6	1	
South Dept. for Infectious Diseases of the Boston City Hospital	(Included in Boston City Hospital)							
Strong Hospital	Gen	Indiv	22	14		10	6	
Vincent Memorial Hospital	Gen	Indep	22			17	32	
Bridgewater 900—Plymouth Bridgewater State Hospital	Ment	State	988			942	74	
Brockton 11,797—Plymouth Brockton Hospital	Gen	Indep	11	27	258	65	2,49	5,111
Ducey Hospital	Gen	Indiv	12	4		7		
Coddard Hospital	Gen	Indep	58	15	249	45	1,10	24
Moore Hospital	Gen	Indiv	25	8	6	14	430	
Brookline 47,490—Norfolk Bournwood Hospital	MeDe	Indiv	18			11		
Brookline General Hospital	Gen	Indep	40	12		20		
Brooks Hospital	Gen	Indep	4			23	99	
Corey Hill Hospital	Gen	Indep	5			23	29	
Free Hospital for Women	Gyn	Indep	97			72	2,00	
Trumbull Hospital	Gen	Indep	40	6		25	1,04	
Cambridge 11,043—Middlesex Cambridge City Hospital	Gen	City	170	0	649	115	4,18	5,10
Cambridge Hospital	Gen	Indep	250	0	805	146	4,973	3,811
Cambridge Relief Hospital	Gen	Indep	40	4		30		
Cambridge Sanatorium	TB	City	85			78	11	
Charlesgate Hospital	Gen	Indep	55	12		40		
Chester Hospital	Gen	Indep	50	20	210	14		
Canton 5,816—Norfolk Massachusetts Hosp. School	Orth	State	50			201	50	
Chelsea 45,816—Suffolk Captain John Adams Hosp	Gen	Indep	241			210	1,06	8
Chelsea Soldiers Home	Gen	Indep	241			210	1,06	8
Chelsea Memorial Hosp.	Gen	Indep	241			210	1,06	8
U. S. Marine Hospital	Cin	USPH	167			14	1,36	11,01
U. S. Naval Hospital	Gen	Navy	641			56	3,610	
Chilcope 41,930—Hampden Health Dept. Hospital	TB	City	70			2	30	
Clinton 12,517—Worcester Clinton Hospital	Gen	Indep	85	20	208	23	810	
Cohasset 3,083—Norfolk Cohasset Private Hospital	Gen	Indep	20	7	80	14	375	
Concord 7,477—Middlesex Emerson Hospital	Gen	Indep	5	12	1,0	20	582	9,9
Valleyhead	Nerv	Indiv	50			9	176	
Danvers 12,097—Essex Danvers State Hospital	Ment	State	2,169			2,139	8,2	49
Hunt Memorial Hospital	Gen	City	19	6	56	10	315	191
Fyerlett 48,424—Middlesex Whidden Memorial Hosp.	Gen	Indep	100	16	3,9	77	2,80	
Fall River 115,274—Bristol Fall River General Hosp.	Gen	City	281			216	2,17	
St. Anna's Hospital	Gen	Chrch	90	21	266	54	1,447	48
Truesdale Hospital	Gen	Indep	115	10	239	67	2,150	
Union Hospital	Gen	Indep	150	25	479	121	2,700	10,54
Hitchburg 40,692—Worcester Burbank Hospital	Gen	City	189	22	418	146	5,25	1,500
Forest Hills (Boston P. O.)—Suffolk Forest Hills Hospital	Gen	Indep	115	35	40	66	2,045	2,5
Foxboro 5,347—Norfolk Foxboro State Hospital	Ment	State	1,140			1,157	292	215
Frammingham 22,210—Middlesex Frammingham Union Hosp.	Gen	Indep	130	0	350	51	2,152	
Gardner 10,099—Worcester Gardner State Colony	Ment	State	1,340			1,344	25	441
Henry Heywood Memorial Hospital	Gen	Indep	81	19	256	47	1,329	259
Clouceson 24,204—Essex Addison Gilbert Hospital	Gen	Indep	75	15	228	35	1,083	1,194
Great Barrington 5,934—Berkshire Fairview Hospital	Gen	Indep	50	15	84	15	390	5
Greenfield 15,500—Franklin Franklin County Public Hospital	Gen	Indep	88	18	198	50	1,194	
Groton 2,434—Middlesex Groton Hospital	Gen	Indiv	10	2	12	5	140	
Haverhill 48,710—Essex General Stephen Henry Gale Hospital	Gen	City	108	18	3,0	70	3,014	
Haydenville 1,300—Hampshire Hampshire County Sanat	TB	Co	100			101	101	
Holbrook 3,353—Norfolk Elmhurst Sanitarium	Nerv	Indiv	16			6	20	
Holden 3,871—Worcester Holden District Hospital	Gen	Indep	26	6	63	13	486	
Holyoke 56,537—Hampden Holyoke Hospital	Gen	Indep	130	20	308	75	1,856	4,471
Holyoke Tuberculosis Sanatorium	TB	City	56			80	29	
Providence Hospital	Gen	Chrch	115	25	461	104	3,811	
Hyannis 1,800—Barnstable Cape Cod Hospital	Gen	Indep	45	12	170	31	845	1,55

Key to symbols and abbreviations is on page 1021

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Ipswich 97—Essex	Cable							
Memorial Hospital	Gen	Indep	2	7	90	12	779	
Lawrence 8, 008—Essex	Gen	Indep	2	6	181	1	65	
Clover Hill Hospital	Gen	Indep	112	20	301	7	2 161	1 211
Lawrence General Hosp	Gen	City	70	5		60		
Lawrence Municipal Hosp	Gen	Indep	61	12	140	32	1 242	1 767
Leominster 21 810—Worcester	Gen	Indep	150	70	0	72	2 709	1 601
Lowell 100 34—Middlesex	TbIs	City	84		68	2 39		
Lowell General Hospital	Gen	Chrch	143	2	768	90	2 947	6 1
Lowell Tuberculosis Hos	Gen	Chrch	9	16	211	70	1 917	5 847
pital or Lowell Isolation	Gen	Indiv	20	10	74	10	961	
Hospital	Gen	Indep	29	11		10		
St John's Hospital	Gen	Indep	107	46	67	110	4 181	7 110
St Joseph's Hospital	Gen	Indep	2	20	287	2	962	
Shaw Hospital	Gen	Indep	187	42	265	63	2 002	
Judlow 876—Hampden	Gen	Indep	1	8	92	9	740	
Ludlow Hospital	Gen	Indep	60	22	231	29	906	425
Lynn 107 390—Essex	Gen	Indep	1 800			1 767	27	
Lynn Hospital	Gen	Indep	7	34	684	6	2 076	
Union Hospital	Gen	Indep	100	22		74	2 181	
Malden 8 036—Middlesex	Gen	Indep	130	17	23	70	1 574	1 011
Malden Hospital	Gen	Indep	20			9	74	
Marblehead 8 048—Essex	Gen	Indep	60	22	231	29	906	425
Mary A. Alley Memorial	Gen	Indep	7	34	684	6	2 076	
Hospital	Gen	Indep	100	22		74	2 181	
Marlboro 1, 87—Middlesex	Gen	Indep	130	17	23	70	1 574	1 011
Marlboro Hospital	Gen	Indep	20			9	74	
Medfield 4 066—Norfolk	Gen	Indep	60	22	231	29	906	425
Medfield State Hospital	Gen	Indep	7	34	684	6	2 076	
Medford 59 714—Middlesex	Gen	Indep	100	22		74	2 181	
Medford Memorial Hosp	Gen	Indep	130	17	23	70	1 574	1 011
Melrose 23 10—Middlesex	Gen	Indep	20			9	74	
Melrose Hospital	Gen	Indep	60	22	231	29	906	425
New England Sanitarium	Gen	Indep	7	34	684	6	2 076	
and Hospital	Gen	Indep	100	22		74	2 181	
Methuen 21 069—Essex	Gen	Indep	130	17	23	70	1 574	1 011
Mary E. Barr Sanitarium	Gen	Indep	20			9	74	
Middleboro 8 008—Plymouth	Gen	Indep	60	22	231	29	906	425
Lakeville State Sanatorium	Gen	Indep	7	34	684	6	2 076	
St Luke's Hospital	Gen	Indep	100	22		74	2 181	
Middleton 1 719—Essex	Gen	Indep	130	17	23	70	1 574	1 011
Essex Sanatorium	Gen	Indep	20			9	74	
Wilton 14 741—Worcester	Gen	Indep	60	22	231	29	906	425
Milford Hospital	Gen	Indep	7	34	684	6	2 076	
Wilton 16 434—Norfolk	Gen	Indep	100	22		74	2 181	
Wilton Hospital and Conv	Gen	Indep	130	17	23	70	1 574	1 011
alescent Home	Gen	Indep	20			9	74	
Montague City 761—Franklin	Gen	Indep	60	22	231	29	906	425
Parren Memorial Hosp	Gen	Indep	7	34	684	6	2 076	
Nantucket, 3 68—Nantucket	Gen	Indep	100	22		74	2 181	
Nantucket Cottage Hosp	Gen	Indep	130	17	23	70	1 574	1 011
Natick 13 089—Middlesex	Gen	Indep	20			9	74	
Leonard Morse Hospital	Gen	Indep	60	22	231	29	906	425
Needham 10 548—Norfolk	Gen	Indep	7	34	684	6	2 076	
Glover Memorial Hospital	Gen	Indep	100	22		74	2 181	
New Bedford 12 537—Bristol	Gen	Indep	130	17	23	70	1 574	1 011
St Luke's Hospital	Gen	Indep	20			9	74	
Sassaquin Sanatorium	Gen	Indep	60	22	231	29	906	425
and Hospital	Gen	Indep	7	34	684	6	2 076	
Newburyport 15 084—Essex	Gen	Indep	100	22		74	2 181	
Anna Jacques Hospital	Gen	Indep	130	17	23	70	1 574	1 011
Newburyport Homeopathic	Gen	Indep	20			9	74	
Hospital	Gen	Indep	60	22	231	29	906	425
Newton 60 246—Middlesex	Gen	Indep	7	34	684	6	2 076	
Newton Hospital	Gen	Indep	100	22		74	2 181	
North Adams 21 021—Berkshire	Gen	Indep	130	17	23	70	1 574	1 011
North Adams Hospital	Gen	Indep	20			9	74	
Northampton 24 381—Hampshire	Gen	Indep	60	22	231	29	906	425
Cooley Dickinson Hospital	Gen	Indep	7	34	684	6	2 076	
Northampton State Hosp	Gen	Indep	100	22		74	2 181	
Veterans Admin Facility	Gen	Indep	130	17	23	70	1 574	1 011
North Dighton 1 220—Bristol	Gen	Indep	20			9	74	
St Hope Hospital	Gen	Indep	60	22	231	29	906	425
North Grafton 2 340—Worcester	Gen	Indep	7	34	684	6	2 076	
Grafton State Hospital	Gen	Indep	100	22		74	2 181	
North Wilmington 472—Middlesex	Gen	Indep	130	17	23	70	1 574	1 011
North Reading State Sana	Gen	Indep	20			9	74	
torium	Gen	Indep	60	22	231	29	906	425
Norwood 10 049—Norfolk	Gen	Indep	7	34	684	6	2 076	
Norwood Hospital	Gen	Indep	100	22		74	2 181	
Oak Bluffs 1 333—Dukes	Gen	Indep	130	17	23	70	1 574	1 011
Martha's Vineyard Hosp	Gen	Indep	20			9	74	
Palmer 9 577—Hampden	Gen	Indep	60	22	231	29	906	425
Monson State Hospital	Gen	Indep	7	34	684	6	2 076	
Wing Memorial Hospital	Gen	Indep	100	22		74	2 181	
Peabody 21 34—Essex	Gen	Indep	130	17	23	70	1 574	1 011
Isaiah B Thomas Hosp	Gen	Indep	20			9	74	
Pittsfield 40 617—Berkshire	Gen	Indep	60	22	231	29	906	425
Hillcrest Hospital	Gen	Indep	7	34	684	6	2 076	
House of Mercy Hospital	Gen	Indep	100	22		74	2 181	
St Luke's Hospital	Gen	Indep	130	17	23	70	1 574	1 011
Plymouth 13 042—Plymouth	Gen	Indep	20			9	74	
Jordan Hospital	Gen	Indep	60	22	231	29	906	425
Pocasset 360—Barnstable	Gen	Indep	7	34	684	6	2 076	
Barnstable County Sanat	Gen	Indep	100	22		74	2 181	
Quincy 71 983—Norfolk	Gen	Indep	130	17	23	70	1 574	1 011
Quincy City Hospital	Gen	Indep	20			9	74	
Whitehouse Mat Hosp	Gen	Indep	60	22	231	29	906	425
Rutland 2 442—Worcester	Gen	Indep	7	34	684	6	2 076	
Central New England Sana	Gen	Indep	100	22		74	2 181	
torium	Gen	Indep	130	17	23	70	1 574	1 011
Rutland State Sanatorium	Gen	Indep	20			9	74	
Rutland Heights—Worcester	Gen	Indep	60	22	231	29	906	425
Veterans Admin Facility	Gen	Indep	7	34	684	6	2 076	

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Salem 43 143—Essex			60			32	377	
North Shore Babies Hosp	Chil	Indep	150	30	469	112	3 469	707
Salem Hospital*	Gen	Indep						
Sharon 3,301—Norfolk	TB	Indiv	20			8		
Balfour Sanatorium	TB	Indep	51			4		
Sharon Sanatorium								
Somerville 103 908—Middlesex								
Central Hospital	Gen	Indiv	33	24	34	33	1 832	2 920
Chandler Street Hospital	Gen	Indiv	15	10	30	2	68	
Somerville Hospital	Gen	Indep	87	18	209	40	1 446	1 216
South Braintree 3,540—Norfolk	TB	Co	136			136	91	583
Norfolk County Hospital								
Southbridge 14 264—Worcester								
Harrington Memorial Hosp	Gen	Indep	39	8	57	19	637	339
South Dartmouth 1 81—Bristol								
Sole Mar Orthopedic Hos								
pital for Children	Orth	Indep	100			66	41	
South Hanson 891—Plymouth								
Plymouth County Hospital	TB	Co	1 10			125	115	
Springfield 149 900—Hampden								
City Hospital	Gen	City	112	2	12	8	17	
Health Department Hosp	TB	City	181		63	1 9		
Mercy Hospital*	Gen	Chrch	270	40	885	188	5 621	2 069
Shriners Hospital for Crip								
pled Children	Orth	Frat	60			62	370	584
Springfield Hospital*	Gen	Indep	244	4	139	4 524	4 300	
Wesson Maternity Ho p	Nat	Indep	52	60	10 02	37	1 142	544
Wesson Memorial Hosp	Gen	Indep	120			64	2 249	507
Stockbridge 1 762—Berkshire								
Austen Riggs Foundation	Nerv	Indep	50			34	431	328
Taunton, 37 3—Bristol								
Morton Hospital	Gen	Indep	63	12	210	33	1 063	338
Taunton State Hospital*	Nent State		1 045		1 50	480	1 00	
Tewksbury 5,58—Middlesex								
State Infirmary*	Gen	State	3 300	24	169	3 026	3 011	
Vineyard Haven 1 000—Dukes								
U S Marine Hospital	Gen	USPH	24			22	149	178
Waltham 39 247—Middlesex								
Dr Cousins Hospital	Gen	Indiv	13	5		4		
Metropolitan State Hosp	Nent State		1 248			1 216	45	
Middlesex County Sanat	TB	Co	2 02			240	241	501
Waltham Hospital*	Gen	Indep	155	61	08	92	2 800	1 046
Ware 7 380—Hampshire								
Mary Lane Hospital	Gen	Indep	36	12	102	20	652	
Webster 12 992—Worcester								
Webster District Hospital	Gen	Indep	20	7	71	17	681	
Wellesley, 11 430—Norfolk								
Channing Sanitarium	N & M	Indep	35			28	23	
Wiswall Sanatorium	N & M	Indep	30			24	29	
Westboro 6 409—Worcester								
Westboro State Hospital	Nent State		1 530			1 477	526	217
Westfield 19 775—Hampden								
Noble Hospital	Gen	Indep	108	10	170	31	1 133	
Westfield State Sanat +	TB	State	306			260	197	2 016
Westwood 2 097—Norfolk								
Westwood Lodge	N & M	Indep	21			16	29	
Weymouth 20 882—Norfolk								
Weymouth Hospital	Gen	Indep	45	18	08	30	1 648	
Whitinsville 6,090—Worcester								
Whitinsville Hospital	Gen	Indus	15	7	90	9	522	
Winchendon, 6,202—Worcester								
Worcester City Hospital	Gen	Indep	25	6	37	16	477	
Winchester 12 719—Middlesex								
Winchester Hospital	Gen	Indep	57	25	185	34	906	121
Winthrop 16 832—Suffolk								
Station Hospital	Gen	Army	128	6	34	23	706	
Winthrop Community Hosp	Gen	Indep	33	20	207	24	929	
Woburn 19 434—Middlesex								
Charles Choate Memorial								
Hospital*	Gen	Indep	60	19	232	27	800	497
Worcester 19 311—Worcester								
Bolton Hospital*	TB	City	275			20	1 292	568
Fairlawn Hospital	Gen	Indep	45	16	174	24	622	
Harvard Private Hospital	Gen	Indep	20	7	29	15	700	624
Louis Pasteur Hospital	Gen	Indep	36	6	20	5	14	
Memorial Hospital*	Gen	Indep	185	30	517	112	4 26	10 535
St Vincent Hospital	Gen	Chrch	225	25	233	158	4 009	
Worcester City Hospital*	Gen	City	360	40	991	333	8 165	18 888
Worcester County Sanat	TB	Co	130			70		169
Worcester Hahnemann Hos								
pital*								
Worcester State Hospital	Gen	Indep	111	29	438	57	1 653	
Wrentham 2 384—Norfolk	Nent State		2 240	8	6	2 183	611	315
Pondville Hospital*	Ca	State	115			114	1 013	
Related Institutions								
Acushnet 4 092—Bristol								
Ashley Sanitarium	Inst	Indiv	20			16	60	
Allerton 800—Plymouth								
Sturgis Hospital	Gen	Indiv	14	2		4		
Sylvester Hospital	Gen	Indiv	15	3		8		
Amherst, 5 688—Hampshire								
Pratt Health Cottage	Inst	Indep	15			3	349	
Baldwinsville 2 360—Worcester								
Hospital Cottages for Chil	Chil	Indep	130			95	40	
dren								
Belchertown 3 139—Hampshhre								
Belchertown State School	McDe	State	1 289			1 232	79	
Boston 761 188—Suffolk								
Boston Home for Incurables	Inc	Indep	58			53	18	
Deer Island Hospital	Inst	CyCo	20			20	635	
Detention Hospital	Iso	City	32	2		3	12	
Dorchester Cottage Hosp	Gen	Indep	12	8	00	5	102	
Florence Crittenton Home								
and Hospital	Nat	Indep	21	47	94	7	112	

MASSACHUSETTS—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Massachusetts State Prison Hospital	Inst	State	40			8	210	
New England Home for Little Wanderers	Inst	Indep	19	6		18	41	
Prendergast Preventorium	IB	Indep	40			40	160	
St. Luke's Home for Convalescents	Conv	Chrch	20			16	00	
Talitha Cumi Maternity Home and Hospital	Mat	Indep	16	16	7	10	81	
Dr. Taylor's Private Hosp	Drug	Indiv	18			5	18	
Washingtonian Home	Alcoh	Indep				7	618	
Brookline 47,490—Norfolk								
Board of Health Hospital	TbIs	City	40			22	113	
Cambridge 113,647—Middlesex								
Holy Ghost Hospital for Incurables	Inc	Chrch	21			211	17	
Homberg Men Infirmary	Inst	Indep	24			8		
Camp Devens—Middlesex								
Station Hospital	Gen	Army	12			1		
Dracut (Lowell P. O.)—Middlesex	Gen	Army	12			1		
Blanchard Private Hospital	Mat	Indiv	8	6	0	1		
East Braintree 5,300—Norfolk								
Braintree Cottage Hosp	Mat	Indiv	6	6		1	7	
Flynt 340—Plymouth								
Children's Sunlight Hosp	Orth	Indep	40			12	172	
Framingham 22,210—Middlesex								
Reformatory for Women	Inst	State				21	914	
Woodside Cottages	Conv	Indep	1			9	28	
Greenfield 15,500—Franklin								
Greenfield Isolation Hosp	TbIs	City	20			3	61	
Haverhill 48,710—Essex								
Benson Hospital	Gen	Indiv	20	2	1	7	17	1
Contagious Hospital	Iso	City	40			7	17	
Haverhill City Infirmary	Chr	City	41					
Ipswich 100,74—Middlesex								
Chelmsford Street Hospital	Inst	City	14	6		14	11	
Malden 58,036—Middlesex								
Malden Contagious Hosp	Iso	City	40			21	210	
Marblehead 8,008—Essex								
Children's Island Sanit	Conv	Indep	91			91	100	
Medford 59,714—Middlesex								
Dearborn Hospital	Chr	Indiv	20			9	20	
Methuen 21,660—Essex								
Henry C. Nevins Home for Aged and Incurables	Inst	Indep	22			20	10	
Newton 60,246—Middlesex								
New England Peabody Home for Crippled Children	TbOr	Indep	100			40	14	
Woodlawn Sanitarium	Epil	Indiv	10					
Norfolk 1,420—Norfolk								
Hospital of Norfolk State Prison Colony	Inst	State	70			18		
North Adams 21,621—Berkshire								
Dr. Vrooman's Sanitarium	Conv	Indiv	17					
Pittsfield 49,677—Berkshire								
Frederic S. Coolidge Memorial Home	TB	Indep	8			5	7	
Pittsfield Anti-Tuberc. Hosp	TB	Indep	14			10	17	
Rutland 2,442—Worcester								
Summit House	TB	Indiv	20			10	60	
Wachusett Cottage	TB	Indiv	17			8		
Salem 43,303—Essex								
Health Dept Hospital for Contagious Diseases	Iso	City	60			19	201	
Shirley 2,427—Middlesex								
Industrial School for Boys	Inst	State	28			7	410	
Somerville 103,908—Middlesex								
City of Somerville Contagious Diseases Hospital	Iso	City	40			11	210	12
Springfield 149,900—Hampden								
Bussell Nursing Home	Conv	Indiv	20			9	30	
Hampden County Children's Preventorium	TB	Indep	170			16		
Renewal Wilson Private Hosp	Gen	Part	9			22	2	96
Waltham 39,247—Middlesex								
Teresian Lying In Hospital	Mat	Indiv	10	10		76	3	97
Walter E. Larnald State School	MeDe	State	1,750			1,671		
Waltham Baby Hospital	Chil	Indep	22			6	46	1,206
Wellesley 11,439—Norfolk								
Convalescent Home of the Children's Hospital	Conv	Indep	83			70	400	
Simpson Infirmary of Wellesley College	Inst	Indep	20			8	478	
Westboro 6,409—Worcester								
Lyman School Hospital	Inst	State	20			9		
West Concord 1,841—Middlesex								
Massachusetts Reformatory Hospital	Inst	State	49			5	448	
Williamstown 3,000—Berkshire								
Williams College Infirmary	Inst	Indep	21			4	170	
Worcester 39,511—Worcester								
Herbert Hall Hospital	N & M	Indep	30			14	18	
Maple Hall Sanitarium	Conv	Part	20			12	48	
Wrentham 3,684—Norfolk								
Wrentham State School	MeDe	State	1,518			1,000		

MICHIGAN

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Adrian, 11,061—Lenawee								
Emma 1 Baby Hospital	Gen	City	33	10	148	18	713	
Lenawee County Tuberculosis Sanatorium	TB	Co	20			18	56	
Albion 8,124—Calhoun								
James W. Sheldon Hosp	Gen	City	40	10	31	12	531	
Allegan 941—Allegan								
Emergency Hospital	Gen	Indiv	10	4	7	2	74	
Alma 6,731—Grandt								
Carney Wilcox Hospital	Gen	Indiv	17	4	17	8	290	
Alpena 12,166—Alpena								
Donald McRae Hospital	Gen	Indep	22	5	13	8	270	
Ann Arbor 26,911—Washtenaw								
Cowle Hospital	Gen	Indiv	12			2	116	221
Mercywood Sanitarium	N & M	Chrch	40			20	122	
St. Joseph's Mercy Hosp	Gen	Chrch	115	17	234	70	2,001	1,000
State Psychopathic Hospital at the University of Michigan	Ment	State	64			7	21	11
University Hospital	Gen	State	1,200	20	402	1,08	24,010	9,662
2nd Ave.—Huron								
Hubbard Memorial Hosp	Gen	Co	31	5	50	16	383	
Battle Creek 41,730—Calhoun								
American Legion Hosp	TB	State	775			211	1,000	
Battle Creek Sanitarium	Gen	Indep	1,000	13	103	170	5,100	
Calhoun County Public Hospital	TB	Co	70			62	90	1,400
Jella 3 Post Montgomery Hospital	Gen	Chrch	18	17	234	67	2,007	576
Nichols Memorial Hosp	Gen	Indep	87	13	257	44	2,794	
Bay City 47,700—Bay								
Bay City General Hospital	Gen	City	24	6	22	11	312	
Bay City Samaritan Hosp	Gen	Indep	43	9	27	21	1,406	410
Mercy Hospital	Gen	Chrch	144	16	148	51	1,678	1,163
Benton Harbor 1,434—Berrien								
Benton Harbor Hospital	Gen	Indep	40	10	113	23	970	
Big Rapids 4,771—Muskegon								
Community Hospital	Gen	City	17	4	15	8	420	
Brighton 1,287—Livingston								
Mellus Hospital	Gen	Indiv	15	4	40	8	370	
Byron Center 200—Kent								
Christian Psychopathic Hospital	N & M	Indep	220			197	9	
Calumet 9,700—Wexford								
Mercy Hospital	Gen	Chrch	27	10	72	20	600	10
Wexford County Hospital	Gen	Co	20			20		
Calumet 1,537—Houghton								
Calumet and Hecla Hosp	Indus	Indus	20			15	500	
Camp Custer—Kalamazoo								
Veterans Admin Facility	Ment	Vet	800			704	220	
Caro 2,540—Lapeere								
Caro Community Hospital	Gen	City	20	1	13	6	194	
Carrolls 1,444—Cass								
McCutcheon Hospital	Gen	Part	10	4	17	3	172	
Charlevoix 2,247—Charlevoix								
Charlevoix Hospital	Gen	City	20	7		6		
Charlotte 5,070—Eaton								
Hays Green Mem Hosp	Gen	Co	14	6		New		
Coldwater 6,700—Branch								
Wade Memorial Hospital	Gen	Indiv	20	5	22	8	337	
Crystal Falls 2,000—Iron								
Crystal Falls General Hosp	Gen	Indiv	14	2	11	4	140	
Dearborn 50,000—Wayne								
St. Joseph's Retreat	N & M	Chrch	375			319	487	
Detroit 1,500,662—Wayne								
Bethesda Hospital (col)	TB	Indep	91			11	100	908
Cass Central Hospital	Gen	Indiv	12	4	17	3	133	
Charles Godwin Jennings Hospital	Gen	Indep	66	6	23	19	742	9,215
Children's Hospital	Chil	Indep	20			210	6,310	9,215
City of Detroit Receiving Hospital	Gen	City	700	14		700	23,806	30,003
City of Detroit Receiving Hospital (Redford Branch)	Gen	City	42			2	41	1,900
Cottage Hospital	Gen	Indep	4	13	260	2	1,940	
Delray General Hospital	Gen	Indep	80	15	180	33	1,396	
Detroit Tuberculosis Sanat	TB	Indep	100			143	82	
East Side General Hospital	Gen	Indep	60	20	300	20	1,148	400
Evangelical Deaconess Hospital	Gen	Chrch	115	20	260	42	1,849	961
Fairview Sanat (col)	TB	Indep	66			14	74	200
Florence Crittenton Hosp	Gen	Indep	210	100	1,410	67	1,990	711
General Hosp and Clinic	Gen	Indiv	45			20	78	
Good Samaritan Hosp (col)	TB	Indep	32			241	8,000	23,994
Grace Hospital	Gen	Indep	300	46	831	241	8,000	23,994
Grosse Pointe Hospital	Gen	Indiv	30	14	9	8	568	92
Harper Hospital	Gen	Indep	620	100	1,100	321	11,300	11,748
Henry Ford Hospital	Gen	Indep	560	60	920	343	6,315	10,812
Herman Kleber Hospital	Gen	City	1,330	60	1,738	1,017	7,606	9,062
Jefferson Clinic and Diagnostic Hospital	Gen	Indep	60	2	7	20	773	1,000
Lincoln Hospital	Gen	Indep	89	6	48	60	606	4,010
Michigan Mutual Hospital	Indus	Indus	30			18	610	6,000
Miriam Memorial Hospital (Included in Grace Hospital)	Gen	Indep	30			9	200	
Murray Hospital	Gen	Indep	67	7	148	40	368	117
Parkside Hospital (col)	Gen	Indep	25	11	244	14	514	
Pinkney General Hospital	Gen	Chrch	348	102	1,676	226	6,422	
Providence Hospital	Gen	Chrch	168	32	463	74	2,215	2,022
St. Joseph's Mercy Hosp	Gen	Chrch	168	32	463	74	2,215	2,022
St. Mary's Hospital	Gen	Chrch	330	45	508	96	3,637	6,960
Shurly Fye Ear Nose and Throat Hospital	ENT	Indiv	100			38	1,170	7,461
Station Hospital	Gen	Army	37			12	314	
U. S. Marine Hospital	Gen	USPH	240			116	1,080	2,011
Warren Avenue Diagnostic Hospital	Gen	Indiv	16	4		11		

Key to symbols and abbreviations is on page 1021

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
West Side Sanitarium Woman's Hospital*o	Gen	Indiv	220	100	1 712	110	4 493	2 101
Donaglas 5530—Cass	Gen	Chrch	30	1	18	9	700	
Lee Memorial Hospital Durand 3881—Shilwansee	Gen	Indep	13	4	20	1	217	
Durand Hospital	Gen	Indiv	18	2	10	4	190	
Fulton Rapids 2882—Fenton Harriet Chapman Hospital Eloise 710—Wayne	Gen	Indiv	18	2	10	4	190	
Eloise Hospital for Mental Diseases Dr William T Seymour Hospital*	N & M Co		2 750			2 644	838	
Escanaba 14 874—Delta Lafayette Hospital St Francis Hospital	Gen	Indiv	75	20	218	3	1 110	
Flint 166 497—Cenecece Hurley Hospital*o St Joseph's Hospital Women's Hospital	Gen	City	350	50	1 000	304	7 313	7 342
Fremont, 2 157—Newaygo Gerber Memorial Hospital Goodrich 374—Cenecece	Gen	City	18	0	34	8	330	
Goodrich General Hospital Grand Haven 834—Ottawa Elizabeth Hatton Hospital Grand Rapids 168 592—Kent	Gen	Indep	20	6	30	3	722	64
Blodgett Mem Hosp *o Butterworth Hospital*o City General Hospital Ferguson Droste Ferguson Sanitarium	Gen	Indep	132	18	361	62	2 431	2 260
St Mary's Hospital*o Sunshine Sanatorium Grayling 1 913—Crawford Grayling Mercy Hospital Greenville 4 780—Montcalm	Gen	City	224	48	664	83	5 608	4 110
United Memorial Hospital Hamtramck 56 968—Wayne St Francis Hospital Hancock 5 793—Houghton St Joseph's Hospital*o Harbor Beach 1 892—Huron Harbor Beach Hospital Hart 1 600—Oceana Oceana Hospital Hastings 5 231—Barry Peapack Hospital Highland Park 59 904—Wayne Highland Park General Hospital*o	Gen	Indiv	33	20	547	86	3 601	1 036
Hillsdale 5 896—Hillsdale Hillsdale Hospital Holland 14 346—Ottawa Holland City Hospital Houghton 3 757—Houghton Copper Country Sanat Howell 3 613—Livingston McPherson Memorial Hosp Michigan State Sanat + Hudson 2 361—Lapeer Thorn Memorial Hospital Ionia 6 569—Ionia Ionia State Hospital Iron Mountain 11 622—Dickinson Iron Mountain Gen Hosp Ironwood 14 299—Gogebic Grand View Hospital Newport Hospital Twin City Hospital Ishpeming 9 233—Marquette Ishpeming Hospital Jackson 55 187—Jackson W A Foote Mem Hosp *o Jackson County Sanat + Mersey Hospital*o Kalamazoo 54 786—Kalamazoo Borgess Hospital*o Bronson Methodist Hosp o Fairmount Hospital Kalamazoo State Hosp *o Lake Linden 1 714—Houghton Lake Superior Gen Hosp Lakeview 830—Montcalm Kelley Hospital Lansing 78 394—Ingham Edward W Sparrow Hos pital*o Ingham Sanatorium St Lawrence Hospital*o Lapeer, 5 008—Lapeer Lapeer City Hospital Larum 4 916—Houghton Calumet Memorial Hosp Ludington 4 916—Mason Paulina Stearns Hospital Manistee 8 018—Manistee Mersey Hosp and Sanit Manistique 5 193—Schoolcraft Shaw Private Ho pital Marenco 510—Gogebic Charcoal Iron Co Hosp Marquette 14 789—Marquette Vernon Heights Sanat + St Luke's Hospital*o St Mary's Hospital	Gen	City	146	30	563	76	2 301	4 684
	Gen	City	25	10	63	6	303	
	Gen	City	40	16	107	16	609	
	TB	Co	53			52	27	330
	Gen	City	27	6	40	11	188	
	TB	State	400			410	344	411
	Gen	City	20	4	34	7	166	
	Ment	State	840			747	105	20
	Gen	City	20	9	93	12	492	
	G & TB Co		112	8	79	33	1 079	500
	Gen	Indus	12	3		10		
	Gen	Indiv	21	3	18	14	418	
	Gen	Indus	37	6	83	22	630	6 012
	Gen	City	142	22	323	69	2 346	1 202
	TB	Co	64			62	50	521
	Gen	Chrch	100	30	248	50	2 507	
	Gen	Chrch	214	27	472	92	2 660	
	Gen	Chrch	113	30	347	53	2 535	
	TB	Co	162			105	723	326
	Ment	State	2 750			2 750	496	557
	Gen	Indus	12	3	32	9	306	
	Gen	Indiv	11	2	5	3	167	
	Gen	Indep	110	20	304	67	2 643	
	TB	Co	170			84	177	683
	Gen	Chrch	109	23	367	71	2 750	
	Gen	Part	18	4		2	173	
	Gen	Indep	21	6	80	12	400	
	Gen	CyCo	22	3	30	11	370	
	Gen	Chrch	54	6	46	10	703	300
	Gen	Indiv	20	3	18	10	260	
	Indus	Indiv	16			5	180	
	TB	Co	90			80	87	657
	Gen	Indep	68	16	86	31	1 144	2 357
	Gen	Chrch	70	12	166	31	6 6	

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Marshall, 5 019—Calthoun Oak Lawn Hospital Menominee 10 330—Menominee St Josephs Hospital Monroe, 18 110—Monroe Mersey Hospital Monroe Hospital	Gen	Indep	13	4	55	6	318	
	Gen	Chrch	50	12	165	35	1,288	
	Gen	Chrch	58	12	71	18	561	
	Gen	Indep	38	8	84	34	1,027	1,884
Mt Clemens 13 497—Macomb St Joseph's Hospital and Sanitarium Station Hospital Mt Pleasant 5 211—Isabella Bronckstetter Mem Hosp Munising 3 906—Alger Munising Hospital Muskegon 41 390—Muskegon Hackley Hospital*o Mersey Hospital*o Muskegon County Sanat Negaunee 6 532—Marquette Twin City Hospital Newberry 2 46—Luce Newberry State Hospital Perry Spinks Hospital Miles 11 726—Berrien Pawating Hospital Northville 2 066—Wayne First Lawn Sanatorium Wm H Maybury Sanat + Norway 4 016—Dickinson Penn Iron Mining Company Hospital Ontonagon 1 937—Ontonagon Ontonagon Hospital Oshkemo 12—Kalamazoo Pine Crest Sanatorium Owosso 14 496—Shilwansee Memorial Hospital Petoskey 5 740—Emmet Lockwood Ho pital Petoskey Hospital Pinckney 433—Livingston Pinckney Sanitarium Plainwell 2 279—Allegan Wm Crispe Hospital Pompeii 319—Gratiot Pompeii Hospital Pontiac 64 928—Oakland Oakland County Contagious Hospital Oakland County Tuberculo sis Sanatorium Pontiac General Hospital Pontiac State Hospital* St Joseph's Mercy Hosp o Pt Huron 31 361—St Clair Pt Huron Ho pital*o Powers 360—Menominee Pinecrest Sanatorium Reed City 1 792—Oscoda Reed City Hospital Royal Oak 22 904—Oakland Royal Oak Private Hospital Saginaw 80 175—Saginaw Saginaw City Hospital Saginaw County Contagious Hospital Saginaw County Tuberculo sis Hospital Saginaw General Hosp *o St Luke's Hospital St Mary's Hospital*o St Clair 838—St Clair St Clair Community Hosp St Johns 3 929—Clinton Clinton Memorial Hospital St Joseph 8 349—Berrien St Joseph Sanitarium Sandusky 1 300—Sanilac Tweedle Hospital Sault Ste Marie 13 755—Chippewa Chippewa County War Me morial Hospital Station Hospital South Haven 4 804—Van Buren City Hospital Pecoyar Memorial Hospital Stambaugh 2 400—Iron General Hospital Company of Iron River District Sturgis 6 900—St Joseph Sturgis Memorial Hospital Three Rivers 6 863—St Joseph Three Rivers Hospital Traverse City 12 230—Grand Traverse James Decker Munson Hosp Traverse City State Hos pital*o Trimountain 2 541—Houghton Copper Range Hospital Wakefield 3 677—Gogebic Wakefield Hospital Wyandotte 28 268—Wayne Wyandotte General Hosp Ypsilanti 10 143—Washtenaw Beyer Memorial Hospital	Gen	Chrch	100	12	119	30	1 014	249
	Gen	Army	30			20	560	
	Gen	Part	14	4	60	12	462	
	Gen	Indep	18	3	31	9	261	
	Gen	Indep	108	17	421	32	2 022	3 500
	Gen	Chrch	100	24	367	71	2 366	601
	TB	Co	70			60	131	575
	Gen	Part	15	3		12	203	
	Ment	State	1 200			1 171	192	173
	Gen	Part	15	6	43	8	308	
	Gen	Indep	30	9	70	17	539	
	TB	Indiv	94			89	66	
	TB	City	837			818	496	
	Gen	Indus	13	5	47	8	282	
	Gen	Indiv	13	4	19	8	172	
	TB	Indep	110			99	95	319
	Gen	Indep	90	10	204	45	1,284	1 005
	Gen	City	32	6	79	20	600	
	Gen	Indep	40	6	96	20	891	249
	Gen	Indiv	12	4	20	4	125	
	Gen	City	17	6	58	6	302	
	Surg	Indiv	16			5	160	
	Gen	Co	85			51		
	TB	Co	175			160	179	3 000
	Gen	City	100	20	192	43	2 130	
	Ment	State	1 760			1 704	204	302
	Gen	Chrch	175	25	227	71	2 179	3 034
	Gen	Indep	52	10	112	38	1 351	
	TB	Co	100			94	106	670
	Gen	City	10	4	12	4	144	
	Gen	Indiv	19	4	34	13	293	
	Gen	City	30	5		21		
	Gen	Co	06	25		37	329	
	TB	Co	26			26	60	
	Gen	Indep	133	23	290	6	1 830	74
	Gen	Chrch	57	11	185	24	1 037	
	Gen	Chrch	136	20	257	65	1,754	231
	Gen	City	12	5	27	5	190	
	Gen	Indep	00	10	00	11	400	137
	Gen	Indep	28	4		13		
	Gen	Part	10	2	5	7	327	
	Gen	Co	68	13	161	40	1 209	
	Gen	Army	10			8	216	2 432
	Gen	City	30	6	05	5	333	
	Gen	Part	12	6	18	5	210	
	Gen	Indus	27	6	48	12	236	
	Gen	City	39	6	114	10	478	230
	Gen	City	30	5	00	9	440	295
	Gen	State	06	11	108	19	873	
	Ment	State	2 300			2 300	393	518
	Gen	Indus	20	1	7	5	10	
	Gen	Indus	13	5		3		16
	Gen	City	100	30	223	38	2 000	877
	Gen	City	30	6	71	14	560	

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Leland Sanatorium	TB	Indep	14	2	22	5	211	
Ypsilanti State Hospital+	Mont State		14	2	22	5	211	
Zeeland 2850—Ottawa								
Thomas G. Huizinga Memorial Hospital	Gen	Indep	14	2	22	5	211	
Related Institutions								
Addison 452—Lansing	Gen	Indiv	5	2		2		
Addison Community Hosp	Gen	Indiv						
Alma 6734—Grandt								
Michigan Masonic Home and Hospital	Inst	Frat	0			24	118	
Cheboygan 4923—Cheboygan								
Cheboygan General Hosp	Gen	Indiv	1	2	11		197	
Coldwater 6730—Branch								
Branch County Infirmary and Hospital	Inst	Co	60			0		
Michigan State Public School	Inst	State	40			18		
Crystal Falls 2,000—Iron								
Iron County Infirmary	Inst	Co	16			1		
Detroit 1568 662—Wayne								
Memorial Hospital	SkCa	Indiv	6			1	100	1 000
Pennsylvania Ave Sanit	Conv	Indiv	10			4		
St. Luke's Convalescent Home	Conv	Chrch	0			1	284	
Shppard Sanitarium	Conv	Indiv	14	2		7	60	
William Booth Mem Hosp	Mat	Chrch	10	2	12	3	18	
Douglas 368—Allegan								
Douglas Hospital	Gen	Indiv	7	2	12	3	18	
East Lansing 4389—Ingham								
Hospital of Michigan State College	Inst	State	1			2		
Edmore 897—Montcalm								
Edmore Hospital	Gen	Indiv	0	2	14	0	188	
Farmington 1243—Oakland								
Children's Hospital Convalescent Home	Conv	Indep	240			200		
Flint 156 492—Genesee								
Genesee County Infirmary	Inst	Co		4		10	270	
Michigan School for the Deaf	Inst	State	4			6	270	
Grand Rapids 163 592—Kent								
Holland Union Benevolent Home	Inst	Indep	0			6	18	60
Kent County Receiving Hosp	N&M	Co	2			18	60	
Michigan Soldiers Home	Inst	State	200			100	80	
Municipal Isolation Hosp	Iso	City	20			7	110	
Salvation Army Evangeline Booth Home and Hosp	Mat	Chrch	50	16	91	10	141	
Harrisville 438—Alcona								
Dr. A. R. Miller's Private Hospital	Gen	Indiv	4	1	2		100	
Ionia 6062—Ionia								
Michigan State Reformatory	Inst	State	20			21	1 017	
Iron Mountain 11 632—Dickinson								
Ford Motor Company Industrial Hospital	Indus	Indus	5			1	20	
Jackson 55 187—Jackson								
Florence Crittenton Home and Hospital	Mat	Indep	6	10	14	1	20	
Jackson County Contagious Hospital	Iso	CyCo	20			12		
Michigan State Prison Hosp	Inst	State	232			117	2 814	
Lansing, 78 397—Ingham								
Boys Vocational School	Inst	State	50			10	802	
Lansing City Hospital	Iso	City	60			8	102	
Lapeer 5 008—Lapeer								
Michigan Home and Training School+	MeDe	State	3 720			01	400	
Marquette 14 789—Marquette								
Hospital of the State House of Correction and Branch Prison	Inst	State	24			10	310	
Mt. Clemens 13 497—Macomb								
Sigma Gamma Convalescent Home for Crippled Children	Orth	Indep	50			47	187	
Nahma 710—Delta								
Bay View Hospital	Indus	Indus	9			2	30	
Northville 2 566—Wayne								
Wayne County Training School	MeDe	Co	800			67	204	
Okemos 216—Ingham								
Ingham County Infirmary	Inst	Co	36			40	174	
Ontonagon 1 937—Ontonagon								
Bon Air Tuberculosis Sanatorium	TB	Co	10			13	21	
Otter Lake 336—Lapeer								
American Legion Children's Bldg	TB	Indep	98			00	257	
Pontiac 64 928—Oakland								
Oakland County Infirmary	Inst	Co	100			70	200	
Pt. Huron 31 361—St. Clair								
Pt. Huron Emerg Hosp	Iso	City	18	6		2	41	
Rochester 3 554—Oakland								
The Haven	N&M	Indiv	20			6	40	
Rogers City 3 278—Presque Isle								
Rogers City Hospital	Gen	Indiv	6	2	6	3	100	
Royal Oak 22 904—Oakland								
Sunnybrook Hospital	Gen	Indiv	18	7	36	2	186	
Shelby 1 152—Oceana								
Shelby Community Hospital	Gen	Indep	10	4		2	118	
Stockbridge 715—Ingham								
Rowe Memorial Hospital	Gen	Indiv	8	4	31	3	117	

MICHIGAN—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Unionville 478—Lansing	Gen	Indiv	6	2	3			
Unionville General Hospital	Gen	Indiv	6	2	3			
Wahjameka 111—Lansing	Gen	Indiv	6	2	3			
Michigan Farm Colony for epileptics	Epil	State	97		919	00		
West Branch 1 161—Ontonagon	Gen	City	18	3	15	0	4	
Loftree Memorial Hospital	Gen	City	18	3	15	0	4	
Summary for Michigan								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related institutions	19	3,207	20 00	2,441				
	47	7,275	6 10	14 00				
Totals	240	41 41	00	25 10				
Refused registration	17	451						

MINNESOTA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Ada 12 1—Norman	Gen	Indep	11	2	20	4	501	
Norman County Memorial Hospital	Gen	Indep	11	2	20	4	501	
Albany 41—Case	TB	State	0		71	2		
Minnesota State Sanat	TB	State	0		71	2		
Albert Lea 10 10—Frederick	Gen	Indep	70	10	22	00	1,019	
Norfolk Hospital	Gen	Indep	70	10	22	00	1,019	
Alexandria 1876—Douglas	Gen	Indep	20	6	4	11	412	
Douglas County Hospital	Gen	Indep	20	6	4	11	412	
St. Luke's Hospital	Gen	Indiv	16		1		400	
Anoka 4 81—Anoka	Gen	Indiv	14	6	0			
Guthrie Hospital	Gen	Indiv	14	6	0			
Applon 1 6—Swift	Gen	Indiv	15	3	8	00		
Kaufman Hospital	Gen	Indiv	15	3	8	00		
Austin 12 20—Mower	Gen	Indiv	60	11	100	0	1 21	
St. Olaf Lutheran Hospital	Gen	Chrch	60	11	100	0	1 21	
Bagley 88—Clearwater	Gen	Indiv	10	2	4			
Clearwater Hospital	Gen	Indiv	10	2	4			
Barrett 4—Grant	Surg	Indiv	10		2	101		
Powers Hospital	Surg	Indiv	10		2	101		
Battle Lake 30—Otter Tail	TB	Co	44		0	20		
Otter Tail County Sanat	TB	Co	44		0	20		
Bemidji 7 20—Beltrami	Gen	Indep	26	4	61	10	30	
Lutheran Hospital	Gen	Indep	26	4	61	10	30	
Benson 2 00—Swift	Gen	Indep	10	5	40	0	314	
Swift County Hospital	Gen	Indep	10	5	40	0	314	
Blwabik 1 81—St. Louis	Gen	Indiv	12	5	3	10		
Blwabik Hospital	Gen	Indiv	12	5	3	10		
Blue Earth 2 84—Faribault	Gen	Indiv	10	4	0			
Blue Earth Hospital	Gen	Indiv	10	4	0			
Braham 70—Isanti	Gen	Indiv	12	4	30	3	117	
Braham Hospital	Gen	Indiv	12	4	30	3	117	
Brainerd 10 221—Crow Wing	Gen	Chrch	70	1	10	40	1 22	
St. Vincent's Hospital	Gen	Chrch	70	1	10	40	1 22	
Breckenridge 2 064—Wilkin	Gen	Chrch	50	8	14	2	00	
St. Francis Hospital	Gen	Chrch	50	8	14	2	00	
Buffalo 1 40—Wright	Gen	Indiv	12	3	14	7	1 1	
Catlin Hospital	Gen	Indiv	12	3	14	7	1 1	
Caledonia 1 04—Houston	Gen	Indiv	17	0	01	6	00	
Caledonia Hospital	Gen	Indiv	17	0	01	6	00	
Cambria 1 78—Yellow Medicine	Gen	City	10		30		174	
John Swenson Memorial Hospital	Gen	City	10		30		174	
Cannon Falls 1 38—Goodhue	TB	Co	100		00			
Mineral Spring Sanatorium	TB	Co	100		00			
Cloquet 6 782—Carlton	Gen	Indiv	11	4	4			
Eppard Hospital	Gen	Indiv	11	4	4			
Fond du Lac Indian Hosp	Gen	Part	20	4	10	410		
Rafter Hospital	Gen	Part	20	4	10	410		
Cokato 1 12—Wright	Gen	Indiv	10	3	0	1	70	
Cokato Hospital	Gen	Indiv	10	3	0	1	70	
Crookston 0 321—Polk	Gen	Chrch	10	9	60	21	640	
Bethesda Hospital	Gen	Chrch	10	9	60	21	640	
St. Vincent's Hospital	Gen	Chrch	10	9	60	21	640	
Sunnyrest Sanatorium	TB	Co	60		0	40	30	
Crosby 3 41—Crow Wing	Gen	Indiv	20	6	1	4	221	
Miner's Hospital	Gen	Indiv	20	6	1	4	221	
Dawson 1 86—Lac qui Parle	Gen	Indep	20	4	0	0	23	
Dawson Surgical Hospital	Gen	Indep	20	4	0	0	23	
Deerwood 302—Crow Wing	TB	Co	24		10	22	00	
Deerwood Sanatorium	TB	Co	24		10	22	00	
Detroit Lakes 3 675—Becker	Gen	Indep	10	0	04	11	3 6	
Community Hospital	Gen	Indep	10	0	04	11	3 6	
Duluth 101 463—St. Louis	Gen	Indiv	20	4	4	40		
Duluth Hospital	Gen	Indiv	20	4	4	40		
St. Luke's Hospital*	Gen	Indep	20	3	04	144	4 384	1 460
St. Mary's Hospital*	Gen	Chrch	260	00	000	157	0 129	4 180
Webber Hospital	Gen	Indiv	07	10	137	20	1 010	2 120
Ellsworth 644—Nobles	Gen	Indiv	10	3	6	2	20	1 000
Ellsworth Hospital	Gen	Indiv	10	3	6	2	20	1 000
Lily 6 150—St. Louis	Gen	Part	10	3	20	0	177	
Shipman Hospital	Gen	Part	10	3	20	0	177	
Evelev 7 454—St. Louis	Gen	Indep	30	8	68	10	00	3 320
More Hospital	Gen	Indep	30	8	68	10	00	3 320
Fairmont 0 321—Martin	Gen	Part	12	4	10	5	180	
Fairmont Hospital	Gen	Part	12	4	10	5	180	
Faribault 12 767—Rice	Gen	Chrch	40	10	2 2	00	040	
St. Lucas Evangelical Deaconess Hospital	Gen	Chrch	40	10	2 2	00	040	

Key to symbols and abbreviations is on page 1021

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Farmington 1,342—Dakota Community Hospital	Cen Indiv		20	4		10	740	
Fergus Falls 989—Otter Tail								
Fergus Falls State Hosp	Ment State		1,912		188		679	
George B. Wright Memorial Hospital	Cen Indep		40	12	77	15	60	
St. Luke's Hospital	Gen Indiv		48	8	76	16	86	
Ft. Snelling 1,377—Hennepin	Cen Army		100	10	17	90	912	
Station Hospital	Cen Army		662		400	1,964	12,400	
Veterans Admin. Facility	CA TB Vet							
Foston 988—Polk								
Foston Hospital	Cen Part		10	4	42	6	181	
Graceville 969—Big Stone								
Western Minnesota Hospital	Gen Indiv		10	1	0	16	607	
Grand Rapids 3,296—Itasca								
Itasca Hospital	Cen Co		41	7	108	21	8.7	
Granite Falls 1,791—Yellow Medicine								
Granite Falls Hospital	Cen Indiv		10	0	27	6	196	
Riverside Sanatorium	TB Co		64			1	26	811
Hallbrook 888—Milton								
Milton War Veterans Memorial Hospital	Cen Co		10	6	65	11	44	
Hastings 1,086—Dakota								
St. Raphael Hospital	Gen Indiv		18	1		10		
Hendricks 702—Lincoln								
Hendricks Hospital	Cen Indiv		14	0	24	9	80	
Heron Lake 766—Jackson								
Southwestern Minnesota Hospital	Cen Indiv		12	2	16	2	95	
Hibbing 1,666—St. Louis								
Adam Hospital	Cen Indiv		21	6	4	9	491	
Road Hospital	Gen Indiv		40	10	11	11	790	4,706
Hutchinson 1,466—McLeod								
Hutchinson Community Hospital	Cen Indiv		24	6		10	461	
International Falls 5,036—Koochiching								
Craig Hospital	Gen Indiv		22	6	27	7	206	
Northern Minnesota Hosp	Gen Indiv		40	6		1	1,000	
Jackson 2,906—Jackson								
Halloran Hospital	Gen Indiv		10	3	23	5	174	
Lake City 3,210—Wabasha								
Lake City Hospital	Cen Indiv		10	4	1	9	21	
Lake Park 634—Becker								
Sand Beach Sanatorium	TB Co		46			43	26	487
Litchfield 2,880—Meeker								
Litchfield Hospital	Cen Indiv		20	6	64	16	701	
Little Falls 5,014—Morrison								
St. Gabriel's Hospital	Cen Chrch		40	10	103	17	1,001	
Long Prairie 1,844—Todd								
Long Prairie Hospital	Gen Part		10	3	20	1	116	
Lyon 9,644—Rock								
Lyerne Hospital	Gen Part		11	6	76	4	200	
Madelia 1,397—Watsonwan								
Madelia Hospital	Gen Indiv		13	4	60	4	182	
Madison 1,916—Laurel								
Phenex Lutheran Hosp	Cen Chrch		20	4		6	301	
Manakato 14,088—Blue Earth								
Immanuel Hospital	Cen Chrch		60	11	109	20	734	
St. Joseph's Hospital	Cen Chrch		120	20	260	40	1,134	230
Marshall 3,900—Lyon								
Marshall Hospital	Cen Indiv		20	5	11	8	242	
Melrose 1,601—Stearns								
Melrose Hospital	Gen Indiv		10	4		3	121	420
Minneapolis 404—Hennepin								
Abbott Hospital	Gen Chrch		90	18	186	16	2,234	
Abury Hospital	Gen Chrch		127	18	720	71	2,152	
Achel Hospital	Gen Indiv		100	20	341	68	2,781	
Fairview Hospital	Gen Chrch		200	20	394	108	3,180	
Harriet Walker Hospital	Mat Indiv		50	35	87	23	98	
Hill Crest Surgical Hosp	Gen Indiv		46	20	297	25	974	
Lutheran Deaconess Home and Hospital	Gen Chrch		120	30	421	83	2,880	
Maternity Hospital	Mat Ch Indiv		83	34	577	69	1,011	600
Minneapolis Gen Hosp	Gen City		616	60	1,666	529	12,441	20,941
Minnesota General Hosp	(See University Hospitals)							
Northwestern Hospital	Gen Indiv		165	20	275	46	3,087	
St. Andrew's Hospital	Gen Chrch		80	20	367	53	1,495	
St. Barnabas Hospital	Gen Chrch		150	16	369	64	2,212	
St. Mary's Hospital	Gen Chrch		245	30	510	139	4,025	1,225
Shriners Hospital for Crippled Children	Orth Frat		60			60	241	624
Swedish Hospital	Cen Indiv		271	42	686	141	4,280	2,253
University Hospitals	Gen State		410	0	411	324	7,604	21,607
Montevideo 4,310—Chippewa								
Montevideo Hospital	Gen Indiv		0	10	107	22	794	
Moorehead 7,601—Clay								
St. Ansgar Hospital	Gen Chrch		0	10	100	34	1,000	
Moore Lake 742—Carlton								
Moore Lake Community Hospital	Gen Indiv		12	3	41	4	123	
Morris 2,474—Stevens								
Morris Hospital	Gen Indiv		12	4	21	5	197	
Mountain Lake 1,388—Cottonwood								
Bethel Hospital	Gen Chrch		21	0	0	5	224	
New Prague 1,543—Le Sueur								
New Prague Community Hospital	Gen Indiv		20	3	12	5	222	
New Ulm 7,308—Brown								
Loretto Hospital	Gen Chrch		41	8	91	22	618	172
Union Hospital	Gen Indiv		50	9	91	21	800	
Norwegian, 12—St. Louis								
Norwegian Sanatorium	TB Co		2.0			230	64	1,400
Northfield 4,153—Rice								
Northfield Hospital	Gen Indiv		10	4	34	3	129	

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Oak Terrace—Hennepin								
Glen Lake Sanatorium	TB Co		700				701	4,695
Onitum 19—Cass								
Chippewa Tuberculosis Sanatorium and General Hosp	CA TB I A		76	2	79	78	467	1,910
Ortonville 2,017—Big Stone								
Ortonville Evangelical Hosp	Gen Chrch		20	4	26	5	278	
Owatonna 7,634—Steele								
Owatonna City Hospital	Gen City		46	9	124	15	687	
Paynesville 1,121—Stearns								
Paynesville Hospital	Cen Indiv		12	2		5		
Perham, 1,411—Otter Tail								
St. James Hospital	Cen Chrch		40	5	71	24	798	
Pipestone 3,480—Pipestone								
Ashton Memorial Hospital	Gen CyCo		43	4	38	14	390	
Pokagama—Pine								
Pokagama Sanatorium	TB Indiv		06			22	47	
Princeton 1,676—Mille Lacs								
Northwestern Hospital	Gen Indiv		30	4	17	0	1,690	1,709
Pupokj 6—Beltrami								
Lake Julia Tuberculosis Sanatorium	TB Co		03			41	46	
Redlake 214—Beltrami								
Red Lake Indian Hospital	Cen I A		25	6		21	689	
Red Wing 9,629—Goodhue								
Red Wing Hospital	Cen City		76	4	60	27	847	
St. John's Hospital	Gen Indiv		70	11	138	71	842	
Redwood Falls 2,352—Redwood								
Redwood Falls Hospital	Gen Part		15	4	72	5	241	
Richmond 603—Stearns								
Richmond Hospital	Gen Indiv		10		18	4	240	
Rochester 20,621—Olmsted								
Colonial Hospital	Cen Indiv		266			166	523	
Rochester State Hospital	Ment State		1,660			1,665	590	
St. Mary's Hospital	Gen Chrch		067	26	426	270	6,213	
Worral Hospital and An	SkCa ENT Indiv		191			86	5,837	4,680
Roseau 1,028—Roseau								
Budd Hospital	Gen Indiv		10	2	9	4	284	
St. Cloud 21,000—Stearns								
St. Cloud Hospital	Gen Chrch		181	20	279	106	2,636	74
Veterans Admin. Facility	Ment Vet		703			08	226	
St. James, 2,808—Watsonwan								
St. James Hospital	Gen Chrch		20	6		13		
St. Paul 271,606—Ramsey								
Ancker Hospital	Gen CyCo		1,000	00	1,446	718	10,478	12,740
Bethesda Hospital	Gen Chrch		100	20	281	62	2,093	
Charles T. Miller Hosp	Cen Indiv		200	20	008	91	2,952	13,209
Children's Hospital	Chil Indiv		70			18	729	
Gillette State Hospital for Crippled Children	Orth State		200			222	432	1,223
Midway Hospital	Gen Chrch		100	25	411	76	2,197	2,004
Mounds Park Sanitarium	Gen Chrch		120	12	101	77	1,380	325
Northern Pacific Beneficial Association Hospital	Gen Indiv		150	12	109	78	2,295	13,360
St. John's Hospital	Gen Chrch		75	15	210	37	1,824	
St. Joseph's Hospital	Gen Chrch		246	24	614	99	5,785	
St. Luke's Hospital	Gen Indiv		120	25	389	59	2,034	490
West Side General Hospital	Gen Chrch		00	16	219	32	781	
St. Peter 4,817—Nicollet								
Covell Hospital	Gen Indiv		26	10	66	9	312	
St. Peter State Ho p	Ment State		2,027			1,881	637	
Slayton 1,102—Murray								
Home Hospital	Gen Part		22	4	27	10	477	246
Soudan 20—St. Louis								
Soudan Hospital	Gen Indiv		15	4		10		
Springfield 2,049—Brown								
St. John's Hospital	Gen Chrch		22	5	42	6	223	
Spring Grove 867—Houston								
Spring Grove Hospital	Gen Indiv		14	6	82	5	196	
Starbuck 781—Pope								
Minnewaska Hospital	Gen Indiv		15	5	2	5	181	
Stillwater, 7,173—Washington								
Lakerew Memorial Hosp	Gen CyCo		37	6	100	15	028	132
Thief River Falls 4,268—Pennington								
Oakland Park Sanatorium	TB Co		57			54	27	220
Physicians Hospital	Gen Indiv		24	6	47	9	390	
St. Luke's Hospital	Gen Indiv		39	6	43	17	660	
Tracy, 2,570—Lyon								
Clinic Hospital	Gen Part		16	4	2	6	230	
Tracy Hospital	Gen Indiv		17	4	60	8	424	
Two Harbors 4,432—Lake								
Burns and Christensen Hospital	Gen Part		0	7	67	20	016	5,000
Tyler 900—Lincoln								
Tyler Hospital	Gen Indiv		12	5	41	8	292	
Virginia 11,963—St. Louis								
Lenont Hospital	Gen Indiv		20	3				
Virginia General Hospital	Gen Part		10	4	00	4	194	
Wabasha 2,212—Wabasha								
Buena Vista Sanatorium	TB Co		29			24	20	
St. Elizabeth's Hospital	Gen Chrch		38	6	31	10	585	
Wadena 2,512—Wadena								
Fair Oaks Lodge Sanat	TB Co		08			70	31	0
Wesley Hospital	Gen Chrch		40	5	64	18	636	
Walker 618—Cass								
Walker Hospital	Gen Indiv		32	6	32	6	296	
Warren 1,472—Marshall								
Warren Hospital	Gen Chrch		00	6	01	8	297	
Waseca 351—Waseca								
Waseca Memorial Hospital	Gen City		26	8	00	7	246	
Wheaton 1,279—Traverse								
Wheaton Hospital	Gen Indiv		12	2		0	227	

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
White Earth 415—Becker	Gen	I A	20	6	84	18	571	2850
White Earth Indian Hosp	Gen	Indiv	24	8	28	7	272	
Willmar 6173—Kandiyohi	Gen	Indep	11	4		16		2,400
Willmar General Hospital	Gen	Indep	11	4		16		
Willmar Hospital	Gen	Indep	11	4		16		
Windom 2123—Cottonwood	Gen	City	12	2	21	6	237	
Wisdom Hospital	Gen	City	12	2	21	6	237	
Winnebago 1701—Larabault	Gen	Part	10	4	23	3	111	
Winnebago Community Hos	Gen	Part	10	4	23	3	111	
Winona 2080—Winona	Gen	Indep	11	16	24	33	1,409	7
Winona General Hosp	Gen	Indep	11	16	24	33	1,409	7
Worthington 3878—Noble's	TB	Co				52	37	
Southwestern Minnesota Tu	Gen	Part	2		41	10	1/4	
berculosis Sanatorium	Gen	Indiv	10	6	46	8	470	
Worthington Clinic Hosp	Gen	Indiv	10	6	46	8	470	
Worthington Hospital	Gen	Indiv	10	6	46	8	470	

Related Institutions

Altlin 1545—Altlin	Gen	Indiv	9	4	12	1	104	
Becker Hospital	Gen	Indiv	9	4	12	1	104	
Anoka 4831—Anoka	Gen	Indiv	9	4	12	1	104	
Anoka State Asylum	Gen	Indiv	9	4	12	1	104	
Buhl 104—St Louis	Gen	Indiv	9	4	12	1	104	
St Louis County Hospital	Gen	Indiv	9	4	12	1	104	
Cambridge 1184—Isanti	Gen	Indiv	9	4	12	1	104	
Minnesota Colony for Epileptics	Gen	Indiv	9	4	12	1	104	
Collegeville—Stearns	Gen	Indiv	9	4	12	1	104	
St John's University Hosp	Gen	Indiv	9	4	12	1	104	
Detroit Lakes 3076—Becker	Gen	Indiv	9	4	12	1	104	
Detroit Hospital	Gen	Indiv	9	4	12	1	104	
Duluth 101463—St Louis	Gen	Indiv	9	4	12	1	104	
St Louis County Alms	Gen	Indiv	9	4	12	1	104	
house Dispensary	Gen	Indiv	9	4	12	1	104	
Fly 6156—St Louis	Gen	Indiv	9	4	12	1	104	
Detention Hospital	Gen	Indiv	9	4	12	1	104	
Larabault 12767—Rice	Gen	Indiv	9	4	12	1	104	
Minnesota School for Feeble minded	Gen	Indiv	9	4	12	1	104	
Minnesota School for the Deaf	Gen	Indiv	9	4	12	1	104	
Gaylord 812—Sibley	Gen	Indiv	9	4	12	1	104	
Gaylord Hospital	Gen	Indiv	9	4	12	1	104	
Glenwood 2220—Pope	Gen	Indiv	9	4	12	1	104	
Glenwood Hospital	Gen	Indiv	9	4	12	1	104	
Greenbush 387—Rosenau	Gen	Indiv	9	4	12	1	104	
General Hospital	Gen	Indiv	9	4	12	1	104	
Hastings 5086—Dakota	Gen	Indiv	9	4	12	1	104	
Hastings State Asylum	Gen	Indiv	9	4	12	1	104	
Hibbing 15666—St Louis	Gen	Indiv	9	4	12	1	104	
Hibbing Detention Hosp	Gen	Indiv	9	4	12	1	104	
Minneapolis 464356—Hennepin	Gen	Indiv	9	4	12	1	104	
Barton Loring Home for Convalescents	Gen	Indiv	9	4	12	1	104	
Homeview Hospital	Gen	Indiv	9	4	12	1	104	
Minneapolis Sanitarium	Gen	Indiv	9	4	12	1	104	
Minnesota Sanitarium	Gen	Indiv	9	4	12	1	104	
Minnesota Soldiers Home	Gen	Indiv	9	4	12	1	104	
Hospital	Gen	Indiv	9	4	12	1	104	
Parkview Sanatorium	Gen	Indiv	9	4	12	1	104	
Portland Resthome	Gen	Indiv	9	4	12	1	104	
Rest Home	Gen	Indiv	9	4	12	1	104	
Rest Hospital	Gen	Indiv	9	4	12	1	104	
Vocational Nursing Home	Gen	Indiv	9	4	12	1	104	
Mudbaden—Scott	Gen	Indiv	9	4	12	1	104	
Mudbaden Sulphur Springs	Gen	Indiv	9	4	12	1	104	
Owatonna 7654—Steele	Gen	Indiv	9	4	12	1	104	
Minnesota State Public School	Gen	Indiv	9	4	12	1	104	
Parkers Prairie 631—Otter Tail	Gen	Indiv	9	4	12	1	104	
Leibold Hospital	Gen	Indiv	9	4	12	1	104	
Pelleau Rapids 1366—Otter Tail	Gen	Indiv	9	4	12	1	104	
Dr Boysen's Hospital	Gen	Indiv	9	4	12	1	104	
Pelleau Rapids Hospital	Gen	Indiv	9	4	12	1	104	
Pipestone 3459—Pipestone	Gen	Indiv	9	4	12	1	104	
Pipestone Indian Sch Hosp	Gen	Indiv	9	4	12	1	104	
Red Wing 9629—Goodhue	Gen	Indiv	9	4	12	1	104	
Minnesota State Training School for Boys	Gen	Indiv	9	4	12	1	104	
Rochester 20621—Olmsted	Gen	Indiv	9	4	12	1	104	
Cascade Sanitarium	Gen	Indiv	9	4	12	1	104	
St Cloud 21606—Stearns	Gen	Indiv	9	4	12	1	104	
Minnesota State Reforma	Gen	Indiv	9	4	12	1	104	
tory Hospital	Gen	Indiv	9	4	12	1	104	
St Paul 27166—Ramsey	Gen	Indiv	9	4	12	1	104	
Children's Preventorium of Ramsey County	Gen	Indiv	9	4	12	1	104	
Mrs Robbins Rest Home	Gen	Indiv	9	4	12	1	104	
Salvation Army Home and Hospital	Gen	Indiv	9	4	12	1	104	
Sauk Center 2716—Stearns	Gen	Indiv	9	4	12	1	104	
Long Hospital	Gen	Indiv	9	4	12	1	104	
Shakopee 2023—Scott	Gen	Indiv	9	4	12	1	104	
Mudeura Sanitarium	Gen	Indiv	9	4	12	1	104	
Stillwater 7173—Washington	Gen	Indiv	9	4	12	1	104	
Minnesota State Prison Hospital	Gen	Indiv	9	4	12	1	104	
Virginia 11963—St Louis	Gen	Indiv	9	4	12	1	104	
City Detention Hospital	Gen	Indiv	9	4	12	1	104	
Watertown 394—Carver	Gen	Indiv	9	4	12	1	104	
Cottage Hospital	Gen	Indiv	9	4	12	1	104	
Shrader and Lee Hospital	Gen	Indiv	9	4	12	1	104	

MINNESOTA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Wayzata 1100—Hennepin	Gen	Indiv	10	3		4		
Minnetonka Hospital	Gen	Indiv	10	3		4		
Willmar 6173—Kandiyohi	Gen	Indiv	10	3		4		
Willmar State Asylum	Gen	Indiv	10	3		4		
Summary for Minnesota								
Hospitals and sanatoriums	Number		Beds		Average Patients		Patients Admitted	
Related institutions	45		7,841		6,574		9,471	
Totals	21		27,100		20,000		180,051	
Refused registration	7		175					

MISSISSIPPI

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Aberdeen 3162—Monroe	Gen	Indep	20	2	6	4	1.0	
Aberdeen Hospital	Gen	Indep	20	2	6	4	1.0	
Amory 214—Monroe	Gen	Ind p	3	3	21	11	483	
(Monroe Sanitarium)	Gen	Ind p	3	3	21	11	483	
Biloxi 1450—Harrison	Gen	Indep	20	2	6	4	1.0	
Biloxi Hospital	Gen	Indep	20	2	6	4	1.0	
Veterans Admin Facility	Gen	Vet	20	2	6	4	1.0	
Booneville 1703—Prentiss	Gen	Vet	20	2	6	4	1.0	
North East Missippi Hos	Gen	Indep	20	2	6	4	1.0	
pitalo	Gen	Indep	20	2	6	4	1.0	
Brookhaven 288—Lincoln	Gen	Indep	20	2	6	4	1.0	
Kings Daughters Hospital	Gen	Indep	20	2	6	4	1.0	
Canton 42—Madison	Gen	Indep	20	2	6	4	1.0	
Madison County Kings	Gen	Indep	20	2	6	4	1.0	
Daughters Hospital	Gen	Indep	20	2	6	4	1.0	
Centerville 1344—Wilkinson	Gen	Indep	20	2	6	4	1.0	
Field Memorial Hospital	Gen	Indep	20	2	6	4	1.0	
Charleston 2614—Tallahatchie	Gen	Indiv	20	2	6	4	1.0	
Charleston Hospital	Gen	Indiv	20	2	6	4	1.0	
Charlestown 10634—Columbia	Gen	Indep	22	5	48	6	417	
Charlestown Hospital	Gen	Indep	22	5	48	6	417	
Columbia 10743—Columbia	Gen	Indiv	20	2	23	17	440	5,400
Columbia Hospital	Gen	Indiv	20	2	23	17	440	5,400
Columbus 10743—Columbus	Gen	Indiv	20	2	23	17	440	5,400
Columbus Hospital	Gen	Indiv	20	2	23	17	440	5,400
Corinth 6220—Alcorn	Gen	Indiv	12	3	18	3	177	1,000
Corinth Hospital	Gen	Indiv	12	3	18	3	177	1,000
Corinth Hospital	Gen	Indiv	12	3	18	3	177	1,000
Electric Mills 1084—Kemper	Gen	Indiv	20	2	6	4	1.0	
George C. Hixon Memorial	Gen	Indiv	20	2	6	4	1.0	
Hospital	Gen	Indiv	20	2	6	4	1.0	
Fondren (Jackson P O)—Hinds	Gen	Indiv	20	2	6	4	1.0	
Mississippi State Hospital	Gen	Indiv	20	2	6	4	1.0	
Greenwood 14507—Washington	Gen	Indep	100	14	11	50	1,441	
Kings Daughters Hospital	Gen	Indep	100	14	11	50	1,441	
Greenwood 11125—Jefferson	Gen	Indep	100	14	11	50	1,441	
Greenwood Hospital	Gen	Indep	100	14	11	50	1,441	
Grenada 4349—Grenada	Gen	Indep	100	14	11	50	1,441	
Grenada General Ho p o	Gen	Indep	100	14	11	50	1,441	
Gulfport 12547—Harrison	Gen	Indep	100	14	11	50	1,441	
Kings Daughters Hos p o	Gen	Indep	100	14	11	50	1,441	
Veterans Admin Facility	Gen	Indep	100	14	11	50	1,441	
Hattiesburg 18601—Forrest	Gen	Indep	100	14	11	50	1,441	
Methodist Hospital	Gen	Indep	100	14	11	50	1,441	
South Mississippi Infirm o	Gen	Indep	100	14	11	50	1,441	
Houston 1477—Chickasaw	Gen	Indep	100	14	11	50	1,441	
Houston Hospital	Gen	Indep	100	14	11	50	1,441	
Jackson 48282—Hinds	Gen	Indep	100	14	11	50	1,441	
Jackson Infirm o	Gen	Indep	100	14	11	50	1,441	
Mississippi Baptist Hos p o	Gen	Indep	100	14	11	50	1,441	
Mississippi State Charity	Gen	Indep	100	14	11	50	1,441	
Hospital	Gen	Indep	100	14	11	50	1,441	
Dr Willis Walley Hos p o	Gen	Indep	100	14	11	50	1,441	
Laurel 18017—Jones	Gen	Indep	100	14	11	50	1,441	
Laurel General Hospital	Gen	Indep	100	14	11	50	1,441	
South Mississippi Charity	Gen	Indep	100	14	11	50	1,441	
Hospital	Gen	Indep	100	14	11	50	1,441	
Lexington 2590—Holmes	Gen	Indep	100	14	11	50	1,441	
Holmes County Community	Gen	Indep	100	14	11	50	1,441	
Hospital	Gen	Indep	100	14	11	50	1,441	
Macon 2108—Novacee	Gen	Indep	100	14	11	50	1,441	
Macon Hospital	Gen	Indep	100	14	11	50	1,441	
McComb 10057—Pike	Gen	Indep	100	14	11	50	1,441	
McComb City Hospital	Gen	Indep	100	14	11	50	1,441	
McComb Infirm o	Gen	Indep	100	14	11	50	1,441	
Meridian 3194—Lauderdale	Gen	Indep	100	14	11	50	1,441	
Anderson Infirm o	Gen	Indep	100	14	11	50	1,441	
East Mississippi State Hos p	Gen	Indep	100	14	11	50	1,441	
Matt Hersee Hospital	Gen	Indep	100	14	11	50	1,441	
Meridian Sanit and Clinic	Gen	Indep	100	14	11	50	1,441	
Dr F G Riley's Hospital	Gen	Indep	100	14	11	50	1,441	

MISSISSIPPI—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
New Albany Hospital and Clinic	Gen	Indep	12	2	7	6	267	
Newton, 2011—Newton Newton Infirmary	Gen	Indep	2	3	22	8	411	55
Oxford 2 500—Lafayette Bramlett Hospital	Gen	Part	2	4	20	12	266	
Oxford Hospital	Gen	Indiv	30	5		11	746	
Pascagoula 4,339—Jackson Jackson County Hospital	Gen	Co	27	4		6	230	
Philadelphia 2 560—Neshoba Choctaw Mississippi Hosp	Gen	I A	31	6		16		
Philadelphia Hospital	Gen	Indiv	10	12	22	4	15	
Pleasure, 4 098—Pearl River Martin Sanatorium	Gen	Indiv	24	12		8		
Poplarville 1 400—Pearl River Pearl River County Hosp	Gen	Indep	20	2		5	212	
Roedale 2 117—Boltar Kings Daughters Hospital	Gen	Indep	12	2	14	3	122	
Sanatorium 61—Simpson Mississippi State Tubercu- losis Sanatorium	TB	State	450			284	346	512
Starkville 3 617—Oktibbeha Oktibbeha Hospital	Gen	Indiv	10	2	15	6	214	
Tupelo 6 611—Lee Tupelo Hospital	Gen	Indep	42	4		12	678	117
Vicksburg 22 943—Warren Mississippi State Charity Hospital	Gen	State	90	15		50		
Vicksburg Hospital	Gen	Indiv	50	6	42	19	1 003	5 401
Vicksburg Infirmary	Gen	Indiv	100	5	60	44	1 340	615
Vicksburg Sanatorium and Crawford Street Hosp	Gen	Indep	75	6	49	26	1 180	5 603
Water Valley 3 735—Yalobusha Water Valley Hospital	Gen	Part	23	3	5	5	193	2 276
West Point, 4 677—Clay Ivy Hospital	Gen	Indiv	2	6	3	12	220	
Winona, 2 607—Montgomery Winona Infirmary	Gen	Indep	30	2	19	6	210	
Yazoo City 5 510—Yazoo Kings Daughters Hospital	Gen	Indep	25	6		3		

Related Institutions

Biloxi 14 830—Harrison Jefferson Davis Soldiers Home	Inst	State	60			40	40	
Cary 419—Sharkey Dr W C Pools Sanitarium	Gen	Indiv	7			1	30	
Clarksdale 10 034—Coahoma Ancient Order of Watchmen Hospital (col)	Gen	Frat	15			3		
Ellisville 2 127—Jones Ellisville State School	McDe	State	500			300		
Greenville 14 807—Washington Kings Daughters Hospital (col)	Gen	Indep	65		4	4	178	
Greenwood 11 123—Leflore Greenwood Colored Hosp	Gen	Indiv	15			4		
Meridian 31 934—Lauderdale Kings Daughters Tubercu- losis Hospital	TB	Indep	44			22	26	
Okolona 2 230—Chickasaw Wicks Hospital	Gen	Indiv	10	1	6	2	50	
State College 300—Oktibbeha James Z George Memorial Hospital	Inst	State	44			4	247	
University 15—Lafayette University of Mississippi Hospital	Inst	State	20			4		

Summary for Mississippi

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums	65	7 339	5 203	49 300
Related institutions	10	780	384	943
Totals	75	8 119	5 637	50 243
Refused registration	2	72		

MISSOURI

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Bonne Terre 4,021—St Francis	Gen	Indep	30	7	47	12	417	
Bonne Terre Hospital Booneville 6 433—Cooper St Joseph's Hospital	Gen	Chrch	75	14	55	27	863	
Butler 2 706—Bates Butler Memorial Hospital	Gen	Indiv	16	2	26	5	235	
California 2 354—Monteau Latham Sanitarium	Gen	Indiv	33	2	1	10	775	
Cape Girardeau 16 927—Cape Girardeau St Francis Hospital	Gen	Chrch	50	6		27	930	
Southeast Missouri Hosp	Gen	Indep	65	10	77	31	1 031	220
Carrollton 4 638—Carroll Cook's Hospital	Gen	Indiv	12	2		4	150	
Carthage 9 736—Jasper McCune-Brooks Hospital	Gen	City	38	6	49	14	615	91
Chillicothe 8 117—Livingston Chillicothe Hospital	Gen	Part	20	3	19	8	294	

MISSOURI—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Clayton 9 613—St Louis St Louis County Hosp **	Gen	Co	220	38	692	144	4 775	6 168
Columbia 14 967—Boone Boone County General Hos- pital	Gen	Co	46	4	53	19	740	
State Hospital for Crip- pled Children	(Included in University Hospitals)							
University Hospitals	Gen	State	100	8	38	62	2 314	5 590
Excelsior Springs, 4 560—Clay Excelsior Springs Sanita- rium and Hospital	Gen	Part	24			10	254	
Veterans Admin Facility	Gen	Vet	232			236	1 048	
Farmington 3 001—St Francis Missouri State Hosp No 4*	Ment	State	1 196			1 067	428	78
Fayette 2 630—Howard Lee Hospital	Gen	Part	20	5	60	6	345	
Fulton 6 100—Callaway State Hospital No 1	Ment	State	1 700			1 678	302	
Glendale (Kirkwood P O) 1 451—St Louis Oakland Park Hospital	N&M	Indep	16			6		
Hannibal 22 761—Marion Levering Hospital	Gen	City	78	18	95	29	1 197	
St Elizabeth's Hospital	Gen	Chrch	60	10	127	44	1 056	
Harrisonville 2 306—Cass Harrisonville Hospital	Gen	Indiv	10		8	3	137	
Independence 15 206—Jackson Independence Sanitarium and Hospital	Gen	Chrch	68	12	232	40	1 575	
Jefferson Barracks 842—St Louis Station Hospital	Gen	Army	116	3	26	28	871	3 714
Veterans Admin Facility	Gen	Vet	372			305	1,560	
Jefferson City, 21 596—Cole St Mary's Hospital	Gen	Chrch	100	10	111	38	1 229	720
Joplin 33 404—Jasper Freeman Community Hosp	Gen	Indep	80	12	51	22	938	100
St John's Hospital	Gen	Chrch	100	10	142	40	3,061	
Kansas City 299 740—Jackson Children's Mercy Hospital	Chil	Indep	163	12		159	2 500	19,395
Fairmount Maternity Hosp	Mat	Indiv	50	50		20	144	
Kansas City Gen Hosp *	Gen	City	425	25	1 008	393	8,200	13 097
Kansas City General Hospi- tal No 2 (col) *	Gen	City	200	24	327	100	3 046	5,397
Kansas City Industrial Hosp	Gen	Indep	12	4	17	4	100	1 000
Kansas City Tuberculosis Hospital	TB	City	170			165	166	
Menorah Hospital*	Gen	Indep	133	30	298	76	2 127	128
Ralph Sanitarium	Drug	Indiv	20			10	125	
Research Hospital*	Gen	Indep	200	20	341	109	3 831	
Robinson Neuropsychiatric Clinic	N&M	Indiv	48			22	146	
St Joseph Hospital*	Gen	Chrch	230	26	299	168	3 398	
St Luke's Hospital*	Gen	Chrch	208	27	406	115	5 303	
St Mary's Hospital*	Gen	Chrch	165	16	116	100	2 878	
St Vincent's Maternity Hospital	Mat	Chrch	42	35	467	15	504	
Simpson Major Sanitarium	N&M	Part	30			17	178	
Trinity Lutheran Hosp *	Gen	Chrch	120	24	337	72	2 024	
Vineyard Park Hospital	Surg	Indiv	35			25	864	
Wesley Hospital	Gen	Indep	95	15	55	21	728	
Wheatley Provident Hospi- tal (col) *	Gen	Indep	67	2	18	12	438	6 206
Willows Maternity Sanit	Mat	Ch	90	75	209	46	224	
Kirksville 8 293—Adair Crim Smith Hospital and Clinic	Gen	Indep	40	2		14	537	4 000
Louisiana 3,549—Pike Pike County Hospital	Gen	Co	50	11	34	12	418	
Macon 3 801—Macon Samaritan Hospital	Gen	Indiv	15	6		4	105	
Marcelline 3 555—Linn B B Putman Memorial Hospital	Gen	Indiv	15	3	20	10	371	
Maryville 5 217—Nodaway St Francis Hospital	Gen	Chrch	70	6	83	19	764	
Moberly 13 772—Randolph McCormick Hospital	Gen	Indiv	40	5	40	15	436	
Wabash Employees Hosp	Indus	Indus	50			10	365	
Woodland Hospital	Gen	Indep	35	5	32	22	720	
Monett 4 690—Barry Dr William M West's Hosp	Gen	Indiv	18	3		5	200	
Mt Vernon 1 342—Lawrence Missouri State Sanatorium	TB	State	407			351	466	531
Nevada 7 448—Vernon Nevada Medical and Surgi- cal Sanitarium	Gen	Indiv	12	3	6	4	102	375
State Hospital No 3+	Ment	State	1 694			1,658		
Pine Lawn—St Louis Thierson Hosp and Clinic	Gen	Indiv	35	8	27	8	430	2 321
Poplar Bluff 7 551—Butler Brandon Hospital	Gen	Indiv	45	4	16	9	361	1 440
Lucy Lee Hospital	Gen	Indiv	25			18		
Poplar Bluff Hospital	Gen	Indep	38	4	20	19	555	3 000
Robertson 714—St Louis Jewish Sanatorium	TB	Indep	108			71	66	327
Rolla 3 670—Phelps U S Trachoma Hospital	Trach	USPH	38			35	334	3 202
St Charles 10 491—St Charles St Joseph's Hospital	Gen	Chrch	50	8	48	30	1 027	
St James 1 294—Phelps St James Hospital	Gen	Indiv	20			New		
St Joseph 80 935—Buchanan Dr Byrd's Sanitarium	N&M	Indiv	30			15	53	
Missouri Methodist Hosp *	Gen	Chrch	200	20	358	100	3 902	

Key to symbols and abbreviations is on page 1021

MISSOURI—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
St. Joseph's Hospital*	Gen	Chrch	12	14	211	6	1204	
State Hospital No. 2+	Ment	State	2401		2	58	58	
St. Louis 821 960—St. Louis								
Alexian Brothers Hosp.*	Gen	Chrch	250		120	1152	7570	
American Hospital	Gen	Indiv		20	41	12	624	
Barnard Free Skin and Cancer Hospital+	SkCa	Indep	44		38	60	660	
Barnes Hospital**	Gen	Chrch	240		200	6117		
Bethesda General Hosp.	Gen	Indep	10	15	120	28	770	
Central Hospital	Gen	Indep	30	16	90	12	674	
Christian Hospital*	Gen	Indep	108	2	244	40	109	
City Isolation Hospital*	Thls	City	250		18	1042		
City Sanitarium+	Ment	City	2	6	3	361	710	
De Paul Hospital*	Gen	Chrch	250	1	568	127	4734	019
Evangelical Deaconess Home and Hospital*	Gen	Chrch	150	70	70	103	2634	
Firmen Desloge Hospital	Gen	Chrch	248	7		113	29	
Fraser Employees Hosp.	Indus	Indus	100			4	121	709
Jewish Hospital**	Gen	Indep	257	1	19	128	4101	000
Josephine Heltkamp Memorial Hospital	Gen	Chrch	50	8		31		
Lutheran Hospital*	Gen	Chrch	150	70	160	70	7214	91
Missouri Baptist Hosp.*	Gen	Chrch	459	41	22	192	4437	
Missouri Pacific Hospital	Indus	Indus	00			0	3077	
Mt. St. Rose Sanatorium+	TB	Chrch	150			106	196	
Peoples Hospital (col.)	Gen	Indep	50	6		11		
Robert Koch Hospital+	TB	City	503			496	278	
St. Ann's Lying In Hosp.	Mat	Chrch	40	12	50	21	561	
St. Anthony's Hospital*	Gen	Chrch	200	50	72	90	7799	
St. John's Hospital*	Gen	Chrch	336	6	416	172	4814	285
St. Louis Children's Hospital*	Child	Indep	203			91	3096	
St. Louis City Hospital**	Gen	City	850	51	2748	756	10992	
St. Louis City Hospital No. 2 (col.)**	Gen	City	300	40	1076	408	8091	
St. Louis Mater Hosp.*	Mat	Indep	104	104	146	54	1750	1184
St. Luke's Hospital*	Gen	Chrch	178	12	534	123	3243	77
St. Mary's Hospital**	Gen	Chrch	27	4	50	182	5062	0911
St. Mary's Infirmary (col.)	Gen	Chrch	140			88	1948	
St. Vincent's Sanitarium	N&M	Chrch	250			22	107	
Shriners Hospital for Crippled Children+	Orth	Frat	120			119	47	2
U. S. Marine Hospital	Gen	USPH	100			84	56	149
Sedalia 20 806—Pettis								
City Hospital No. 2 (col.)	Gen	City	17	2		2	60	
John H. Bothwell Memorial Hospital	Gen	City	190	0	73	14	662	
Sikeston 5 676—Scott								
Sikeston Hospital	Gen	Part	10	0	10	4	70	
Springfield 57 527—Greene								
Burge Hospital*	Gen	Chrch	85	10	47	21	670	
St. John's Hospital*	Gen	Chrch	100	12	242	61	2101	
Springfield Hospital*	Gen	Indep	88	12	112	48	2067	
U. S. Hospital for Deceptive Delinquents	Ment	Fed	70			New		
Stella 226—Newton								
C. Cardwell Hospital	Gen	Indiv	20	4		10		
Trenton 6 992—Grundy								
Cullers Hospital	Gen	Indiv	20	2	7	4	20	
Wright Hospital	Gen	Indiv	12	4	6	3	11	
Washington 5 918—Franklin								
St. Francis Hospital	Gen	Chrch	56	6	70	23	707	187
Webb City 6 876—Jasper								
Jasper County Tuberculosis Hospital	TB	Co	100			8	92	671
Webster Groves, 16 487—St. Louis								
Glenwood Sanatorium	N&M	Indep	0			19	44	
West Plains 3 330—Howell								
Christa Hogan Hospital	Gen	Indiv	18	2	6	7	199	

Related Institutions

Diamond 515—Newton								
Dr. Riley F. Cheatham's Hospital	Gen	Indiv	5			2	60	
Higginsville 3 339—Lafayette								
Confederate Home Hospital	Inst	State	50			5		
Independence 15 296—Jackson								
Valle Sanitarium	N&M	Indep	18			12	6	
Jefferson City 21 596—Cole								
Missouri State Penitentiary Hospital	Inst	State	70			57	918	
Kansas City 399 746—Jackson	Inst	Indep	0			8	22	
Baptist Hospital	Mat	Indep	14	14	33	12	77	
Florence Crittenton Home								
Florence Crittenton Home (col.)	Mat	Indep	32	28		32		
Trowbridge Training School for Nervous and Backward Children	MeDe	Indiv	20			16	16	
Liberty 3 516—Clay								
Missouri Odd Fellows Home Hospital	Inst	Frat	80			74	880	
Marshall 8 103—Saline								
Missouri State School—Epilepsy and Feeble-minded	MeDe	State	1067			1062	42	
Marthasville 394—Warren								
Evangelical Emmaus Home for Epileptics and Feeble-minded	MeDe	Chrch	120			90		
Mountain Grove 2 229—Wright								
Ryan Hospital	Gen	Indiv	7	1	3	1	36	

MISSOURI—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Ozark 850—Christian								
Ozark Sanatorium	Gen	Indiv	6			2	70	
Paris 1 367—Monroe								
McMurry Hospital	Gen	Indiv	8	1		4		
Markville 6 6—Platte								
Waverly Hospital	Inst	Indep	22			1	200	
Pomona 57—Howell								
Pomona Hospital	Gen	Indiv	1	1	2	3	10	
Rogersville 461—Webster								
Rogersville Hospital	Gen	Indiv	7	2		1	10	900
Rolla 670—Phelps								
Missouri School of Mine Hospital	Inst	State	11			2	147	
St. Charles 10 401—St. Charles								
Evangelical Emmaus Home for Epileptics and Feeble-minded	MeDe	Chrch	14			11	1	
St. James 1 004—Phelps								
State Federal Soldiers Home Hospital	Inst	State	41			27	91	
St. Joseph 80 97—Buchanan								
Sunnyslope Hospital	Thls	City	27			11		
St. Louis 821 960—St. Louis								
City Infirmary	Inst	City	50			86	170	
Hospital of Masonic Home	Inst	Frat	175			91	34	
St. Louis Training School	MeDe	City	50			0	60	
Salvation Army Women's Home and Hospital	Mat	Chrch	1	10	61	4	90	
Springfield 57 27—Greene								
Anderson Home Infirmary	LVN	Indep	11			1	500	
Warrensburg 140—Johnson								
Oak Hill Sanitarium	Gen	Indiv	7			3	70	
Warrensburg Clinic	Gen	Part	10			2	78	
Webster Groves 16 487—St. Louis								
Miriam Convalescent Home	Conv	Frat	50			19	400	
We Plains 1 1—Howell								
Cottage Hospital	Gen	Indiv	7	0	4	1	46	

Summary for Missouri

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatorium	118	2 700	18 517	190 371
Related institutions	20	2 600	2 884	6 120
Totals	138	5 300	20 401	196 491
Refused registration	20	1 348		

MONTANA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Anaconda 12 494—Deer Lodge								
St. Ann's Hospital*	Gen	Chrch	60	8	50	29	728	1 111
Billings 10 780—Yellowstone								
Billings Deaconess Hosp.*	Gen	Chrch	57	12	22	3	1116	
St. Vincent's Hospital*	Gen	Chrch	160	1	90	52	1 348	300
Bozeman 6 830—Gallatin								
Bozeman Deaconess Hosp.*	Gen	Chrch	50	12	108	26	80	
Browning 1 172—Glacier								
Blackfeet Hospital	Gen	I A	30		71	29	300	
Butte, 39 632—Silver Bow								
Murray Hospital*	Gen	Indep	120	12	99	8	1169	7 118
St. James Hospital*	Gen	Chrch	141	16	29	12	1 800	1 800
Choteau 926—Teton								
Choteau Hospital	Gen	Indiv	14	4	28	0	188	
Conrad 1 409—Pondera								
St. Mary's Hospital	Gen	Chrch	34	10	79	14	54	
Crow Agency 113—Big Horn								
Crow Indian Hospital	Gen	I A	24	6		1	480	
Deer Lodge 3 510—Powell								
Montana State Tuberculosis Sanitarium	TB	State	150			14	161	
St. Joseph's Hospital	Gen	Chrch	50	4	76	16	216	
Dillon 2 422—Beaverhead								
Barrett Hospital	Gen	Indep	22	4	38	5	207	
Ft. Benton 1 109—Chouteau								
St. Clare Hospital	Gen	Chrch	0	6	52	27	303	
Ft. Harrison—Lewis and Clark								
Veterans Admin. Facility	Gen	Vet	458			217	104	
Ft. Missoula (Missoula P. O.)								
Station Hospital	Gen	Army	40			7	152	1 474
Glasgow 2 216—Valley								
Frances Mahon Deaconess Hospital	Gen	Chrch	2	6	60	16	49	944
Glendive 4 629—Dawson								
Glendive General Hospital	Gen	Indiv	27	5	38	8	191	
Northern Pacific Hospital	Gen	Indus	60	8	30	30	1 316	3 177
Great Falls 28 822—Cascade								
Columbus Hospital*	Gen	Chrch	290	0	387	112	2 869	201
Montana Deaconess Hosp.*	Gen	Chrch	170	20	295	92	2 461	
Hamilton 1 839—Ravalli								
Marcus Daly Memorial Hosp.	Gen	Indep	30	6	63	15	810	
Hardin 1 169—Big Horn								
Lucy Winn Hospital	Gen	Indiv	22	4	30	5	160	
Harlem 708—Blaine								
Ft. Belknap Indian Hospital and Sanitarium	Gen	I A	47	8	59	23	61	247

MONTANA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Harre 1 1/2—Hill								
Kennedy Deaconess Hosp	Gen	Chrch	41	12	103	20	896	
Sacred Heart Hospital	Gen	Chrch	70	9	14	47	1 470	
Helena 11 503—Lewis and Clark								
St John's Hospital	Gen	Chrch	50	10	107	26	761	
St Peter's Hospital	Gen	Chrch	60	12	85	22	666	
Kali spell 6 004—Flathead								
Kali spell General Hospital	Gen	Chrch	54	6	51	10	508	90
Lame Deer 1 575—Rosebud								
Tongue River Agency Hosp	Gen	I A	47	6	1	18	407	114
Lewistown 5 338—Fergus								
Atlix Clinic Hospital	Surg	Indiv	16			11	1 34	
St Joseph's Hospital	Gen	Chrch	7	16	106	11	1 34	
Libby 1 100—Lincoln								
Libby General Hospital	Gen	Indiv	14	3	20	8	240	
Livingston 6 391—Park								
Park Hospital	Gen	Indiv	27	6		18		
Miles City 7 100—Custer								
Miles City Hospital	Gen	Chrch	85	7	8	4	910	
Missoula 14 607—Missoula								
Northern Pacific Hospital	Indus	Indus	75			7	1 221	6 819
St Patrick's Hospital	Gen	Chrch	106	12	137	50	1 012	328
Thornmont Hospital	Gen	Part	38	8	90	18	1 012	
Plentywood, 1 200—Sheridan								
Sheridan Memorial Hosp	Gen	Indep	18	5	12	7	290	
Poplar 1 046—Roosevelt								
Et Peck Indian School Hosp	Gen	I A	38	8		11	81	
Red Lodge 3 070—Carbon								
Ut Maurice Hospital and Sanatorium	Gen	Indus	26	4				
Roundup 2 017—Missoula								
Roundup Valley Hospital	Gen	Indiv	15	4	18	0	1 11	
St Ignace 3 100—Lake								
Holy Family Hospital	Gen	Chrch	42	6	50	9	434	
Miner, 2 010—Richland								
Midway Deaconess Hospital	Gen	Chrch	24	6		1		
Warm Springs 110—Deer Lodge								
Montana State Hospital	Ment	State	1 770		1 178		111	
Related Institutions								
Bear Creek, 4 12—Carbon								
Oleink Hospital	Gen	Indiv	6			5		
Boulder, 926—Jefferson								
Montana State Training School for Feeble-minded	McDe	State	415			392	67	
Butte 20 537—Silver Bow								
Silver Bow County Hosp	Inst	Co	100	3	30	130	384	
Deer Lodge 3 010—Powell								
Montana State Penitentiary Hospital	Inst	State	10			2		
Great Falls 28 822—Cascade								
Detention Hospital	I A	Cy Co	35			6	62	
Harlem, 708—Blaine								
Harlem Hospital	Gen	Indep	11		20	4	53	
Helena 11 503—Lewis and Clark								
Florence Crittenton Home	Mat	Indep	22	18		10		
Lewis and Clark County Hospital	Inst	Co	31		20			
Lewistown 5 338—Fergus								
Fergus County Hospital	Gen	Co	16	4	26	12	243	200
Livingston 6 391—Park								
Robinson Hospital	Gen	Indiv	7	5	29	2	78	
Valta 1 342—Phillips								
Malta Hospital	Gen	Indiv	9	2	29	4	266	
Mammoth (Jefferson Island P O)—Madison								
Mammoth Hospital	Gen	Indiv	30			7		
Philipsburg 1 300—Granite								
Granite County Hospital	Gen	Co	8			6		
Polson 1 455—Lake								
Hotel Dieu Hospital	Gen	Chrch	20	6		2		
Stevensville 600—Ravalli								
Stevensville Hospital	Gen	Indiv	7	2				
Twin Bridge 671—Madison								
State Orphans Home Hosp	Inst	State	20			1	309	
White Sulphur Springs 575—Meagher								
McKay Hospital	Gen	Indiv	10	1	6	2	40	
Summary for Montana								
Hospitals and sanatoriums			Number	Beds	Average Patients	Patients Admitted		
Related Institutions			40	4 771	3 174	34 718		
Totals			17	807	610	1 566		
Refused registration			62	5 578	3 789	36 284		
			6	91				

NEBRASKA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Ainsworth 13 78—Brown								
Ainsworth Hospital	Gen	Indiv	28	3	63	10	108	
Alliance 6 669—Box Butte								
St Joseph's Hospital	Gen	Chrch	100	12	88	11	1 320	
Arnold 600—Custer								
Arnold Hospital	Gen	Indiv	17	2	7	3	104	
Auburn 3 068—Nemaha								
Auburn Hospital	Gen	Indiv	10	2		5	107	

NEBRASKA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Aurora 2 715—Hamilton								
Aurora Hospital	Gen	Part	16	9	23	6	202	
Beatrice, 10 297—Gage								
Beatrice Sanitarium	Gen	Indiv	25	4	23	8	194	715
Lutheran Hospital	Gen	Chrch	60	11	80	15	429	
Broken Bow 2 715—Custer								
Broken Bow Hospital	Gen	Indiv	35	4		6		
Cambridge 1 203—Furnas								
Republican Valley Hospital	Gen	Indiv	25	2		4	171	
Central City 2 474—Merrick								
J I Benton Hospital	Gen	Indiv	10			4		
Chadron 4 606—Dawes								
Chadron Municipal Hosp	Gen	City	20	7	19	6	261	
Columbus 6 898—Platte								
Columbus Hospital	Gen	Indep	30	4		30		
St Mary's Hospital	Gen	Chrch	120	10	95	52	1,016	
David City 2 333—Butler								
David City Hospital	Gen	Indep	13	3	25	6	213	
Fairbury 6 192—Jefferson								
Taylor Hospital	Gen	Indiv	20	2	15	5		
Falls City 2 787—Richardson								
Falls City Hospital	Gen	Indiv	30	10	23	8	334	
Fl Crook 710—Sarpy								
Station Hospital	Gen	Army	30			12	628	1 070
St Robinson 613—Dawes								
Station Hospital	Gen	Army	25			1	121	
Fremont 11 407—Dodge								
Evangelical Lutheran Good Samaritan Hospital	Gen	Chrch	25	6		8	New	
Military Avenue Hospital	Gen	Indiv	22	6	50	7	361	
Friend 1 214—Saline								
Lutheran Good Samaritan Warren Memorial Hosp	Gen	Indep	17	4	10	5	60	
Genoa 1 050—Nance								
Genoa Hospital	Gen	Indiv	10	4	21	2	98	
Grand Island 15 041—Hall								
St Francis Hospital	Gen	Chrch	110	10	108	43	1,333	
Hartington 1 068—Cedar								
St John's Hospital	Gen	Indiv	16			15		
Hastings, 15 490—Adams								
Mary Lanning Memorial Hospital	Gen	Indep	80	15	188	52	1,707	
Imperial 946—Chase								
Imperial Community Hosp	Gen	Indep	12	4	13	3	123	
Ingleside 30—Adams								
Hastings State Hospital	Ment	State	1 336			1 514	574	
Kearney 8 075—Buffalo								
Good Samaritan Hospital	Gen	Chrch	60	10	78	18	722	
Hospital for the Tuberculous	TB	State	160			154	131	
Kimball 1 711—Kimball								
Kimball Hospital	Gen	Indiv	12	6	31	7	296	
Lincoln 75 833—Lancaster								
Bryan Memorial Hospital	Gen	Chrch	86	14	127	54	1 399	
Green Gables Dr Benj F Bailey Sanatorium	Gen	Indep	115	4	26	64	718	
Lincoln General Hospital	Gen	Indep	165	25	431	89	2 821	187
Lincoln State Hospital	Ment	State	1 200			1 193	216	
Nebraska Orthopedic Hosp	Orth	State	110			90	393	
St Elizabeth's Hosp	Gen	Chrch	175	20	236	73	2 733	
Veterans Admin Facility	Gen	Vet	197			152	1 378	1 611
Lynch, 498—Boyd								
Sacred Heart Hospital	Gen	Chrch	25	3	11	3	118	
McCook 6 658—Red Willow								
St Catherine of Sienna Hospital	Gen	Chrch	60	10	50	19	563	
Minden 1 716—Kearney								
Seeley Hospital	Gen	Indiv	21	8	35	7	238	
Nebraska City 7 230—Otoe								
St Mary's Hospital	Gen	Chrch	30	10	152	17	906	
Norfolk 10 717—Madison								
Norfolk State Hospital	Ment	State	1 045			965	182	
Verges Sanitarium	Gen	Indiv	30	2				
North Platte 12 061—Lincoln								
Redfield Dent Hospital	Gen	Indiv	22	3	16	10	203	
Wurtelo Hospital	Gen	Indiv	12	3	31	4	212	
Oakland 1 433—Burt								
Oakland Community Hosp	Gen	Indiv	12	3	70	4	134	
Omaha 214 006—Douglas								
Bishop Clarkson Memorial Hospital	Gen	Chrch	100	8	134	70	1 896	
Creighton Memorial St Joseph's Hospital	Gen	Chrch	400	33	515	212	5 698	
Douglas County Hospital	Gen	Co	410	8	96	266	2 425	1 092
Evangelical Covenant Hospital	Gen	Chrch	113	12	187	59	1 692	381
Immanuel Deaconess Inst	Gen	Chrch	125	14	269	74	3,076	
Lutece Hospital	Gen	Indiv	100	10	112	49	1 816	229
Lord Lister Hospital	Gen	Chrch	100	10	182	39	1 306	
Lutheran Hospital	(Included in Lutheran Hospital)							
Lutheran Psychiatric Hosp	Gen	Chrch	174	25	414	101	3,520	
Nebraska Methodist Episcopal Hospital	Gen	Chrch	152	20	306	80	3 240	
St Catherine's Hospital	Gen	Indiv	25			5		
South Side General Hosp	Gen	Army	20			5	1 070	3 110
Stanton Hospital								
University of Nebraska Hospital	Gen	State	237	20	580	181	4 015	7,838
Ord, 2 226—Valley								
Ord Hospital	Gen	Indiv	15	2	11	5	158	
Oxford 1 150—Furnas								
Oxford General Hospital	Gen	Indep	14	5	12	5	221	
Pawnee City 1 573—Pawnee								
Pawnee Hospital	Gen	Indiv	26	4		12	480	

Key to symbols and abbreviations is on page 1021

NEBRASKA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Schuyler 2 588—Colfax								
Kolouch Hospital	Burg	Indiv	10	3				
Scottsbluff 8 460—Scotts Bluff								
West Nebraska Methodist Episcopal Hospital	Gen	Chrch	60	10	112	33	1 440	12
Seward 2 737—Seward	Gen	Part	20	5	18	7	2 8	
Morrow Hospital	Gen	Indiv	10	6	50	2	102	
Seward Hospital								
Sidney 3 306—Cheyenne	Gen	Indiv	20	5	70	8	2 1	
Taylor Hospital								
Spencer 633—Boyd	Gen	Part	10	1		4	175	
Spencer Hospital								
Stratton 663—Hitchcock	Gen	Indiv	14	4		7		
Dr Stewart's Private Hosp								
Stuart 767—Holt	Gen	Indiv	20	3		10	403	
Wilson Hospital								
Sutton 1 040—Clay	Gen	Indiv	12	2			90	
Sutton Hospital								
Tekamah 1 804—Burt	Gen	Indiv	12	3	11	2	76	
Tekamah General Hospital								
Tilden 1 106—Madison	Gen	Indiv	10	2	9	2	81	
Tilden Hospital								
Valentine 1 672—Cherry	Gen	Indiv	10	2		6	243	
Cherry County Hospital								
Walsh 1 162—Thurston	Gen	Part	14	4	6	1	11	
Dr Plottet Memorial Hosp								
Winnebago 630—Thurston	Gen	I A	50	7	31	11 0	2 701	
Winnebago Indian Hospital								
York 5 712—York	Gen	Chrch	50	6	60	14	5 15	
Lutheran Hospital								
York Clinic and Clinic Hosp	Gen	Part	12	4	2	2	84	

Related Institutions

Atkinson 1 144—Holt	Gen	Indiv	9	4	7	2	61	
Atkinson General Hospital								
Axtell 23—Kearney	McDe	Chrch	160		1			
Bethphage Inner Mission								
Beatrice 10 297—Gage	McDe	State	1 224		11 70	1 12		
Nebraska Institution for Feeble-minded								
Beemer 571—Cuming	Gen	Indiv	10	2	2	1	20	
Beemer Hospital								
Dalton 453—Cheyenne	Gen	Indiv	10	1	12	3	940	
Pioneer Memorial Hospital								
Farnam 304—Dawson	Gen	Indiv	6	2	3	110		
Reeves Memorial Hospital								
Genoa 1 080—Nance	Gen	Part	6	3	1	46		
Emergency Hospital								
Grand Island 18 041—Hall	Inst	State	116		80			
Nebraska Soldiers and Sailors Home Pershing Hosp								
Kearney 8 575—Buffalo	Inst	State	10		1	24		
State Industrial School for Boys								
Kimball 1 711—Kimball	Gen	Part	11	4	20	3	185	
Mockett and Everett Hosp								
Lexington 2 962—Dawson	Gen	Part	10	3	4	2	147	
City General Hospital								
Lincoln 75 933—Lancaster	Inst	City	20			4		
Isolation Hospital								
Nebraska State Penitentiary Hospital	Inst	State	20		8	304		
Millford 832—Seward	Inst	State	14	11	50	78		
Nebraska Industrial Home								
Nebraska Soldiers and Sailors Home Hospital	Inst	State	48		40	100		
Odell 472—Gage	Gen	Indiv	9	3	1	170		
Odell General Hospital								
Omaha 214 006—Douglas	Gen	Indiv	8	6		1		
Frederick Hospital								
Salvation Army Womens Home and Hospital	Mat	Chrch	70	16	91	2	11	
Womens Detention Hosp	Ven	City	21			10		
Orchard 500—Antelope	Gen	Indiv	7	3	3	1	80	
Orchard Hospital								
Palm 588—Merrick	Gen	Indep	10	2		3	46	
Coolidge Hosp and Sanat								
Plainview 1 216—Pierce	Gen	Indep	5	4	20	1	206	
Plainview General Hospital								
Plattsmouth 3 793—Cass	Inst	Frat	40		4			
Nebraska Masonic Home								
Sutherland 753—Lincoln	Gen	Indiv	10	4	18	2	119	
Russell Hospital								
Table Rock 673—Pawnee	Gen	Indiv	10	2	10	1	13	
McCreas Private Hospital								
Wahoo 2 689—Saunders	Gen	Indiv	20	6	50	6	391	
Community Hospital								
Wayne 2 381—Wayne	Gen	Indiv	6	2		3	300	
Bentback Hospital								
Westpoint 2 220—Cuming	Inst	Chrch	16	1	15	5	210	
St Joseph Home for Aged and Hospital								

Summary for Nebraska

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums	76	8 306	6 102	60 702
Related Institutions	28	1 909	1 543	3 951
Total	104	10 215	7 645	64 153
Refud registration	20	534		

NEVADA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Austin 1 000—Lander	Gen	Co	10	1	1	5	29	
Lander County Hospital								
Boulder City 5 000—Clark	Indus	Indus	60			35	1 050	
Six Companies Inc Hosp								
East Fly 1 507—White Pine	Gen	Indus	45	7	34	16	24	
Stiptoe Valley Hospital								
Iiko 2 217—Iiko	Gen	Co	43	4	50	17	43	
Iiko General Hospital								
White Pine County and General Hospital	Gen	Co	60	4	23	21	150	
Hawthorne 378—Mineral	Gen	Co	14	1		2		
Mineral County Hospital								
Las Vegas 5 16—Clark	Gen	Indep	40	6	70	20	707	
Las Vegas Hospital								
Reno 18 020—Washoe	Gen	Indep	40	6	70	20	707	
Nevada State Hospital for Mental Diseases	Gen	State	225			318	5	
St Marys Hospital	Gen	Chrch	52	12	100	30	1 970	
Washoe General Hospital	Gen	Co	100	30				
Schurz 70—Mineral	Gen	I A	23	3	13	14	250	1 050
Walker River Indian Hosp								
Stewart 412—Ormsby	Gen	I A	25			23		
Carson Indian Hospital								
Ionopah 4 144—Nye	Gen	Indus	20	2	21	10	107	101
Tonopah Mines Hospital								
Winnemucca 1 000—Humboldt	Gen	Co	33	3		13		
Humboldt County General Hospital								

Related Institutions

Battle Mountain 1 100—Lander	Gen	Co	8	2		2		
Battle Mountain General Hospital								
Eureka 902—Eureka	Gen	Co	9			4		
Eureka County Hospital								
Pioche 51—Lincoln	Indus	Indiv	8					
Pioche Hospital								
Stewart 41—Ormsby	Inst	I A	29			11		
Carson Indian School Hosp								
Verlinton 1 000—Lyon	Gen	Co	16		1	10	62	
Lyon County Hospital								

Summary for Nevada

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums	14	848	668	6 441
Related Institutions		80	32	541
Total	10	928	700	6 982
Refud registration	1	16		

NEW HAMPSHIRE

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Berlin 20 018—Coos	Gen	Chrch	70	10	71	39	1 709	2 36
St Louis Hospital								
Claremont 12 377—Sullivan	Gen	Indep	50	10	80	24	610	523
Claremont General Hospital								
Concord 25 228—Merrimack	Gen	Indep	90	18	224	44	1 383	199
Margaret Pillsbury General Hospital								
New Hampshire Men Hosp	Gen	Indep	44	11	140	28	623	213
New Hampshire State Hosp	Gen	Indep	44	11	140	28	623	213
Dover 13 733—Strafford	Gen	Indep	40	12	141	21	662	199
Hayes Hospital								
Wentworth Hospital	Gen	Indep	69	15	121	34	946	
Exeter 4 872—Rockingham	Gen	Indep	40	12	141	21	662	199
Exeter Hospital								
Franklin 6 576—Merrimack	Gen	Indep	37	5	41	14	328	
Franklin Hospital								
Glenciff 50—Grafton	Gen	Indep	50	10	64	16	404	87
New Hampshire State Sanat for the Treatment of Tuberculosis	T B	State	110			92	50	
Grasmere 200—Hillsboro	Gen	Co	110	19	121	113	1 708	750
Hillsborough County General Hospital								
Hanover 3 043—Grafton	Gen	Indep	128	14	146	73	2 380	2 061
Mary Hitchcock Memorial Hospital								
Keene 13 794—Cheshire	Gen	Indep	72	12	194	40	1 304	440
Elliot Community Hosp								
Laconia 12 471—Belknap	Gen	Indep	54	14	197	40	1 608	1 080
Laconia Hospital								
Lancaster 2 887—Coos	Gen	City	10	5	24	8	269	
Lancaster Hospital								
Littleton 4 008—Grafton	Gen	Indep	50	10	64	16	404	87
Littleton Hospital								
Manchester 76 834—Hillsboro	Chil	City	30			16	300	67
Balch Hosp for Children								
Elliot Hospital	Gen	Indep	107	32	212	50	2 240	1 220
Hospital Notre Dame De Lourdes	Gen	Chrch	86	15	130	57	1 267	540
Lucy Hastings Hospital	Gen	Indep	25	6		15	34	

NEW HAMPSHIRE—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Our Lady of Perpetual Help Hospital	Mnt	Chrch	22	16	224	8	221	
Sacred Heart Hospital	Gen	Chrch	60	6	30	53	1,261	
Nashua 31,463—Hillsboro	Gen	Indep	77	16	178	40	1,407	1,111
Nashua Memorial Hospital	Gen	Chrch	87	17	171	43	1,542	216
St Joseph's Hospital	Gen	Indep	11	4	37	4	109	96
New London, 812—Merrimack	Gen	Indep	20	3	71	7	28	
Newport 4,659—Sullivan	Gen	Indep	20	6	62	14	421	461
Carrie F Wright Memorial Hospital	Gen	Indep	100			8	100	
North Conway 62—Carroll	Gen	Indep	21	7	61	11	799	400
Memorial Hospital	Gen	Indep	30	3	17	10	472	
Pembroke 30—Merrimack	TB	Indep	100					
Pembroke Sanatorium	Gen	Indep	21	7	61	11	799	400
Peterboro 2,521—Hillsboro	Gen	Indep	30	3	17	10	472	
Peterboro Hospital	Gen	Indep	21	7	61	11	799	400
Plymouth 2,410—Grafton	Gen	Indep	30	3	17	10	472	
Emily Balch and Soldiers and Sailors Memorial Hosp	Gen	Indep	30	3	17	10	472	
Portsmouth 14,490—Rockingham	Gen	Indep	14	16	228	31	1,269	
Portsmouth Hospital	Gen	Indep	150			137	1,240	
U S Naval Hospital	Gen	Indep	27	8	107	21	902	
Rochester 10,900—Strafford	Gen	Indep	50	9	8	20	900	130
Erskine Memorial Hospital	Gen	Indep	29	6	41	17	602	200
Whitfield 1,693—Coos	Gen	Indep	20	8	73	14	479	170
Morrison Hospital	Gen	Indep	20	8	73	14	479	170
Wolfeboro 2,308—Carroll	Gen	Indep	20	8	73	14	479	170
Huggins Hospital	Gen	Indep	20	8	73	14	479	170
Woodsville 12—Grafton	Gen	Indep	20	8	73	14	479	170
Cottage Hospital	Gen	Indep	20	8	73	14	479	170
Related Institutions								
Concord 2,223—Merrimack	Inst	Indep	65			2	576	
Armour Memorial Infirmary	Inst	Indep	65			2	576	
Epping 1,672—Rockingham	Inst	Co	50	2	7	50	60	
Rockingham County Hosp	Inst	Co	50	2	7	50	60	
Exeter 4,872—Rockingham	Inst	Indep	53			8	440	
Lamont Infirmary	Inst	Indep	53			8	440	
Haverhill, 3,660—Grafton	Inst	Co	26	4	23	28	217	
Grafton County Hospital	Inst	Co	26	4	23	28	217	
Laconia 1,471—Belknap	McDe	State	500			507	38	
Laconia State School	McDe	State	500			507	38	
Lincoln 1,548—Grafton	Indus	Indus	8			2	1	39
Lincoln Hospital	Indus	Indus	8			2	1	39
Manchester 76,634—Hillsboro	Iso	City	67			19	293	
Manchester Isolation Hosp	Iso	City	67			19	293	
Portsmouth, 14,490—Rockingham	Inc	Indep	43			41		
Mark H Wentworth Home for Chronic Invalids	Inc	Indep	43			41		
Tilton 1,712—Belknap	Inst	State	28			4	28	
New Hampshire Soldiers Home	Inst	State	28			4	28	
Summary for New Hampshire								
Hospitals and sanatoriums			36	845		3,110	29,915	
Related Institutions			9	890		710	1,682	
Totals			45	1,735		3,820	31,597	
Refused registration			1	20				

NEW JERSEY

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Allenwood 166—Monmouth	TB	Co	90			87	124	
Allenwood Sanat and Monmouth County Hospital	Gen	Indep	271	40	932	174	141,176	648
Atlantic City 66,198—Atlantic	Orth	Indep	370			140	640	40
Atlantic City Hospital	Gen	Indep	271	40	932	174	141,176	648
Children's Seashore House	Gen	Indep	200	30	31	131	3,477	13,449
Bayonne 88,919—Hudson	Gen	Indiv	20	6	41	4	183	
Bayonne Hospital and Dispensary	Gen	Indiv	20	6	41	4	183	
Swiney Sanatorium	Gen	Indiv	20	6	41	4	183	
Belle Mead 51—Somerset	N&M	Indiv	70			33	70	
Belle Mead Sanatorium and Farm	N&M	Indiv	70			33	70	
Bellerive 96,974—Essex	Iso	Co	500			177	2,701	
Essex County Hospital for Contagious Diseases	Gen	Indep	50	8	48	18	723	1,690
Boundbrook 7,372—Somerset	Gen	Indep	50	16	163	41	1,000	
Boundbrook Hospital	Gen	Indep	50	16	163	41	1,000	
Bridgeton 15,690—Cumberland	TB	Indep	44			34	100	
Bridgeton Hospital	Gen	Indiv	21	12	118	10	329	
Browns Mills 312—Burlington	Gen	Indep	291	64	1,200	221	6,078	44,087
Deborah Tuberculosis Sanat	Gen	Indep	207	30	760	139	3,606	43,242
Camden 118,700—Camden	Gen	Indep	207	30	760	139	3,606	43,242
Hellens Private Hospital	Gen	Indep	207	30	760	139	3,606	43,242
Cooper Hospital	Gen	Indep	207	30	760	139	3,606	43,242
West Jersey Homeopathic Hospital	Gen	Indep	207	30	760	139	3,606	43,242
Edgar Grove 3,000—Essex	Ment	Co	2,427			2,299	540	532
Essex County Hospital	Ment	Co	2,427			2,299	540	532

NEW JERSEY—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Dover 10,031—Morris	Gen	Indep	71	16	243	49	1,293	1,591
Dover General Hospital	Gen	Indiv	12	5	20	4	138	
Dumont 2,861—Bergen	Gen	Indiv	12	5	20	4	138	
Dumont Private Hospital	Gen	Indiv	12	5	20	4	138	
Last Orange 68,020—Essex	Gen	Indep	95	27	521	65	2,287	2,462
Homeopathic Hospital of Essex County	Gen	Indep	95	27	521	65	2,287	2,462
Elizabeth 114,589—Union	Gen	Chrch	176			131	1,942	7,068
Alexian Brothers Hospital	Gen	Indep	196	30	731	162	5,442	7,760
Elizabeth General Hospital	Gen	Chrch	200	42	768	186	4,314	10,820
and Dispensary	Gen	Indep	177	35	746	127	4,091	7,703
St Elizabeth Hospital	Gen	Indep	30	7	62	12	432	1,466
Englewood Hospital	Gen	Indiv	14	6	33	8	185	
Englewood Hospital	Gen	Indiv	14	6	33	8	185	
Franklin 4,176—Sussex	TB	State	492			490	120	600
Franklin Hospital	TB	State	492			490	120	600
Freehold 6,894—Monmouth	Gen	Indiv	492			490	120	600
Freehold Hospital	Gen	Indiv	492			490	120	600
Glen Gardner 6,4—Hunterdon	Gen	Indiv	492			490	120	600
New Jersey Sanatorium	Gen	Indiv	492			490	120	600
Grenloch 205—Camden	Gen	Indiv	492			490	120	600
Camden County Hospital	Gen	Indiv	492			490	120	600
for Mental Diseases	Gen	Indiv	492			490	120	600
Lakeland Sanatorium	Gen	Indiv	492			490	120	600
Greystone Park—Morris	Gen	Indiv	492			490	120	600
New Jersey State Hospital	Gen	Indiv	492			490	120	600
Hackensack 24,668—Bergen	Gen	Indep	225	47	925	180	6,627	7,705
Hackensack Hospital	Gen	Indep	225	47	925	180	6,627	7,705
Hoboken 59,261—Hudson	Gen	Chrch	430	30	305	236	4,699	18,047
St Mary Hospital	Gen	Chrch	430	30	305	236	4,699	18,047
Irrington 56,733—Essex	Gen	City	79	17	322	61	1,826	2,199
Irrington General Hospital	Gen	City	79	17	322	61	1,826	2,199
Jersey City 316,715—Hudson	Gen	Chrch	184	22	292	110	2,977	4,203
Christ Hospital	Gen	Chrch	184	22	292	110	2,977	4,203
Fairmount Surgical Sanat	Gen	Indep	66	12	247	35	1,400	
Greenville Hospital	Gen	Indep	66	12	247	35	1,400	
Hilltop Sanitarium	Gen	Part	22	12		9		
Jersey City Hospital	Gen	City	900			724	15,692	74,003
Margaret Hague Maternity Hospital	Mat	Co	272	284	4,701	171	5,705	14,327
St Francis Hospital	Gen	Chrch	210	6	123	148	3,734	11,244
Kearny (Arlington P O), 40,716—Hudson	Gen	Indep	52	14	205	30	1,378	
West Hudson Hospital	Gen	Indep	52	14	205	30	1,378	
Lakewood 8,000—Ocean	Gen	Indep	64	11	130	30	1,055	363
Paul Kimball Hospital	Gen	Indep	64	11	130	30	1,055	363
Long Branch, 18,399—Monmouth	Gen	Indep	95	30	251	69	2,649	1,888
Dr F C Hazard Hospital	Gen	Indep	95	30	251	69	2,649	1,888
Monmouth Memorial Hospital	Gen	Indep	185	30	440	124	4,020	4,090
Lyons—Somerset	Gen	Indep	185	30	440	124	4,020	4,090
Veterans Admin Facility	Ment	Vet	890			885	877	6,386
Marlboro 410—Monmouth	Ment	State	1,700			1,235	990	813
New Jersey State Hospital	Ment	State	1,700			1,235	990	813
Midland Park 3,638—Bergen	N&M	Indep	120			115	148	195
Christian Sanatorium	N&M	Indep	120			115	148	195
Millville 14,705—Cumberland	Gen	Indep	40	5		20		
Millville Hospital	Gen	Indep	40	5		20		
Montclair 42,017—Essex	Gen	Indep	61	23	223	23	878	801
Montclair Community Hosp	Gen	Indep	61	23	223	23	878	801
Mountinside Hospital	Gen	Chrch	294	53	643	150	5,228	11,901
St Vincent's Hospital	Gen	Chrch	46	13	209	30	927	401
Morristown 15,197—Morris	Gen	Chrch	134	20	286	65	1,624	647
All Souls Hospital	Gen	Indep	140	20	270	83	2,432	2,124
Morristown Memorial Hospital	Gen	Indep	140	20	270	83	2,432	2,124
Shongum Sanatorium	TB	Co	52			52	48	
Mt Holly 5,762—Burlington	Gen	Co	116	19	371	99	2,760	6,132
Burlington County Hospital	Gen	Co	116	19	371	99	2,760	6,132
Neptune 2,208—Monmouth	Gen	Indep	146	27	360	93	2,915	10,701
Fitkin Memorial Hospital	Gen	Indep	146	27	360	93	2,915	10,701
Newark 442,337—Essex	Chll	Indep	60			35	887	5,427
Babies Hospital	Chll	Indep	60			35	887	5,427
Hospital and Home for Crippled Children	Orth	Indep	110			71	372	1,936
Hospital of St Barnabas and for Women and Children	Gen	Chrch	220	46	709	100	5,408	9,068
Kenney Memorial Hospital	Gen	Indiv	26	4	19	7	197	93
(col)	Gen	Indiv	26	4	19	7	197	93
Lincoln Hospital	Gen	Indep	318	96	1,697	266	8,490	8,888
Newark Beth Israel Hospital	Gen	Indep	318	96	1,697	266	8,490	8,888
Newark City Hospital	Gen	City	600	100	2,110	629	18,708	
Newark Eye and Ear Infirmary	ENT	Indep	64			38	2,265	8,521
Newark Memorial Hospital	Gen	Indep	127	30	440	73	1,798	5,467
Presbyterian Hospital	Gen	Chrch	212	50	804	146	5,259	3,800
St James Hospital	Gen	Chrch	107	18	326	76	1,906	4,478
St Michael's Hospital	Gen	Chrch	200			168	4,122	8,314
Dr Wright's Sanitarium and Maternity Home (col)	Gen	Indiv	18	5				
New Brunswick 34,500—Middlesex	Gen	Indep	62	18	208	63	1,001	7,892
Middlesex General Hospital	Gen	Chrch	164	23	400	103	3,021	8,870
St Peter's General Hospital	Gen	Chrch	164	23	400	103	3,021	8,870
New Lisbon 131—Burlington	TB	Co	120			123	95	
Fairview Sanatorium	TB	Co	120			123	95	
Newton 5,401—Sussex	Gen	Indep	43	7	69	16	540	18
Newton Memorial Hospital	Gen	Indep	43	7	69	16	540	18

Key to symbols and abbreviations is on page 1021

NEW JERSEY—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Northfield 2 804—Atlantic								
Atlantic County Hospital for Mental Diseases	Ment Co		100			266	1 19	06
Atlantic County Hospital for Tuberculous Diseases	TB Co		0			40	70	87
Oceanport, 1 872—Monmouth Station Hospital	Gen Army		60			1	374	2 30
Orange 3 399—Essex								
New Jersey Orthopaedic Hosp and Dispensary*	Orth Indep		36			27	332	871
Orange Memorial Hosp*	Gen Indep		313	70	1 114	187	1 088	11 610
St Mary's Hospital	Gen Chrch		100	30	614	87	1 069	1 111
Passaic 62 959—Passaic								
Beth Israel Hospital	Gen Indep		7	21	16	20	570	97
Passaic General Hosp*	Gen Indep		200	2	648	124	4 14	18 394
St Mary's Hospital*	Gen Chrch		189	36	510	114	2 867	5 706
Paterson 138 513—Passaic								
Nathan and Miriam Barnett Memorial Hospital*	Cen Indep		101	16	400	97	2 234	3 812
Paterson General Hosp*	Gen Indep		282	44	738	184	3 142	5 891
Riverlawn Sanatorium	N & M Indiv		60			1	59	
St Joseph's Hospital*	Gen Chrch		411	47	811	30	714	9 844
Valley View Sanatorium	IB Co		220			213	3 8	2 601
Perth Amboy 43 516—Middlesex								
Perth Amboy General Hosp*	Cen Indep		136	18	9	97	2 483	
Phillipsburg 19 250—Warren								
Warren Hospital	Cen Indep		61	10	111	1	1 113	1 019
Plainfield 34 422—Union								
Muhlenberg Hospital*	Cen Indep		740	30	820	1 8	4 476	6 446
Point Pleasant 2 038—Ocean								
Point Pleasant Hospital	Gen Indep		2	4	62	10		431
Princeton 6 932—Mercer								
Princeton Hospital	Gen Indep		57	12	110	30	1 110	1 113
Rahway 16 011—Union								
Rahway Memorial Hospital	Gen Indep		100	20	191	42	1 498	
Red Bank 11 622—Monmouth								
Riverview Hospital	Cen Indep		20	10	117	19	613	606
Ridgewood 12 148—Bergen								
Bergen Plms Bergen County Hospital	Fbls Co		400			2 0	781	4 046
Riverside 4 010—Burlington								
Zurbrugg Memorial Hosp	Gen Indep		12	0	74	4	141	76
Salem 8 047—Salem								
Salem County Mem Hosp	Gen Indep		36	9	181	30	907	839
Scotch Plains 1 010—Union								
Bonnale Burn Sanatorium	TB Co		791			60	506	
Secaucus 8 900—Hudson								
Hudson County Hospital	Gen Co		242	22		229	706	
Hudson County Hospital for Insane	Ment Co		1 430			1 819	31	
Hudson County Tuberculosis Hosp and Sanatorium	TB Co		290			210	290	
Skillman 23—Somerset								
New Jersey State Village for Epileptics*	Epilep State		1 004			1 268	23	
Somers Point 2 073—Atlantic								
Atlantic Shores Hospital	Cen Indep		72	12	106	26	1 014	814
Somerville 8 200—Somerset								
Somerset Hospital*	Gen Indep		76	16	299	57	3 157	4 781
South Amboy 8 476—Middlesex								
South Amboy Mem Hosp	Gen Indep		00	6		14		
Summit 14 506—Union								
Fair Oaks Sanatorium	Nerv Indep		44			26	123	
Overlook Hospital*	Gen Indep		112	31	344	63	2 191	1 800
Sussex 1 415—Sussex								
Alexander Linn Hospital	Gen City		22	0		9		
Tenack 3 260—Bergen								
Holy Name Hospital*	Gen Chrch		179	41	62	10	3 068	2 600
Trenton 123 306—Mercer								
Chambersburg General Hospital	Gen Indep		21	8	88	14	406	895
Charles Private Hospital	N & M Indiv		40			22	290	
Mercer Hospital*	Gen Indep		213	37	831	117	4 122	6 409
New Jersey State Hospital	Ment State		2 700			2 650	981	376
Orthopaedic Hospital and Dispensary	Orth Indep		50			30	220	309
St Francis Hospital*	Gen Chrch		282	32	475	173	4 760	9 413
Trenton Municipal Hosp	Iso City		414			201	406	
William McKinley Memorial Hospital*	Gen Indep		116	30	388	90	2 806	4 483
Union City 38 659—Hudson								
Hamilton Sanitarium	Gen Indep		28	15	97	8	370	
Verona 7 161—Essex								
Essex Mountain Sanat + Vineland 7 006—Cumberland	TB Co		410			205	408	
Newcomb Hospital	Gen Indep		100	20		43	1 023	
Weehawken 14 807—Hudson								
North Hudson Hospital*	Gen Indep		140	20	224	78	2 290	8 836
Woodbury, 8 172—Gloucester								
Brewer Hospital	Gen Part		12	5	52	7	168	
Underwood Hospital	Gen Indep		45	20	189	27	1 386	

Related Institutions

Atlantic City 66 108—Atlantic								
Dr Leonard's Private Sanit	Drug Indiv		20			14	87	
Municipal Hospital	Iso City		60				00	
Bridgeton 15 689—Cumberland								
Cumberland County Hospital for Insane	Ment Co		212			194	40	

NEW JERSEY—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
133 Hall Sanitarium	N & M Indiv		23					
133 Manor	Conv Indiv		2					
Browns Mills 313—Burlington								
Iwin Maples Nursing Cottage	TP Indiv		22				20	32
Burlington 10 814—Burlington								
Masonic Home	Inst Inst		30				20	375
Calwell, 5 144—Essex								
Theresa Grotta Home for Convalescents	Conv Indep		42				23	320
Camden 118 700—Camden								
Municipal Hospital for Contagious Diseases	Iso City		100				47	100
Chatsworth 902—Burlington								
The Pines Sanatorium	TB Indiv		0				8	
Farmington 629—Monmouth								
Tuberculosis Preventorium for Children	FB Indep		247				180	613
Grenloch, 200—Camden								
Camden County Gen Hosp	Inst Co		120				112	06
Haddonfield 8 807—Camden								
Bancroft School	McDe Indep		100				97	19
Jamesburg, 2 040—Middlesex								
New Jersey State Home for Boys	Inst State		18				11	900
Jersey City 316 710—Hudson								
Jersey Eye Ear Nose and Throat Hospital	ENT Indiv		10				6	
Salvation Army Door of Hope Home and Hospital	Mat Chrch		9	9	30		5	47
Inkwood 8 000—Ocean								
Inkwood Sanatorium	N & M Indiv		10				9	3
Longport 223—Atlantic								
Betty Bacharach Home for Afflicted Children	Orth Frat		100				20	42
Menlo Park 300—Middlesex								
New Jersey Home for Disabled Soldiers	Inst State		100				87	147
Morris 1 197—Morris								
Aurora Health Institute	Conv Indep		70				74	304
Newark 442 337—Essex								
Home for Incurables and Convalescents	Inc Indep		80				00	20
Newark City Almshouse	Inst City		37				31	247
Newark Convalescent Hosp	Conv City		100				103	287
New Brunswick 34 000—Middlesex								
Francis I. Parker Memorial Home	Inc Indiv		50				20	8
Newfoundland 564—Morris								
Idylse Sanatorium	TB Indep		00				20	07
New Lisbon 131—Burlington								
Burlington County Hospital for the Insane	Ment Co		203				245	69
State Colony for Feeble minded Males	McDe State		700				700	101
Northfield 2 804—Atlantic								
Atlantic County Gen Hosp	Inst Co		135				50	30
North Wildwood (Wildwood P O) 2 049—Cape May								
Margaret Mace's Hospital	Cen Indiv		30	10			20	0
Ocean City 6 500—Cape May								
Ocean City Seashore Home for Babies	Chlf Indep		40				10	26
Ocean Grove 7 000—Monmouth								
Methodist Episcopal Home for Aged	Inst Chrch		10				10	39
Passaic 62 900—Passaic								
Passaic Municipal Hospital	Iso City		20	2			4	117
Paterson 138 013—Passaic								
Paterson City Hospital	Tbls City		110				80	301
Princeton 6 992—Mercer								
Isabella McCosh Infirmary	Inst Indep		55				10	1 466
Rahway 16 011—Union								
New Jersey Reformatory	Inst State		16				6	368
Roseland 1 008—Essex								
Mountain View Rest	N & M Indiv		22				16	62
Sea Isle City 850—Cape May								
Sea Isle Hospital and Training School	N & M Indiv		31				10	70
Secaucus 8 900—Hudson								
Hudson County Smallpox Hospital	Iso Co		50					
Summit 14 506—Union								
Fair View Sanitarium	N & M Indiv		20				10	10
Tenack 3 260—Bergen								
Bright Side Sanitarium	Inc Indiv		20					
Totowa (Little Falls P O) 4 600—Passaic								
State Training School	McDe State		550				516	100
Trenton 123 306—Mercer								
New Jersey State Prison	Inst State		42				34	708
State Home for Girls	Inst State		50	3	25		31	
Upper Montclair—Essex								
Montclair Sanitarium	Gen Part		10				6	44
Vineland 7 556—Cumberland								
Maplehurst School	McDe Indiv		20				17	4
New Jersey Memorial Home for Disabled Soldiers Sailors Marines and their Wives and Widows	Inst State		60				79	262

NEW JERSEY—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Training School at Vineland	MeDe	Indep	53.0			513		
Vineland State School	MeDe	State	133		1,231	110		
West Englewood, 2907—Bergen								
Englewood Sanitarium (Lynwood Lodge)	N & M	Indep	40			21	19	
Woodbine, 2164—Cape May								
Woodbine Colony for Feeble-minded Males	MeDe	State	5.0		57	89		
Summary for New Jersey								
	Number		Beds		Average Patients		Patients Admitted	
Hospitals and sanatoriums	121		728.0		26.280		2,330	
Related institutions	51		6.380		5.479		12,770	
Totals	174		39.210		31.659		2,660	
Refused registration	6		129					

NEW MEXICO

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Albuquerque 96.0—Bernalillo								
A T & S F Hospital	Indus	Indus	70		20	314	3,396	
Children's Home and Hosp	Orth	Indep	20	10	12	1.0		
Ellerest Sanatorium	TB	Indiv	8		62	110		
Methodist Deaconess Sanat	TB	Chrch	6		52	64		
St Joseph Sanatorium and Hospital	G & TB	Chrch	200	12	221	91	1,661	
Southwestern Presbyterian Sanatorium	G & TB	Chrch	1.0	7	80	90	970	
U S Indian School Hosp	Gen	I A	74	4	46	1,342		
Veterans Admin Facility	Gen	Vet	2.0		1.59	1,176	1,067	
Black Rock (Zuni P O)—McKinley								
Zuni Sanatorium	G & I	B I A	80		75		2,600	
Carlsbad, 3708—Eddy								
St Francis Hospital	Gen	Chrch	3	5	40	14	464	
Clayton 2518—Union								
St Joseph Hospital	Gen	Chrch	24	5	30	5	2,239	
Clovis 807—Curry								
A T & S F Hospital	Indus	Indus	32		14	23	697	
Baptist Hospital	Gen	Chrch	30	7	28	8	470	100
Crownpoint 52—McKinley								
Eastern Navajo Agency Hospital	Gen	I A	32	5		11		
Dawson 2662—Colfax								
Phelps Dodge Corporation Hospital	Gen	Indus	30	4	15	4	121	1,400
Deming 3377—Luna								
Deming Ladies Hospital	Gen	Indep	24	3	20	4	190	
Holy Cross Sanatorium	TB	Chrch	150			90	67	
Dulce 101—Rio Arriba								
Jicarilla Agency Hospital	Gen	I A	24	5	8	10	184	1,994
Jicarilla Sanatorium	TB	I A	80			70	15	
Farmington 1350—San Juan								
San Juan Episcopal Indian Mission Hospital	Gen	Chrch	18	2	3	9	206	738
San Juan Hospital	Gen	Indep	16	3	11	5	101	
El Bayard 509—Grant								
Veterans Admin Facility	G & TB	Vet	4.0			202	461	
St Stanton 218—Lincoln								
U S Marine Hospital	TB	USPH	270			238	115	1,304
Gallup 922—McKinley								
St Mary's Hospital	Gen	Chrch	65	6	52	23	848	768
Gardiner 1000—Colfax								
Gardiner Hospital	Indus	Indus	20		4	60	1,822	
Las Vegas 4719—San Miguel								
Las Vegas Hospital (Carpenier Memorial)	Gen	Indep	21	4	42	10	420	
New Mexico State Hospital	Gen	State	700			603		
St Anthony's Sanitarium and Hospital	G & TB	Chrch	46	4		20		
Lordsburg 2069—Hidalgo								
De Moya Hospital	Gen	Indiv	13	2		3		
Lordsburg Hospital	Gen	Indep	20	4		6		
Mescalero 170—Otero								
Mescalero Indian Hosp	G & TB	I A	40	4	14	23	730	3,210
Raton 6000—Colfax								
New Mexico Miners Hosp	Gen	State	31	5	53	10	465	
Rehoboth 170—McKinley								
Rehoboth Mission Hospital	Gen	Chrch	34	6	61	25	488	
Roswell 11173—Chaves								
St Mary's Hospital	Gen	Chrch	60	8	123	18	706	
Santa Fe 11170—Santa Fe								
St Vincent's Sanatorium and Hospital	G & TB	Chrch	50	5	102	31	701	
Summit Sanatorium	TB	Indep	50			26	39	
U S Indian Hospital	Gen	I A	70	6	20	41	940	2,017
Santa Rita 1590—Grant								
Nevada Consolidated Copper Company Hospital	Gen	Indus	50	6	75	9	269	2,737
Shiprock 161—San Juan								
Northern Navajo Hospital	Gen	I A	62	2		52	1,072	
Silver City 3519—Grant								
Grant County Hospital	Gen	Indep	24	0	30	5	372	
Toddlena 27—San Juan								
U S Indian Service Hosp	Gen	I A	21	2	8	10	240	1,400
Valmora—Mora								
Valmora Sanatorium	TB	Indep	70			30	32	

NEW MEXICO—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Alamogordo 3,096—Otero								
Rouseau Hospital	Gen	Indiv	8	1	7	3	134	
Los Lunas 513—Valencia								
New Mexico Home and Training School for Mental Defectives	MeDe	State	75			61	22	
Santa Fe 11,170—Santa Fe								
New Mexico Penit Hosp	Inst	State	30			3	129	
Springer 907—Colfax								
Springer Hospital	Gen	Indiv	10	3	14	2	75	
Tohatchi 2000—McKinley								
Tohatchi General Hospital	Gen	I A	20	4	20	15	400	1,000
Summary for New Mexico								
	Number		Beds		Average Patients		Patients Admitted	
Hospitals and sanatoriums	40		3,618		2,978		18,617	
Related institutions	5		213		120		1,705	
Totals	45		3,831		2,400		20,322	
Refused registration	0							

NEW YORK

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Albany 127412—Albany								
Albany Hospital*	Gen	Indep	500	40	680	334	8,507	8,818
Anthony N Brady Mater nity Hospital	Mat	Chrch	54	60	1,061	40	1,136	400
Child's Hospital	Chil	Chrch	65			46	382	
Memorial Hospital*	Gen	Indep	120	15	200	82	3,013	3,901
St Peter's Hospital*	Gen	Chrch	100			107	2,479	1,705
Albion, 4878—Orleans								
Arnold Gregory Mem Hosp	Gen	Indep	24	12	73	12	580	
Amityville 4437—Suffolk								
Brunswick General Hosp	Gen	Indep	78	16	220	44	1,269	161
Long Island Home	N & M	Indep	200			109	68	
Louden Knickerbocker Hall	N & M	Indiv	140			98	181	
Reed General Hospital	Gen	Indiv	18	3	9	8	200	
Amsterdam 34817—Montgomery								
Amsterdam City Hospital*	Gen	Indep	71	15	172	39	1,190	
Montgomery Sanatorium	TB	Co	74			88	203	220
St Mary's Hospital*	Gen	Chrch	100	20	220	60	1,416	
Auburn 36632—Cayuga								
Auburn City Hospital*	Gen	Indep	133	22	330	79	2,662	1,201
Mercy Hospital	Gen	Chrch	80	14	173	31	769	40
Ballston Spa 4591—Saratoga								
Benedict Memorial Hospital	Gen	Indep	15	6	91	7	302	
Batavia 17375—Genesee								
St Jerome's Hospital	Gen	Chrch	60	13	200	39	1,214	
Woman's Hospital	Gen	Indep	52	8	98	30	922	206
Bath 4015—Steuben								
Bath Hospital	Gen	Part	40	10	89	32	974	
Pleasant Valley Sanatorium	TB	Co	44			36	56	
Veterans Admin Facility	Gen	Vet	350			336	1,571	
Bay Shore, 4080—Suffolk								
Dr King's Private Hospital	Gen	Indiv	30	8		18		
Southside Hospital	Gen	Indep	74	26	235	38	1,307	908
Beacon 11933—Dutchess								
Craig House	N & M	Indep	77			54	48	
Highland Hospital	Gen	Indep	44	10	111	20	714	
Matteawan State Hospital	Ment	State	1,203			1,239	146	
Bedford Hills 1,000—Westchester								
Montefiore Hospital Coun try Sanatorium*	TB	Indep	220			225	329	
Binghamton 76662—Broome								
Binghamton City Hosp*	Gen	City	411	39	830	244	8,090	306
Binghamton State Hosp*	Ment	State	2,844			3,033	441	579
Brentwood 534—Suffolk								
Pilgrim State Hospital	Ment	State	5,024			3,627	3,229	
Ross Sanitarium	Gen	Indep	30	2	4	10	85	
Bronxville 8387—Westchester								
Lawrence Hospital	Gen	Indep	87	18	308	00	1,625	921
Brooklyn 2560401—Kings								
Adelphi Hospital	Gen	Indiv	60	12	217	17	778	
Bay Ridge Sanitarium	Gen	Indep	75	20	512	4	1,615	
Bedford Maternity	Mat	Indep	20	20	105	5	170	
Bensonhurst Maternity	Mat	Indep	25	25		12		
Bethany Deaconess Hosp	Gen	Chrch	85	15	221	53	1,077	
Beth El Hospital*	Gen	Indep	167	52	1,303	190	6,039	7,098
Beth Moses Hospital*	Gen	Indep	105	30	304	153	4,210	18,183
Boro Park General Hospital	Gen	Indiv	82	37		35	1,675	
Brooklyn Eye and Ear Hospital*	ENT	Indep	171			81	10,887	50,601
Brooklyn Home for Consumptives	TB	Indep	116			108	82	25
Brooklyn Hospital*	Gen	Indep	362	40	1,211	184	6,766	22,815
Brooklyn State Hospital*	Ment	State	1,300			1,376	1,873	385
Brooklyn Womens Hosp	Mat	Indep	49	49	1,089	39	1,841	973
Bushwick Hospital*	Gen	Indep	127	37	438	90	3,015	8,922
Caledonian Hospital*	Gen	Indep	100	30	296	53	1,132	442
Carson C Peck Mem Hosp	Gen	Indep	90	28	469	50	1,107	341
Coney Island Hospital*	Gen	City	384	40	1,637	301	9,000	41,470
Crown Heights Hospital	Gen	Indep	11	28	512	99	3,061	
Cumberland Hospital*	Gen	City	292	29	1,166	370	7,606	40,929

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Evangelical Deaconess Hospital	Gen	Chrch	60	20	139	21	5,59	
Greenpoint Hospital*	Gen	City	320	50	1,598	220	7,081	26,764
Harbor Hospital	Gen	Indep	50	12	87	21	890	2,337
Hosp of the Holy Family	Gen	Chrch	62			56	1,987	3,140
House of St. Giles the Cripple	Orth	Chrch	40			31	114	569
Israel Zion Hospital*	Gen	Indep	315	03	2,007	242	7,613	22,000
Jewish Hospital**	Gen	Indep	547	127	2,287	382	12,248	51,221
Kings County Hospital**	Gen	City	1,617	43	1,926	1,830	29,594	34,706
Kingston Avenue Hospital*	Gen	City	410			410	4,837	
Kingsway Hospital	Gen	Indiv	22	10	123	8	3,0	
Liberty Maternity Hosp	Gen	Indep	60	24	677	20	931	
Long Island College Hospital**	Gen	Indep	438	42	776	337	7,646	28,064
Lutheran Hospital	Gen	Chrch	92	18	473	67	3,30	11,744
Madison Park Hospital	Gen	Indep	74	30	780	61	1,984	
Methodist Episcopal Hospital**	Gen	Chrch	320	80	1,811	361	10,018	10,102
Midwood Hospital	Gen	Indep	00	27	417	71	1,18	
Norwegian Lutheran Deaconess' Home and Hospital*	Gen	Chrch	104	30	709	137	7,360	9,088
Prospect Heights Hospital	Gen	Indep	151	09	368	60	2,103	
Ridgewood Sanitarium	Gen	Indep	14	12	123	6	207	
Riverdale Hospital	Gen	Indiv	50	36	458	14	630	
St. Catherine's Hospital*	Gen	Chrch	200	58	1,267	192	5,498	7,908
St. Cecilia Hospital for Women	Mat	Chrch	52	50	562	22	1,011	7,000
St. Charles Hospital Orthopedic Clinic	Orth	Chrch	55	40	740	47	246	1,06
St. John's Hospital*	Gen	Chrch	104	61	840	148	7,658	7,641
St. Mary's Hospital*	Gen	Chrch	200	61	840	180	4,787	17,208
St. Peter's Hospital*	Gen	Chrch	20	14	30	133	2,000	
Samaritan Hospital	Gen	Chrch	00	12	280	24	1,001	6,000
Samaritan Hospital Skene Division	Gen	Chrch	60	12	210	23	776	
Shore Road Hospital	Gen	Indep	45	10		27	1,009	
Station Hospital	Gen	Army	50			18	500	2,068
Swedish Hospital	Gen	Chrch	60	15	206	40	1,500	
Trinity Hospital*	Gen	Indep	100	10	177	77	2,506	4,47
U. S. Naval Hospital	Gen	Navy	1,102			806	5,414	
Unity Hospital	Gen	Indep	176	31	744	129	3,878	10,02
Victory Memorial Hospital	Gen	Indep	56	13	138	24	1,036	
Dr. Wade's Private Hospital	Gen	Indiv	40	12	100	20	601	2,500
Williamsburgh Maternity Hospital	Mat	Indep	70	62	1,100	70	1,140	72
Wyckoff Heights Hospital*	Gen	Indep	170	00	300	133	4,018	6,000
Buffalo 573-576—Frie	Gen	City	1,025	38	959	1,000	11,977	100,821
Buffalo City Hospital**	Gen	City	79	6	71	64	1,712	
Buffalo Columbus Hosp	Gen	Indep	434	26	757	430	8,968	7,681
Buffalo General Hosp**	Gen	Indep	210	15	709	150	4,908	
Buffalo Hospital of the Sisters of Charity (Affil)*	Gen	Chrch	210	15	709	150	4,908	
Buffalo State Hospital*	Gen	State	2,530			2,439	566	146
Central Park Clinic	Gen	Indep	66	6	84	30	1,754	
Children's Hospital*	Gen	Indep	211	39	506	164	7,299	4,271
Deaconess Hospital*	Gen	Indep	190	30	720	130	3,800	102
Emergency Hospital of the Sisters of Charity (Affil)*	Gen	Chrch	103			89	1,806	7,637
Lafayette General Hosp	Gen	Indep	52	0	177	34	1,000	
Memorial Hospital	Gen	Indep	50	10	151	40	688	2,592
Mercy Hospital*	Gen	Chrch	164	28	700	178	7,000	3,681
Millard Fillmore Hosp**	Gen	Indep	200	73	1,208	158	5,544	1,011
Providence Retreat	N & M	Chrch	200			178		
St. Mary's Infant Asylum and Maternity Hospital	Mat	Chrch	80	60	1,060	50	1,176	600
State Institute for the Study of Malignant Disease	Sk	Ca State	32			31	2,083	2,374
U. S. Marine Hospital	Gen	USPH	75			70	624	1,027
Callicoon 680—Sullivan	Gen	Indiv	10	4	60	4	100	
Callicoon Hospital	Gen	Indiv	10	4	60	4	100	
Cambridge 1762—Washington	Gen	Indep	97	15	100	02	831	1,161
Mary McClellan Hospital*	Gen	Indep	97	15	100	02	831	1,161
Canandaigua 7041—Ontario	N & M	Indep	60			48	55	
Brigham Hall Hospital	Gen	Indep	118	17	208	66	1,961	
Frederick Ferris Thompson Hospital	Gen	Indep	468			New		
Veterans Admin Facility	Gen	Vet	23	5	43	7	239	50
Canastota 4235—Madison	Gen	City	23	5	43	7	239	50
Canastota Memorial Hosp	Gen	City	23	5	43	7	239	50
Caesadaga 480—Chautauque	TB	Co	180			170	110	3,423
Newton Memorial Hospital	TB	Co	180			170	110	3,423
Castle Point 23—Dutchess	TB	Vet	479			461	516	
Veterans Admin Facility	TB	Vet	479			461	516	
Catskill 5082—Greene	Gen	Co	24	10		New		
Memorial Hospital of Greene County	Gen	Co	24	10		New		
Central Islip 670—Suffolk	Gen	Indep	7175	2	87014	2,261	768	
Central Islip State Hospital	Gen	Indep	7175	2	87014	2,261	768	
Central Valley, 800—Orange	N & M	Indep	40			30	8	
Dr. MacDonald's House	N & M	Indep	40			30	8	
Chenango Bridge 260—Broome	TB	Co	120			00	134	
Broome County Tuberculosis Hospital	TB	Co	120			00	134	
Clifton Springs 1819—Ontario	Gen	Indep	474	10	57	132	2,480	
Clifton Springs Sanitarium and Clinic*	Gen	Indep	474	10	57	132	2,480	
Cohoes 23226—Albany	Gen	Indep	59	10	148	40	1,012	270
Cohoes Hospital*	Gen	Indep	59	10	148	40	1,012	270
Cold Spring 1784—Putnam	Gen	Indep	23	6	39	12	340	
Tulla L. Butterfield Memorial Hospital	Gen	Indep	23	6	39	12	340	

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Cooperstown, 2 000—Otsego								
Mary Imogene Bassett Hospital	Gen	Indep	80	8	03	40	1 03	
Cornling 10 777—Steuben								
Cornling Hospital	Gen	Indep	80	8	200	38	1 310	
Cornwall, 1 910—Orange								
Cornwall Hospital	Gen	Indep	60	10	176	20	1 072	40
Cortland 15 04—Cortland								
Cortland County Hosp	Gen	Indep	124	10	314	72	2 391	
Cuba 1 492—Allegany								
Cuba Memorial Hospital	Gen	Indep	14	6	40	5	200	
Dannemora 3 948—Clinton								
Dannemora State Hospital	Ment	State	716			780	106	
Danville 4 928—Livingston								
Danville General Hospital	Gen	City	22	3	107	24	442	
Delhi 1 810—Delaware								
Delaware County Tuberculosis Sanatorium	TB	Co	30			24	39	200
Dobbs Ferry 5 741—Westchester								
Dobbs Ferry Hospital	Gen	Indep	41	10	110	22	80	30
Dunkirk 17 002—Chautauque								
Brooks Memorial Hospital	Gen	Indep	49	10	10	24	820	10
Elizabethtown 636—Livingston								
Elizabethtown Community House Hospital	Gen	Indep	11	2	21	3	101	
Ellenville 3 250—Ulster								
Veterans Memorial Hosp	Gen	Indep	14	5	48	7	04	04
Elmira 47 007—Chemung								
Arnold Ogden Memorial Hospital	Gen	Indep	181	30	474	111	3 946	
Chemung County Sanat	TB	Co	30			30		
St Joseph's Hospital	Gen	Chrch	189	27	40	110	3 002	
Indicott 16 031—Broome								
Ideal Hospital	Gen	City	113	30	43	79	2 716	
Jamaica 3 053—Nassau								
Nassau County Sanatorium	TB	Co	423			203	600	1 800
Far Rockaway—Queens								
Natalie and Louis Helfsner Memorial	(Included in Hosp for Joint Diseases N. Y. C.)							
St Joseph Hospital	Gen	Chrch	180	22	300	70	2 300	3 000
Illmore 4 88—Allegany								
Gene & Country Memorial Hospital	Gen	Indep	16	4	04	8	281	
Fishers Island, 824—Suffolk								
Station Hospital	Gen	Army	00		2	17	499	6 300
Flushing—Queens								
Flushing Hospital and Dispensary	Gen	Indep	180	78	1 304	1 00	5 740	10 010
Station Hospital	Gen	Army	80	4	70	44	1 220	0 900
Ft Niagara (Youngstown P O)—Niagara								
Station Hospital	Gen	Army	10			9	440	2 490
Ft Slocum—Westchester								
Station Hospital	Gen	Army	100			37	890	
Ft Wadsworth (Staten Island I O)—Richmond								
Station Hospital	Gen	Army	20			9	440	0 060
Fulton 12 462—Oswego								
Albert I Lindley Lee Memorial Hospital	Gen	City	37	11	102	20	672	
Gabriels 200—Franklin								
Sanatorium Gabriels	TB	Chrch	190			91	10	
Geneva 16 033—Ontario								
Geneva General Hospital	Gen	Indep	73	20	103	43	1 446	117
Clen Cove 11 430—Nassau								
North Country Community Hospital	Gen	Indep	100	20	316	40	1 802	3 101
Parkside Hospital	Gen	Part	130	00	02	6	210	
Glen Falls 18 531—Warren								
Clen Falls Hospital	Gen	Indep	80	10	248	60	1 880	
Westmount Sanatorium								
Warren County Tuberculosis Hospital	TB	Co	02			47	44	180
Gloversville 21 000—Fulton								
Nathan Littauer Hosp	Gen	Indep	102	18	227	03	1 761	50
Goshen 2 801—Orange								
Goshen Hospital	Gen	Indep	47	8		13	80	
Interpines Sanitarium	N & M	Indep	70			44	80	
Couverneur 4 015—St Lawrence								
Stephen B Van Duzee Hosp	Gen	Indep	19	6	47	8	210	66
Governors Island—New York								
Station Hospital	Gen	Army	120	9				
Gowanda 3 042—Cattaraugus								
Lowland Hospital	Gen	Part	18	6	74	7	390	
Granville 3 493—Washington								
Emma Laing Stevens Hosp	Gen	Indep	10	6		6	149	
Greenport 3 002—Suffolk								
Eastern Long Island Hosp	Gen	Indep	28	8	144	13	706	
Harmon on Hudson 110—Westchester								
Crickton House	N & M	Indiv	20					
Harrison 1 480—Westchester								
St Vincent's Retreat	N & M	Chrch	200			172	88	
Hastings upon Hudson 7 097—Westchester								
Hastings Hillside Hosp	N & M	Indep	40			38	08	299
Helmuth—Erle								
Gowanda State Homeopathic Hospital	Ment	State	1 303			1 148	341	
Hempstead 12 650—Nassau								
Mercy Hospital	Gen	Chrch	20	11	213	10	400	300
Station Hospital	Gen	Army	50			6		
Herkimer 10 446—Herkimer								
Herkimer Memorial Hosp	Gen	Indep	31	9	88	26	890	79
Holcomb 294—Ontario								
Oak Mount Sanatorium	TB	Co	40			41	50	
Hollis—Queens								
Parkview Hospital	Gen	Indiv	32	6	60	21	530	

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Holtville 900—Suffolk	TB	Co	100			99	104	
Suffolk Sanatorium								
Hornell 16240—Steuben	Gen	Indep	44	10	116	24	744	
Bethesda Hospital	Gen	Chrch	93	16	298	64	1 983	
St James Mercy Hospital	Gen	Indep	91	15	246	63	1 000	
Hudson, 19 337—Columbia	Gen	Indep	39	10		34		670
Hudson City Hospital	Gen	Indep	20	6	69	13	595	
Huntington 6900—Suffolk	Gen	Indep	150			21	69	
Huntington Hospital								
Ilion 980—Herkimer	Gen	Indep	105	20	319	60	2 960	
Ilion Hospital								
Irrington 3 067—Westchester	Card	Indep	50			49	785	
Irrington House+								
Ithaca 20 708—Tompkins	Gen	Indep	100	15	417	68	2 906	
Tompkins County Memorial Hospital								
Jamaica—Queens	Gen	Chrch	269	50	1 109	218	5 164	5 394
Mary Immaculate Hosp +0	Gen	Chrch	50			49	785	
Queensboro Hospital for Communicable Diseases	Gen	City	100	15	417	68	2 906	
Jamestown 45 15—Chautauqua	Gen	City	104	32	440	46	2 101	
Jamestown General Hosp +0								
Woman's Christian Associa	Gen	Indep	193	27	507	119	3 469	1 900
tion Hospital+								
Johnson City 13 567—Broome	Gen	Indep	35			7	44	30
Charles S. Wilson Memorial Hospital+0	N & M Indiv		15			4	11	
Katonah 1 400—Westchester	Nerv Indep		4,730			4 197	1 603	502
Four Winds+								
Hillbourne Farms								
Kings Park 1 067—Suffolk	Ment State							
Kings Park State Hosp +0								
Kingston, 23 048—Ulster	Gen	Chrch	84	16	188	71	3 360	1 002
Benedictine Hospital+	Gen	Indep	118	15	244	77	2 469	1,761
Kingston Hospital+	Conv	Indep	100			34	86	61
Dr C O Sahler Sanitarium								
Ulster County Tuberculo	TB	Co	56			40	93	440
sis Hospital								
Lackawanna 23,948— Erie	Indus	Indus	28			10	165	847
Moses Taylor Hospital								
Out Lady of Victory Hos	Gen	Chrch	134	16	296	82	1 910	887
pital+0								
Lake Kushaqua 10—Franklin	TB	Indep	145			140	142	
Stony Wold Sanatorium								
Lake Placid 2 930—Essex	Gen	City	23	6	33	9	174	60
Lake Placid General Hosp								
Liberty 3 427—Sullivan	Gen	Frnt	28	4	36	10	300	
Maimonides Hospital	FB	Frnt	100			12	91	20
Workmen's Circle Sanat								
Little Falls 11,100—Herkimer	Gen	Indep	36	9	108	20	821	
Little Falls Hospital								
Livingston 249—Columbia	TB	Indep	59			10		
Potts Memorial Hospital								
Lockport 23 160—Niagara	Gen	City	72	12	273	1	1 496	
Lockport City Hospital	TB	Co	200			204	196	1 424
Niagara County Sanat								
Long Beach 5 817—Nassau	Gen	Indep	35	10		11		817
Long Beach Hospital								
Long Island City—Queens	Gen	Indep	74	28	607	42	1 785	
Boulevard Sanitarium								
Daly's Astoria Sanatorium	Gen	Indep	50	22	271	14	415	
River Crest Sanitarium	N & M Indiv		132			105	244	
St John's Long Island City	Gen	Chrch	254	50	1 233	237	6 002	25 300
Hospital+0								
Loomis, 200—Sullivan	TB	Indep	202			118	182	
Loomis Sanatorium+								
Lowville 3 474—Lewis	Gen	StCo	40	7	89	22	719	
Lewis County General Hosp								
Lyons 3 906—Wayne	Gen	Part	24	4	40	18	401	
Edward J Barber Hospital	Gen	Indep	20	5	36	13	338	
Towerton Simpson Hosp								
Malone 8 637—Franklin	Gen	Indep	74	12	127	36	1 080	644
Alice Hyde Mem Hosp +0								
Marcy 112—Oneida	Ment State		2 007			2 020	411	669
Marcy State Hospital								
Medina 6 071—Orleans	Gen	Indep	28	7	60	10	319	
Medina Memorial Hospital								
Middle Grove 280—Saratoga	TB	Co	80			86	189	
Saratoga County Tubercu								
losis Hospital								
Middletown 21 970—Orange	Gen	Indep	90	18	166	49	1 513	930
Elizabeth A Horton Memo	Gen	Indiv	50	8	126	28	604	
rial Hospital+								
Middletown Sanit and Hosp	Ment State		3 154			3 231	402	326
Middletown State Homeo								
pathic Hospital+0								
Mineola 8 168—Nassau	Gen	Indep	175	30	802	132	4 540	
Nassau Hospital+0								
Mineville 837—Essex	Gen	Indus	14		3	7	180	179
Mineville Hospital								
Monticello 3 450—Sullivan	Gen	Indiv	14	4	51	8	287	
Hamilton Avenue Hospital	Gen	Indep	20	5	68	12	400	
Monticello Hospital								
Montour Falls 1 489—Schuyler	Gen	Co	15	6	59	9	328	
Shepard Relief Hospital								
Mtisco 5 127—Westchester	Gen	Indep	106	14	377	57	2 000	
Northern Westchester Hosp								
Mt McGregor—Saratoga	TB	Indep	360			285	400	
Metropolitan Life Insur								
ance Company Sanat +	Gen	Indep	102	40	778	102	3 793	4 167
Mt Vernon 61 499—Westchester								
Mt Vernon Hospital+0								
Mt Vision 2.3—Otsego	TB	Co	26			6	3	
Otsego County Sanatorium								

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Newburgh, 31 270—Orange								
Estelle and Walter C Odell Memorial Sanatorium for Tuberculosis	TB Gen	Co Indep	50			46	68	796
St Luke's Hospital+	Gen	Indep	172	19	211	68	2 437	2 387
New Rochelle 54 000—Westchester								
New Rochelle Hospital+0	Gen	Indep	121	26	572	128	3 878	5 246
New York City, 4 211 699—New York								
Alice Fuller Le Roy Sanitarium	Gen	Indiv	54	10		17	504	29 406
Babies Hospital+0	Chil	Indep	154			84	2 000	29 406
Beekman Street Hospital	Gen	Indep	100			73	2 767	16 700
Bellevue Hospital+0	Gen	City	2 112	105	2 530	2 344	61 445	99 932
Beth David Hospital+	Gen	Indep	154	24	190	86	2 300	10 444
Beth Israel Hospital+0	Gen	Indep	304	84	758	247	6 479	17 373
Broad Street Hospital	Gen	Indep	117	8	62	76	3 318	5 519
Bronx Eye and Ear Infirm	ENT	Indep	30			14	2 774	14 175
Bronx Hospital+	Gen	Indep	204	59	1,287	221	7,479	20 304
Bronx Maternity and Women's Hospital	Mat	Indep	36	36	623	17	660	773
Central Neurological Hospital	Neur	City	470			467	760	
Charles B Towns Hospital	Gen	Drug Indiv	50	2	3	15	732	
Columbus Hospital+	Gen	Chrch	260	40	203	90	2 671	8 112
Columbia Hospital Extension	Gen	Chrch	100	16	169	70	1 590	1 616
Community Hospital	Gen	Indep	88	19	197	37	1 584	1 372
Concourse Hospital	Gen	Indep	45	30		22	1 009	
Crotona Park Sanitarium	Gen	Indep	40	24	500	12	1 009	
Doctors Hospital	Gen	Indep	275	50	659	94	2 525	
Echo Hill Sanitarium	Gen	Indep	15	9	104	8	800	
Fifth Avenue Hospital+0	Gen	Indep	300	40	539	164	5 706	8 612
Fitch Sanitarium	Gen	Indep	70	48	546	27	1,107	
Fordham Hospital+0	Gen	City	539	50	1,788	515	11 999	41,184
Franklin Maternity Sanit	Mat	Indiv	10	10	168	5	199	
French Hospital+0	Gen	Frnt	200			142	3 383	19 600
Gelber Hospital	ENT	Indiv	21			3	692	
Gouverneur Hospital+0	Gen	City	209	20	300	188	4 977	48 525
Harlem Eye and Ear Hospital	ENT	Indep	50			7	1 030	14 282
Harlem Hospital+0	Gen	City	273	52	1 003	263	9 597	46 447
Herman Knapp Memorial Eye Hospital+	Fye	Indep	50			35	810	12 317
Hospital for Joint Diseases+0	G.&O.R	Indep	355			292	4 837	29 021
Hunts Point Hospital	Gen	Indep	95	45	309	87	1 360	
Jewish Maternity Hospital	Mat	Indep	52	52	1,311	37	1 400	1 071
Jewish Memorial Hospital	Gen	Indep	105	12	82	7	2 530	2 752
Knickerbocker Hospital+	Gen	Indep	174	30	491	180	4 453	8 037
Lebanon Hospital+0	Gen	Indep	162	20	397	103	3 018	21,932
Dr Left's Maternity Hospital	Mat	Indiv	51	51	622	18	706	
Lenox Hill Hospital+0	Gen	Indep	500	48	203	267	13,600	23 600
Lincoln Hospital+0	Gen	City	233	37	1 083	269	6,226	36 794
Lutheran Hospital	Gen	Chrch	100	21	214	40	1,182	311
Manhattan Eye Ear and Throat Hospital+	ENT	Indep	214			153	18 588	70 796
Manhattan General Hospital	Gen	Indep	138	12	142	76	2 104	
Manhattan State Hospital+0	MENT	State	4 317	2	6 439	2 004	2 004	616
Memorial Hospital for the Treatment of Cancer and Allied Diseases+	Ca	Indep	109			99	2 383	1 404
Metropolitan Hospital+0	Gen	City	1 580	40	1 704	1 765	11 988	20 103
Midtown Hospital	Gen	Indep	60	10	02	29	2 414	4 568
Misericordia Hospital+0	Gen	Chrch	247	75	1 291	212	3 588	2 126
Montefiore Hospital for Chronic Diseases+0	Gen	Indep	710			635	1 542	1 255
Morrisania City Hospital +0	Gen	City	473	66	2 155	421	12 880	33,300
Mount Morris Park Hospital	Gen	Indiv	64	30	140	13	524	
Mt Sinai Hospital+0	Gen	Indep	760			531	13 609	37 149
Murray Hill Sanitarium	Gen	Indep	71	8		32		
Neurological Institute of New York+0	Neur	Indep	211			141	3 086	6 003
New York City Cancer Institute Hospital+	Ca	City	202			168	609	1 283
New York City Hospital+	Gen	City	1,000	30	866	994	7 458	13 979
New York Eye and Ear Infirmary+	ENT	Indep	175			99	5 469	53 181
New York Foundling Hospital	Mat	Chrch	330	60	394	230	2 481	
New York Homeopathic Medical College and Lower Hospital+0	Gen	Indep	197	30	473	142	6 484	23 218
New York Hospital+0	Gen	Indep	671	131	2,625	302	5 085	21 106
New York Infirmary for Women and Children+	Gen	Indep	118	37	590	71	2 035	12 676
New York Nursery and Child's Hospital+0	Mat	Chrch	164	92	1 440	90	2 870	3 976
New York Orthopaedic Dispensary and Hospital+	Orth	Indep	132			92	961	20 489
New York Polyclinic Medical School and Hospital+0	Gen	Indep	308	37	713	205	7 468	38 031
New York Post Graduate Medical School and Hospital+0	Gen	Indep	415			263	9 617	56 409
New York Society for the Relief of the Ruptured and Crippled+	Orth	Indep	269			192	3 561	78 008
New York State Psychiatric Institute and Hospital+	MENT	State	290			168	388	979
Park East Hospital	Gen	Indep	120	24		6	2 470	
Parkway Hospital	Gen	Indep	60	10	179	22	800	
Park West Hospital	Gen	Indep	64	10	149	37	2 032	
Payne Whitney Psychiatric Clinic	(Included in New York Hospital)							
Peoples Hospital	Gen	Indep	53	5	40	36	1,366	
Presbyterian Hospital+0	Gen	Indep	641			420	9 223	55 619
Reconstruction Hospital	Orth	Indep	50			34	778	1 929

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Riverside Hospital	1b1s City		332		393	2,148		
Roosevelt Hospital*	Gen Indep		337		202	5,788		2,016
Royal Hospital	Gen Indiv		100	34	81	55	2,108	
St Ann's Maternity Hosp	(Included in New York Foundling Hospital)							
St Elizabeth's Hospital	Gen Chreh		100	27	226	44	1,763	
St Francis Hospital*	Gen Chreh		42		272	5,401		
St Luke's Hospital**	Gen Chreh		132	8	361	8,034	30,274	
St Mary's Hospital for Children	Chil Chreh		57		50	2,068	2,509	
St Vincent's Hospital*	Gen Chreh		41	30	11	33	8,668	22,240
Ston Hospital	1B Chreh		248			211		
Sherman Square Hospital	Gen Indep		4	10	61	22	813	
Sloane Hospital for Women*	Gen Indiv		178	144	2,127	146	7,310	4,618
Stuyvesant Square Hosp*	Gen Indiv		16			41	1,418	1,747
Sydenham Hospital*	Gen Indep		176	24	448	121	4,691	9,846
Union Hospital	Gen Indep		5	20	201	21	917	
U S Marine Hospital	Gen USPH		510	10		148	4,142	
University Heights Hosp	Gen Indiv		50	17	787	0	1,140	
Veterans Adminl Facility	Gen Vet		9			278	1,930	11,101
Westchester Square Hosp	Gen Indep		60	32	517	1	20	
West Hill Sanitarium	N&M Indiv		40			20	74	
West Side Hospital and Dispensary	Gen Indep		27			14	61	6,129
Wickersham Hospital	Gen Indiv		70	10	141	0	1,246	1
Willard Parker Hospital*	1b1s City		474		5	283	6,098	
William Booth Mem Hosp	Gen Chreh		18	24	272	0	91	1,122
Woman's Hospital*	Gen Indiv		219	84	1,430	14	816	10,011
Niagara Falls 7040—Niagara	Gen Chreh		144	10	400	62	2,096	
Niagara Falls Mem Hosp	Gen Indiv		166	24	320	69	3,332	
Northport 2528—Suffolk	Ment Vet		1,392			1,359	322	
Veterans Admin Facility								
North Tonawanda 19019—Niagara	Gen City		48	18	174	17	867	
Do Graff Memorial Hospital	Gen City							
Norwich 8374—Chenango	Gen Indep		61	1	80	31	910	
Chenango Memorial Hosp	Gen Indep							
Nyack 5392—Rockland	Gen Indep		88	16	312	77	2,937	4,066
Nyack Hospital	Gen Indep							
Ogdensburg 1601—St Lawrence	Gen Chreh		160	20	243	114	5,717	14
A Barton Hepburn Hosp	Gen Chreh							
St Lawrence State Hosp*	Ment State		2,317			2,227	327	210
Olean 21790—Cattaraugus	Gen Indiv		30	9	68	18	60	531
Olean General Hospital	Gen Indep		81	22	191	31	1,118	
Rocky Crest Sanatorium	1B Co		43			42	73	843
Oneida 10558—Madison	Gen Indep		10	11	91	23	806	
Broad Street Hospital	Gen City		14	4	42	8	343	
Oneonta 12536—Otsego	Gen Indiv		53	7	112	39	1,118	
Aurelia Osborn Fox Memorial Hospital	Gen Indiv		31	10		12		
Parshall Private Hospital	Gen Indiv							
Orangeburg 360—Rockland	Ment State		3,760	2		3,598	1,543	940
Rockland State Hospital								
Ossining 15241—Westchester	Gen Indep		61	11	21	45	1,447	
Ossining Hospital	N&M Indiv		18			9	20	
Stony Lodge								
Oswego 2262—Oswego	Gen Indep		90	12	107	44	2,319	
Oswego Hospital	Gen Indep		30			7	51	1,093
Station Hospital	Gen Army							
Otisville 809—Orange	1B City		388			313	440	
Municipal Sanatorium	N&M Indep		50			11	5	
Owego 4742—Tloga	N&M Indep		19			12		
Glenmary Sanitarium								
Pawling 1204—Dutchess	Gen Indep		63	12	242	40	1,944	
White Oak Farm								
Peekskill 1712—Westchester	Gen Indep		40	10	116	39	830	
Peekskill Hospital								
Penn Yan 5320—Yates	Gen Indep		40	10	116	39	830	
Soldiers and Sailors Memorial Hospital	Gen Indep		40	10	116	39	830	
Perryburg 317—Cattaraugus	TB City		300			492	417	
St Adam Memorial Hosp								
Philmont 1868—Columbia	TB Co		76			40	47	340
Columbia County Tubercular Sanatorium								
Plattsburg 13340—Clinton	Gen Chreh		100	15	201	60	2,318	1,316
Champlain Valley Hospital	Gen Indep		90	18	183	40	1,448	1,3
Physicians Hospital	Gen Army		80			40	1,426	4,000
Station Hospital								
Pt Chester 2260—Westchester	Conv Chreh		140	36	490	83	1,013	
St Luke's Convalescent Hospital	Gen Indep		104	36	490	0	3,243	4,782
United Hospital*								
Pt Jefferson 2200—Suffolk	Gen Indep		58	12	98	22	873	
John T Mather Memorial Hospital	Orth Chreh		240			220	66	
St Charles Hospital	(Mental Dept of St Charles Hospital)							
Wharton Memorial Institute								
Pt Jervis 10247—Orange	Gen Chreh		61	10	4	13	530	
St Francis Hospital	Gen Indep		54	21	107	12	461	
Potsdam, 4136—St Lawrence								
Potsdam Hospital								
Poughkeepsie 40288—Dutchess	Ment State		4,378		7,426	90	1,849	
Hudson River State Hosp*	Surg Indiv		10			8	146	
Sadler Hospital	Gen Chreh		80	20	260	51	1,927	301
St Francis Hospital								
Samuel and Nettie Bowne Hospital	TB Indiv		50			33		
Samuel W Bowne Memorial Hospital	TB Co		130			142	94	
Sarar Brothers Hosp*	Gen Indep		192	33	601	128	3,849	3,304

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Queens Village—Queens								
Creedmoor Division Brooklyn State Hospital	Ment State		119			2,797	1,8	219
Rav Brook 40—Jesse	TB State		60			290		309
New York State Hospital*								
Rhinebeck 149—Dutchess	Gen Indep		0	8	5	21	549	60
Northern Dutchess Health Service Center								
Rhinebeck 404—Oswego	Gen Indep		110			100	179	
Oswego County Sanat	TB Co		110			100	179	
Rhine and Hill—Queens	Gen Indep		119	23	7,6	191	1,333	620
Immanuel Hospital*								
Rochester 2511—Monroe	Gen Indiv		14	12	10	5	14	
Heldere Private Hospital	Gen Indiv		193	32	50	127	4,2	609
Geneva Hospital**	Gen Indep		163	23	513	107	9,96	433
Hilland Hospital*								
Iola Monroe County Tubercular Sanatorium*	TB Co		400			31	51	748
Monroe County Hospital	Gen Co		266	16	1,3	2,2	1,64	
Park Avenue Hospital*	Gen Indep		81	22	240	4	1,11	
Rochester General Hosp*	Gen Indep		702	61	1,000	1,9	9,919	9,674
Rochester Municipal Hospital	Gen City		200	24	807	294	6,01	AMH
Rochester State Hospital*	Ment State		2,646			2,600	491	470
St Mary's Hospital*	Gen Chreh		200	2	474	129	9,041	4,110
Strong Memorial Hosp*	Gen Indep		264	36	192	111	4,10	9,099
Rockaway Beach—Queens								
Rockaway Beach Hospital for Children	Chil City		120			115	30	
Rockaway Beach Hospital and Dispensary	Gen Indep		110	10	200	74	9	9,770
Rockville Center 13715—Nassau	Gen Indep		1	15	670	50	210	
South Nassau Communities Hospital								
Rome 3233—Oneida	Gen Co		184	6	8	199	1	23
Oneida County Hospital								
Rome Hospital and Murphy Memorial Hospital	Gen City		0	17	230	40	1,474	681
Rome Infirmary	Gen Indiv		0	18	11	10		
Sackett Harbor, 742—Jefferson	Gen Army		50			17	50	3,400
Station Hospital								
Salamanca 9077—Cattaraugus	Gen City		41	13	143	21	54	
City Hospital								
Sailsbury Center 311—Herkimer	TB Co		90			90	5	
Pine Crest Sanatorium								
Saranac Lake 8030—Franklin	Gen Indep		35	9	100	21	50	0
General Hospital								
National Variety Artists Lodge	TB Indep		70			24	41	
Northwoods Sanatorium	TB Indep		20			20	55	
Reception Hospital	TB Indiv		30			19	42	
St Mary's of the Lake	1B Chreh							
Saratoga Springs 13169—Saratoga	Gen Indep		8	14	145	40	1,311	1,491
Saratoga Hospital								
Schenectady 9,662—Schenectady								
Eastern New York Orthopedic Hospital School	Orth Indep		14			14	30	200
Fills Hospital*	Gen Indep		246	39	799	188	5,768	4,300
Glenridge Sanatorium	1B Co		132			112	1,00	301
Seneca Falls 443—Seneca	Gen City		26	7	63	11	345	
Seneca Falls Town Hosp								
Sherburne 1077—Chenango	1B Co		33			32	28	
Chenango County Tubercular Sanatorium								
Sodus 1444—Wayne	Gen Indiv		30	7	51	13	311	
Myers Hospital								
Somers—Westchester	N&M Indiv		20			21	98	
Pinewood Sanitarium								
Sonyea—Livingston	Fpil State		2,044	2		1,962	313	
Craig Colony								
Southampton 3737—Suffolk	Gen Indep		90	19	230	43	1,674	747
Southampton Hospital								
Staten Island 168346—Richmond	Gen Indep		60	18	155	33	1,904	1,070
Richmond Memorial Hosp	Gen Chreh		212	36	49	151	4,012	7,016
St Vincents Hospital*	1B City		1,446	6	18	1,368	2,337	
Sea View Hospital*	Gen Indep		231	44	1,009	170	5,160	7,440
Staten Island Hospital*	Gen USPH		288			297	3,490	5,390
U S Marine Hospital								
Sufferin 3701—Rockland	Gen Chreh		34	9	166	26	1,298	301
Good Samaritan Hospital								
Summit Park (Pomona P O)—Rockland	TB Co		46			51	53	901
Summit Park Sanatorium								
Sunmount—Franklin	FB Vet		520			3,6	308	
Veterans Admin Facility								
Syracuse 209326—Onondaga	Iso City		84			40	1,000	
City Hospital*	Gen Indep		170	30	482	129	3,816	
Crozier Irving Hospital*	Gen Indep		80	20	400	68	2,939	881
General Hospital*								
Hospital of the Good Shepherd*	Gen Indep		242		100	162	5,091	
Onondaga General Hosp	Gen Indep		52	25	80	24	691	
Onondaga Sanatorium	TB Co		203			237	900	1,943
Peoples Hospital	Gen Indep		33	10	88	9	962	
St Joseph Hospital*	Gen Chreh		200	31	375	133	4,393	
St Mary's Maternity Hospital and Infants Asylum	MatCh Chreh		64	22	329	55	618	
Syracuse Memorial Hosp*	Gen Indep		210	40	996	166	5,060	
Syracuse Psychopathic Hosp	Ment State		60			0	84	364
Tarrytown 6841—Westchester	Gen Indep		48	12	220	37	938	3
Tarrytown Hospital								
Ticonderoga 3680—Essex	Gen Indep		43	6	45	28	742	
Moses Ludington Hospital								
Troy 72763—Rensselaer	Gen Indep		75	15	274	40	1,710	
Leonard Hospital								

Key to symbols and abbreviations is on page 1021

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
Marshall Sanitarium	N&M Indep		61		10	241		
St Joseph's Maternity Hosp	Mat Chrch		60	50	2	600		
Samaritan Hospital*	Gen Indep		167	16	284	40	2 156	1,022
Troy Hospital*	Gen Chrch		250	12	163	149	2 876	1 607
Trudeau, 230—Essex								
Trudeau Sanatorium*	IB Indep		155			188	262	
Trumansburg 1077—Tompkins								
Tompkins County Tubercu- losis Hospital	TB Co		72			30	24	
Tupper Lake, 521—Franklin								
Mercy General Hospital	Gen Chrch		72	2	28	12	449	
Luxedo Park, 2,000—Orange								
Tuxedo Memorial Hospital	Gen Indep		71	8		15	500	
Utica 101740—Onelda								
Faxon Hospital*	Gen Indep		167	42	211	59	2 143	401
Masonic Soldiers and Sail- ors Memorial Hospital	Gen Frat		200			107	407	
Onelda County Tuberculosis Sanatorium	TB Co		126			124	115	1 450
St Elizabeth Hospital*	Gen Chrch		120	20	304	79	2,184	
St Luke's Home and Hos- pital*	Gen Chrch		123	28	297	5	1 509	
Utica General Hospital	Gen City		117	8		104	2 203	616
Utica Memorial Hospital	Gen Indep		6	12	174	31	1 504	
Utica State Hospital*	Ment State		1 594			1 602	547	617
Valhalla 600—Westchester								
Grasslands Hospital**	Gen Co		888	15	356	549	5 810	10 602
Warsaw 3477—Worming								
Wyoming County Commu- nity Hospital	Gen Co		70	11	123	40	1 219	
Warwick 2443—Orange								
Warwick Hospital and Clinic	Gen Indiv		21	4	27	11	303	
Waterloo 404—Seneca								
Waterloo Memorial Hosp	Gen Indep		15	5	51	8	308	
Watertown 37205—Jefferson								
House of the Good Samari- tans	Gen Indep		122	17	181	90	2 969	
Jefferson County Sanat	TB Co		75			71	72	816
Mercy Hospital*	Gen Chrch		100	14	200	17	1 673	
Waverly, 560—Tioga								
Tioga County Gen Hosp	Gen Co		60	12	90	36	967	647
Wells 5674—Allegany								
Memorial Hosp of Wm F and Gertrude F Jones*	Gen City		40	10	107	26	942	
West Haverstraw 2834—Rockland								
New York State Reconstruc- tion Home*	Orth State		170			102	100	187
West Point 1,200—Orange								
Station Hospital	Gen Army		111	6	77	48	1 793	2 460
White Plains, 30830—Westchester								
Bloomington Hospital*	N&M Indep		300			241	231	
New York Orthopaedic Dis- pensary and Hospital	Orth Indep		168			108	367	
St Agnes Hospital	Gen Chrch		100	24	513	60	1 984	1 408
White Plains Hospital*	Gen Indep		120	22	236	54	2 157	1 277
Willard 900—Seneca								
Willard State Hospital*	Ment State		2 645	1	2 258	402	159	
Wingdale 156—Dutchess								
Harlem Valley State Hosp	Ment State		1 775			1 736	291	
Woodhaven—Queens								
St Anthony's Hospital	TB Chrch		400			384	904	
Wyantkill 167—Rensselaer								
Pawling Sanatorium	TB Co		152			141	134	200
Yonkers 13464—Westchester								
Gray Oaks Hospital	TB City		55			49	88	369
House of Rest at Sprain Ridge	TB Indep		100			78	103	
St John's Riverside Hosp*	Gen Chrch		176	25	300	130	3 937	5 678
St Joseph's Hospital	Gen Chrch		100	20	213	68	1 968	5 572
Yonkers General Hosp**	Gen Indep		141	54	622	77	2 990	3 404

NEW YORK—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
Hamilton Private Hospital	Gen Indiv		24	4	43	14	406	
Jewish Sanitarium for In- curables	Inc Indep		202			242	106	
Buffalo 573 076—Erie								
Buffalo Eye and Ear Inflr- mary and Wettlaufer Clinic	ENT Indep		10			3	572	5 314
Charity Eye Ear and Throat Hospital of Erie County	ENT Cy Co		7			1	124	
Parkside Sanitarium and Hospital	Conv Indiv		40			20	102	
Salvation Army Maternity Hospital and Home	Mat Chrch		4	4	39	1	9	
Cleburn 111—Jefferson								
Jefferson County Conta- mous Hospital	Inc Co		18			3	72	
Camden 1,012—Onelda								
Healthfort—Dr Bell's Pri- vate Rest Home	N&M Indiv		10			3	20	
Canandaigua 7,411—Ontario								
Canandaigua Health Home	Conv Indiv		22			7	57	
Castle 900—Wyoming								
Greene Sanitarium	Conv Indiv		75			3	3	
Corona—Queens								
Dr Combes Sanitarium	N&M Indep		66			33	57	
Cortland 15 043—Cortland								
Cortland Sanitarium	Gen Part		12	1	6	8	271	
Dannamora 3,348—Clinton								
Clinton Prison General and Tuberculosis Hospital	Inst State		235			189	807	
Delhi 1 840—Delaware								
Delhi Hospital	Gen Cy Co		13	4	24	5	192	
Dewittville 103—Chautauqua								
Chautauqua County Almsh- ouse and Hospital	Inst Co		110			103		
Eastview 161—Westchester								
Solomon and Betty Loeb Memorial Home for Conv	Conv Indep		105			112	1 580	
Edmeston 749—Otsego								
Otsego School for Backward Children	McDe Part		22			20	6	
Elmira 47 397—Chemung								
Chemung County Preven- torium	TB Co		22			22	35	
Flinn Reformatory	Inst State		92			25	1 492	
Gleason Health Resort	Conv Indiv		50			17	122	
Far Rockaway—Queens								
Brooklyn Jewish Home for Convalescents	Conv Indep		40			40	967	
Wave Crest Convalescent Home and Seaside Hosp	Conv Indep		127			67	260	
Freeport 15 467—Nassau								
Freeport Nursing Home	Gen Indiv		7	4	32	3	145	
Green Ridge (Staten Island P. O.)—Richmond								
St Michael's Home for De- stitute Children	Inst Chrch		35			5		
Harrison 1 485—Westchester								
Miriam Osborn Memorial Home	Inst Indep		22			18		
Herkimer 10 446—Herkimer								
Herkimer County Hospital	Inst Co		18			8		
Hudson 12 337—Columbia								
New York State Training School for Girls	Inst State		38	11	16	5	320	
Industry—Monroe								
Industry General Hospital	Inst State		50			24	906	
Iroquois 40—Erie								
Thomas Indian School Hosp	Gen State		36			9	412	
Ithaca 20,708—Tompkins								
Conklin Sanitarium	Gen Indiv		14			8	360	
Reconstruction Home	Orth Indep		60			35	55	
Lake Ronkonkoma 49—Suffolk								
Gary de Vabre Academy	McDe Part		18			10	1	
Lockport 23 160—Niagara								
Odd Fellows Home	Inst Frat		39			39	23	
Machias 627—Cattaraugus								
Cattaraugus County Hosp	Inst Co		55			40	110	
Mamaroneck 11 766—Westchester								
Dr Wellington's House	N&M Indiv		22			14		
Marcy 112—Onelda								
Camp Healthmore	TB City		50			52	63	
Margaretville 771—Delaware								
Margaretville Hospital	Gen Indep		12	3	22	4	182	
Millgrove 110—Erie								
Erie County Home and In- firmery	Inst Co		300			100	120	
McBryan Lake 105—Westchester								
Josephine Home	Conv Indep		48			48	101	
Mt Kisco 5 127—Westchester								
Restawhille	Conv Indiv		14			0		
Mt Vernon 61 499—Westchester								
Bikur Cholim Convalescent Home for Greater New York	Conv Indep		38			38	350	
Napanoch 63—Ulster								
Institution for Male Defec- tive Delinquents	McDe State		985			964	233	
Newark 7,649—Wayne								
Newark State School	McDe State		1 776	12	15	1 411	3 9	
New Hartford 1 885—Onelda								
Children's Hospital Home of Utica	Orth Cy Co		12			12	44	
New York City 4 211 690—New York								
Beth Abraham Home for Incurables	Inc Indep		200			247	62	

NEW YORK—Continued

Related Institutions	Type of Service	Control	Beds, Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Bryant Sanitarium	Mat	Indep	10	10	140	6	140	
Colored Orphan Asylum	Inst	Indep	26			10		
Correction Hospital	Inst	City	150			72	2 040	
Fdith Gibbs Kimball Memorial	TB	Indep	22			17	66	
Harts Island Prison Hosp	Inst	City	67			34	414	
Hebrew Convalescent Home	Conv	Indep	70			72	700	
Home for Aged and Infirm Hebrews	Inst	Indep	176			120	470	
Home for Hebrew Infants	Inst	Indep	61			41	1 268	
Home for Incurables	Inc	Chrch	140			296	205	
House of Calvary	Ca	Chrch	140			120	318	
House of the Holy Comforter	Inc	Chrch	100			64	19	
Jewish Home for Convalescents	Conv	Indep	115			50		
Mt Eden Hospital	Gen	Indiv	40	30	5.9	1	1 140	
New York City Children's Hospital	McDe	City	1 428			1 148	870	
New York County Penitentiary Hospital	Inst	Co	100			12	897	
Dr Rogers Hospital	N & M	Indiv	25			9	100	
St. Andrew's Convalescent Hospital	Conv	Chrch	30			1	318	
St. Joseph's Hospital for Consumptives	TB	Chrch	340			280	512	
St. Rose Free Home for Incurable Cancer	Ca	Chrch	80			70	310	
Tonell Hospital	N & M	Indep	96			8		
Dr. Wiley M. Wilson's Private Hospital (col.)	Gen	Indiv	8	2	19	4	131	
Niagara Falls 75400—Niagara Falls Municipal Hospital	Iso	City	38			8	143	
Onondaga 260—Onondaga Onondaga County Hospital	Inst	Co	154	13	128	141	590	
Oriskany 1142—Oriskany Eastern Star Home and Infirmary	Inst	Frat	30			26		
Ossining 15 241—Westchester Greenmont on Hudson	N & M	Indiv	10			9	3	
Sing Sing Prison Hospital	Inst	State	86			46	1 680	
Otisville 809—Orange Sunnyside Health Farm	TB	Indiv	12			4	9	
Oxford 1601—Chenango New York State Woman's Relief Corps Home	Inst	State	50			41	40	
Patchogue 6 860—Suffolk Community Hospital	Gen	Indiv	20	7		7		
Pelham Manor 4 908—Westchester Pelham Home for Children	Conv	Indep	30			29	67	
Plattsburg 13 340—Clinton Children's Home of Northern New York	Inst	Chrch	12			1	12	
Pleasantville 4 640—Westchester Hebrew Sheltering Guardian Orphan Asylum	Inst	Indep	34			4	401	
Pt Jervis 10 243—Orange Deerpark Hospital	Gen	Indep	15	3	16	6	412	100
Poughkeepsie 40 288—Dutchess Poughkeepsie City Home and Infirmary	Inst	City	20			16	14	
Swift Infirmary Vassar College	Gen	Indep	30			11	450	
Queens Village—Queens Queens Village Sanatorium	Gen	Indiv	12	12	68	5	145	
Remsen, 437—Onelida Whitesboro Sanitarium and Adirondack Annex	Nerv	Indiv	15					
Rhinebeck 1 569—Dutchess Holiday Farm Home for Convalescent Children	Conv	Indiv	50			48		
Rochester 328 182—Monroe Convalescent Hospital for Children	Conv	Indep	50			38	223	
Field Sanitarium	Conv	Indiv	15			8	30	
Knorr Sanitarium Convalescent Home	Conv	Indiv	30			10	110	
Rockaway Park—Queens Convalescent Home for Hebrew Children	Conv	Indep	112			120	704	
Rome 32 338—Onelida Rome State School+	McDe	State	2 767	24	28	3 376	308	
Rye 8 712—Westchester Halsey Rest	N & M	Indiv	25			21	63	
Psychoanalytic Sanatorium	Epil	Part	15			18	4	
Schenectady 95 692—Schenectady General Electric Company Industrial Hospital	Indus	Indus	13			6		
Schenectady City Hosp	Iso	City	36			18	303	
Schenectady County Home and Hospital	Inst	Co	35			9	347	
Sea Cliff 3 456—Nassau Country Home for Convalescent Babies	Conv	Indep	70			40	495	
Staten Island 158 346—Richmond New York City Farm Colony	Inst	City	1 860			1 293	652	
Sailors Snug Harbor Hospital	Gen	Indep	200			142	473	
Seaside Hospital	Chil	Indep	190			163	783	
Syracuse 209 326—Onondaga Syracuse State School	McDe	State	1 080			1 016	100	
Thiells 320—Rockland Letchworth Village	McDe	State	2 800			2 837	281	

NEW YORK—Continued

Related Institutions	Type of Service	Control	Beds, Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Troy 72 761—Rensselaer Rensselaer County Hospital	Chr	Co	60			30	700	
Troy Orphan Asylum	Inst	Indep	42			7	402	
Tupper Lake 5,271—Franklin American Legion Mountain Camp	Conv	Indep	34			40	160	
Valhalla 670—Westchester Blythedale Hospital and Home for Crippled Children	Orth	Indep	72			62	118	
Valley Cottage 212—Rockland Reed Farm and Nichols Cottage	Conv	Indiv	24			24	82	
Wassale 210—Dutchess Wassale State School	McDe	State	2 700			2 137	1 968	
Watertown 22 20—Jefferson Jefferson County Home	Inst	Co	32			30		
Wellsville 5 674—Allegheny Wellsville Sanitarium	Conv	Indiv	20			7		
White Plains 30 830—Westchester Convalescent Hospital for Children	Conv	Indep	50			60	718	
Williamsville 7 110—Frie Martine Farm Children's Cardiac Convalescent Home	Conv	Indiv	20			20		
Josephine Goodyear Convalescent Home	Conv	Indiv	60			47	230	
Yonkers 134 016—Westchester Hebrew National Orphan Home	Inst	Indep	0			2	80	
Teake and Watts Home School	Inst	Indep	20			5		
Sunny Rest Sanitarium	Conv	Indiv	12			8	12	
Yonkers City Hospital for Communicable Diseases	Iso	City	97			20	374	
Yorktown Heights 1 300—Westchester Sound View School	McDe	Part	00			15	6	
Summary for New York								
Hospitals and sanatoriums			Number	Beds	Average Patients	Patients Admitted		
Related institutions			174	130 670	111 320	1 023 073		
				23 585	20 343	40 466		
Totals			602	1 456,000	131 673	1 063,539		
Refused registration			20	1 124				

NORTH CAROLINA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Albemarle 7 407—Stanly Laidkin Hospital	Gen	Indep	70	4		13		
Asheboro 5 021—Randolph Randolph Hospital	Gen	Indep	36	6	25	10	487	
Asheville 50 197—Buncombe Ambler Heights Sanitarium	TB	Indep	30			15	42	
Appalachian Hall	N & M	Indiv	170			45		
Asheville Mission Hospital	Gen	Indep	107	17	189	56	1 867	1 011
Asheville Physiatric Institute	Metab	Indiv	30			8	900	
Aston Park Hospital	Gen	Indep	30		103	21	1 111	412
Fairview Cottage Sanit	TB	Indiv	100			50	88	
Norman Hospital	Surge	Part	30	2	8	14	541	
St. Joseph's Sanatorium	TB	Chrch	90			71	60	
Sunset Heights	TB	Indep	32			12	56	
Zephyr Hill Sanatorium	TB	Indiv	30			20	45	
Badin 3 040—Stanly Badin Hospital	Gen	Indus	25	3	16	6	260	1 000
Banner Elk 340—Avery Grace Hospital	Gen	Chrch	52	8	54	34	882	2 100
Beaufort 2 957—Carteret Potter Emergency Hospital	Gen	Indep	12	3	18	13	403	
Biltmore 172—Buncombe Biltmore Hospital	Gen	Indep	52	10	98	15	747	230
Black Mountain 737—Buncombe Beallmont Park Sanatorium	N & M	Indep	20			9		
Cragmont Sanatorium	TB	Indep	20			16	20	
Fellowship Sanatorium	TB	Frat	20			16	22	
Brevard 2 830—Transylvania Lydian Memorial Hospital	Gen	Indep	20	2	6	3	121	
Burlington 9 737—Alamance Ralney Hospital	Gen	Part	40	2	23	19	596	
Charlotte 82 075—Mecklenburg Charlotte Eye Ear and Throat Hospital	ENT	Part	20			9	1 397	
Good Samaritan Hospital (col.)	Gen	Chrch	59	3	53	27	920	
Mercy Hospital	Gen	Chrch	104	22	202	52	1 568	406
New Charlotte Sanatorium	Gen	Indep	75	10		43	2 013	
Presbyterian Hospital	Gen	Chrch	100	20	302	81	3 121	
St. Peter's Hospital	Gen	Chrch	66	12		47		
Cherokee 85—Swain Eastern Cherokee Indian Hospital	Gen	I A	22	4	24	11	400	1 150
Concord 11 820—Cabarrus Concord Hospital	Gen	Indep	20	4		7		
Croft 181—Avery Garrett Memorial Hospital	Gen	Indep	21	3	40	7	304	1 600
Durham 52 037—Durham Duke Hospital**0	Gen	Indep	406	50	207	180	5 499	8 610

Key to symbols and abbreviations is on page 1021

NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
Lincoln Hospital (col)*	Gen	Indep	99	9	02	63	1 317	022	
McPherson Hospital	FMT	Indiv	20			6			
Watts Hospital*	Gen	Indep	156	24	314	68	3 242	2 121	
Elizabeth City 10 037—Pasquotank	Gen	Indep	30	5	37	13	4.8	2.1	
Albemarle Hospital	Gen	Indep	30	5	37	13	4.8	2.1	
Elkin 2 357—Surry	Gen	Indep	30	5	37	13	4.8	2.1	
Hugh Chatham Memorial Hospital	Gen	Chrch	40	4	18	14	492	936	
Erwin 4 000—Harnett	Gen	Indus	34	7		10	427	400	
Good Hope Hospital	Gen	Indus	34	7		10	427	400	
Fayetteville 13 049—Cumberland	Gen	Indep	100	6	51	57	1 840	4 045	
Highsmith Hospital*	Gen	Indep	78	8	108	55	1 000	3 600	
Pittman Hospital*	Gen	Indep	78	8	108	55	1 000	3 600	
Fletcher, 69—Henderson	Gen	Indep	30	3	31	10	353	710	
Mountain Sanit and Hosp	Gen	Indep	30	3	31	10	353	710	
Ft Dragg—Cumberland	Gen	Army	53	4	59	56	1 074	4 474	
Station Hospital	Gen	Indiv	50	4	6	42	1 091	4 703	
Franklin, 1 091—Macon	Gen	Indiv	50	4	6	42	1 091	4 703	
Angel Hospital	Gen	Indiv	50	4	6	42	1 091	4 703	
Gastonia, 17 053—Gaston	Gen	Indep	50	8		20			
City Hospital	Gen	Indep	40	8		10	4.6		
Gaston Sanatorium*	Gen	Indep	40	8		10	4.6		
North Carolina Orthopedic Hospital	Orth	State	1.0			143	341	3 607	
Goldboro 14 063—Wayne	Gen	Indep	121	8	58	32	1 117	745	
Goldboro Hospital	Gen	Indep	121	8	58	32	1 117	745	
Greensboro, 53 569—Guilford	Gen	Indep	45	5	80	23	1 149	272	
Clinic Hospital	Gen	Indep	45	5	80	23	1 149	272	
Glenwood Park Sanitarium	Gen	Indep	30			17	304		
Reaves Eye, Ear, Nose and Throat Infirmary	ENT	Indiv	20			7			
L. Richardson Memorial Hospital (col)*	Gen	Indep	53	6	32	30	675	945	
St Leo's Hospital*	Gen	Chrch	51	5	88	43	1 689		
Sternberger Children's Hosp	Gen	Indep	40	8	137	19	418		
Wesley Long Hospital	Gen	Indep	50	8		22	1 033	7.0	
Greenville 9 191—Pitt	Gen	Indep	32	4	27	12	664		
Pitt Community Hospital	Gen	Indep	32	4	27	12	664		
Hamlet 4,691—Richmond	Gen	Indep	50	4		10			
Hamlet Hospital	Gen	Indep	50	4		10			
Henderson 6 345—Vance	Gen	Chrch	33	3	21	17	310	197	
Tablers Hospital (col)	Gen	Chrch	40	5	53	9	531	646	
Maria Parham Hospital	Gen	Indep	30	6	26	12	221	223	
Vance County Hospital	Gen	Co	30	6	26	12	221	223	
Hendersonville 5 010—Henderson	TB	Indiv	24			6			
Farmington Sanatorium	Gen	Indep	40	6		10			
Patton Memorial Hospital	Gen	Indep	40	6		10			
Hickory, 7 363—Catawba	Gen	Indiv	35	4		14			
Richard Baker Hospital	Gen	Indiv	35	4		14			
High Point 36 745—Guilford	Gen	Indep	68	7	107	54	1 714	3 500	
Burrus Memorial Hospital*	Gen	Indep	68	7	107	54	1 714	3 500	
Guilford General Hospital*	Gen	Part	30	6		24	1 691		
Huntersville 800—Mecklenburg	TB	Co	162			142	146		
Mecklenburg Sanatorium	TB	Co	162			142	146		
Jamestown 157—Guilford	TB	Co	106			104	143	826	
Guilford County Sanat	TB	Co	106			104	143	826	
Kinston, 11 362—Lenoir	Gen	Indep	32	4	32	10	628	897	
Memorial General Hospital	Gen	Indep	32	4	32	10	628	897	
Parrott Memorial Hospital	Gen	Indep	32	4	32	10	628	897	
Leaksville 1 814—Rockingham	Gen	Indep	30	5	21	17	803		
Leaksville Hospital*	Gen	Indep	30	5	21	17	803		
Lenoir 6 531—Caldwell	Gen	Indep	20	3	30	8	471		
Caldwell Hospital	Gen	Indep	20	3	30	8	471		
Lexington 9 632—Davidson	Gen	Indiv	24	6	19	7	320		
Davidson Hospital	Gen	Indiv	24	6	19	7	320		
Lincolnton 3 781—Lincoln	Gen	Indep	15	1		9	312		
Gamble Clinic	Gen	Indiv	45	4	24	14	422		
Lincoln Hospital*	Gen	Indiv	45	4	24	14	422		
Lumberton 4 140—Robeson	Gen	Indep	60	6	162	33	1 351	999	
Baker Sanatorium*	Gen	Indep	60	6	162	33	1 351	999	
Thompson Memorial Hosp	Gen	Indep	30	6		24	2 346		
Marion 9 467—McDonnell	Gen	Indep	30	5	18	9	382	85	
Marion General Hospital	Gen	Indep	30	5	18	9	382	85	
Monroe 6 100—Union	Gen	Indiv	45	12	47	30	784	1 097	
Ellen Fitzgerald Hospital	Gen	Indiv	45	12	47	30	784	1 097	
Mooresville 5 619—Iredell	Gen	Indep	46	4	84	19	830		
Lowrance Hospital*	Gen	Indep	46	4	84	19	830		
Morehead City 3 483—Carteret	Gen	City	28	3	30	11	327	186	
Morehead City Hospital	Gen	City	28	3	30	11	327	186	
Morganton, 6 601—Burke	Gen	Indiv	75			38	132		
Broadlands Sanatorium	Gen	Indiv	75			38	132		
Crace Hospital*	Gen	Indiv	75			38	132		
State Hospital	Gen	Indiv	75			38	132		
Mt Airy, 6 045—Surry	Gen	Indiv	44	6	21	24	400	931	
Martin Memorial Hospital*	Gen	Indiv	44	6	21	24	400	931	
Murphy 1 612—Cherokee	Gen	Indiv	12	1		New			
Petrie Hospital	Gen	Indiv	12	1		New			
New Bern 11 951—Craven	Gen	Indep	30	5	27	13	674	116	
St Luke's Hospital*	Gen	Indep	30	5	27	13	674	116	
North Wilkesboro 3 668—Wilkes	Gen	Indiv	23	2	20	14	582		
Wilkes Hospital	Gen	Indiv	23	2	20	14	582		
Oteen 604—Buncombe	TB	Yet	8.0			660	1 370	921	
Veterans Admin Facility	TB	Yet	8.0			660	1 370	921	
Oxford 4 101—Granville	Gen	Part	30	8	10	9	169		
Brantwood Hospital	Gen	Part	30	8	10	9	169		
Sust Clay Cheatham Memo	Gen	Indep	14	2	11	7	165		
rial Hospital (col)	Gen	Indep	14	2	11	7	165		
Fluchurst 60—Moore	Gen	Indep	23	6	59	20	731	2 061	
Moore County Hospital	Gen	Indep	23	6	59	20	731	2 061	
Raleigh 3 300—Wake	Gen	Indiv	30	8	79	12	515		
Mary Elizabeth Hospital*	Gen	Indiv	30	8	79	12	515		
Rex Hospital*	Gen	Indiv	30	8	79	12	515		

NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
St Agnes Hospital (col)*	Gen	Chrch	90	10	86	50	807	847	
State Hospital	Gen	Chrch	90	10	86	50	807	847	
Reldsville 6 811—Rockingham	Gen	Indep	48	6		10	582	135	
Memorial Hospital	Gen	Indep	48	6		10	582	135	
Ronoke Rapids 3 404—Halifax	Gen	Indep	90	10		43	1 830		
Ronoke Rapids Hospital	Gen	Indep	90	10		43	1 830		
Rocky Mount 21 412—Fdgcombe	Gen	Indep	50			28	860	2 147	
Atlantic Coast Line Hosp	Indus	Indus	100	15	74	52	1 300	1 107	
Pa k View Hospital*	Gen	Indep	40	5		18		2 336	
Rocky Mount Sanitarium	Gen	Indep	40	5		18		2 336	
Rutherford 2 020—Rutherford	Gen	Indep	60	4	38	28	1 312	2 030	
Rutherford Hospital	Gen	Indep	60	4	38	28	1 312	2 030	
Sallsbury 16 701—Rowan	Gen	Indep	65	12	57	27	893		
Rowan General Hospital	Gen	Indep	65	12	57	27	893		
Sanatorium 57—Hoke	TB	State	450			398	556	2 374	
North Carolina Sanat +	TB	State	450			398	556	2 374	
Sanford 4 203—Lee	Gen	Co	47	8	3	13	504	250	
Lee County Hospital	Gen	Co	47	8	3	13	504	250	
Shirby 10 789—Cleveland	Gen	CyCo	44	6	80	22	824	749	
Shelby Hospital	Gen	CyCo	44	6	80	22	824	749	
Smithfield 2 543—Johnston	Gen	Indep	30	8	29	16	633	1 021	
Johnston County Hospital	Gen	Indep	30	8	29	16	633	1 021	
Southern Pine 2 524—Moore	TB	Indiv	60			17	33		
Pine Crest Manor Sanat	TB	Indiv	60			17	33		
Southport 1 760—Brunswick	Gen	CyCo	40	6	39	16	411	225	
Brunswick County Hospital	Gen	CyCo	40	6	39	16	411	225	
Statesville 10 400—Iredell	Gen	Indep	120	12	92	68	2 561	15 052	
Davis Hospital*	Gen	Indep	40	4	46	29	1 076	2 402	
H F Long Hospital	Gen	Indep	40	4	46	29	1 076	2 402	
Sylva 1 740—Jackson	Gen	Indep	24	1	30	10	306		
C J Harris Community Hospital	Gen	Indep	24	1	30	10	306		
Tarboro 6 379—Fdgcombe	Gen	Indep	49	6	16	12	453	200	
Fdgcombe General Hosp	Gen	Indep	49	6	16	12	453	200	
Thomasville 10 090—Davidson	Gen	City	33	3	38	14	506		
City Memorial Hospital	Gen	City	33	3	38	14	506		
Troy 1 610—Polk	Gen	Indep	28	3	43	10	420	614	
St Luke's Hospital	Gen	Indep	28	3	43	10	420	614	
Wadesboro 3 124—Anson	Gen	Indep	50	5	60	20	729		
Anson Sanatorium	Gen	Indep	50	5	60	20	729		
Washington 7 035—Beaufort	Gen	Indiv	15	5	15	5	368		
Riverview Hospital	Gen	Indiv	15	5	15	5	368		
Taylors Hospital	Gen	Indep	30	5	29	27	1 010	2 333	
Waynesville 2 414—Haywood	Gen	Co	50	6	54	30	861	203	
Haywood County Hospital	Gen	Co	50	6	54	30	861	203	
Wilmington 32 270—New Hanover	Gen	Indiv	35	3	14	6	290		
Bulluck Hospital	Gen	Indiv	35	3	14	6	290		
Community Hospital (col)	Gen	Indep	29	4	49	17	524	535	
James Walker Memorial Hos	Gen	Indep	138	14	50	90	3 374	2 300	
Wilmington Red Cross Sanit	TB	Indep	35			26	32	74	
Wilson 12 613—Wilson	Gen	Indep	50	4	62	23	867		
Moore Herring Hospital	Gen	Indep	50	4	62	23	867		
Winston Salem 70 274—Forsyth	Gen	City	235	25	214	78	2 954	9 397	
City Memorial Hospital*	Gen	City	235	25	214	78	2 954	9 397	
Forsyth County Sanatorium	TB	Co	134			127	168	660	
North Carolina Baptist Hos	Gen	Chrch	92	16	207	60	2 565		
Wrightsville Sound 23—New Hanover	Chil	Indep	30	5		12	135		
Bables Hospital	Chil	Indep	30	5		12	135		
Related Institutions									
Asheville 50 193—Buncombe	TB	Indiv	23			15	24		
Timburt Cottage Sanit	TB	Indiv	20			18	10		
Roy's Cottage Sanitarium	TB	Indiv	20			18	10		
Sherwood Sanatorium	TB	Indiv	20			18	10		
Violet Hill Sanatorium	TB	Indiv	40			22	22		
Biltmore 172—Buncombe	TB	Part	50			16	41		
Hillcroft Sanatorium	TB	Part	50			16	41		
Candler 50—Buncombe	Gen	Chrch	20	1		10			
Pisgah Sanatorium and Hosp	Gen	Chrch	20	1		10			
Charlotte 82 670—Mecklenburg	Mat	Indep	30	20	41	2	45		
Florence Crittenton Indus	Chil	Indep	24			20	50		
trial Home	Inst	Chrch	14			2	146		
Junior League Baby Hosp	Inst	Chrch	14			2	146		
Thompson Orphanage and	Inst	Indep	17			3	163		
Training Institution	Inst	Indep	17			3	163		
Davidson 1 440—Mecklenburg	Mat	Chrch	40	35	70	33	77		
Davidson College Infirmary	ENT	Part	10			2	246	2 460	
Durham 52 037—Durham	Gen	Co	12	1	2	3	84	17	
Salvation Army Home and	Gen	Co	12	1	2	3	84	17	
Hospital	Gen	Co	12	1	2	3	84	17	
Fayetteville 13 049—Cumberland	Gen	Co	12	1	2	3	84	17	
Fayetteville Eye Ear Nose	ENT	Part	10			2	246	2 460	
and Throat Hospital	ENT	Part	10			2	246	2 460	
Gastonia 17 093—Gaston	Gen	Co	12	1	2	3	84	17	
Gaston County Colored	Gen	Co	12	1	2	3	84	17	
Hospital	Gen	Co	12	1	2	3	84	17	
Halifax 321—Halifax	TB	Co	24			16	50		
Halifax County Tuberculosis	TB	Co	24			16	50		
Sanitarium	TB	Co	24			16	50		
Henderson 6 345—Vance	TB	Co	14			11			
Scott Parker Sanatorium	TB	Co	14			11			
Hendersonville 5 010—Henderson	Conv	Indiv	20			4			
Dixon Health Resort	Conv	Indiv	20			4			
Kinston 11 363—Lenoir	McDe	State	645			641			
Caswell Training School	McDe	State	645			641			
Monroe 6 100—Union	Gen	Indiv	14	3	8	4	140	130	
Quality Hill Sanit (col)	Gen	Indiv	14	3	8	4	140	130	
North Wilkesboro 3 605—Wilkes	TB	Co	14			4			
Wilkes County Tuber Hut	TB	Co	14			4			
Oxford 4 101—Granville	Inst	Frat	72			8	300		
William J Hicks Memorial	Inst	Frat	72			8	300		
Hospital	Inst	Frat	72			8	300		

NORTH CAROLINA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Raleigh 3730—Wake								
North Carolina State School for the Blind and Deaf	Inst	State	18			2	160	
Wake County Home Hosp	Inst	Co	110			125	0	
Saluda 538—Polk								
Infants and Children's Sanitarium	Chil	Indiv				2	12	
Spartanburg Baby Hospital	Chil	Indep				2	16	
Tarboro 639—Edgecombe								
Bass Memorial Hospital	Gen	Indiv	5		9	4	17	
Thomasville, 10090—Davidson								
Mills Home Infirmary	Inst	Chrch	0			1	14	
Wake Forest 1536—Wake								
Forest College Infirmary	Inst	Indep	16			2	173	
Wilson 12613—Wilson								
Mercy Hospital (col.)	Gen	Cy Co	2	2	16	12	270	
Winston Salem 75274—Forsyth								
Heath Memorial Infirmary of the Children's Home	Inst	Chrch	48			7		
Summary for North Carolina			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			12	14 447	10 4	101 747		
Related institutions			0	1 480	10 1	70 1		
Totals			12	15 927	11 405	101 817		
Refused registration			7	226				

NORTH DAKOTA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Belcourt 203—Rolette								
Turtle Mountain Hospital	Gen	I A	47	6	113	46	956	129
Bismarck 11090—Burleigh								
Bismarck Hospital	Gen	Chrch	125	12	144	76	9 008	
St. Alexis Hospital	Gen	Chrch	100	12	109	71	1 869	
Bottineau 1322—Bottineau								
St. Andrew's Hospital	Gen	Chrch	50	7	99	21	920	
Bowman 888—Bowman								
Bowman Hospital	Gen	Indiv	10	6				
Carrington 1717—Foster								
Carrington Hospital	Gen	Indep	22	6	30	8	210	
Devils Lake 5421—Ramsey								
General Hospital	Gen	Indep	40	7	9	23	1 475	360
Mercy Hospital	Gen	Chrch	65	12	176	38	1 254	
Dickinson 5023—Stark								
St. Joseph's Hospital	Gen	Chrch	78	10	115	27	974	
Drayton 562—Pembina								
Drayton Hospital	Gen	Indep	14	2	18	6	210	
Edgeley 821—La Moure								
Edgeley Hospital	Gen	Indiv	12			6		
Fargo 28619—Cass								
St. John's Hospital	Gen	Chrch	14	70	382	77	2 357	
St. Luke's Hospital	Gen	Chrch	105	17	147	59	1 814	
Veterans Admin. Facility	Gen	Vet	100			41	471	140
Ft. Totten 61—Benson								
Ft. Totten Hospital	Gen	I A	30	4	40	20	803	2 965
Ft. Yates 400—Sioux								
Standing Rock Indian Hosp	Gen	I A	76	2	34	15	600	5 079
Grafton 3136—Walsh								
Grafton Deaconess Hosp	Gen	Chrch	44	6	167	23	899	
Grand Forks 17112—Grand Forks								
Grand Forks Deaconess Hosp	Gen	Indep	80	24	29	79	1 887	
St. Michael's Hospital	Gen	Chrch	50	10	161	30	1 105	111
Harvey 2157—Wells								
Good Samaritan Hospital and Sanitarium	Gen	Indep	40	6	47	6	347	
Jamestown 8187—Stutsman								
North Dakota State Hospital for Insane	Ment	State	9 000			1 630	329	
Trinity Hospital	Gen	Chrch	50	12	100	42	1 110	
Kenmare 1494—Ward								
Kenmare Deaconess Hosp	Gen	Chrch	40	5	42	12	70	
Mandan 5037—Morton								
Mandan Deaconess Hosp	Gen	Chrch	30	6	69	20	706	
McVie 513—Nelson								
Community Hospital	Gen	Indep	12	1	44	10	349	
Minot 16079—Ward								
McConnell's Private Hosp	ENT	Indiv	15	1		4	50	
St. Joseph's Hospital	Gen	Chrch	86	14	142	41	1 054	
Trinity Hospital	Gen	Chrch	121	16	191	65	1 764	231
New Rockford 219—Eddy								
Donahue Hospital	Gen	Indiv	10	3	20	5	100	
Northwood 971—Grand Forks								
Northwood Deaconess Hosp	Gen	Indep	30	4	40	9	296	
Oakes 1709—Dickey								
St. Anthony's Hospital	Gen	Chrch	20	5	20	5	160	
Portal 112—Burke								
Parker Hospital	Gen	Indiv	11	3	17	2	128	
Rolette 428—Rolette								
Community Hospital	Gen	Indep	24	5	75	9	700	
Rugby 1012—Pierce								
Good Samaritan Hospital	Gen	Chrch	40	12	176	27	1 108	
San Haven—Rolette								
North Dakota State Tuberculosis Sanatorium	TB	State	243			220	189	

NORTH DAKOTA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Valley City 5088—Barnes								
Mercy Hospital	Gen	Chrch	70	11	74	56	1 250	
Wahpeton, 3776—Richland								
Wahpeton Ho pital	Gen	Part	20	5	18	14	420	
Williston, 106—William								
Good Samaritan Ho pital	Gen	Chrch	13	7	90	19	600	
Mercy Ho pital	Gen	Chrch	70	10	65	17	500	
Related Institutions								
Amboy 4—Divide								
Good Samaritan Ho pital	Gen	Chrch	20	4		1	100	
Arbuckle—Grand Forks								
Grand Forks County Hosp	Inst	Co	70			1	22	
Beach 10—Golden Valley								
Beach Ho pital	Gen	Indep	10	4		2		
Bismarck 11090—Burleigh								
North Dakota State Prison Hospital	Inst	State	40			90	40	
Flora 20—Grant								
Dr. F. C. Lorenzen Hosp	Gen	Indiv		2				
Targu 28—Cass								
Camp Maternity Hospital	Mat	Indiv	10	9	100	4	100	
Cass County Hospital	Inst	Co	20	2		20	300	
City Detention Ho pital	Inst	City	40			1	20	
Florence Crittenton Home	Mat	Indep	50		74	11	100	
Grafton 106—Walsh								
Grafton State School	McDo	State	70			60	51	
Grand Forks 17112—Grand Forks								
Grand Forks City Hospital	Inst	City	15			1	20	
Inton 1092—Hemmons								
Wolverton Hospital	Gen	Indiv	5	5				
Linton 1000—Ransom								
Lisbon Hospital	Gen	Part						
Mayville 1000—Troll								
Union Hospital	Gen	Indep	10	2		4	20	
Wahpeton 3776—Richland								
Wahpeton Indian School Hospital	Gen	I A	20			10	4	67
Summary for North Dakota			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			38	4 232	28 7	73 70		
Related institutions			15	1 629	51	1 501		
Totals			53	5 861	29 649	75 201		
Refused registration			3	53				

OHIO

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Akron 20040—Summit								
Children's Hospital	Chil	Indep	110	28	89	64	1 000	
City Hospital	Gen	Indep	312	28	164	161	1 733	
Peoples Hospital	Gen	Indep	176	20	466	79	2 704	3 500
St. Thomas Hospital	Gen	Chrch	143	40	406	57	1 500	
Alliance 23047—Stark								
Alliance City Hospital	Gen	City	85	10	137	41	1 000	
Amherst 2844—Torah								
Pleasant View Sanatorium	IB	Co	95			94	96	
Ashland 11141—Ashland								
Samaritan Hospital	Gen	Indep	26	12	106	15	305	
Ashland 23301—Ashland								
Ashland General Ho p	Gen	Indep	90	14	92	31	97	
Athens 7002—Athens								
Athens State Hospital	Ment	State	1 641			1 406	300	
Sheltering Arms Hospital	Gen	Indiv	20	3	27	5	324	
Bainbridge 23934—Summit								
Citizens Hospital	Gen	Indep	46	8	95	22	331	
Bedford 6614—Cuyahoga								
Bedford Municipal Hospital	Gen	City	24	8	102	9	400	
Bellaire 13337—Deinont								
City Hospital	Gen	Indep	40	5	50	10	306	
Bellefontaine 9543—Logan								
Harbert Hospital	ENT	Indiv	10			1	50	
Bellevue 6206—Huron								
Bellevue Hospital	Gen	Indep	29	6		8		
Berea 5697—Cuyahoga								
Community Hospital	Gen	Indep	30	9	105	17	100	
Bucyrus 10027—Crawford								
Bucyrus City Hospital	Gen	City	37	6	21	10	333	
Cambridge 14613—Guernsey								
Swan Hospital	Gen	Indep	18	4		8	208	
Wells Hospital	Gen	Chrch	22	4	1	12	317	
Canton 104906—Stark								
Aultman Hospital	Gen	Indep	135	24	247	57	2 153	
Mercy Hospital	Gen	Chrch	172	34	361	91	3 480	
Molly Stark Sanatorium	TB	Co	166			161	204	1 900
Celina 4664—Mercer								
Otis Hospital	Gen	Indiv	19	4	13	6	157	
Chillicothe 18340—Ross								
Chillicothe Hospital	Gen	Indep	60	6	59	23	300	41
Mt. Logan Sanatorium	TB	Co	6			32	43	
Veterans Admin. Facility	Ment	Vet	944			538	491	
Cincinnati 43160—Hamilton								
Bethesda Hospital	Gen	Chrch	107	40	728	141	4 009	1 224
Children's Hospital	Chil	Chrch	221			53	2 410	9 633

OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Christ Hospital*o	Gen	Chrch	318	43	506	171	4,427	1,461
Christian R. Holmes Hosp	Gen	City	60			23	489	
Cincinnati General Hospital*o	Gen	City	925	65	1,737	811	11,616	20,197
Cincinnati Sanitarium*	N&M	Indep	100			66	127	
Deaconess Hospital*o	Gen	Chrch	1-60	2-5	373	70	2,598	714
Good Samaritan Hosp**o	Gen	Chrch	46	70	1,400	27	9,937	2,498
Grandview Hospital	N&M	Indep	40			20	1-50	
Hamilton County Tubercu- losis Sanatorium	TB	Co	625			520	520	
Jewish Hospital*o	Gen	Indep	21-3	37	484	112	3,679	
Longview State Hospital	Ment	State	2-18			2,342	571	506
St. Mary Hospital*o	Gen	Chrch	100	20		127	3,193	3,634
Circleville 7369—Pickaway Berger Hospital	Gen	City	2-5	4	47	8	322	
Cleveland, 900 429—Cuyahoga Babies and Childrens Hosp	(Included in University Hospitals)							
Charity Hospital**o	Gen	Chrch	301			201	5,477	7,002
City Hospital**o	Gen	City	1,600	50	1,677	1,207	13,601	11,368
Cleveland Clinic Foundation Hospital	Gen	Indep	2-40			12-5	4,3-6	
Cleveland State Hospital*o	Ment	State	2,600			2,386	290	
East 50th Street Hospital	Gen	Part	60	12	8	10	967	
Evangelical Deaconess Hosp	Gen	Chrch	103	3-5	422	52	1,476	
Evangelical Lutheran Hos- pital*	Gen	Chrch	142	31	337	64	1,970	
Fairview Park Hospital*o	Gen	Chrch	92	18	371	61	1,919	7,631
Glenview Hospital*o	Gen	Indep	60	7	2-3	54	1,451	1,403
Grace Hospital	Gen	Indep	32			1	16	991
Huron Road Hospital*o	Gen	Indep	106	14	288	60	2,604	1,101
Lakeside Hospital	(Included in University Hospitals)							
Lodis Hospital	(Included in University Hospitals)							
Maternity Hospital	Gen	Indep	22-5	45	573	141	6,446	10,183
Mt. Sinai Hospital**o	Gen	Indep	10-5	15		60		
Polyclinic Hospital	Gen	Indep	25	12	98	5	264	
Provident Hospital	Gen	Chrch	220			121	3,835	9,974
St. Ann's Maternity Hospital*	Mat	Chrch	59	59	1,184	68	1,288	
St. John's Hospital**o	Gen	Chrch	173	24	692	121	3,085	
St. Luke's Hospital**o	Gen	Chrch	230	5-5	877	176	5,910	9,392
Shaker Sanitarium	N&M	Indep	10-5			62	12-5	
U. S. Marine Hospital	Gen	USPH	2-51			214	1,986	3,437
University Hospitals**o	Gen	Indep	474	65	1,792	406	12,003	18,741
Windsor Hospital	N&M	Indep	70			60	148	
Woman's Hospital*	Gen	Indep	89	31	430	43	1,765	
Columbus 290 564—Franklin Children's Hospital*o	Chil	Indep	88	12		65	2,384	
Columbus Radium Hosp	Gen	Indep	32	6	60	20	610	
Columbus State Hospital*	Ment	State	2,600			2,638	743	
Franklin County Sanat	TB	Co	210			106	168	134
Dr. Gaver Sanitarium	N&M	Indiv	25			18		
Grant Hospital*o	Gen	Indep	303	30	433	167	4,937	
McMillen Sanitarium	N&M	Indep	40			22	108	
Mersey Hospital*o	Gen	Indep	6-5	15	96	50	1,321	
Mt. Carmel Hospital*o	Gen	Chrch	224	2-5	371	125	3,380	
St. Ann's Infant Asylum and Maternity Hospital	Mat	Chrch	25	25	380	10	392	
St. Clair Hospital	Gen	Indep	3-5	4	8	1-5	2-10	310
St. Francis Hospital*o	Gen	Chrch	158			147	3,228	
Sanor Eye Ear Nose and Throat Hospital	FNT	Indiv	15			1	128	
Stirling Loving University Hospital**o	Gen	State	2-51	25	5-9	177	4,614	2,087
Station Hospital	Gen	Army	50	4	37	22	675	3,361
White Cross Hospital*o	Gen	Chrch	247	30	483	113	3,419	1,417
Conneaut 9391—Ashtabula Brown Memorial Hospital	Gen	Indep	30	5	54	10	464	
Cortland 940—Trumbull Dr. McCurley's Private Hosp	Gen	Indiv	10	3	13	4	68	
Coshocton 10 903—Coshocton Coshocton City Hospital*o	Gen	City	36	8		22		
Crestline 4 422—Crawford Crestline Emergency Hosp	Gen	Indep	16	4	6	4	122	
Cuyahoga Falls 10 797—Summit Fair Oaks Villa	N&M	Indep	60			38	155	
Dayton 200 982—Montgomery Dayton State Hospital*	Ment	State	1,5-4	1		3	1,4-9	428
Good Samaritan Hospital*o	Gen	Chrch	200	50	318	57	1,586	
Miami Valley Hospital**o	Gen	Indep	339	44	1,197	211	7,290	10,332
Orchard Springs Sanitarium	N&M	Indep	21			8	36	
St. Elizabeth Hospital*o	Gen	Chrch	385	3-5	1,080	248	7,040	20,764
Stillwater Sanatorium	TB	Co	94			92	142	
Veterans Admin Facility	Gen	Vet	1,100			4-50	4,538	50
Defiance 8 818—Defiance Defiance County Hospital	Gen	Indep	18	4	12	8	368	
Dennison 4 529—Tuscarawas Twin City Hospital	Gen	Indep	30	4	16	7	272	
Dover 9 716—Tuscarawas Union Hospital	Gen	Indep	75	10	45	28	726	
East Akron—Summit Springfield Lake Sanat	TB	Co	208			212	122	2,500
East Liverpool 23 829—Columbiana East Liverpool City Hosp*o	Gen	City	89	10	116	37	1,330	357
Elyria 9 633—Lorain Elyria Clinic Hospital	Gen	Indep	22	3		7	368	
Elyria Memorial Hosp**o	Gen	Indep	154	20	357	63	1,774	
Findlay 19 363—Hancock Home and Hospital	Gen	City	63	12	146	26	945	
Fremont 13 422—Sandusky Community Hospital	Gen	Indiv	14	4	1-5	7	216	
Memorial Hospital of San- dusky County	Gen	Co	38	12	184	26	743	
Callon 7 6 4—Crawford Good Samaritan Hospital	Gen	Indep	12	4	13	4	167	

OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Gallipolis 7 106—Gallia Holzer Hospital*o	Gen	Part	51	4	32	3-5	1,180	767
Ohio Hospital for Epilep- ties	Epi	State	1,917			2,060	327	
Green Springs 750—Seneca Oak Ridge Sanatorium	TB	Indep	100			New		
Greenville 7 036—Darke Greenville Hospital	Gen	Indep	28	4	46	14	716	
Hamilton 52 176—Butler Fort Hamilton Hospital	Gen	Indep	85	24	262	37	1,217	
Mersey Hospital*o	Gen	Chrch	195	2-5	4-2	82	1,880	2,658
Hicksville 2 445—Defiance Amaden Hospital	Gen	Indiv	10	2	3	1	62	
Hillsboro 4 040—Highland Hillsboro Hospital	Gen	Indep	14	4	21	6	190	
Ironton 16 621—Lawrence Charles S. Gray Deaconess Hospital	Gen	City	23	5	44	13	600	
Kenton 7 069—Hardin McKittick Hospital	Gen	Indep	21	5	30	17	432	41
San Antonio Hospital	Gen	Chrch	25	5	42	8	3-50	
LaCarnie 17-5—Ottawa Station Hospital	Gen	Army	20			1	54	923
Lakewood 70 500—Cuyahoga Lakewood City Hospital*o	Gen	Indep	72	16	245	5-5	3,385	3,675
Lima 42 287—Allen District Tuberculosis Hosp	TB	Co	139			106	170	131
Lima Memorial Hospital*o	Gen	Indep	127	17	247	60	2,185	2,000
Lima State Hospital	Ment	State	1,130			1,072	121	
St. Rita's Hospital*o	Gen	Chrch	100	16	19-5	88	2,068	76
Lodi 1 273—Medina Lodi Hospital	Gen	Indep	18	5	27	5	202	
Logan 6 080—Hocking Cherrington Hospital	Gen	Part	35	4	18	12	303	
Lorain 44 512—Lorain St. Joseph's Hospital	Gen	Chrch	100	20	26-5	40	1,513	
Mansfield 33 635—Richland Mansfield General Hospital*o	Gen	Indiv	72	10	2-4	57	2,102	2-57
Thomas Hospital	Gen	Indiv	17	4	45	4	179	
Maricetta 14 255—Washington Maricetta Memorial Hospital	Gen	Indep	64	10	116	27	1,046	
Troutmont Hospital	Gen	Indiv	12	3	6	2	42	
Marion, 31,084—Marion Marion City Hospital	Gen	City	38	12	78	19	709	
Sawyer Sanatorium	N&M	Part	50			26	112	
Martins Ferry 14 525—Belmont Martins Ferry Hospital*o	Gen	Indep	70	5	95	42	1,748	
Massillon, 26 400—Stark Massillon City Hospital*o	Gen	Indep	92	14	23-5	40	1,696	
Massillon State Hospital*	Ment	State	2,8-50			2,712	73-5	875
McConnellsville 1 754—Morgan Rocky Glen Sanatorium	TB	Indep	125			125	1-2	
Mentor 1 589—Lake Delhurst Sanitarium	N&M	Indep	150			80	126	
Middletown 29 992—Butler Middletown Hospital*o	Gen	Indep	86	14	313	43	1,867	2,005
Mt. Vernon 9 370—Knox Mersey Hospital	Gen	Chrch	38	10	71	11	610	
Mt. Vernon Hospital Sanit	Gen	Indiv	70	8	2-5	20	487	1,200
Ohio State Sanatorium*	TB	State	240			214	390	
Napoleon 4 545—Henry S. M. Heller Memorial Hosp	Gen	City	16	2		8	225	
Newark 30 506—Licking Licking County Tuberculosis Sanatorium	TB	Co	58	2		50	134	293
Newark Hospital*o	Gen	Indep	76	15	174	26	1,2-8	
North Royalton (Brecksville P. O.) 1 397—Cuyahoga Mount Royal Sanatorium	TB	Indep	48			43	50	
Norwalk 7 776—Huron Norwalk Memorial Hospital	Gen	Indep	27	8	80	14	428	
Oberlin 4 292—Lorain Allen Hospital Oberlin Col- lege	Gen	Indep	36	5	33	10	669	1,032
Oxford 2,588—Butler Oxford Retreat	N&M	Indep	30			19	22	
Perrysburg 3 182—Wood Community Hospital	Gen	Indiv	12	3	16	7	330	
Rheinfank Hospital	Gen	Indiv	13			10	175	
Piqua 16 009—Miami Memorial Hospital	Gen	Indep	60	6	110	25	8-8	
Pt. Clinton 4 408—Ottawa Pool Hospital	Gen	Indiv	17	3	9	13	299	
Portsmouth 42 560—Scioto Mercy Hospital*o	Gen	Chrch	65	10	101	27	997	
Portsmouth General Hosp*o	Gen	City	90	10	121	36	1,207	
Schirrmann Hospital*o	Gen	Indiv	44	6	11	11	373	4,042
Ravenna 8 019—Portage Robinson Memorial Hosp	Gen	Co	44	5	64	23	739	1,150
St. Clairsville 2 440—Belmont Belmont Sanatorium	TB	Co	55			52	46	
Salem 10 622—Columbiana Central Clinic and Hosp	Gen	Indep	30	6	22	17	419	
Salem City Hospital*o	Gen	Indep	48	12	75	22	854	
Sandusky 24 622—Erie Good Samaritan Hospital*o	Gen	Indep	54	9	121	34	917	
Providence Hospital*o	Gen	Chrch	60	10	140	27	705	189
Shelby 6 198—Richland Shelby Memorial Hospital	Gen	Indep	27	5	60	9	373	
Sidney 9 301—Shelby Wilson Memorial Hospital	Gen	Indep	20	5	50	11	426	
South Euclid 4 399—Cuyahoga Rainbow Hosp for Crippled and Convalescent Children	(Included in Univ Hospitals Cleveland)							

Key to symbols and abbreviations is on page 1021

OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Springfield 68 743—Clark									
Clark County Tuberculosis Sanatorium	TB Co	Indv	120	6	31	99	121	168	
Quinn Private Hospital	Gen	Indv	18	6	31	3	60		
Springfield City Hospital*	Gen	City	260	40	4 6	96	3 011	4 146	
Steubenville 35 422—Jefferson									
Gill Memorial Hospital	Gen	Chrch	20	2	6	18	684		
Ohio Valley Hospital	Gen	Indep	115	10	130	61	2,043		
Tiffin 16 428—Seneen									
Mersey Hospital	Gen	Chrch	20	8	70	1	706		
Toledo 290 718—Lucas									
Fast Side Hospital	Gen	Indep	41	6	19	16	606		
Flower Hospital*	Gen	Chrch	100	20	07	46	2 006		
Lucas County General Hospital*	Gen	Co	282	33	760	2 2	4 0 1	9 723	
Lucas County Tuber Hosp	TB Co	Indv	178	20	879				
Mersey Hospital*	Gen	Chrch	101	20	240	61	1 864	4 41	
Robbwood Hospital*	Gen	Chrch	91	13	133	28	1 076		
St. Vincent's Hospital*	Gen	Chrch	209	40	600	228	8 277	8 506	
Toledo Sanatorium*	Gen	Indep	200	20	271	82	2 14		
Toledo Sanatorium	N & M	Indep	29			8	126		
Toledo State Hospital	Gen	State	2 400			671	206		
Women's and Children's Hospital*	Gen	Indep	130	20	200	41	1 709	1 313	
Troy 9 675—Miami									
Stouder Memorial Hospital	Gen	City	40	10	62	13	629		
Urbana 7,742—Champaign									
Champaign County Hosp	Gen	Co	28	6		18	290		
Van Wert, 8 472—Van Wert									
Van Wert County Hospital	Gen	Co	40	8		20	5 40		
Wadsworth 5 900—Medina									
Wadsworth Municipal Hosp	Gen	City	20	12	60	11	416		
Warren 41 062—Trumbull									
St. Joseph's Riverside Ho p	Gen	Chrch	40	10	10	21	9 2		
Trumbull County Tuberculosis Sanatorium	TB Co	Indv	40			46	92	1 0 0	
Warren City Hospital*	Gen	Indep	120	18	100	60	1 663		
Warrensville 1 507—Cuyahoga									
Sunny Acres Cleveland Tuberculosis Sanatorium	TB	City	463			426	512	2 242	
Wauseon 2 889—Fulton									
De Ette Harrison Detweiler Memorial Hospital	Gen	Indep	40	10	50	21	774	1 74	
Willard 4 514—Huron									
Willard Municipal Hospital	Gen	City	24	6	51	9	414		
Williamson 5 332—Clinton									
Dr. Kelley Hale Surgical Hospital	Gen	Indv	17	7	3	4	191		
Wooster 10 742—Wayne									
Kinney and Kuestrick Hosp	Gen	Indep	26	6		10	403		
Wooster Hospital	Gen	Indv	29	2	3	10	206		
Worthington 1 239—Franklin									
Columbus Rural Rest Home	N & M	Indep	36			17	180		
Xenia 10 607—Greene									
McClellan Hospital	Gen	Indep	21	4	31	13	437		
Youngstown 170 002—Mahoning									
Mahoning Tuberculosis Sanatorium	TB Co	Indv	112			112	226	2 143	
St. Elizabeth's Hospital*	Gen	Chrch	246	54	460	121	3 509	6 000	
Youngstown Hospital*	Gen	Indep	383	67	637	102	5 565	6 934	
Zanesville 36 440—Muskumgum									
Bethesda Hospital*	Gen	Chrch	110	20	232	67	2 144		
Good Samaritan Hospital*	Gen	Chrch	170	20	215	68	1 741		
Related Institutions									
Akron 250 040—Summit									
Akron Clinic	Gen	Part	12			3	920	2 900	
Goodyear Hospital and Dispensary	Indus	Indus	20			6	116		
Apple Creek 459—Wayne									
Institution for Feeble-minded	McDe	State	460			430	49		
Bluffton 2 035—Allen									
Bluffton Community Hosp	Gen	Indep	9	3		3	117		
Cambridge 14 613—Guernsey									
Children's and Maternity Hospital	Mat	Indep	8	8		2	98		
Chagrin Falls 2 739—Cuyahoga									
Maynard Hospital	Chil	Chrch	24			3	175		
Chardon 1 818—Geauga									
Sperry Home	Mat	Indv	10	5		2			
Cincinnati 401 160—Hamilton									
Catherine Booth Home and Hospital	Mat	Chrch	10	20	88	8	244		
Child Guidance Home	N & M	Indep	15			9	123	400	
Children's Convalescent Home	Inst	Indep	100			80	260		
Children's Home	Inst	Indep	38			10	486		
Evangeline Booth Home and Hospital	Mat	Chrch	34	4	31	3	79		
Hamilton County Home and Chronic Disease Hospital	Inst	Co	182			120	384		
Home for Incurables	Inc	Indep	72			64	11		
Jewish Convalescent Home	Conv	Indep	70	10		30	400		
Maple Knoll Hospital and Home for the Friendless	Mat	Indep	80	18	135	8	170		
Ophthalmic Hospital	FNT	Indv	10			1	162	3 556	
Ridge Rest Home	N & M	Indep	33			21	51		
St. Francis Hospital for Incurables	Inc	Chrch	295			209	103		
St. Joseph Maternity Hosp and Infant Asylum	Mat	Chrch	40	30	101	2			

OHIO—Continued

Related Institutions	Type of Service	Control	Beds Rated	Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
St. Michael's Convalescent Home	Conv	Indep	28			20	133		
Cleveland 600 420—Cuyahoga									
Booth Memorial Home and Hospital	Mat	Chrch	13	13	81	5	107		
Children's Fresh Air Camp and Hospital	Conv	Indep	60			63	190		
Convalescent Tuberculosis Hospital	TB	City	43			47			
Emergency Hospital	Emer	Part	20			10	409	9 600	
Florence Crittenton Home	Mat	Indep	10	10	16	7			
Jewish Orphan's Home	Inst	Frat	24			4			
St. Luke's Convalescent Hospital for Children	Orth	Indv	62			20	40		
Columbus 290 564—Franklin									
Florence Crittenton Home	Mat	Indep	25	21	26	24	40		
Franklin County Home	Inst	Co	120			123			
Institution for Feeble-minded	McDe	State	2 100			2 077	269		
Ohio Penitentiary Hospital	Inst	State	100			118	118		
St. Anthony's Hospital	Inst	Chrch	200			200	430		
Covington 1 807—Miami									
Covington Hospital	Gen	Part	8	2	8	3	82		
Dayton 200 982—Montgomery									
Dayton Door of Hope	Mat	City	14	8		7	23		
Quarantine Hospital	Iso	City	20	1					
Delaware 8 675—Delaware									
Chris Industrial School Hosp	Inst	State	22			10	200		
Ipswich 12 701—Cuyahoga									
Ream Sanatorium	Conv	Indv	20			12	9		
Rose Mary Home	Orth	Chrch	24			16	8		
Fairfield 1 240—Greene									
Station Hospital	Gen	Army	15			1	47		
Granville 1 467—Tolking									
Whisper Hall Memorial Hosp	Inst	Indep	20			2	100		
Hamilton 2 176—Butler									
Butler County Home	TB	Co	20			6	19		
Ruth Hospital	Inst	Indep	8	5		3	177		
Lakewood 70 099—Cuyahoga									
Wright's Sanit. (For Men)	N & M	Indv	21			5	40		
Wright's Sanit. (For Women)	N & M	Indv	20			4	37		
Union ter 18 716—Fairfield									
Boys' Industrial School	Inst	State	100			20	760		
Hospital									
Ipswich 3 222—Warren									
Blair Brothers Hospital	Gen	Part	8	3	17	4	170		
Lima 42 287—Allen									
Herr's Hospital Clinic	Gen	Indep	6			4			
Mansfield 37 520—Richland									
Ohio State Reformatory	Inst	State	170			47	1 115		
Marblehead 1 027—Ottawa									
Kelley Island Home and Transport Company Hosp	Gen	Indus	6	1	4	1	47	1 70	
Marysville 1 639—Union									
Ohio Reformatory for Women	Inst	State	53	5	4	4	471		
Munroe Falls 507—Summit									
Summit County Hospital	Inst	Co	70			2	38	103	
New London, 1 527—Huron									
New London Hospital	Gen	Indep	9	3	18	3	100		
Orient 205—Pekaway									
Institution for Feeble-minded	McDe	State	2 566			2 01	180		
Oxford 2 588—Butler									
Miami University Student Hospital	Inst	State	24			8	828		
Springfield 68 743—Clark									
Ohio Rebekah Hospital	Inst	Frat	75			50	377		
Rickly Memorial Hospital	Inst	Frat	241			226	240		
Springfield Eye Ear Nose and Throat Hospital	FNT	Indv	6	2		96	1 000		
State Soldiers Home—Erie									
Ohio Soldiers and Sailors Home Hospital	Inst	State	200			101	502		
Tiffin 16 428—Seneen									
Kentucky Memorial Hosp	Inst	Frat	50			21	921		
Toledo 290 718—Lucas									
Lucas County Hosp Annex	Chron	Co	110			112	177		
Municipal Hospital for Contagious Diseases	Iso	City	44			7	207		
Warrensville 1 507—Cuyahoga									
Cleveland City Infirmary	Ment	City	169			89	220		
West Dover, 809—Cuyahoga									
Cedarcrest Sanatorium	N & M	Indep	100			42	63		
Wilberforce 324—Greene									
Tawawa Hospital of Wilberforce University (col)	Inst	State	11			3			
Wooster 10 742—Wayne									
Hygeia Hall	Inst	Indep	25			3	202		
Xenia 10 607—Greene									
Fespey Hospital	Gen	Indv	10	3		2			
Ohio Soldiers and Sailors Orphans Home Hospital	Inst	State	64			18			
Youngstown 170 002—Mahoning									
Youngstown Municipal Hosp	Iso	City	60			6	260		
Summary for Ohio									
Hospitals and sanatoriums	Number		Beds			Average Patients		Patients Admitted	
Related institutions	197		40 911			20 582		288 846	
	71		9 804			7 604		19 928	
Totals	268		50 715			40 186		308 774	
Refused registration	26		600						

Key to symbols and abbreviations is on page 1021

OKLAHOMA--Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Bassinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Norman 9 607—Cleveland Central Oklahoma State Hospital		Ment State	2 675				2 230		200
Nowata 3 311—Nowata Hospital	Gen	Indiv	14	2			6		
Oklahoma City 185 389—Oklahoma Farm Sanatorium	TB	Indiv	60		2	4	14	84	
Great Western Hosp (col)	Gen	Part	26				3	103	
Oklahoma City General Hospital	Gen	Indep	100	12	206	83	4 157	1 452	
Polyclinic Hospital	Gen	Indiv	73	6	70	33	1 149		
Reconstruction Hospital and McBride Clinic	Orth	Indiv	29				7	281	
St Anthony Hospital	Gen	Chrch	230	40	782	149	4 647		
State University Hosp and Crippled Children's Hospital	Gen	State	440	16	330	382	5 608	14 131	
Wesley Hospital	Gen	Indep	130	23	371	70	3 292		
Okmulgee 17 607—Okmulgee Hospital	Gen	City	20	1	9	5	156	890	
Okmulgee City Hospital	Gen	City	67	8	119	18	939		
Pauls Valley 4 233—Garvin Lindsey Johnson Hospital	Gen	Part	10	2	25	5	210		
Pawhuska 5 931—Osage Pawhuska Municipal Hosp	Gen	City	31	4	35	9	481		
Pawnee 2 562—Pawnee Pawnee Ponca Hospital	Gen	I A	47	12	83	30	977	3 866	
Picher 7 773—Ottawa American Hospital	Gen	Indiv	40	3	9	3	133	2 285	
Picher Hospital	Gen	Part	20	2	4	8	329		
Ponca City 16 136—Kay Grand Avenue General Hospital	Gen	Indiv	18	4	17	5	270		
Ponca City Hospital	Gen	Chrch	30	12	139	33	1 157	175	
Ryan 12 8—Jefferson Ryan Hospital	Gen	Indiv	10	2		8			
Sayre 3 157—Beckham Tisdal Hospital	Gen	Indiv	22	3	9	5	231		
Seminole 11 459—Seminole Harber Hospital	Gen	Indep	20	3	119	11	1 731		
Shattuck 1 490—Ellis Shattuck Hospital	Gen	Indiv	30	8	330	30	830		
Shawnee 23 283—Pottawatomie A C H Hospital	Gen	Part	23	7	108	12	598		
Shawnee Indian Sanatorium	TB	I A	130			148	182		
Shawnee Municipal Hosp	Gen	City	7	10	89	12	602		
Sulphur 4 242—Murray Soldiers Tubercular Sanat	TB	State	168			107	433		
Sulphur Sanitarium	Gen	Part	22	2	18	8	235		
Supply 239—Woodward Western Oklahoma Hospital	Ment	State	1 200			1 000	356		
Tallhanna 1 632—Le Flore Choctaw Chickasaw Sanat	TB	I A	72			39	130		
Eastern Oklahoma State Tuberculosis Sanatorium	TB	State	267			247	384		
Thomas 1 236—Custer Thomas Hospital	Gen	Indiv	20	4	3	2	111		
Tonkawa 3 311—Kay Tonkawa Hospital	Gen	Indiv	20	4	20	4	225	600	
Tulsa 141 238—Tulsa Flower Hospital	Gen	Indep	70	12	199	15	824		
Morningside Hospital	Gen	Indiv	223	24	62	117	4 870		
Municipal Hospital No 2 (col)	Gen	City	4	6		15	427		
Oakwood Sanitarium	N&M	Indep	30			20	332		
St John's Hospital	Gen	Chrch	230	23	481	139	4 100	385	
Sisler Hospital	Orth	Indiv	23			12	343		
Vinita 4 263—Craig Eastern Oklahoma Hospital	Ment	State	2 230			1 873	536		
Vinita Hospital	Gen	Part	14	3	22	6	302		
Watonga 2 228—Blaine Watonga Hospital	Gen	Indiv	15		10	8	100		
Waurika 2 268—Jefferson Waurika Hospital	Gen	Indiv	24	2	8	12	366	230	
Wewoka 10 401—Seminole Knight Hospital	Gen	Indiv	20	4		13	430		
Wewoka Hospital	Gen	Indiv	25	4	26	5	325		
Woodward 3 036—Woodward Woodward General Hosp	Gen	Indep	30	4	31	10	365		
Related Institutions									
Chillico 250—Kay Chillico Indian School Hospital	Gen	I A	47			10	603	2 113	
Davenport 1 072—Lincoln Nickell Hospital	Gen	Part	10			2			
Enid 23 369—Garfield Oklahoma Institution for the Feeble-minded	MeDe	State	1 000			760	43		
Fairfax 2 124—Osage Fairfax Hospital	Gen	Indiv	8	2	10	3	221		
Ft Reno (El Reno P O)—Canadian Station Hospital	Can	Army	12			2	22	430	
McWester 11 804—Pittsburg Oklahoma State Prison Hospital	Inst	State	30		2	21	803		
Norman 9 602—Cleveland Ellison Hall	Inst	State	48			14	1 202		
Okeene 1 035—Blaine Okeene Hospital	Gen	Indiv	10	2	10	2	43		
Oklahoma City 185 389—Oklahoma Home of Redeeming Love	Mst	Chrch	22	50	183	11	493		
Oklahoma Union Soldiers Home	Inst	State	23			5	5		

Key to symbols and abbreviations is on page 1021

OKLAHOMA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
Shidler 1177—Osage Emergency Hospital of Phillips Petroleum Company	Gen	Indus	10	1	1	1	12	
Stillwater 7016—Payne Agriculture and Mechanical College Infirmary	Inst	State	0			10	479	
Stroud 1894—Lincoln Glendale Hospital	Gen	Indiv	10			4		
Tablequah 2045—Cherokee Sequoyah Training School Hospital	Inst	I A	12			7	229	79
Tablequah Hospital	Gen	Indiv	8	2				
Summary for Oklahoma								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related institutions	106	11,974	8,618	78,095				
	15	1,372	801	4,306				
Totals	121	13,346	9,419	82,401				
Refused registration	19	447						

OREGON

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
Albany 5325—Linn Albany General Hospital	Gen	Indep	52	9	73	1	60	
Ashland 4544—Jackson Community Hospital	Gen	City	17	3	11	3	24	
Astoria 10349—Clatsop Columbia Hospital	Gen	Indep	51	12	11	27	1,571	
St Mary Hospital	Gen	Chrch	94	20	50	40	1,600	100
Baker 7888—Baker Protestant Hospital	Gen	Indep	29	4	20	13	3	
St Elizabeth Hospital	Gen	Chrch	80	14		28		89
Bandon 1516—Coos Leop Memorial Hospital	Gen	Part	10	2		2	114	
Bend 8848—Deschutes St Charles Hospital	Gen	Chrch	26	6	79	12	397	
Burns 2799—Harney Valley View Hospital	Gen	Indep	27	6	26	6	28	
Corvallis 7583—Benton Corvallis General Hospital	Gen	Indep	40	6	102	12	317	212
Dallas 2975—Polk Dallas Hospital	Gen	Indep	16	4	13	8	17	
Enterprise 1579—Wallowa Enterprise Hospital	Gen	Indep	15	3	8	3	108	136
Eugene 18901—Lane Eugene Hospital and Clinic	Gen	Indep	60	8	60	96	811	
Pacific Hospital	Gen	Indep	78	18	263	5	1,360	
Grants Pass 4600—Josephine Josephine General Hospital	Gen	Co	32	6		6	260	
Hood River 2757—Hood River Hood River Hospital	Gen	Indep	30	6	7	10	301	
Klamath Agency 163—Klamath Klamath Reservation Hosp	Gen	I A	25	2	36	10	313	1,669
Klamath Falls 16093—Klamath Hillside Hospital	Gen	Indep	50	12	89	18	1,140	
Klamath Valley Hospital	Gen	Indiv	40	10	82	17	601	
La Grande 8030—Union Grande Ronde Hospital	Gen	Indep	50			14	560	
Lakeview 1799—Lake Lakeview Public Hospital	Gen	Frat	14	2		4		
McMinnville 2917—Yamhill McMinnville Hospital	Gen	Indep	26	6		14	440	
Medford 11007—Jackson Community Hospital	Gen	Indep	30	8	117	16	813	
Sacred Heart Hospital	Gen	Chrch	67	7	82	16	820	158
Milwaukie 1767—Clackamas Portland Open Air Sanat	TB	Indep	78			28	116	
Myrtle Point 1362—Coos Mast and Wilson Hospital	Gen	Indiv	20	3	17	8	296	
Newberg 2931—Yamhill Dr Wendt's Hospital	Gen	Indiv	11	4	9	1	25	
North Bend 4012—Coos Kelzer Brothers Hospital	Gen	Indep	68	10	39	21	719	
Mercy Hospital	Gen	Chrch	50	5		20		
Ontario 1941—Malheur Holy Rosary Hospital	Gen	Chrch	35	6	33	10	387	
Oregon City 5761—Clackamas Oregon City Hospital	Gen	Indep	52	8	91	29	702	
Pendleton 6521—Umatilla Eastern Oregon State Hosp	Ment	State	1,350			1,218	283	
St Anthony's Hospital	Gen	Chrch	70	12	108	30	796	119
Portland 39185—Multnomah Doernbecher Memorial Hos	Chil	State	75			44	2,171	14,798
pital for Children	Gen	Chrch	249	53	782	111	4,602	
Emanuel Hospital	Gen	Chrch	304	23	413	146	4,828	720
Good Samaritan Hospital	Gen	Indep	50			15		
Juvenile Hospital for Girls	Ment	Indep	317			293	58	
Morningside Hospital	Gen	Indep	20			7		
Mountain View Sanitarium	Gen	Co	303	30	661	267	4,223	
Multnomah Hospital	Gen	Co	25			13	137	
Portland Conv Hospital	ENT	Indiv	40					
Portland Eye Far Nose and Throat Ho pital	Gen	Indep	64			32	2,880	
Portland Medical Hospital	Gen	Chrch	112	24	464	74	3,596	
Portland Sanitarium and Hospital	Gen	Indiv	110	6	26	30	771	
Dr Robert C Coffey Clinic and Hospital								

OREGON—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
St Vincent's Hospital	Gen	Chrch	25	6	72	18	40	
Shriners Hospital for Crip	Orth	Frat	0			34	233	164
pled Children	Gen	Vet	12			2,2	117	
Veterans Admin Facility	N & M	Part				6	60	
Waverly Sanatorium	Gen	Chrch	190	6	72	18	40	
Rosburg 472—Douglas Mercy Hospital	Gen	Vet	190	6	72	18	40	
Veterans Admin Facility	Gen	Indiv	19	6	17	6	245	
St Helen 2901—Columbia St Helen General Hosp	Gen	Indiv	19	6	17	6	245	
Salem 96266—Marion Oregon State Hospital	Ment	State	2,200			9,169	715	
Oregon State Tuberculosis Hospital	TB	State	2,0			245	133	
Salem General Hospital	Gen	Indep	65	8	132	26	1,154	
Silverton 210—Marion Silverton Hospital	Gen	Indep	20		71	8	25	
The Dalles 281—Wasco Eastern Oregon State Tu	TB	State	125			139	135	4
berculosis Hospital	Gen	Part	21		40	12	40	
Mid Columbia Hospital	Gen	Indep	65	10		3		
The Dalles Hospital	Gen	Indiv	25	5	25	10	245	
Tillamook 211—Tillamook Charlton Hospital	Gen	Indiv	16			11		
Tillamook General Hospital	Gen	Indiv	16			11		
Toledo 2137—Lincoln Lincoln Hospital	Gen	Indep	20	2	22	9	154	
Troutdale 227—Multnomah Multnomah County Tuber	TB	Co	57			57	59	
culo is Pavilion								
Related Institutions								
Bend 8848—Deschutes Timbermen's Hospital	Indus	Indus	50				290	
Chenawan 62—Marion Salem Indian School Hosp	Inst	I A	42			21	1,171	
Corvallis 7583—Benton Oregon State Agricultural College Hospital	Inst	State	18			6	35	
Inack onville 706—Jackson Jacksonville Sanitarium	Gen	Indiv	15	2		10		
Klamath Falls 16093—Klamath South Sanitarium	Gen	Indiv	7	3				
Mill City 1214—Marion Mill City Hospital	Gen	Indiv	8	1	1	3	5	
Portland 39185—Multnomah Henry Wenne White	Mat	Indep	25	12	47	15	33	
Shield Isolation Hospital	Isol	City	70			17	617	
Salvation Army White Shield Home	Mat	Chrch	70	5	84		82	
Woman's Convalescent Home	Conv	Indep	15			9	167	
Salem 2901—Marion Oregon Fairview Home	McDe	State	1,000			5	96	
Oregon State Penitentiary	In t	State	2			10	143	
Oregon State School for the Deaf	Inst	State	12			1	255	
Summary for Oregon								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related institutions	62	51,53	6,150	57,479				
	14	1,501	961	3,236				
Totals	76	53,034	7,111	60,715				
Refused registration	12	372						

PENNSYLVANIA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
Abington 821—Montgomery Abington Memorial Hosp	Gen	Indep	242	33	496	155	4,167	471
Allentown 92063—Lehigh Allentown Hospital	Gen	Indep	300	25	483	187	5,266	569
Allentown State Hospital	Ment	State	1,560			1,491	415	5,69
Barr Hospital	Gen	Indiv	20	10	55	4	176	
Sacred Heart Hospital	Gen	Chrch	278	22	453	115	3,111	914
Allenwood 362—Union Devitt's Camp for Tubercu	TB	Indep	115			100	180	
losis								
Altoona 8204—Blair Altoona Hospital	Gen	Indep	162	18	454	82	2,535	624
Mercy Hospital	Gen	Indep	108	15	350	55	1,832	945
Amber 3944—Montgomery Dufur Hospital	N & M	Indiv	50			25	60	
Ardmore 1007—Montgomery Wood Lea Sanitarium	N & M	Indiv	14			12	6	
Ashland 7164—Schuylkill A land State Hospital	Gen	State	226	15	260	150	3,789	1,604
Aspinwall 4763—Allegheny Veterans Admin Facility	Gen	Vet	481			2,0	563	
Beaver Falls 17147—Beaver Providence Hospital	Gen	Chrch	55	10	90	32	725	
Bedford 293—Bedford Timmins Hospital	Gen	Indiv	14	2	19	8	261	
Bellefonte 4804—Centre Center County Hospital	Gen	Indep	60	4	178	41	1,011	227
Bellevue 10022—Allegheny Suburban General Hospital	Gen	Indep	104	14	188	41	1,451	1,375

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
Berwick 1 st 660—Columbia	Gen	Indep	50	10	127	30	749	490
Berwick Hospital	Gen	Indep	103	23	360	131	3,484	2,216
Bethlehem 5 th St.—Northampton	Gen	Indep	115	13	121	41	1,411	291
St Luke's Hospital*	Gen	Indep	83	10	101	59	1,516	3,000
Bloomsburg 9 063—Columbia	Gen	Indep	120	10	502	68	1,914	5,131
Bloomsburg Hospital	Gen	Indep	104	24	296	44	1,562	1,200
Bloomsburg 1,066—Toga	Gen	Indep	36	4	41	22	599	
Bloomsburg State Hospital	Gen	Indep	90	10	53	39	1,017	840
Braddock 19 729—Allegheny	Gen	Indep	238	24	432	133	461	5,130
Braddock General Hosp*	Gen	Indep	85	10	106	39	1,411	205
Bradford 19 306—McKean	Gen	Indep	56	10	107	24	803	
Bradford Hospital	Gen	Indep	61	8	90	21	697	1,272
Brookville 4 387—Jefferson	Gen	Indep	106	12	133	40	1,335	511
Brookville Hospital	Gen	Indep	77	18	240	53	1,577	2,239
Brownsville 2 569—Fayette	Gen	Indep	38	1	10	11	640	227
Brownsville General Hosp*	Gen	Indep	85	10	212	31	1,311	
Bryn Mawr 3 036—Montgomery	Gen	Indep	250	30	592	95	2,290	4,671
Bryn Mawr Hospital*	Gen	Indep	81	10	143	20	581	430
Butler 23 568—Butler	Gen	Indep	20	4		9		
Butler County Memorial Hospital	Gen	Indep	1	200		717	163	
Canonsburg 1 st 38—Washington	Gen	Indep	110	18	242	70	2,614	808
Canonsburg General Hosp*	Gen	Indep	110	18	242	70	2,614	808
Carlisle 2 061—Lackawanna	Gen	Indep	110	18	242	70	2,614	808
Carlisle General Hosp	Gen	Indep	110	18	242	70	2,614	808
Carlisle Hospital	Gen	Indep	110	18	242	70	2,614	808
Station Hospital	Gen	Indep	110	18	242	70	2,614	808
Chambersburg 13 788—Franklin	Gen	Indep	91	13	220	81	1,214	2,605
Chambersburg Hospital	Gen	Indep	97	14	180	47	1,412	742
Chester 59 164—Delaware	Gen	Indep	65	10	92	17	503	224
Chester Hospital*	Gen	Indep	18	4	34	4	198	
J Lewis Crozer Home for Incurables and Homeopathic Hospital	Gen	Indep	15	3	20	5	190	
Mercy Hospital	Gen	Indep	81	15	279	50	1,500	1,900
Clark Summit 2 604—Lackawanna	Gen	Indep	40	8	127	11	863	
Hillside Home and Hospital for Mental Diseases	Gen	Indep	14	5	21	9	209	
Cleefield 9 221—Clearfield	Gen	Indep	180	16	302	130	4,128	910
Cleefield Hospital	Gen	Indep	200	48	131	54	617	834
Clifton Heights 5 037—Delaware	Gen	Indep	20		21			
Burn Brae Hospital	Gen	Indep	964		1,182		148	
Erie Sanitarium	Gen	Indep	56	14	308	57	2,097	1,941
Condale 6 921—Schuylkill	Gen	Indep	50	6	50	24	522	
Condale State Hospital	Gen	Indep	73	8	80	32	1,190	
Coatesville 14 582—Chester	Gen	Indep	14	5	21	9	209	
Coatesville Hospital	Gen	Indep	81	15	279	50	1,500	1,900
Veterans Admin Facility	Gen	Indep	40	8	127	11	863	
Columbia 11 349—Lancaster	Gen	Indep	14	5	21	9	209	
Columbia Hospital	Gen	Indep	180	16	302	130	4,128	910
Cover 2 060—Cambria	Gen	Indep	200	48	131	54	617	834
Cover Hospital	Gen	Indep	15	3	20	5	190	
Confluence 989—Somerset	Gen	Indep	81	15	279	50	1,500	1,900
Frantz Hospital	Gen	Indep	40	8	127	11	863	
Connellsville 13 790—Fayette	Gen	Indep	14	5	21	9	209	
Connellsville State Hospital	Gen	Indep	81	15	279	50	1,500	1,900
Corry 7 132—Erie	Gen	Indep	40	8	127	11	863	
Coudersport 2 740—Potter	Gen	Indep	14	5	21	9	209	
Coudersport General Hosp	Gen	Indep	14	5	21	9	209	
Crescon 2 317—Cambria	Gen	Indep	14	5	21	9	209	
Pennsylvania State Sanat for Tuberculosis No 2*	Gen	Indep	14	5	21	9	209	
Danville 7 180—Montour	Gen	Indep	14	5	21	9	209	
Danville State Hospital*	Gen	Indep	14	5	21	9	209	
George F Giesinger Memorial Hospital*	Gen	Indep	14	5	21	9	209	
Darby 9 859—Delaware	Gen	Indep	14	5	21	9	209	
Fitzgerald Mercy Hospital	Gen	Indep	14	5	21	9	209	
Devon 364—Chester	Gen	Indep	14	5	21	9	209	
Allegheny Hospital	Gen	Indep	14	5	21	9	209	
Divmont 1 900—Allegheny	Gen	Indep	14	5	21	9	209	
Divmont Hospital	Gen	Indep	14	5	21	9	209	
Drexel Hill 1 119—Delaware	Gen	Indep	14	5	21	9	209	
Delaware County Hospital	Gen	Indep	14	5	21	9	209	
Du Bois 11 380—Clearfield	Gen	Indep	14	5	21	9	209	
Du Bois Hospital	Gen	Indep	14	5	21	9	209	
Maple Avenue Hospital	Gen	Indep	14	5	21	9	209	
Earleville 184—Montgomery	Gen	Indep	14	5	21	9	209	
Earleville Sanatorium for Consumptives	Gen	Indep	14	5	21	9	209	
Easton 34 468—Northampton	Gen	Indep	14	5	21	9	209	
Betts Private Hospital	Gen	Indep	14	5	21	9	209	
Easton Hospital*	Gen	Indep	14	5	21	9	209	
Easton Sanitarium	Gen	Indep	14	5	21	9	209	
East Stroudsburg 6 059—Monroe	Gen	Indep	14	5	21	9	209	
General Hospital of Monroe County	Gen	Indep	14	5	21	9	209	
Elizabethtown 3 940—Lancaster	Gen	Indep	14	5	21	9	209	
Hospital for Crippled Children	Gen	Indep	14	5	21	9	209	
Philadelphia Breemscons Memorial Hospital	Gen	Indep	14	5	21	9	209	
Ellwood City 12 323—Lawrence	Gen	Indep	14	5	21	9	209	
Ellwood City Hospital	Gen	Indep	14	5	21	9	209	
Frie 110 900—Erie	Gen	Indep	14	5	21	9	209	
Hamot Hospital*	Gen	Indep	14	5	21	9	209	
Roche Memorial Private Hospital and Clinic	Gen	Indep	14	5	21	9	209	
St Vincent's Hospital*	Gen	Indep	14	5	21	9	209	
Zen Zen Hospital for Crippled Children	Gen	Indep	14	5	21	9	209	

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
Iverett 1874—Bedford								
Iverett Hospital	Gen	Indiv	17	5	30	9	273	
Franklin 10 244—Venango								
Franklin Hospital	Gen	Indep	47	10	80	14	518	
Gettysburg 5 584—Adams								
Annie M Warner Hospital	Gen	Indep	54	6	76	22	651	890
Gilard 15 1—Lyle								
Iri County Home Tuber culosis Annex	TB	Co	30			30	56	
Gladwyne 1 306—Montgomery								
Gladwyne Colony	N&M	Indiv	80			72	87	99
Crescentburg 16 508—Westmoreland								
Westmoreland Hospital	Gen	Indep	138	12	441	82	2 601	
Greenville 8 628—Mercer								
Greenville Hospital	Gen	Indep	51	12	78	10	581	
Grove City 6 136—Mercer								
Grove City Hospital	Gen	Indep	30	6	46	8	322	91
Hamburg 3 637—Berks								
Hamburg State Sanatorium for Tuberculosis*	TB	State	534			545	587	
Hanover 11 805—York								
Hanover General Hospital	Gen	Indep	50	10	106	24	828	390
Harrisburg 80 339—Dauphin								
Harrisburg Hospital*	Gen	Indep	239	32	606	137	5 371	12 799
Harrisburg Polyclinic Hos pital*	Gen	Indep	130	30	493	86	3 201	4 674
Harrisburg State Hospital	Gen	Ment State	1 721			1 724	322	
Key stone Hospital	Gen	Indiv	27	6	47	17	340	
Hazleton 26 760—Luzerne								
Corrigan Maternity Hosp	Mat	Part	16	16	242	11	242	
Hazleton State Hospital	Gen	State	155	14	316	129	4 812	1 665
Hollidaysburg 5 969—Blair								
Blair County Hospital for the Insane	Ment	Co	300			287	130	50
Homestead 20 141—Allegheny								
Homestead Hospital	Gen	Indep	98	20	223	53	1 614	2 541
Honesdale 5 400—Wayne								
Wayne County Mem Hosp	Gen	Indep	28	5	92	15	440	122
Huntingdon 7 558—Huntingdon								
J C Blair Memorial Hosp *	Gen	Indep	68	10	188	33	1 623	
Indiana 9 369—Indiana								
Indiana Hospital	Gen	Indep	138	12	86	100	3 002	990
Jersey Shore 5 781—Lycoming								
Jersey Shore Hospital	Gen	Indep	20	4	27	6	238	
Sanford Hospital	Gen	Indiv	17	6	30	13	301	
Johnstown 66 993—Cambria								
Conemaugh Valley Memorial Hospital*	Gen	Indep	220	30	584	140	5 118	
Lee Homeopathic Hospital	Gen	Indep	50	10	178	32	1 022	1 200
Mendenhall Maternity Hosp	Mat	Indiv	15	10	170	10	175	
Mercy Hospital*	Gen	Chrch	86	14	292	59	1 694	931
Kane 6 242—McKean								
Kane Summit Hospital	Gen	Indep	30	6		11	469	
Kingston 21 600—Luzerne								
Nesbitt Memorial Hospital	Gen	Indep	116	12	238	64	2 463	1 060
Kittanning 7 508—Armstrong								
Kittanning General Hospital	Gen	Indep	35	5	29	17	624	
Lancaster 59 949—Lancaster								
Lancaster General Hosp *	Gen	Indep	241	32	630	156	4 236	10 169
Rossmore Sanatorium	TB	CyCo	57			53	92	
St Joseph's Hospital	Gen	Chrch	189	26	344	91	2 726	7 238
Latrobe 10 644—Westmoreland								
Latrobe Hospital	Gen	Indep	65	10	206	36	1 301	
Lebanon 20 563—Lebanon								
Good Samaritan Hospital	Gen	Indep	94	17	270	50	1 820	1 160
Lebanon Sanatorium	Gen	Indep	94	17	270	50	1 820	1 160
Lewisburg 3 308—Union								
Lewisburg Community Hos pital	Gen	Chrch	20	2	37	6	222	
U S Public Health Service Hospital	Gen	USPH	100			New	421	
Lewistown 13 307—Mifflin								
Lewistown Hospital	Gen	Indep	80	7	102	56	1 513	1 336
Lock Haven 9 668—Clinton								
Lock Haven Hospital	Gen	Indep	80	10	196	40	1 078	478
Teah Private Hospital	Gen	Indiv	20	6	25	6	280	1 400
Lock No 4—618—Washington								
Charleroi Monessen Hosp	Gen	Indep	65	18	43	31	803	
Mayview 47—Allegheny								
Pittsburgh City Home and Hospitals	Gen	N&M City	896	11	26	776	1 803	57
McKeesport 54 632—Allegheny								
McKeesport Hospital*	Gen	Indep	223	40	662	141	3 960	5 160
McKees Rocks 18 116—Allegheny								
Ohio Valley General Hosp *	Gen	Indep	53	17	240	33	1 000	1 14
Meadville 16 698—Crawford								
Meadville City Hospital	Gen	Indep	75	14	164	47	1 147	
Spencer Hospital	Gen	Indep	115	10	102	43	1 457	875
Media 5 372—Delaware								
Brookwood Farm	N&M	Indiv	20			10	3	
Medlu Hospital	Gen	Indiv	25	4	20	17	300	260
Mercer 2 120—Mercer								
Mercer Cottage Hospital	Gen	Indep	57	6	28	29	1 062	5 000
Mercer Sanitarium	N&M	Indep	45			31	97	
Meyersdale 3 065—Somerset								
Hazel McElherry Hospital	Gen	Indiv	10	10	10	3	176	
Meyersdale Wenzel Hosp	Gen	Indiv	15	10	10	3	131	
Middleburg 1 024—Snyder								
Joseph L Potter Hospital	Gen	Indiv	10	2	4	3	270	869
Monaca 4 641—Beaver								
Beaver County Sanatorium	TB	Co	63			60	115	
Monessen 20 263—Westmoreland								
Gemmill Hospital	ENT	Indiv	12			2	200	
Monongahela 8 670—Washington								
Memorial Hospital	Gen	Indep	66	6	46	21	307	600

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Mt Pleasant 5869—Westmoreland								
Henry Clay Frick Memorial Hospital	Gen	Indep	60	10	147	20	999	1 200
Muncy 2,413—J. coming								
Muncy Valley Private Hosp	Gen	Indep	10	7	33	8	362	79
Nanticoke 26 043—J. verne								
Nanticoke State Hosp	Gen	State	120	10	271	101	2 894	2 771
New Brighton 9,900—Beaver								
Beaver Valley General Hos	Gen	Indep	70	10	112	30	970	918
New Castle 48 674—J. Lawrence								
Jameson Memorial Hosp *	Gen	Indep	131	23	26	58	2 168	
New Castle Hospital	Gen	Chrch	100	20	282	60	1 922	
New Kensington 16 762—Westmoreland								
Citizens General Hosp	Gen	Indep	100	12	161	65	2 670	
Norristown 3,833—Montgomery								
Montgomery Hospital *	Gen	Indep	90	20	349	7	2 315	1 182
Norristown State Hosp *	Ment	State	3 120			1 900	610	240
Riverview Hospital	Gen	Indep	40	11	100	13	590	
Northampton 9 839—Northampton								
Haff Hospital	Gen	Indiv	2	5	18	1	40	
Oil City 22 075—Venango								
Grandview Sanatorium	TB	Indiv	50			1	70	
Oil City General Hospital	Gen	Indep	120	22	28	4	1 119	2 8
Palmerton 7 678—Carbon								
Palmerton Hospital	Gen	Indep	6	7	107	38	530	1 450
Peckville 3 915—J. Ackawanna								
Mid Valley Hospital	Gen	Indep	6	8	230	22	1 741	
Philadelphia 19 000—Philadelphia								
American Hospital for Diseases of the Stomach	Gen	Indep	30	3	41	16	677	2 179
American Oncologic Hosp	SkCa	Indep	40			21	811	1 100
Anderson Hospital	Gen	Indep	73	20	246	20	1 794	
Babies Hospital	Chil	Indep	15			0	199	4 612
Broad Street Hospital	Gen	Indep	80	30	37	36	1 736	981
Chestnut Hill Hospital *	Gen	Indep	89	20	416	59	1 940	
Children's Heart Hospital	Card	Indep	50			50	40	
Children's Hospital *	Chil	Indep	124			83	2 416	4 398
Children's Hospital of the Mary J. Drexel Home	Chil	Chrch	52			23	994	3 900
Fairmount Farm	N & M	Indep	42			27	177	
Frankford Hospital *	Gen	Indep	119	23	42	97	3 11	5 911
Frederick Douglass Memorial Hospital (col)	Gen	Indep	57	5		16		
Friends Hospital *	N & M	Indep	190			141	80	
Friends Hospital (col)	(Included in Temple University Hospital)							
Germanstown Dispensary and Hospital *	Gen	Indep	310	50	1 288	215	5 872	51 997
Graduate Hospital of the Univ. of Pennsylvania *	Gen	Indep	470	18	221	221	7 343	42 488
Hahnemann Hospital *	Gen	Indep	515	77	1 680	400	11 190	26 403
Home for Consumptives	FB	Chrch	100			149	57	
Hospital of the Protestant Episcopal Church *	Gen	Chrch	520			252	5 796	42 081
Hospital of the University of Pennsylvania *	Gen	State	562	32	613	330	8 872	24 000
Hospital of the Woman's Medical College *	Gen	Indep	150	21	404	79	2 737	
Institute of the Pennsylvania Hospital	N & M	Indep	60			32	443	222
Jefferies Hospital *	Ca	Indep	72			47	462	520
Jefferson Medical College Hospital *	Gen	Indep	631	57	1 188	500	17 703	61 370
Jewish Hospital *	Gen	Indep	312	70	911	229	8 866	14 236
Joseph Price Mem Hosp	Gen	Indep	60	5	61	42	674	1 069
Kensington Hospital for Women *	Mat	Indep	66	30	86	40	1 436	2 179
Lankenau Hospital *	Gen	Indep	268	30	418	159	3 746	8 442
Memorial Hospital	Gen	Indep	75	15	200	50	1 820	6 777
Mercy Hospital (col) *	Gen	Indep	97	10	176	66	1 028	2 694
Methodist Episcopal Hospital *	Gen	Chrch	203	47	589	129	3 660	20 294
Metropolitan Hospital	Gen	Indep	39	6	116	8	709	
Misericordia Hospital *	Gen	Chrch	200	3	821	139	4 638	11 211
Mt Sinai Hospital *	Gen	Indep	261	50	922	176	5 915	19 681
National Stomach Hospital	Gen	Indep	46	10	8	13	347	1 600
Northeastern Hospital *	Gen	Indep	90	12	336	68	1 908	16 906
Northern Liberties Hosp	Gen	Indep	68	11	96	36	1 539	
Pennsylvania Hospital *	Gen	Indep	430	130	2 087	312	9 170	20 813
Pennsylvania Hospital Dept for Mental and Nervous Diseases *	N & M	Indep	220			179	188	1 499
Philadelphia Gen Hosp *	Gen	City	2 515	60	1 684	2 016	24 434	23 967
Philadelphia Hospital for Contagious Diseases	Iso	City	1 100			483	5 400	
Philadelphia Hospital for Mental Diseases	N & M	City	5 550			1 177	1 619	
Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases *	Neur	Indep	140			66	615	9 629
Presbyterian Hospital *	Gen	Chrch	393	42	606	193	4 458	13 891
Preston Retreat	Mat	Indep	50	35	528	33	597	680
Rush Hospital for Consumption and Allied Diseases	TB	Indep	178			81	463	
St Agnes Hospital *	Gen	Chrch	435	100	727	173	4 276	17 189
St Christopher's Hospital for Children *	Chil	Indep	75			47	2 138	4 760
St Joseph's Hospital *	Gen	Chrch	193	28	344	68	1 978	13 201
St Luke's and Children's Hospital *	Gen	Indep	209	54	482	120	7 539	
St Mary's Hospital *	Gen	Chrch	185	41	597	99	2 880	13 588
St Vincent's Hospital	Gen	Chrch	225	29	366	118	1 900	1 04
Shriners Hospital for Crippled Children	Orth	Frat	100			99	219	68
Skin and Cancer Hospital	SkCa	Indep	21			13		2 493

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Stetson Hospital	Gen	Indep	63	10	122	33	1 779	9 280
Temple University Hosp *	Gen	Indep	237	ol	1 295	287	9 160	
U S Naval Hospital	Gen	Navy	760			283	4 320	
Wills Hospital *	Gen	Indep	200			99	2 480	1 100
Women's Hospital *	Gen	Indep	120	38	820	87	2 420	6 117
Women's Homeopathic Hospital *	Gen	Indep	160	40	318	72	2 941	1 567
Philipsburg 1 600—Centre								
Dr McGirk Sanatorium	Gen	Indiv	20	6	28	4	180	
Philipsburg State Hosp *	Gen	State	100	12	232	91	2 408	1 751
Phoenixville 12 020—Chester								
Phoenixville Hospital *	Gen	Indep	60	9	124	25	1 000	499
Pittsburgh 66 917—Allegheny								
Allegheny General Hosp *	Gen	Indep	76	27	607	233	5 199	22 150
Belvedere General Hospital	Gen	Indep	40	8		14		
Children's Hospital *	Chil	Indep	196			108	3 314	1 599
Elizabeth Steel Macee Hos	Gen	Indep	291	196	2 000	190	4 116	4 060
Fry and Jar Hospital *	N & M	Indep	5			33	3 101	0 000
Fairview Sanatorium	Ment	Indep	12			8	8	
Haddon Maternity Hosp	Mat	Indep	20	12	1 0	6	277	
Homeopathic Medical and Surgical Hospital and Dispensary *	Gen	Indep	260	40	6 6	174	5 100	7 300
Iech Farm Sanatorium	TB	City	200			201	2 000	449
Mercy Hospital *	Gen	Chrch	620	48	784	426	7 001	
Montefiore Hospital *	Gen	Indep	103	32	617	121	4 440	1 400
Municipal Hospital for Contagious Diseases	Iso	City	200			11	1 108	
Passavant Hospital *	Gen	Chrch	114	24	247	62	2 116	2 881
Pittsburgh Hospital *	Gen	Indep	170	25	420	129	3 108	4 639
Presbyterian Hospital *	Gen	Chrch	100	5	33	89	2 592	5 048
Rochelle Foundling and Maternity Hospital	MatCh	Indep	84	22	203	40	70	137
St Francis Hospital *	Gen	Chrch	400	57	437	340	5 640	5 675
St Francis Hospital Psychopathic Unit	(Included in St Francis Hospital)							
St John's General Hosp *	Gen	Chrch	150	22	31	96	490	3 674
St Joseph Hospital and Dispensary *	Gen	Chrch	120	12	174	71	1 901	3 221
St Margaret Mem Hosp *	Gen	Chrch	131	21	223	60	1 557	5 029
South Side Hospital *	Gen	Indiv	210	1	37	108	3 590	9 188
Tuberculosis League Hosp *	FB	Indep	150			14	230	9 600
U S Marine Hospital	Gen	USP II	73			87	538	1 419
Western Pennsylvania Hospital *	Gen	Indep	600	51	1 203	300	7 608	7 500
Pittston 19 246—Luzerne								
Littleton Hospital	Gen	Indep	102	18	254	70	3 066	1 006
Pottstown 19 430—Montgomery								
Homeopathic Hospital	Gen	Indep	52	10		15	00	
Pottstown Hospital *	Gen	Indep	60	10	226	38	1 594	303
Pottsville 24 300—Schuylkill								
Lemos B. Warner Hospital	Gen	Indiv	75	12	87	30	9 16	
A C Minken Hospital	Gen	Indep	40	10	70	24	1 037	
Pottsville Hospital *	Gen	Indep	125	12	199	89	2 008	1 100
Punxsutawney 9 266—Jefferson								
Adrian Hospital	Gen	Indep	78	12	131	30	1 000	
Quakertown 4 882—Bucks								
Quakertown Hospital	Gen	Indep	48	12	60	18	000	
Ransom 57—Lackawanna								
Ransom Home and Mental Hospital	N & M Co		200			207	60	
Reading 111 171—Berks								
Berks County Tuberculosis Sanatorium	TB	Co	130			125	204	843
Homeopathic Medical and Surgical Hospital	Gen	Indep	100	1	340	73	2 404	18 090
Reading Hospital *	Gen	Indep	230	38	590	162	4 982	5 911
St Joseph's Hospital *	Gen	Chrch	190	25	560	106	3 500	14 159
Renovo 3 047—Clinton								
Renovo Hospital	Gen	Indep	26	6	57	8	447	
Retreat 31—Luzerne								
Retreat Mental Hospital	N & M Co		1 000			860	229	196
Ridgely 6 312—Elk								
Elk County General Hosp	Gen	Indep	60	9	122	28	1 020	
Ridley Park 3 200—Delaware								
Taylor Hospital	Gen	Indep	109	15	292	40	1 303	1 203
Roaring Spring 2 724—Blair								
Nason Hospital	Gen	Indep	60	6	68	30	700	000
Rochester 7 726—Beaver								
Rochester General Hosp *	Gen	Indep	100	12	192	69	1 967	6 008
St Mary's 7 433—Elk								
Andrew Kaul Mem. Hosp	Gen	Indiv	42	6	66	15	541	
Sayre 7 002—Bradford								
Robert Packer Hospital *	Gen	Indep	230	20	330	182	5 099	8 001
Schuylkill Haven 6 614—Schuylkill								
Schuylkill County Hospital for Mental Diseases	Ment	Co	401			486	128	
Seranton 143 433—Lackawanna								
Hahnemann Hospital *	Gen	Indep	109	16	402	83	2 017	0 000
Lackawanna County Tuberculosis Hospital	TB	Co	130			128	208	
Mercy Hospital	Gen	Chrch	90	20	475	70	1 692	5 417
Moses Taylor Hospital *	Gen	Indep	100					
St Joseph's Children's and Maternity Hospital	MatCh	Chrch	147	90	33	90	190	160
St Mary's Keller Memorial Hospital	Gen	Chrch	68	12	195	36	1 104	
Seranton Private Hospital	Gen	Indep	40	7	8	8	911	
Seranton State Hospital *	Gen	State	174	14	297	188	3 770	6 468
West Side Hospital *	Gen	Indep	50	10	342	70	1 806	4 000
Sellersville 2 063—Bucks								
Grand View Hospital *	Gen	Indep	58	7	86	20	799	
Sewickley 5 599—Allegheny								
Valley Hospital	Gen	Indep	109	17	301	74	2 066	1 100

Key to symbols and abbreviations is on page 1021

PENNSYLVANIA—Continued

Related Institutions	Type of Service	Control	Beds	Rated Capacity	Basinsets	Number of Births	Average Patients	Patients Admitted	Outpatients
Pittsburgh (Pittsburgh P O) 2709—Allegheny	Inst	Chrch	10					3	
Holy Family Institute									
Pittsburgh 115 967—Pitt							12	449	
Lakeview Hospital	Iso	City	75				16	42	
Louis Home Sanatorium	TB	Indep	18						
Gibsonville 138—Allegheny									
St Barnabas Free Home	Inc	Chrch	105			105		74	
Harrisville 786—Allegheny									
Harrisville Convalescent Home	Conv	Indep	40	30		50		300	
Huntingdon 758—Huntingdon									
Pennsylvania Industrial Sch	Inst	State	36			9		362	
Johnstown 66 993—Cambria									
Municipal Hospital	Iso	City	70	3		60		65	
Salus Private Hospital	Alcoh	Indiv	13			1		20	
Lancaster 59 049—Lancaster									
Lancaster County Hospital and Hospital for Insane	N & M Co		382			325		277	
Lansdowne 9542—Delaware									
Sanatorium School	Orth	Indiv	34			20		21	
Laurelton 427—Union									
Laurelton State Village	MeDe	State	675			603		52	
Louisville 400—Perry									
Presser Orphan's Home	Inst	Chrch	34			1		56	
Merced 2125—Merced									
Merced County Home and Hospital	N & M Co		340			217		43	
Middletown 6088—Dauphin									
Odd Fellows Home	Inst	Frat	42			40		67	
Morgantown—Washington									
Pennsylvania Training Sch	Inst	State	13			6		1313	
Nazareth 550—Northampton									
Northampton County Almshouse	Inst	Co	97			80			
New Brighton 990—Beaver									
Beaver County Children's Home	Inst	Indep	10						
New Wilmington 997—Lawrence									
Overlook Sanitarium	Conv	Indiv	21			12		324	
North East 360—Pitt									
St Barnabas House by the Lake	Inc	Chrch	30			20		38	
Oakbourne (West Chester P O) 32—Chester									
James C Smith Mem Home	Conv	Chrch	23			17		387	
Pennsylvania Epileptic Hospital and Colony Farm	Epil	Indep	119			113		17	
Olyphant 10743—Lackawanna									
Blackely Home	N & M Co		161			141			
Pennhurst—Chester									
Pennhurst State School	MeDe	State	168			1617		240	
Philadelphia 1900 961—Philadelphia									
Belmont Hospital	Mat	Chrch	45	10	105	6		183	
Chester Avenue Private Hospital	Gen	Indiv	9	9	103	2		212	
Eastern State Penitentiary Hospital	Inst	State	81			53		1130	
Florence Crittenton Home	Mat	Indep	15	10	32	11		51	
Home of the Merciful Savior for Crippled Children	Orth	Indep	62			62		15	
Homewood School	Inst	Indep	100	12		135		120	
House of the Good Shepherd (col)	Inst	Chrch	75			45		52	
Kenwood Sanitarium	Conv	Indiv	50			14		15	
Jogan Private Hospital	Conv	Indiv	12			4		14	
Lutheran Orphanage and Home for Aged	Inst	Chrch	39			12			
Pennsylvania School for the Deaf	Inst	Indep	25			5		346	
Philadelphia County Prison Hospital	Inst	Co	44			40		395	
Philadelphia Home for Incapables	Inc	Indep	204			504		37	
Rosenenth Farms	Conv	Indep	2			16		70	
Sharon Hall	Conv	Indiv	56			31			
Widener Memorial Industrial Training School for Crippled Children	Orth	Indep	100			99		18	
Pittsburgh 669 517—Allegheny									
Industrial Home for Crippled Children	Orth	Indep	28			18		292	
Jewish Home for the Aged	Inst	Indep	51			40		40	
Western Penitentiary Hosp	Inst	State	25			20		611	
Polk 2337—Venango									
Polk State School	MeDe	State	7000			2805		165	
Pottstown 19 430—Montgomery									
Hill School Infirmary	Inst	Indep	29			6		341	
Retreat 31—Luzerne									
Retreat Home and Hospital for Chronic Diseases	Inst	Co	130			90			
Rochester 7726—Denver									
Passavant Memorial Homes for the Care of Epileptics	Lphl	Chrch	140			115		14	
Schuylkill Haven 6514—Schuylkill									
Schuylkill County Almshouse	Inst	Co	150		5	80		80	
Scranton 147 433—Lackawanna									
Municipal Hospital for Contagious Diseases	Iso	City	40			10		156	
Widener's Hospital	Mat	Part	10	8		5		175	
Sellinggrove 2797—Snyder									
Sellinggrove State Colony for Epileptics	Epil	State	464			100		116	
Shillington 4401—Berks									
Berks County Almshouse Hospital	Inst	Co	112			90			

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Number of Births	Average Patients	Patients Admitted	Outpatients
Mt Pleasant 5 869—Westmoreland								
Henry Clay Frick Memorial Hospital	Gen	Indep	60	10	147	29	999	1 200
Muncy 2 413—Lycoming	Gen	Indep	19	7	33	8	362	70
Muncy Valley Private Hosp	Gen	State	120	10	211	101	2 894	2 731
Nanticoke 26 048—Luzerne	Gen	State	120	10	211	101	2 894	2 731
Nanticoke State Hosp	Gen	State	120	10	211	101	2 894	2 731
New Brighton 9 930—Beaver	Gen	Indep	70	10	112	30	920	918
Beaver Valley General Hos	Gen	Indep	70	10	112	30	920	918
New Castle 48 074—Lawrence	Gen	Indep	131	23	261	58	2 168	
Jameson Memorial Hosp	Gen	Indep	131	23	261	58	2 168	
New Castle Hospital	Gen	Chrch	101	20	282	61	1 322	
New Kensington 16 762—Westmoreland	Gen	Indep	100	12	161	67	2 679	
Citizens General Hosp	Gen	Indep	100	12	161	67	2 679	
Norristown 35 833—Montgomery	Gen	Indep	80	20	240	7	2 318	1 192
Montgomery Hospital	Gen	Indep	80	20	240	7	2 318	1 192
Norristown State Hosp	Gen	State	3 120			1 200	610	240
Riverview Hospital	Gen	Indep	40	11	111	11	390	
Northampton 9 839—Northampton	Gen	Indlv	21	5	18	11	401	
Haff Hospital	Gen	Indlv	21	5	18	11	401	
Oil City 22 075—Venango	TB	Indep	50			11	70	
Grandview Sanatorium	TB	Indep	50			11	70	
Oil City General Hospital	Gen	Indep	120	22	281	41	1 519	2 8
Palmerton 7 678—Carbon	Gen	Indep	61	7	107	78	731	1 486
Palmerton Hospital	Gen	Indep	61	7	107	78	731	1 486
Peckville 3 915—Lackawanna	Gen	Indep	67	8	276	12	1 741	
Mild Valley Hospital	Gen	Indep	67	8	276	12	1 741	
Philadelphia 1 910 961—Philadelphia	Gen	Indep	39	3	41	16	673	2 191
American Hospital for Dis	Gen	Indep	39	3	41	16	673	2 191
eases of the Stomach	Gen	Indep	39	3	41	16	673	2 191
American Oncologic Hosp	Gen	Indep	41			21	811	1 110
Anderson Hospital	Gen	Indep	71	20	216	20	1 941	
Babies Hospital	Chil	Indep	15			9	199	4 112
Broad Street Hospital	Gen	Indep	80	30	117	36	1 276	983
Chestnut Hill Hospital	Gen	Indep	89	26	416	59	1 910	
Children's Heart Hospital	Chil	Indep	60			60	46	
Children's Hospital	Chil	Indep	124			83	2 416	4 798
Children's Hospital of the	Chil	Indep	124			83	2 416	4 798
Mary J Drexel Home	Chil	Chrch	52			23	914	1 560
Fairmount Farm	N&M	Indep	42			27	177	
Frankford Hospital	Gen	Indep	119	23	421	97	3 111	5 911
Frederick Douglass Memo	Gen	Indep	57	5		10		
rial Hospital (col)	N&M	Indep	100			141	81	
Friends Hospital	N&M	Indep	100			141	81	
Gerretson Hospital	(Included in Temple University Hospital)							
Germantown Dispensary and	Gen	Indep	310	50	1 288	215	5 872	61 997
Hospital	Gen	Indep	310	50	1 288	215	5 872	61 997
Graduate Hospital of the	Gen	Indep	471	18	221	221	7 333	4 488
Univ of Pennsylvania	Gen	Indep	471	18	221	221	7 333	4 488
Hahnemann Hospital	Gen	Indep	515	77	1 631	400	11 190	26 403
Home for Consumptives	TB	Chrch	101			149	57	
Hospital of the Protestant	Gen	Chrch	521			282	5 796	4 081
Episcopal Church	Gen	Chrch	521			282	5 796	4 081
Hospital of the University	Gen	State	562	32	613	330	8 812	24 639
of Pennsylvania	Gen	State	562	32	613	330	8 812	24 639
Hospital of the Woman's	Gen	Indep	150	21	414	79	2 737	
Medical College	Gen	Indep	150	21	414	79	2 737	
Institute of the Pennsil	N&M	Indep	60			32	443	222
vania Hospital	N&M	Indep	60			32	443	222
Jeanes Hospital	Ca	Indep	72			47	462	529
Jefferson Medical College	Gen	Indep	631	57	1 188	501	17 703	61 375
Hospital	Gen	Indep	631	57	1 188	501	17 703	61 375
Jewish Hospital	Gen	Indep	312	70	911	229	8 866	14 236
Joseph Price Mem Hosp	Gen	Indep	60	5	61	42	674	1 069
Kensington Hospital for	Mat	Indep	66	35	867	40	1 436	2 179
Women	Mat	Indep	66	35	867	40	1 436	2 179
Lankenau Hospital	Gen	Indep	208	30	418	159	3 746	8 442
Memorial Hospital	Gen	Indep	70	15	201	51	1 821	6 777
Mercy Hospital (col)	Gen	Indep	97	10	176	66	1 628	2 694
Methodist Episcopal Hos	Gen	Chrch	201	47	589	139	3 660	20 294
pital	Gen	Chrch	201	47	589	139	3 660	20 294
Metropolitan Hospital	Gen	Indep	19	6	116	8	769	
Mercicordia Hospital	Gen	Chrch	200	31	821	139	4 638	11 231
Mt Sinai Hospital	Gen	Indep	261	50	922	146	5 915	19 681
National Stomach Hospital	Gen	Indep	46	10	8	13	877	1 689
Northeastern Hospital	Gen	Indep	90	12	336	68	1 908	16 746
Northern Liberties Hosp	Gen	Indep	58	11	96	39	1 539	
Pennsylvania Hospital	Gen	Indep	430	130	2 057	312	9 115	26 813
Pennsylvania Hospital Dept	N&M	Indep	221			179	188	1 499
for Mental and Nervous	Gen	City	2 515	60	1 684	2 016	24 434	23 217
Diseases	Gen	City	2 515	60	1 684	2 016	24 434	23 217
Philadelphia Gen Hosp	Iso	City	1 100			483	5 406	
Philadelphia Hospital for	N&M	City	5 550			5 177	1 619	
Contagious Diseases	N&M	City	5 550			5 177	1 619	
Philadelphia Hospital for	Gen	Indep	140			66	615	9 629
Mental Diseases	Gen	Indep	140			66	615	9 629
Philadelphia Orthopaedic	Gen	Chrch	383	42	666	193	4 458	18 891
Hospital and Infirmary	Mat	Indep	50	35	528	33	597	881
for Nervous Diseases	Gen	Indep	178			81	463	
Presbyterian Hospital	Gen	Chrch	435	100	727	173	4 216	17 189
Preston Retreat	Chil	Indep	75			47	2 188	4 760
Rush Hospital for Consump	Chil	Indep	193	28	344	68	1 978	13 901
tion and Allied Diseases	Gen	Indep	209	54	482	120	3 539	
St Agnes Hospital	Gen	Indep	185	41	597	99	2 880	13 688
St Christophers Hospital	Gen	Chrch	225	29	366	178	1 260	104
for Children	Orth	Frat	100			99	219	68
St Joseph's Hospital	SLCa	Indep	21			13		2 493
St Luke's and Children's	SLCa	Indep	21			13		2 493
Hospital	SLCa	Indep	21			13		2 493
St Mary's Hospital	SLCa	Indep	21			13		2 493
St Vincent's Hospital	SLCa	Indep	21			13		2 493
Shriners Hospital for Crip	SLCa	Indep	21			13		2 493
pled Children	SLCa	Indep	21			13		2 493
Skin and Cancer Hospital	SLCa	Indep	21			13		2 493

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Number of Births	Average Patients	Patients Admitted	Outpatients
Stratton Hospital	Gen	Indep	63	10	122	23	1,779	9,293
Temple University Hosp	Gen	Indp	287	61	1,269	287	9,160	
U S Naval Hospital	Gen	Navy	760			388	4,321	
Wills Hospital	Gen	Indep	200			90	2,161	24,751
Woman's Hospital	Gen	Indep	125	38	870	87	2,429	6,117
Woman's Homeopathic Hospital	Gen	Indep	160	40	318	72	2,941	17,161
Phillipsburg 7 600—Centre Dr McGirk Sanitarium	Gen	Indlv	20	6	28	4	181	
Phillipsburg State Hosp	Gen	State	100	12	272	91	1,018	1,751
Phoenixville 12 029—Chester	Gen	Indep	60	9	124	28	790	490
Phoenixville Hospital	Gen	Indep	60	9	124	28	790	490
Pittsburgh 679 817—Allegheny	Gen	Indep	378	27	607	223	5,199	21,191
Allegheny General Hosp	Gen	Indep	40	8		14		
Belvedere General Hospital	Chil	Indep	170			108	2,314	1,599
Children's Hospital	Chil	Indep	170			108	2,314	1,599
Elizabeth Steel Macee Hospital	Gen	Indep	291	176	2,101	190	4,116	4,961
Lyons and Far Hospital	N&M	Indp	5			33	1,151	9,099
Fairview Sanatorium	Mat	Indp	12			6	8	
Haddon Maternity Hosp	Mat	Indep	20	12	1 010	6	277	
Homeopathic Medical and Surgical Hospital and Dispensary	Gen	Indep	20	12	1 010	6	277	
Iceberg Farm Sanatorium	TB	City	290			21	211	449
Mercy Hospital	Gen	Chrch	622	48	911	476	1,781	
Montefiore Hospital	Gen	Indep	101	72	1,171	171	4,440	1,401
Municipal Hospital for Contagious Diseases	Iso	City	210			81	1,168	
Passavant Hospital	Gen	Chrch	114	24	241	62	9,116	9,581
Pittsburgh Hospital	Gen	Indep	110	28	421	129	3,101	4,631
Presbyterian Hospital	Gen	Chrch	110	5	33	98	2,599	9,345
Rochlin Foundling and Maternity Hospital	Mat	Chrch	81	22	203	40	379	1,391
St Francis Hospital	Gen	Chrch	410	37	437	310	6,610	2,611
St Francis Hospital Psychopathic Unit	(Included in St Francis Hospital)							
St John's General Hosp	Gen	Chrch	190	22	217	96	2,490	9,674
St Joseph Hospital and Dispensary	Gen	Chrch	128	12	174	71	1,901	3,221
St Margaret Mem Hosp	Gen	Chrch	131	21	223	60	1,537	9,099
South Side Hospital	Gen	Indep	210	15	371	108	3,520	9,181
Tuberculosis League Hosp	TB	Indp	150			147	251	9,511
U S Marine Hospital	Gen	USPH	73			57	528	1,411
Western Pennsylvania Hospital	Gen	Indep	600	51	1,003	307	7,658	1,481
Pittston 18 246—Luzerne	Gen	Indep	102	18	284	70	3,666	1,601
Pittston Hospital	Gen	Indep	102	18	284	70	3,666	1,601
Pottstown 10 430—Montgomery	Gen	Indep	52	10		15	67	
Homeopathic Hospital	Gen	Indep	52	10		15	67	
Pottstown Hospital	Gen	Indep	60	10	226	38	1,394	330
Pottsville 24 300—Schuylkill	Gen	Indlv	75	12	87	50	916	
Lemos H Warner Hospital	Gen	Indlv	40	10	70	24	1,031	
A C Milliken Hospital	Gen	Indep	125	12	199	89	2,668	1,150
Pottsville Hospital	Gen	Indep	125	12	199	89	2,668	1,150
Punxsutawney, 9 266—Jefferson	Gen	Indep	78	12	131	21	1,000	
Adrian Hospital	Gen	Indep	78	12	131	21	1,000	
Quakertown 4 881—Bucks	Gen	Indep	48	12	66	18	128	
Quakertown Hospital	Gen	Indep	48	12	66	18	128	
Ransom 57—Lackawanna	N&M	Co	310			317	61	
Ransom Home and Mental Hospital	N&M	Co	310			317	61	
Reading 111 171—Berks	TB	Co	170			170	904	1,113
Berks County Tuberculosis Sanatorium	TB	Co	170			170	904	1,113
Homeopathic Medical and Surgical Hospital	Gen	Indep	100	10	340	73	2,414	15,000
Reading Hospital	Gen	Indep	230	28	580	162	4,682	5,911
St Joseph's Hospital	Gen	Chrch	190	20	560	130	3,770	14,170
Renovo 7 947—Clinton	Gen	Indep	26	6	57	8	447	
Renovo Hospital	Gen	Indep	26	6	57	8	447	
Retreat 31—Luzerne	N&M	Co	1 000			560	229	1,079
Retreat Mental Hospital	N&M	Co	1 000			560	229	1,079
Ridgway, 6 313—Lk.	Gen	Indep	60	9	122	28	1,070	
Flk County General Hosp	Gen	Indep	60	9	122	28	1,070	
Ridley Park 3 336—Delaware	Gen	Indep	109	15	292	40	1,333	1,233
Taylor Hospital	Gen	Indep	109	15	292	40	1,333	1,233
Roaring Spring 2 724—Blair	Gen	Indep	60	6	68	30	20	700
Nason Hospital	Gen	Indep	60	6	68	30	20	700
Rochester 7 726—Beaver	Gen	Indep	100	12	192	60	1,967	6,938
Rochester General Hosp	Gen	Indep	100	12	192	60	1,967	6,938
St Mary's 7 433—Elk	Gen	Indp	42	6	66	15	541	
Andrew Kaul Mem Hosp	Gen	Indp	42	6	66	15	541	
Saver 7 902—Bradford	Gen	Indep	230	20	339	182	5,399	8,301
Robert Facker Hospital	Gen	Indep	230	20	339	182	5,399	8,301
Schuylkill Haven, 6 514—Schuylkill	Mat	Co	401			456	128	
Schuylkill County Hospital for Mental Diseases	Mat	Co	401			456	128	
Seranton 143 433—Lackawanna	Gen	Indep	109	16	402	83	2,517	9,510
Hahnemann Hospital	Gen	Indep	109	16	402	83	2,517	9,510
Lackawanna County Tuberculosis Hospital	TB	Co	130			128	208	
Mercy Hospital	Gen	Chrch	90	20	416	20	2,680	
Moses Taylor Hospital	Gen	Indep	100			70	1,682	5,411
St Joseph's Children's and Maternity Hospital	Mat	Chrch	147	80	33	90	190	160
St Mary's Keller Memorial Hospital	Gen	Chrch	68	12	190	36	1,114	
Scranton Private Hospital	Gen	Indep	40	6	7	8	911	
Scranton State Hospital	Gen	State	174	14	297	188	3,770	6,403
West Side Hospital	Gen	Indep	50	10	342	70	1,806	4,003
Sellersville 2,063—Bucks	Gen	Indep	58	7	86	29	799	
Grand View Hospital	Gen	Indep	58	7	86	29	799	
Sewickley, 5 590—Allegheny	Gen	Indep	109	17	301	74	2,086	1,190
Valley Hospital	Gen	Indep	109	17	301	74	2,086	1,190

PENNSYLVANIA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Lmsworth (Pittsburgh P O) 2709—Allegheny	Inst	Chrch	10				3	
Holy Family Institute								
1 rle, 115 967—P rle								
Lakeview Hospital	Iso	City	75			12	449	
Louis Home Sanatorium	Ind	Indep	18			16	42	
Chesonia 108—Allegheny								
St Barnabas Free Home	Inc	Chrch	10			105	74	
Marmary 116 786—Allegheny								
Harmory 116 Convalescent Home	Conv	Indep	45	30		50	300	
Huntingdon 758—Huntingdon								
Pennsylvania Industrial Sch	Inst	State	30			9	362	
Johnstown 66 993—Cambria								
Municipal Hospital	Iso	City	50	3		60	6	
Salus Private Hospital	Alcoh	Indiv	13			1	20	
Lancaster 59 049—Lancaster								
Lancaster County Hospital and Hospital for Insane	N & M Co		332			300	277	
Lansdowne 9 542—Delaware								
Sanatorium School	Orth	Indiv	34			20	21	
Laurelton 127—Union								
Laurelton State Village	McDe	State	670			668	52	
Louisville 400—Perry								
Tressler Orphans Home	Inst	Chrch	34			1	56	
Mercer 2 120—Mercer								
Mercer County Home and Hospital	N & M Co		340			213	43	
Middletown 6 050—Dauphin								
Odd Fellows' Home	Inst	Frat	42			40	67	
Morganza—Washington								
Pennsylvania Training Sch	Inst	State	13			6	1 313	
Nazareth 5 500—Northampton								
Northampton County Almshouse	Inst	Co	97			80		
New Brighton 9 900—Beaver								
Beaver County Childrens Home	Inst	Indep	10					
New Wilmington 907—Lawrence								
Overlook Sanitarium	Conv	Indiv	35			12	324	
North East 3 670—P rle								
St Barnabas House by the Lake	Inc	Chrch	30			30	78	
Oakbourne (West Chester P O) 32—Chester								
James C Smith Mem Home	Conv	Chrch	23			17	380	
Pennsylvania Epileptic Hospital and Colony Farm	Epil	Indep	119			113	17	
Olyphant 10 743—Lackawanna								
Blackely Home	N & M Co		161			141		
Pennhurst—Chester								
Pennhurst State School	McDe	State	1 608			1 617	240	
Philadelphia 1 000 861—Philadelphia								
Belmont Hospital	Mat	Chrch	40	10	100	6	183	
Chester Avenue Private Hospital	Gen	Indiv	9	9	103	2	212	
Eastern State Penitentiary Hospital	Inst	State	81			53	1 130	
Florence Crittenton Home	Mat	Indep	15	15	32	11	51	
Home of the Merciful Savior for Crippled Children	Orth	Indep	62			62	15	
Homewood School	Inst	Indep	100	12		100	120	
House of the Good Shepherd (col)	Inst	Chrch	7			45	52	
Kenwood Sanitarium	Conv	Indiv	30			14	1	
Logan Private Hospital	Conv	Indiv	12			4	14	
Lutheran Orphanage and Home for Aged	Inst	Chrch	39			12		
Pennsylvania School for the Deaf	Inst	Indep	20			5	346	
Philadelphia County Prison Hospital	Inst	Co	44			40	300	
Philadelphia Home for Incapables	Inc	Indep	204			204	57	
Roseneath Farms	Conv	Indep	2			16	70	
Sharon Hall	Conv	Indiv	36			31		
Widener Memorial Industrial Training School for Crippled Children	Orth	Indep	100			99	18	
Pittsburgh 663 817—Allegheny								
Industrial Home for Crippled Children	Orth	Indep	28			18	292	
Jewish Home for the Aged	Inst	Indep	55			40	40	
Western Penitentiary Hosp	Inst	State	28			20	630	
Polk 3 337—Venango								
Polk State School	McDe	State	3 000			2 800	165	
Pottstown 19 430—Montgomery								
Hill School Infirmary	Inst	Indep	29			6	341	
Retreat 31—Luzerne								
Retreat Home and Hospital for Chronic Diseases	Inst	Co	150			90		
Rochester 7 726—Beaver								
Pasavant Memorial Homes for the Care of Epileptics	Epil	Chrch	1 0			115	14	
Schuylkill Haven 6 514—Schuylkill								
Schuylkill County Almshouse Hospital	Inst	Co	150		5	80	80	
Seranton 143 433—Lackawanna								
Municipal Hospital for Contagious Diseases	Iso	City	40			10	156	
Woman s Hospital	Mat	Part	10	8		5	175	
Sellinggrove 2 297—Snyder								
Sellinggrove State Colony for Epileptics	Fpil	State	464			100	116	
Shillington 4 401—Berks								
Berks County Almshouse Hospital	Inst	Co	112			90		

Key to symbols and abbreviations is on page 1021

PENNSYLVANIA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Somerset 439—Somerset Somerset County Home and Hospital	N M Co		546			480	50	
State College, 4450—Centre Pennsylvania State College Health Service Hospital	Inst State		29			6	41	
Troy 1,190—Bradford Martha Lloyd School	MeDe Indiv		50			40	12	
Pyrene 9042—Blair Methodist Home for the Aged	Inst Chrch		11			8		
Union City 3788—Erie Union City Hospital	Gen Indep		14	2		6	190	
Valencia 308—Butler Lillian Convalescent Rest	Conv Indep		33			43	373	
Weatherly, 2531—Carbon Middle Coal Field Poor District Almshouse	Inst Co		50			38		
White Haven 1537—Luzerne Clair Mont Sanatorium	TB Indiv		10			8	12	
Sunnyrest Sanatorium	TB Indiv		50			10	2	
Wilkes Barre 8600—Luzerne Contagious Disease Hosp	Iso City		12			4	100	
Willow Grove 2065—Montgomery Willow Crest for Conv	Conv Indep		80	4		66	84	
Summary for Pennsylvania								
Hospitals and sanatoriums		Number	Beds		Average Patients		Patients Admitted	
Related institutions		297	67,804		6,784		550,246	
		75	11,083		9,828		13,284	
Totals		372	78,887		16,612		563,530	
Refused registration		24	5,200					

RHODE ISLAND

Hospitals and Sanatoriums								
Central Falls 2589—Providence Notre Dame Hospital	Gen Indep	50	7	12	20	802	798	
East Providence 2900—Providence Emma Pendleton Bradley Home	Nerv Indep	50			45	46		
Hillsgrove 1820—Kent St Joseph's Sanitarium Annex	TB Chrch	50			47	39		
Howard 2260—Providence State Hospital for Mental Diseases	Ment State	227			2,229	625	410	
State Infirmary	Gen State	9,000	49	32	934	734		
Newport 27612—Newport Newport Hospital	Gen Indep	154	21	333	100	2,125	1,287	
Station Hospital	Gen Army	25			10	542	1,566	
U S Naval Hospital	Gen Navy	227		28	220	1,038		
Pawtucket 77149—Providence Memorial Hospital	Gen Indep	166	30	541	138	3,100	5,312	
Providence, 252081—Providence Broadway Hospital	Surg Indiv	11	1	2	2	87		
Butler Hospital	N & M Indep	174			139	117	21	
Charles V Chapin Hosp	TB City	265			202	2,549	1,045	
Homeopathic Hospital	Gen Indep	166	34	580	101	3,339	8,898	
Hope Hospital	Gen Indep	38			18	649		
Jane Brown Mem Hospital (Included in Rhode Island Hospital)	Surg Indep	25			2	41		
John W Keefe Surgery	Gen Indep	63	14	176	36	1,310	2,114	
Miriam Hospital	Mat Indep	155	155	2,739	101	2,905	1,684	
Providence Lying In Hosp	Gen Indep	600			426	9,042	29,020	
Rhode Island Hospital	Gen Chrch	298	43	541	157	3,725		
St Joseph's Hospital								
Wakefield 2716—Washington South County Hospital	Gen Indep	30	10	116	17	600		
Wallum Lake 75—Providence Rhode Island State Sanat	TB State	43			403	450	4,076	
Westerly 10997—Washington Margaret Edward Anderson Hospital	Gen Indiv	25			15			
Westerly Hospital	Gen Indep	61	12	80	21	617	292	
Woonsocket 49376—Providence Woonsocket Hospital	Gen Indep	128	22		61	1,981	2,341	
Related Institutions								
Bristol 11903—Bristol Rhode Island Soldiers Home	Inst State	51			36	11		
Howard 2260—Providence Rhode Island State Prison Hospital	Inst State	94			28	475		
Sockanosset School for Boys	Inst State	9			5	243		
Hoxie 79—Kent Lakeside Preventorium	TB Indep	150			17	339		
La Fayette 700—Washington Exeter School	MeDe State	611			600	102		
Providence 252081—Providence Heath Sanatorium	Conv Indiv	20			10	10		
Heath Sanatorium Annex	Conv Indiv	17			12	12		
St Elizabeth Home for Incubables	Inc Chrch	44			42	52		
Summary for Rhode Island								
Hospitals and sanatoriums		Number	Beds		Average Patients		Patients Admitted	
Related institutions		24	6,349		5,464		39,636	
		8	801		79		1,299	
Totals		32	7,230		6,249		40,935	
Refused registration		1	60					

SOUTH CAROLINA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Abbeville 4414—Abbeville Abbeville County Memorial Hospital	Gen Indep		23	2	18	6	991	49
Aiken 6013—Aiken Aiken County Hospital	Gen Co		29	2	31	23	1,016	1,011
Anderson 1418—Anderson Anderson County Hospital	Gen Indep		70	10	148	39	1,500	4,024
Bennettsville 7007—Marlboro Marlboro County General Hospital	Gen Co		73	7	79	17	608	268
Camden 5187—Kershaw Camden Hospital	Gen Indep		50	8		26		55
Charleston 6021—Charleston Baker Sanatorium	Gen Indiv		50	12	115	24	84	
Roper Hospital	Gen Indep		29	30	678	22	5,777	6,471
St Francis Xavier Infirmary	Gen Chrch		10	13	76	21	1,007	
Chester 5128—Chester Troy Hospital	Gen Indep		60	6	22	18	161	
Union 564—Laurin Dr Hays Hospital	Gen Indiv		1	2	18	6	247	
Columbia 51581—Richland Columbia Hospital	Gen Co		21	20	249	86	2,873	4,501
Good Samaritan Hospital (col)	Gen Indep		6	1		30		
South Carolina Baptist Hospital	Gen Chrch		109	6	86	75	2,600	3,450
South Carolina State Hospital	Ment State		44			416	1,023	694
Veterans Admin Facility	Gen Vet		304			156	1,461	918
Waverley Sanitarium	N M Indep		1			16	117	
Waverly Fraternal Hospital (col)	Gen Frat		70	6	76	29	651	720
Conway 3011—Horry Conway Hospital	Gen Indep		30	6	69	9	660	119
Florence 14774—Florence Florence Durlington Tuberculosis Sanatorium	TB Co		41			38	58	
McLeod Infirmary	Gen Indep		11	5		80	2,921	
Saunders Memorial Hosp	Gen Indep		60	4		32	1,502	96
Caffney 6087—Cherokee City Hospital	Gen Indep		3			12		
Greenville 29154—Greenville Greenville City Hospital	Gen City		114	11	264	78	2,000	9,641
Greenville County Sanat	TB Co		67			59	85	
Dr Jerey's Private Hosp	FB Indiv		1			3	140	
St Francis Hospital	Gen Chrch		12	8	1	11	400	238
Shriners Hospital for Crippled Children	Orth Frat		60			62	384	340
Dr Tyler's Hospital	Surg Indiv		10					
Working Benevolent Hospital (col)	Gen Frat		22	1	18	7	700	
Greenwood 11000—Greenwood Brewer Hospital (col)	Gen Chrch		27	2	25	11	256	
Greenwood City Hospital	Gen Indep		52	3	44	15	616	
Kingsree 2392—Williamsburg Kelley Sanatorium	Gen Indiv		25	5	36	12	401	
Lake City 1942—Florence Lynch Infirmary	Gen Indiv		20	2	1	2	41	
Lancaster 354—Lancaster Monks Corner 623—Berkeley Berkeley County Hospital	Gen Indiv		25	2	19			643
Moultrieville 515—Charleston Station Hospital	Gen Army		45			13	493	2,515
Mullins 3158—Marion Mullins Hospital	Gen Indep		31	6	64	20	863	
Navy Yard 102—Charleston Pinehaven Sanatorium	TB Co		52			70		
Newberry 7208—Newberry Newberry County Hospital	Gen Indep		24	1	30	7	328	67
Parris Island 100—Beaufort U S Naval Hospital	Gen Navy		161		20	108	9,044	3,111
Ridgewood (Columbia 100)—Richland Ridgewood Tuberculosis Camp	TB Indep		70			36	44	
Rock Hill 11322—York Fennell Infirmary	Gen Indiv		30	2		20		
Six Mile 100—Pickens Dr Peek's Hospital	Gen Indiv		29	1	18	16	47	81
Spartanburg 28723—Spartanburg Mary Black Memorial Hosp	Gen Indep		30	4	18	20	716	
Spartanburg General Hospital	Gen Co		206	24	243	233	3,605	3,000
State Park—Richland Palmetto Sanatorium (Colored Division of South Carolina Sanatorium)	TB State		276			234	3,011	900
Sumter 11780—Sumter Tuomey Hospital	Gen Indep		80	8	17	17	1,018	1,050
Union 7419—Union Wallace Thompson Hospital	Gen Indep		20	2		10	260	
Walterboro 2592—Colleton Charles Es Dora Hospital	Gen Indiv		3	6	17	14	60	
Related Institutions								
Cedar Spring 162—Spartanburg South Carolina School for Deaf and Blind Hospital	Inst State		24			6	431	
Charleston 62265—Charleston Charleston Orphan House	Inst City		24			6	449	
Citadel Hospital	Inst State		30			6	1,700	
Clinton 5643—Laurens Lesh Infirmary of Thornwell Orphanage	Inst Chrch		45			7	200	
State Training School	MeDe State		514			507	3,000	

Key to symbols and abbreviations is on page 1021

SOUTH CAROLINA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Columbia 51 81—Riehlend	Inst	State	30		6	904		
Wallace Thomson Infirmary	Gen	Indiv	1	3	1	39	10	
Georgetown 508—Georgetown								
Florence Williams Hospital (col)	Gen	Indiv	1					
Greenville 29 14—Greenville								
Webb Memorial Infirmary	Inst	Indep	42		6	42		
Leesville 1340—Lexington								
Leesville Infirmary	Gen	Indep	24	7	98	9	106	
Summerville 2 59—Dorchester								
Arthur B. Lee Hospital (col)	Gen	Indep	11	1	17	4	10	44
Summerville Infirmary	Gen	Indep	10	5	27	6	146	121
Sumter 11 60—Sumter								
Camp Alice Sumter County Tuberculosis Sanitarium	TB	Cy Co	26		20	64		
Woodruff 3 175—Spartanburg								
Workman Memorial Hosp	Gen	Indiv	7	3	3			
Summary for South Carolina								
		Number	Beds		Average Patients	Patients Admitted		
Hospitals and sanatoriums		49	6 875		6 489	51 562		
Related institutions		14	812		581	3 240		
Totals		63	7 687		6 070	54 802		
Refused registration		2	56					

SOUTH DAKOTA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Aberdeen 10 46—Brown								
Aberdeen Good Samaritan Hospital	Gen	Indep	30	9	45	10	407	
St Luke's Hospital	Gen	Chrch	120	20	251	52	1 948	
Belle Fourche 2 032—Butte								
John Burns Memorial Hosp	Gen	Indep	30	6	40	6	75	
Bordie 773—Edmunds								
Community Hospital	Gen	Indep	12	1	20	3	1 10	
Brookings 4 376—Brookings								
Wesley Hospital	Gen	Chrch	24	8	88	8	470	
Canova, 364—Miner								
Canova Hospital	Gen	Indep	13	4	20	4	190	
Chamberlain 1 364—Brule								
Chamberlain Sanitarium and Hospital	Gen	Indep	60	6	54	21	579	1 845
Cheyenne Agency 121—Dewey								
Cheyenne River Indian Hosp	Gen	I A	40	6		24	656	
Deadwood 2 559—Lawrence								
St Joseph's Hospital	Gen	Chrch	50	6	62	15	1 100	
Dell Rapids 1 637—Minnehaha								
Dell Rapids Hospital	Gen	Indep	30	6	29	8	247	198
Edgemont 1 103—Fall River								
Edgemont Hospital	Gen	Indiv	10	3	22	2	76	
Eureka 1 308—McPherson								
Eureka Community Hosp	Gen	Indep	23	5	24	6	241	
Faulton 739—Faulk								
Faulk County Hospital	Gen	Co	17	6	54	7	503	
Flandreau 1 934—Moody								
Flandreau Hospital	Gen	Indiv	10	1	10	3	110	
Ft Meade —Meade								
Station Hospital	Gen	Army	60		90	739		
Ft Thompson 60—Buffalo								
Marcoe Indian Hospital	Gen	I A	28	5	20	27	400	1 108
Garretson 600—Minnehaha								
De Vail Hospital	Gen	Indiv	10	2	11	2	60	800
Hot Springs 2 908—Fall River								
Black Hills Hospital	Gen	Indiv	22	8	40	6	203	
Lutheran Sanatorium and Hospital	Gen	Chrch	30	4	23	10	236	
Our Lady of Lourdes Hospital and Sanitarium	Gen	Chrch	50	6	30	26	728	
Veterans Admin Facility	Gen	Vet	640			546	1 069	
Huron 10 946—Beadle								
Sprague Hospital	Gen	Indep	49	6	113	20	73	1 416
Lead 5 733—Lawrence								
Homestake Hospital	Gen	Indus	20	5	30	13	443	
Lemmon 1 508—Perkins								
Lemmon Hospital	Gen	Indiv	14	5	12	5	340	
Madison 4 289—Lake								
Madison Community Hosp	Gen	Indep	60	12	63	15	730	
Wilmont 2 389—Grant								
St Bernard Providence Hosp	Gen	Chrch	20	5	4	6	204	
Miller 1 447—Hand								
Miller Hospital and Clinic	Gen	Indiv	16	5		5	482	
Witchell 10 942—Davison								
Methodist State Hospital	Gen	Chrch	90	12	112	40	1 000	
St Joseph's Hospital	Gen	Chrch	80	10	100	39	1 204	
Worbridge 3 464—Walworth								
Lowe Hospital	Gen	Indiv	20	6	28	8	30	
Worbridge Hospital	Gen	Indep	20	7		10	464	
New Underwood 311—Pennington								
New Underwood Community Hospital	Gen	Indep	13	6	37	3	144	
Pierre 4 63—Hughes								
St Mary's Hospital	Gen	Chrch	75	8	90	47	1 937	704
Pine Ridge 618—Shannon								
Pine Ridge Hospital	Gen	I A	57	8	75	43	1 223	1 008
Rapid City 10 404—Pennington								
Black Hills Methodist Hosp	Gen	Chrch	60	9	113	28	990	1 002
St John's McManera Hosp	Gen	Chrch	75	12	94	20	60	
Redfield, 2 604—Spink								
Baldwin Community Hosp	Gen	City	15	5	14	3	145	

SOUTH DAKOTA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Rosebud 120—Todd								
Rosebud Agency Indian Hospital	Gen	I A	36	6	74	31	971	3 945
Sanator 10—Custer								
South Dakota State Sanatorium for Tuberculosis	TB	State	192			165	120	
Sioux Falls 32 362—Minnehaha								
McKenna Hospital	Gen	Chrch	9	18	247	57	3 000	
Moore Hospital and Clinic	Gen	Indiv	50	8	40	19	825	1 700
Sioux Valley Hospital	Gen	Indep	100	20	226	55	2 029	
Volga 604—Brookings								
Volga Hospital	Gen	Indep	14	6		4	210	
Watertown 10 214—Codington								
Watertown Hospital	Gen	Indiv	60	10		28	964	
Luther Hospital	Gen	Chrch	60	10				
Webster 1 800—Day								
Peabody Hospital	Gen	Indiv	50	9	76	26	816	
Winnac 2 220—Tripp								
Wilson Hospital	Gen	Indiv	10	2	21	2	120	
Winnac General Hospital	Gen	Indiv	12	5		6	220	
Yankton 6 072—Yankton								
Sacred Heart Hospital	Gen	Chrch	130	20	110	55	1 291	
Yankton State Hospital	Gen	State	1 720			1 495	304	

Related Institutions

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Avon 670—Bon Homme								
Hollingsworth Hospital	Gen	Indiv	5	3		2	86	
Camp Crook 161—Harding								
Camp Crook Hospital	Gen	Indiv	10	2	7	3	82	
Flandreau 1 934—Moody								
Flandreau Indian School Hospital	Gen	I A	35			24	508	
Hot Springs 2 908—Fall River								
State Soldiers Home	Inst	State	30			20	130	
Onida 363—Sully								
Onida Hospital	Gen	Indiv	8	3		3	175	
Pierre 3 659—Hughes								
Pierre Indian School Hosp	Gen	I A	26			4	262	
Platte 1 207—Charles Mix								
Platte Hospital	Gen	Indiv	7	2	16	3	150	500
Redfield 2 664—Spink								
State School and Home for Feeble-minded	McDe	State	700			590	65	
Wagner 1 420—Charles Mix								
Duggan Hospital	Gen	Indiv	7	1	10	2	90	
Pineard Hospital	Gen	Indiv	8	2		3	110	

Summary for South Dakota

Hospitals and Sanatoriums	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums	50	3 906	2 558	31 153
Related institutions	15	1 600	1 313	2 872
Totals	65	5 511	3 871	34 025
Refused registration	3	133		

TENNESSEE

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Athens 5 385—McMinn								
Foree Hospital	Gen	Part	10	3	30	5	150	
Bolivar 1 217—Hardeman								
Western State Hospital	Gen	State	1 870			1 585	500	
Brownsville 3 204—Haywood								
Haywood County Memorial Hospital	Gen	Indep	32	6	13	9	306	73
Chattanooga 119 798—Hamilton								
Baroness Erlanger Hosp	Gen	Cy Co	220	26	909	176	5 906	4 733
Children's Hospital	MatCh	Cy Co	73	11	116	41	1 060	3 400
Newell and Newell Sanit	Gen	Part	50	5		40		
Pine Breeze Sanatorium	TB	Indep	225			216	201	1 140
Clarksville 9 242—Montgomery								
Clarksville Home Infirmary (col)	Gen	Indiv	20	2	2	4	200	
Clarksville Hospital	Gen	Indep	40	6		15	512	
Cleveland 9 136—Bradley								
Speck Hospital	Gen	Indep	20	2	9	4	175	
Columbia 7 882—Mauri								
Kings Daughters Hospital	Gen	Indep	50	5	48	11	708	
Dayton 2 006—Rhea								
Broyles Private Hospital	Gen	Indiv	12	3	8	4	106	
Dyersburg, 8 733—Dyer								
Baird Brewer Gen Hosp	Gen	Indep	50	2	13	8	507	
Elizabethton 8 693—Carter								
St Elizabeth General Hosp	Gen	Indep	20	5	47	7	375	
Greenville 5 444—Greene								
Greenville Sanatorium and Hospital	Gen	Indep	60	3	11	17	598	
Takoma Hospital and Sanitarium	Gen	Indep	40	6	22	20	660	1 900
Humboldt 4 613—Gibson								
Oursler Clinic	Gen	Indiv	10	2		5	396	
Jackson 23 172—Madison								
Crook Sanatorium	Gen	Indep	25	12		12		
Memorial Hospital	Gen	Indep	30	5	44	14	566	980
Webb Williamson Hospital								
Clinic	Gen	Indep	24	6	45	13	573	
Johnson City, 20 680—Washington								
Appalachian Hospital	Gen	Indep	50	6	108	21	7013	
Campbell's Eye Ear Nose and Throat Hospital	ENT	Indiv	10			2	600	
Elizabeth Goss Memorial Hospital	Gen	Indiv	20			6		

TENNESSEE—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Jones Eye Ear Nose and Throat Hospital	ENT Indiv	Gen Vet	17			12	1 600	
Veterans Admin Facility	Gen Vet		677			536	2 881	
Kingsport 11914—Sullivan	Cen Indep		16	3	33	8	497	
Kingsport General Hospital	Gen Indiv		20	3	24	7	212	
Marsh Clinic and Hospital	Gen Indiv							
Knoxville 10,802—Knox	TB Co		176			15	1 7	1 0
Beverly Hills Sanatorium	TB Co							
Dr. H. F. Christenberry Eye Ear, Nose and Throat Infirmary	ENT Indiv		12	2		2	4 1	
Eastern State Hospital	Gen Indiv		1 700			1 300	4 1	
Ft. Sanders Hospital	Gen Indiv		130	1	228	51	2 23	
Knoxville General Hosp**	Gen City		310	30	678	124	4 896	10 044
St. Mary's Memorial Hosp.	Gen Chrch		63	12	146	27	1 047	117
Lawrenceburg, 3102—Lawrence	Gen Indiv							
Lawrenceburg Sanitarium and Hospital	Cen Indep		90	2	17	7	2 1	89
Libanon 400—Wilson	Gen Indiv							
Lillard's Infirmary	Gen Indiv		18					
Martha Gaston Hospital	Gen Indiv		21	1	1	11	600	1 00
McFarland Hospital	Gen Indiv		12	2	7		14	
London 2578—London	Gen Indiv		2					
London Harrison Jr. Sanitarium	Gen Indiv							
Madison 80—Davidson	Cen Indep		100	6	1	46	1 4	1 006
Madison Rural Sanitarium	Gen Indiv		20			4	58	102
Maryville 498—Blount	Gen Indiv							
Carson's Hospital	Gen Indiv							
McMinnville 3014—Warren	Cen Indiv		10	3	4	2	66	
McMinnville Infirmary	Cen Indiv							
Memphis 23143—Shelby	Gen Chrch		380	30	4 4	2 12	11 13	
Baptist Memorial Hosp**	Gen Chrch							
Collins Chapel Connectional Hospital (col)	Gen Indep		50	10		12		
Crippled Children's Hospital School	Orth Indep		6			2	111	
Cartly Ramsay Hospital	Gen Indep		42	8	81	18	932	
Hospital for Crippled Adults	Gen Indep		60			24	2 8	
Lynchburg Sanitarium	N&M Indiv		20			8	36	
Memphis Eye Ear Nose and Throat Hospital*	ENT Indep		7			1	1 78	4 6 7
Memphis General Hosp**	Cen City		378	47	1 76	397	11 2 7	2 0 7
Methodist Hospital*	Gen Chrch		160	30	44	94	3 64	
St. Joseph's Hospital*	Cen Chrch		260	30	5 1	98	4 1	2 3
U. S. Marine Hospital	Cen USPH		70			70	78	2 9
Veterans Admin Facility	Cen Vet		449			2 9	600	
Wallace Sanitarium	N&M Part		10			22	3 4	
Willis C. Campbell Clinic	Orth Part		50			28	6 8	1 4 8
Monterey 1731—Putnam	Gen Indiv							
Officer Sanatorium	TB Indiv		12			6	24	12
Morristown 730—Hamblen	Gen Indep		2	2		11	3 0	
Morristown General Hosp.	Gen Indep							
Murfreesboro 7093—Rutherford	Gen Indep		42	8	83	17	8 16	1 38
Rutherford Hospital	Gen Indep							
Nashville 13386—Davidson	Cen Indiv		2			1		
Barr Infirmary	Gen Indiv							
Central State Hospital	Gen Indiv		1 700			1 24	4 9	
City View Sanitarium	N&M Indiv		63			73	26	
Davidson County Tubercu- losis Hospital*	TB Co		300			246	232	3 692
Geo. W. Hubbard Hospital of Meharry Medical Col- lege (col)**	Gen Indep		144	20	2 9	78	2 118	3 1 8
Hospital for the Criminal Insane	(Unit of the Central State Hospital)							
Millie F. Hale Hospital (col)	Gen Indep		40	10	12	14	240	241
Nashville General Hosp**	Gen City		2 10	30	780	198	4 816	18 694
Protestant Hospital	Gen Indep		100	12	117	43	1 999	217
St. Thomas Hospital	Gen Chrch		200	25	810	91	4 444	
Vanderbilt University Hos- pital**	Gen Indep		10	15	284	149	4 192	1 06
Newport 2080—Cocke	Cen Indiv		12	2	2	2	36	
Dr. J. F. Northwest Infirmary	Cen Indiv							
Oakville 163—Shelby	TB Co		300			2 3		
Oakville Memorial Sanat.	TB Co							
Paris 8104—Henry	Gen Indiv		16	4	23	9	3 38	4 900
McSwain Clinic	Gen Indiv		12	2	4	3	143	
Wiggins Clinic	Gen Indiv							
Pleasant Hill 16—Cumberland	Gen Indep		20	4	14	9	93	2 000
Uplands Cumberland	Gen Indep							
Mountain Sanatorium	Gen Indep							
Pressmen's Home 160—Hawkins	Gen Indep							
International Printing Press men and Assistants Union Sanatorium and Home	TB Indep		40			30	16	
Pulaski 3367—Giles	Gen Indiv		2	3	16	6	401	
Pulaski Hospital	Gen Indiv							
Richard City 322—Marion	Gen Indiv		10	2	6	2	47	
Dixie Hospital	Gen Indiv							
Ridgetop 130—Robertson	TB Indep		40			13	28	
Watauga Sanitarium	TB Indep							
Rockwood 808—Roane	Gen Indep		40	5	2	12	4 1	
Chamberlain Mem Hosp.	Gen Indep							
Rogersville 100—Hawkins	Gen Indiv		10	2	34	6	249	
Lyon Private Hospital	Gen Indiv							
Sewanee 330—Franklin	Gen Chrch		50	10	60	6	363	2 218
Enerald Hodgson Memorial Hospital	Gen Chrch							
Shelbyville 5010—Bedford	Gen Indep		2	2		10		
Bedford County Hospital	Gen Indep							
Sweetwater 2271—Monroe	Gen Indiv		18	4	4	4	107	
Sweetwater Hospital	Gen Indiv							

TENNESSEE—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Chattanooga 110708—Hamilton	N&M Co		208			187	1 96	
William T. Bork Memorial Hospital	N&M Co							
Copperhill 1000—Polk	Indus Indus		16			4		
Tennessee Copper Com- pany's Hospital	Indus Indus							
Donelson 110—Davidson	Gen Indiv							
Tennessee Home and Train- ing School for Feeble- minded Persons	McDe State		600			58	67	
Townsh 4009—McMinn	Gen Indiv		14		2	2	60	
Townsh Hospital	Gen Indiv							
Fayetteville 1822—Lincoln	Cen Co		2	2	10	7	288	
Lincoln County Hospital	Cen Co							
Fourteen Head 180—Sumner	Conv Indep		20	2		8	74	
Mountain Head Sanitarium and Hospital	Conv Indep							
Herritage 6—Davidson	Inst State		8			6	16	
Confederate Soldiers' Home	Inst State							
Jefferson City 1898—Jefferson	Gen Indiv		1	2				
Jefferson Hospital	Gen Indiv							
Knoxville 10002—Knox	ENT Part		20			11	1 4	
Reaves Leach Infirmary	ENT Part							
Tennessee School for Deaf University of Tennessee Hos- pital	Inst State		2			1	8	
Maryville 498—Blount	ENT Indiv					2	26	10
Burchfield Eye Ear and Throat Hospital	ENT Indiv							
Ralph Max Amar Memorial Hospital	Inst Indep		13					
Memphis 2114—Shelby	Mat Indep		1	1	1	16	66	
Shelby County Hospi- tal	Mat Indep							
Nashville 13386—Davidson	N&M Co		600			5 1	40	
Davidson County Hospi- tal	N&M Co							
Davidson County Isolation Hospital	Isol Co		10			7	31	
Tennessee Industrial School	Inst State		5			10		
Tennessee State Prison Hosp	Inst State		9			5	1 9 4	
Raleigh 287—Shelby	Inst State							
Cherfield Farm Reventon- rism	TB Co		50			45		
Summary for Tennessee	Number	Beds	Average Patients	Patients Admitted				
Hospitals and Sanatoriums	51	11 012	8 013	98 741				
Related Institutions	22	3 188	2 354	9 639				
Totals	161	14 200	10 367	108 380				
Refused Registration	9	1 1						

TEXAS

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Arlene 2117—Taylor	Pol State		1 000			1 017	217	
Arlene State Hospital	Pol State							
West Texas Baptist Sanit.	Cen Chrch		60	8	216	40	7 10	
Allee 4239—Jim Wells	Cen Part		10	3	9	4	2 3	
Allee Hospital	Cen Part							
Amarillo 4312—Lott	Cen Co		7	10	162	39	1 317	60
Northwest Texas Hosp.	Cen Co							
St. Anthony's Hospital	Gen Chrch		100	1	160	22	1 762	
Archer City 1512—Archer	Gen Indiv		30					
Archer Hospital	Gen Indiv							
Austin 3120—Travis	Gen Part		2	3		7	2 4	84
Austin State Hospital	Gen Part							
Brackenridge Hospital	Gen City		149	14	464	5	2 652	1 000
St. David's Hospital	Cen Chrch		60	12	111	22	1 621	
Seton Infirmary	Cen Chrch		100	10	142	52	2 150	
Ballinger 4187—Runnels	Gen Part		2	3		7	2 4	84
Ballinger and Love Sanit.	Gen Part							
Bastrop 189—Bastrop	Gen Indiv		16	3	18	5	2 5	
F. A. Orgain Mem. Hosp.	Gen Indiv							
Bay City 4070—Matagorda	Cen Indiv		1	4	30	4	251	
Dr. J. Oos Hospital	Cen Indiv							
Beaumont 7732—Jefferson	Cen Indep		7	10	140	31	1 140	
Beaumont General Hospital	Cen Indep							
Hotel Dieu Hospital*	Gen Chrch		17	12	3 3	90	3 3 3	
Jefferson County Tubercu- losis Hospital	TB Co		78			66	97	
Jefferson County Tubercu- losis Hospital (col)	TB Co		20			19	41	
Belton 3779—Bell	Gen Part		14	4		4	300	
Belton General Hospital	Gen Part							
Big Spring 13735—Howard	Gen Indep		3	6	68	11	730	
Big Spring Hospital	Gen Indiv		19	6	11	5	196	
Bivings Hospital	Gen Indiv							
Bonham 605—Fannin	Cen Indep		32	3	3	9	452	
S. B. Allen Memorial Hosp.	Cen Indep							
Borger 6037—Hutchinson	Gen Co		40	4	9	5	3 5	
North Plains Hospital	Gen Co							
Bowie 3131—Montague	Cen Indiv		14	2	11	4	187	
Bowie Clinic Hospi- tal	Cen Indiv							
Brackettville 1827—Kinney	Gen Army		2	1	11	15	492	8 1
Station Hospital	Gen Army							
Brady 3983—McCulloch	Cen Part		4	5	68	15	676	69 4
Brady Hospital	Cen Part							
Breckenridge 709—Stephens	Gen Indep		2	1		7	230	
West Side Hospital	Gen Indep							
Brenham 974—Washington	Cen Chrch		23	3		8	4 7	1 460
St. Francis Hospital	Cen Chrch							
Sarah B. Milroy Mem. Hosp	Cen Indep		2	2	22	6	31	

Key to symbols and abbreviations is on page 1021

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Brownsville 2301—Cameron Mercy Hospital	Gen	Chrch	40	6	24	20	700	
Station Hospital	Gen	Army	40	3	1	6	422	2 400
Brownwood 12789—Brown Bellvue Hospital	Gen	Indiv	18	6		10	324	
Central Texas Hospital	Gen	Indep	30	1	17	14	722	1 005
Medical Arts Hospital	Gen	Indep	30	4	10	11	690	
Bryan 7814—Brazos Wilkerson Memorial Clinic	Gen	Indiv	10	2	37	7	480	
Cameron 4565—Milam Cameron Hospital	Gen	Part	3	5	40	20	572	707
Canadian 2065—Hemphill Canadian Hospital	Gen	Indiv	10	3	10	3	370	
Center 2510—Shelby Center Sanitarium	Gen	Indiv	13	2	10	2	100	
Warren Hospital	Gen	Part	12	1	5	3	110	
Childress 7163—Childress Peter Townsend Hospital	Gen	Part	40	2	18	10	620	
Cioco 667—Eastland Graham Sanitarium	Gen	Indiv	22	3	22	3	800	
Cleburne 1133—Johnson Cleburne Sanitarium	Gen	Indiv	20	5	20	10	108	
Coleman 608—Coleman Overall Memorial Hospital	Gen	CyCo	40	2		10	246	
Colorado 4671—Mitchell C L Root Hospital	Gen	Indiv	20	3	17	6	340	
Conroe 2457—Montgomery Mary Swain Sanitarium	Gen	Indiv	18	4		6	400	
Corpus Christi 27141—Nueces Fred Roberts Mem Hosp	Gen	Indep	63	10	61	12	740	203
Medical Professional Hosp	Gen	Indep	28	3	26	1	530	
Spohn Hospital	Gen	Chrch	56	12	120	31	1708	
Corsicana 1320—Navarro Corleona Hosp and Clinic	Gen	Indep	20	2	4	3	114	
Navarro Clinic Hospital	Gen	Indep	20	6	40	8	444	
Physicians and Surgeons Hospital	Gen	Co	6	7		10	800	
Cuero 4642—DeWitt Burns Hospital	Gen	Indep	3	1		1		
Lutheran Hospital	Gen	Chrch	3	2	8	4	177	
Memorial	Gen	Chrch	3	2	8	4	177	
Dallas 76045—Dallas Baylor University Hosp	Gen	Chrch	34	40	924	290	9840	4 000
Bradford Memorial Hospital for Babies	Chil	Indep	50	10		30	660	1 134
Carroll Driver Girard Clinic and Dallas Orthopedic Hospital	Orth	Indep	2			9	110	1 220
Dallas Medical and Surgical Clinic Hospital	Gen	Part	27			17	902	
Dallas Methodist Hosp	Gen	Chrch	52	18	290	3	234	437
Jones Eye Ear Nose and Throat Hosp and Clinic	FNT	Part	11			3		
Parkland Hospital	Gen	CyCo	217	46	1 250	237	8 685	8 684
Pinkston Clinic (col)	Gen	Indiv	18	2	7	4	241	
Rushing Clinic and Sanit	Gen	Indiv	20	3	20	10	533	830
St Pauls Hospital	Gen	Chrch	271	29	336	142	5 189	8 310
Texas Scottish Rite Hosp for Crippled Children	Orth	Frat	4			46	483	1 727
Timberlawn Sanitarium	Men	Indep	40			10	116	
Woodlawn Sanitarium	TB	CyCo	10			112	340	
Denison 1380—Grayson Denison City Hospital	Gen	Indep	3	2	41	5	40	
M K T Railroad Employees Hospital	Indus	Indus	6			46	84	1 200
Denton 9381—Denton Denton Hospital and Clinic	Gen	Part	2	4		5	206	
Fager Pass 409—Maverick Cates Hospital	Gen	Indiv	12	1		5		
Edinburg 4891—Hidalgo Ponton Brown Clinic Hosp	Gen	Part	4	12	14	6	705	
Hector 6712—Webb Paralely Ogden Hospital	Gen	Part	20	4	17	3	137	
El Paso 107471—El Paso El Paso City County Hosp	Gen	CyCo	10	8	134	114	2 042	10 600
El Paso Masonic Hosp	Gen	Frat	10	16	267	20	1 173	130
Hendricks Laws Sanatorium	TB	Part	57			21	24	
Homan Sanatorium	TB	Indep	110			34	106	180
Hotel Dieu Sisters Hosp	Gen	Chrch	100	23	178	37	1 660	
Long Sanatorium	TB	Indiv	40			15	50	
Price Sanatorium	TB	Indiv	10			0		
Providence Hospital	Gen	Indiv	40	8	23	10	705	
St Josephs Sanatorium	TB	Chrch	70			47	113	
Southern Baptist Sanat	TB	Chrch	8			30	100	
William Beaumont General Hospital	Gen	Army	12	7	71	29	743	6 000
Anna 7000—Ellis Municipal Hospital	Gen	City	23	3		6		
Flowerville 1581—Wilton Oxford Archer Hospital	Gen	Part	10	1		0	148	
Floydada 267—Floyd Des Smith and Smith Sanit	Gen	Part	12			3	00	
Forney 1716—Kaufman Forney Sanitarium	Gen	Indep	20	5	11	0	40	700
Fort Worth 1634—Tarrant All Saints Episcopal Hosp	Gen	Chrch	8	1	19	16	837	
Wilmington Heights Sanit Baptist Hospital	N&M	Indep	40			18	80	
City and County Hosp	Gen	CyCo	115	17	634	97	8 021	6 391
W I Cook Memorial Hosp	Gen	Indep	4	8	40	22	706	
Fort Worth Childrens Hosp	Chil	Indiv	30	4		29	400	
Harris Clinic Hospital	Gen	Indiv	90	10	66	34	1 400	4 857
Methodist Hospital	Gen	Chrch	100	16	308	32	1 343	
St Joseph Hospital	Gen	Chrch	180	10	228	7	2 306	

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Freeport 3162—Brazoria Freeport Hospital	Gen	Indus	14	8	63	6	2 190	
Gainesville 6015—Cooke Gainesville Sanitarium	Gen	Indep	25	6			15	
Galveston 62038—Galveston Galveston State Psychopathic Hospital	Men	State	30			49	262	
John Sealy Hospital	Gen	City	30	24	507	241	5 242	16 482
St Marys Infirmary	Gen	Chrch	130	15	281	57	1 961	
Station Hospital	Gen	Army	2			10	468	4 632
U S Marine Hospital	Gen	USPH	100			160	1 345	3 830
Georgetown 3583—Williamson Martin Hospital	Gen	Part	17	4	31	7	271	
Gilmer 1905—Upshur Elmwood Sanitarium	Gen	Indiv	15	2	20	4	107	
Oaklawn Sanitarium	Gen	Indiv	10	1		2	100	
Gonzales 3830—Gonzales Holmes Hospital	Gen	Indep	25	4	2	10	30	
Gorman 1154—Fastland Blackwell Sanitarium	Gen	Part	20	1		8	240	
Graham 4981—Young Graham Hospital	Gen	Indep	16	2	41	13	360	
Greenville 12407—Hunt Dr E P Beeton s Hospital	Surg	Indiv	16			6	350	
Dr Joe Beeton s Hospital	Surg	Indiv	17			1	74	
Cantrell Hospital	Gen	Indiv	25	4		10		
Groesbeck 200—Limestone Dr Cox s Hospital	Gen	Indiv	12	4	8	2	600	
Gulf 725—Matagorda Texas Gulf Sulphur Company Hospital	Gen	Indus	14	1	6	2	65	
Hallettsville 1406—Lavaca Renger Hospital	Gen	Indiv	10	3	16	12	174	214
Hamilton 2084—Hamilton Hamilton Sanitarium	Gen	Part	40			15		
Hearlingen 12124—Cameron Valley Baptist Hospital	Gen	Chrch	3	4	67	12	567	
Henderson 2932—Rusk Henderson Hospital	Gen	Indep	30	4		16	754	
Hereford 2458—Deaf Smith Deaf Smith County Hosp	Gen	Co	15	4	34	4	227	
Hillsboro 7823—Hill Boyd Sanitarium	Gen	Indiv	25	2	11	4	271	
Houston 29232—Harris Autry Memorial Hospital	(Childrens Dept of Houston Tuber Hosp)	N&M	Indep	30	6	10	660	
Dr Greenwood s Sanitarium	Gen	Indep	30	6	10	10	660	
Heights Clinic Hospital	Gen	Indep	170	20	476	120	4 150	4 426
Hermann Hospital	Gen	Indep	170	20	476	120	4 150	4 426
Houston Fye Far Nose and Throat Hospital	FNT	Indep	2			8	1 042	
Houston Negro Hospital	Gen	Indep	10	3	12	12	313	
Houston Tuberculosis Hosp	TB	CyCo	171			160	348	
Jefferson Davis Hosp	Gen	CyCo	160	15	115	183	6 398	43 515
Memorial Hospital	Gen	Chrch	170	21	997	120	4 576	719
Methodist Hospital	Gen	Chrch	88	12	233	48	2 112	244
Park View Hospital	Gen	Indep	25	4	47	8	375	1 268
St Josephs Infirmary	Gen	Chrch	200	2	701	130	4 790	
Southern Pacific Hospital	Indus	Indus	10			73	1 590	4 206
Turner Urological Institute	Urol	Part	16			8	337	2 700
Jacksonville 6748—Cherokee Nan Travis Memorial Hosp	Gen	Indep	38	5	41	17	937	
Inspcr 3393—Jasper Hardy Hancock Hospital	Gen	Part	18			10		
Kelly Field—Bexar Station Hospital	Gen	Army	40			12	734	2 614
Kerrville 4546—Kerr Kerrville Clinic and Secor Hospital	Gen	Indiv	2	3	9	8	279	
Thompson Sanatorium	TB	Indiv	80			3	100	
Kingsville 6815—Kieberg Kieberg County Hospital	Gen	Co	40	10	37	17	51	
Knox City 906—Knox Knox County Hospital	Gen	Co	10	6		9		
Lagrange 234—Fayette Lagrange Hospital	Gen	Indep	40	7		15		
Lamesa 3528—Dawson Lamesa Sanitarium	Gen	Indiv	15	4	36	4	120	
Dr J C Loveless Hosp	Gen	Indiv	12	4	14	1	128	
Jaredo 32618—Webb Mercy Hospital	Gen	Chrch	84	6	45	20	727	
Station Hospital	Gen	Army	20			7	210	1 641
Legion 819—Kerr Veterans Admin Facility	TB	Vet	433			344	634	
Livinston 1165—Polk Bergman Hospital	Gen	Indiv	10	2		4	206	
Lockhart 4367—Caldwell Lockhart Sanitarium	Gen	Indep	20	1	7	4	10	
Longview 5036—Gregg Adams Farrar Hospital	Gen	Part	14	4	2	2	10	
Hurst Eye Ear Nose and Throat Hospital	FNT	Indiv	10			3	400	
Markham Sanitarium	Gen	Indiv	19	3	34	9	402	3 740
Lubbock 29020—Lubbock Lubbock Sanitarium	Gen	Indep	90	10	70	40	2 160	
West Texas Hospital	Gen	Indep	60	6	38	18		
Lufkin 7311—Angellina Angellina County Hosp	Gen	Co	35	5	34	20	83	
Marlin 5333—Falls Bule Allen Hospital	Gen	Indiv	20	2		4	147	1 000
Shaw Clinic and Hospital	Gen	Indiv	10	2	20	4	147	1 000
Torbett Sanatorium and Diagnostic Clinic	Gen	Indiv	40	3	10	11	706	1 700
Mar hall 16203—Harrison Kahn Memorial Hospital	Gen	Indep	40	6	33	7	338	

Key to symbols and abbreviations is on page 1021

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
McAllen 9 074—Hidalgo	Gen	City	65	0	73	21	788	
McAllen Municipal Hosp	Gen	City	36	4	37	16	517	200
McKinney 7 307—Collin	Gen	City	15	1	11	4	109	
Burton Eye Ear Nose and Throat Sanitarium	INT	Indiv	10					
McKinney City Hospital	Gen	City	36	4	37	16	517	200
Memphis 4 255—Hall	Gen	Indiv	15	1	11	4	109	
Memphis Hospital	Gen	Indiv	15	1	11	4	109	
Mercedes 6 608—Hidalgo	Gen	Indep	25	4	27	4	201	
Mercedes General Hospital	Gen	Indep	25	4	27	4	201	
Mexia 6 579—Limestone	Gen	Indiv	20		24	15	648	
Brown Hospital	Gen	Indiv	20		24	15	648	
Midland 5 484—Midland	Gen	Indiv	20	1	10	3	111	
Midland Clinic Hospital	Gen	Indiv	20	1	10	3	111	
Mineral Wells 5 986—Palo Pinto	Gen	Chrch	40	4	11	6	270	
Nazareth Hospital	Gen	Chrch	40	4	11	6	270	
Nacogdoches 5 687—Nacogdoches	Gen	City	30	2		4		
City Memorial Hospital	Gen	City	30	2		4		
Navasota 5 128—Grimes	Gen	Indep	18	4	37	7	516	
Brazos Valley Sanitarium	Gen	Indep	18	4	37	7	516	
New Braunfels 6 242—Comal	Gen	Indiv	31			6		
Comal Sanitarium	Gen	Indiv	31			6		
New Braunfels Hospital	Gen	City	14		12	9	290	
Olney 4 138—Young	Gen	Indiv	20			8		
Hamilton Hospital	Gen	Indiv	20			8		
Orange 7 912—Orange	Gen	Indep	55	5	0	12	710	
Janece Ann Luther Hosp	Gen	Indep	55	5	0	12	710	
Paducah 2 502—Cottle	Gen	City	30	10	70	12	400	
W Q Richards Mem Hosp	Gen	City	30	10	70	12	400	
Palestine 11 447—Anderson	Gen	Indus	75	2		21	643	811
Missouri Pacific Lines Hosp	Gen	Indus	75	2		21	643	811
Palestine Sanitarium	Gen	Indep	12			5	240	
Specific DuFuy Hospital and Clinic	Gen	Indep	15			4	140	
Pampa 10 470—Gray	Gen	Indiv	33	7		11	481	
Worley Memorial Hospital	Gen	Indiv	33	7		11	481	
Paris 10 649—Lamar	Gen	Co	50	7	31	10	674	
Lamar County Hospital	Gen	Co	50	7	31	10	674	
St Joseph's Infirmary	Gen	Chrch	50	6	34	8	34	
Sanitarium of Paris	Gen	Indep	62	4	31	36	1170	
Pecos 3 304—Reeves	Gen	Part	20	4		5		
Camp and Camp Hospital	Gen	Part	20	4		5		
Plainview 8 834—Hale	Gen	Indiv	45	5	38	21	1131	1825
Plainview Sanit and Clinic	Gen	Indiv	45	5	38	21	1131	1825
Pt Arthur 50 902—Jefferson	Gen	Chrch	150	18	108	38	1545	
St Mary's Hospital Gates Memorial	Gen	Chrch	150	18	108	38	1545	
Prairie View —Waller	Gen	State	50	6	10	12	480	4034
Prairie View Hosp (col)	Gen	State	50	6	10	12	480	4034
Quannah 4 464—Hardeman	Gen	Part	34	6	36	11	602	
Quannah Hospital	Gen	Part	34	6	36	11	602	
Ranger 6 208—Eastland	Gen	CyCo	30	3		10	300	
City County Hospital	Gen	CyCo	30	3		10	300	
West Texas Clinic Hosp	Gen	Indep	20	2		6		
RioGrande 2 287—Starr	Gen	Army	30	1	3	6	218	1190
Starr Station Hospital	Gen	Army	30	1	3	6	218	1190
Rosenberg 1 941—Ft Bend	Gen	Indiv	14	1	17	2	455	
Rosenberg Hospital	Gen	Indiv	14	1	17	2	455	
Rusk 3 819—Cherokee	Gen	State	1012		1850		421	
Rusk State Hospital	Gen	State	1012		1850		421	
San Angelo 21 308—Pom Green	Gen	Indep	22	6	132	15	782	
Rush Schulkey and Wall Clinic Hospital	Gen	Indep	22	6	132	15	782	
St John's Hospital	Gen	Chrch	25	6	42	12	416	
Shannon West Texas Memorial Hospital	Gen	Indep	75	10	87	27	1242	
San Antonio 231 542—Bexar	Gen	Indiv	125	25	59	30	1560	
Baylor Hospital	Gen	Indiv	125	25	59	30	1560	
Grace Lutheran Sanatorium for Tuberculosis	TB	Chrch	50			23	59	
Dr Kenney's Sanatorium	Gen	Indiv	88	12	27	35	995	1014
Medical and Surgical Hospital	Gen	Indep	100	15	208	39	2516	
Dr Moody's Sanitarium	N&M	Indep	50			30	138	
Nix Hospital	Gen	Indep	160	24				
Robert B Green Memorial Hospital	Gen	CyCo	210	27	700	144	4824	
San Antonio State Hosp	Gen	State	2320			2378	608	
Santa Rosa Hospital	Gen	Chrch	342	44	406	93	3931	461
Station Hospital	Gen	Army	650	17	294	596	7008	10843
Woodmen of the World War Memorial Hospital	TB	Frat	180			125	121	
Sanatorium 463—Tom Green	TB	State	718			603	1853	
State Tuberculosis Sanat	TB	State	718			603	1853	
San Marcos 5 134—Hays	Gen	CyCo	25	2	12	3	210	
Soldiers and Sailors Memorial Hospital	Gen	CyCo	25	2	12	3	210	
Santa Anna 1 883—Coleman	Gen	Indiv	30	3	58	18	910	2216
Sealy Hospital	Gen	Indiv	30	3	58	18	910	2216
Sealy 1 640—Austin	Gen	Indiv	11	2	8	3	225	
Sealy Hospital	Gen	Indiv	11	2	8	3	225	
Seguin 5 225—Guadalupe	Gen	Indep	22	3		8		
Seguin Hospital	Gen	Indep	22	3		8		
Seymour 2 626—Baylor	Gen	Co	21			12	175	
Baylor County Hospital	Gen	Co	21			12	175	
Shamrock 3 780—Wheeler	Gen	Indiv	18	4	24	5	121	
Dr Beach Sanitarium	Gen	Indiv	18	4	24	5	121	
Shamrock General Hospital	Gen	Indiv	40	4	14	10	265	
Sherman 15 713—Grayson	Gen	Chrch	55	6	51	25	686	
St Vincent's Sanitarium	Gen	Indep	60	6	51	25	1003	
Wilson Jones Hosp	Gen	Indep	60	6	51	25	1003	
Shiner 1 372—Lavaca	Gen	Indiv	18	4	8	7	126	
Dr Wagner's Hospital	Gen	Indiv	18	4	8	7	126	
Silsbee 3 660—Hardin	Indus	Indep	22			6		
Kirby Hospital	Indus	Indep	22			6		

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Slaton 3 870—Tullock								
Merry Hospital	Gen	Chrch	50	6		8	150	
Spur 1 899—Dickens	Gen	Indiv	20	4	11	6	961	
Nichols Sanitarium	Gen	Indiv	20	4				
Stamford 4 091—Jones	Gen	Indep	40	5		20	1015	1411
Stamford Sanitarium	Gen	Indiv	20	1	22	10	350	1590
Stephenville 3 911—Ft Worth	Gen	Indiv	20	1				
Stephenville Hospital	Gen	Indep	0	2		5	376	
Sugar Land 2 019—Ft Bend	Gen	Indep	0	2				
Laura Hildridge Hospital	Gen	Part	16	7		7		
Sweetwater 10 818—Nolan	Gen	Indiv	25			11	15	450
Sweetwater Clinic Hospital	Gen	Indiv	25			11	15	450
Taylor 7 463—Williamson	Gen	Indiv	21	3	27	6	365	
Doak and Stromberg Clinic and Hospital	Gen	Indiv	21	3	27	6	365	
Taylor Sanitarium	Gen	Indiv	21	3	27	6	365	
Texas 1 509—Free tone	Gen	Indiv	21	3	27	6	365	
Davidson Sanitarium	Gen	Indiv	21	3	27	6	365	
Temple 1 714—Bell	Indus	Indus	150			40	1049	917
Gulf Colorado and Santa Fe Hospital	Gen	Indep	110	8	41	21	2157	4560
Kings Daughters Clinic and Hospital	Gen	Indep	175	8	79	87	2864	3144
Scott and White Hosp	INT	Part	14			5		
Woodson Eye Ear Nose and Throat Hospital	Gen	Part	25	2	15	2	400	
Terrill 5 759—Kaufman	Gen	Part	25	2	15	2	400	
Alexander Holton Hosp	Gen	Part	25	2	15	2	400	
Terrill State Hospital	Gen	Part	25	2	15	2	400	
Texas 16 602—Bowie	Gen	Indep	50	5	59	20	782	
Texas 16 602—Bowie	Gen	Indep	50	5	59	20	782	
Vernon 9 137—Wilbarger	Gen	Indiv	22	4		8		
King Hospital and Maternity Home	Gen	Part	20	4		9		
Moore Brothers Hospital	Gen	Indep	20	6	26	9	338	
Victoria 7 421—Victoria	TB	Indep	33			21	33	
Victoria Hospital	TB	Indep	33			21	33	
Von Ormy 217—Bexar	Gen	Chrch	90	10	81	30	1285	2740
Von Ormy Cottage Sanit for Tuberculosis	Gen	Chrch	90	10	81	30	1285	2740
Waco 52 818—McLennan	Gen	Chrch	12	2	26	5	299	2740
Central Texas Baptist Sanitarium	Gen	Chrch	141	9	243	80	3579	151
Colgin Hosp and Clinic	Gen	Chrch	316			240	425	
Providence Sanitarium	Gen	Chrch	316			240	425	
Veterans Admin Facility	Gen	Indep	20	4	22	15	551	
Waxahachie 8 042—Ellis	Gen	Indep	20	4	22	15	551	
Waxahachie Sanitarium	Gen	Indep	20	4	22	15	551	
Wellington 3 700—Collingsworth	Gen	Indiv	18	3	10	5	960	
Wellington Hospital	Gen	Indiv	18	3	10	5	960	
Whittenburg —Hutchinson	Gen	Indus	12	4	30	2	157	756
Pantex Hospital of the Phillips Petroleum Co	Gen	Indus	12	4	30	2	157	756
Wichita Falls 43 690—Wichita	Gen	Indep	30	6	22	5	251	
Marjorie Walker Hospital and Clinic	Gen	Indep	30	6	22	5	251	
Wichita Falls Clinic Hosp	Gen	Part	72	8	93	26	185	651
Wichita Falls State Hosp	Gen	Part	72	8	93	26	185	651
Wichita General Hosp	Gen	CyCo	190	12	249	41	1949	350
Yokum 5 616—Lavaca	Gen	Chrch	35	6		9	251	
Huth Memorial Hospital	Gen	Chrch	35	6		9	251	
Yorktown 1 852—De Witt	Gen	Indiv	11	2		9	968	
Allen Hospital	Gen	Indiv	11	2		9	968	
Related Institutions								
Arlington 3 671—Tarrant	Inst	Frat	25			18		
Knights Templar Hosp	Inst	Frat	25			18		
Austin 53 120—Travis	McDe	State	1 170			1 105	43	
Austin State School	McDe	State	1 170			1 105	43	
Oaks Sanitarium	N&M	Indep	70			10	24	
Texas Confederate Home Hospital	Inst	State	140			50		
Texas Confederate Woman's Home	Inst	State	67			2	312	
Texas School for the Blind	Inst	State	56			2	312	
Beeville 4 806—Bee	Gen	Indiv	26	3	12	10	390	1910
Beeville Hospital	Gen	Indiv	26	3	12	10	390	1910
Thomas Memorial Hospital	Gen	Part	20	3		37		
Bellville 1 533—Austin	Gen	Part	8	1	4	2	154	
Bellville Hospital	Gen	Part	8	1	4	2	154	
Borger 6 532—Hutchinson	Gen	Indiv	8	3				
Clutter Hospital	Gen	Indiv	8	3				
College Station 40—Brazos	Inst	Indep	80			7	1060	
Agricultural and Mechanical College Hospital	Inst	Indep	80			7	1060	
Comfort 713—Kendall	Gen	Indiv	6			2		
Hillcrest Sanitarium and Private Hospital	Gen	Indiv	6			2		
Crowell 1 946—Foard	Gen	Indep	6			2	60	
Foard County Hospital	Gen	Indep	6			2	60	
Crystal City 6 609—Zavala	Gen	Part	5	1	9	2	86	
Crystal Hospital	Gen	Part	5	1	9	2	86	
Dallas 260 475—Dallas	Mat	Indiv	25	4	45	5	45	
The Cedars Maternity Sanitarium	Mat	Indiv	25	4	45	5	45	
Union Hospital	Iso	CyCo	35			2	20	
Virginia K Johnson Home and School	Mat	Chrch	10	4	17	1	17	
Ft Worth 163 477—Tarrant	TB	CyCo	50			48	61	
Elmwood Sanatorium	TB	CyCo	50			48	61	
Howard Sanitarium	Conv	Indiv	13			3	25	
Tarrant County Home for the Aged	Inst	Co	27			25		
Gatesville 2 601—Correll	Inst	State	32			10	3744	
State Juvenile Training Sch	Inst	State	32			10	3744	

TEXAS—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Hallettsville 1406—Inavena Hallettsville Hospital	Gen	Indiv	8	1	6	3	40	
Huntsville 5028—Walker Texas State Prison Hosp	Inst	State	42			38	2 243	
Hutchins 28—Dallas Dallas County Farm	Inst	Cy Co	217			161		
Irann—Pecos Irann Hospital	Gen	Indiv	10	2	11	4	88	
Luling 990—Caldwell Luling Hospital	Gen	Indiv	10	4		3	202	
Mason 1170—Mason Mason Sanitarium	Gen	Part	8			3	100	
Midland 5484—Midland Mid West Hospital Clinic	Gen	Indiv	10	2	40	2	240	
Mt Vernon 1292—Franklin Crutcher Hospital	Gen	Indep	10	2		3		
Myra 417—Cooke Mercy Hospital	Gen	Indiv	8	4				
Nixon 1037—Gonzales Crest View Hospital	Gen	Indiv	8		8	3	120	
Pearall 2530—Frio J E Beall's Day Hosp	Gen	Indiv	10	2	17	3	108	
Pecos 3484—Reeves Pecos Sanitarium	Gen	Indiv	7	3	27	2	104	
Potter 1231—Atascosa Community Hospital	Gen	Indiv	7	1		1	36	
San Antonio 231442—Bexar Dr Farmer's Sanitarium	TB	Indiv	20			5	23	
Lee Surgical Hospital	Gen	Indep	27	6	50	5	200	
Medical Arts Hospital	Gen	Indep	34	3	45	3	1345	
Physicians and Surgeons Hospital	Gen	Indep	70	12	138	22	1421	
Salvation Army Women's Home and Hospital	Mat	Chrch	10	15	66	3	140	
Station Hospital	Gen	Army	14			10	521	2 423
Southton 89—Bexar Bexar County Home for the Aged and Bexar County Tuberculosis Colony	Inst	TB Co	70			68	138	
Strawn 1429—Palo Pinto Strawn Hospital	Gen	Part	12	2	16	8	53	
Taylor 7463—Williamson Dr Floeckinger's Sanit	Gen	Indiv	6	2		1		
Tulla 2202—Swisher Swisher County Hospital	Gen	Co	12	10		4	160	
Victoria 7421—Victoria Do Tar Hospital	Gen	Indiv	16	4		8		
Webb Falls 43690—Wichita Dr White's Sanitarium	N & M	Indep	20				80	
Winters 2423—Runnels Winters Sanitarium	Gen	Part	8		3	2	78	
Summary for Texas			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			38	26 004	19 533	221 031		
Related institutions				2 162	1 600	10 281		
Totals			206	28 666	21 133	231 312		
Refused registration			25	600				

UTAH

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Bingham Canyon 3248—Salt Lake Bingham Canyon Hospital	Gen	Indep	40	6	14	13	269	
Brigham 5093—Box Elder Cooley Hospital	Gen	Indiv	13	5	30	4	167	
Cedar City 3615—Iron Iron County Hospital	Gen	Co	20	9	119	10	523	120
Ft Douglas—Salt Lake Station Hospital	Gen	Army	30			19	550	2 349
Ft Duchene 100—Uintah Uintah and Ouray Agency	Gen	I A	18	2	24	13	241	1 667
Heber 2477—Wasatch Heber Hospital	Gen	Part	14	3	18	3	70	
Ichi 2586—Utah Lehi Hospital	Gen	Indiv	12			3	97	
Jogan 9909—Cache Cache Valley Gen Hosp	Gen	Indep	30	7	80	9	391	
William Budge Mem Hosp	Gen	Indep	67	12	364	36	2 103	886
Midford 1617—Beaver Midford Hospital	Gen	Indiv	12	5	30	10	400	
Moab 833—Grand Grand County Public Hosp	Gen	Co	16	4	30	7	174	
Ogden 40272—Weber Thos D Dee Mem Hosp *o	Gen	Chrch	100	30	954	107	3 700	2 000
Park City 281—Summit Park City Miners Hosp	Gen	Indus	30	10	16	17	269	300
Price 4084—Carbon Price City Hospital	Gen	City	20			21	46	
Provo 1466—Utah Alrd Hospital	Gen	Indiv	20			4	213	
Utah State Hospital	Gen	State	1 074			901	210	
St George 2434—Washington Washington County Ho p	Gen	Indep	17	4	39	10	249	
Salina 1383—Sevier Salina Hospital	Gen	Indiv	17	3	22	4	208	
Salt Lake City 140967—Salt Lake Dr W H Groves Latter Day Saints Hospital *o	Gen	Chrch	406	60	1 076	207	5 677	300
Holy Cro s Hospital *o	Gen	Chrch	220	40	585	93	2 063	

UTAH—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Latter Day Saints Children s Hospital	Chil	Chrch	40			23	94	
St Mark's Hospital *o	Gen	Chrch	138	12	126	77	1 826	
Salt Lake General Hosp *o	Gen	Co	109	23	366	174	2 670	
Shriners Hospital for Crip pled Children	Orth	Frat	20			20	75	1 311
Veterans Admin Facility	Gen	Vet	103			79	787	1 141
Vernal 1744—Unifiah Vernal Hospital	Gen	Indiv	11			3		
Related Institutions								
American Fork 3047—Utah Utah State Training School	MeDe	State	213			202	57	
Brigham 5093—Box Elder Pearce Private Hospital	Gen	Indiv	10	2		3		
Fillmore 1374—Millard Fillmore Hospital	Gen	Indiv	6		2	1	20	
Hlawatha 939—Carbon U S Fuel Company Hosp	Gen	Indus	9	1	15	1	50	
Murray 5172—Salt Lake Cottonwood Stake Mater nity Hospital	Mat	Chrch	20	15	211	10	211	
Murray Clinic Hospital	Gen	Indiv	10	2		2		
Ogden 40272—Weber Utah School for the Deaf and Blind	Inst	State	18				120	
Richfield 3067—Sevier Richfield General Hospital	Gen	Indiv	6			4	42	
Salt Lake City 140267—Salt Lake Mountain View Sanitarium	N & M	Indiv	10			2	24	
Spanish Fork 3727—Utah Hughes Memorial Hospital	Gen	Indiv	8	3		2	220	
Summary for Utah			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			20	2 696	1 920	14 167		
Related institutions			10	312	230	720		
Totals			30	3 008	2 150	24 887		
Refused registration			0					

VERMONT

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Barre 11307—Washington Barre City Hospital	Gen	Indep	50	12	178	30	1 160	147
Washington County Sanat	TB	State	47			41	60	
Bellevue Falls 3930—Windham Rockingham General Hosp o	Gen	Indep	36	7	79	19	580	83
Bennington 7390—Bennington Henry W Putnam Memorial Hospital	Gen	Indep	86	20	203	40	1 206	
Brattleboro 8709—Windham Brattleboro Memorial Hos pital	Gen	Indep	35	5	36	25	747	
Brattleboro Retreat	Gen	Indep	620			602	255	625
Burlington 24789—Chittenden Bishop De Goesbriand Hos pital *o	Gen	Chrch	122	10	210	78	2 592	
Green Mountain Sanat	Gen	Indiv	10			8	160	
Lakeview Sanatorium	N & M	Indep	20					
Mary Fletcher Hospital	Gen	Indep	135	15	311	92	4 436	1 700
Ft Ethan Allen 106—Chittenden Station Hospital	Gen	Army	62				914	
Hardwick 1667—Caledonia Hardwick Hospital	Gen	Indep	12	6	39	7	201	
Middlebury 2003—Addison Porter Memorial Hospital	Gen	Indep	45	10	49	11	361	187
Montpelier 7837—Washington Heaton Hospital	Gen	Indep	70	8	167	49	1 476	
Morrisville 1822—Lamoille Cooley Hospital	Gen	Indep	21	6	28	12	277	
Newport 5094—Orleans Orleans County Memorial Hospital	Gen	Indep	26	6	54	10	360	24
Pittsford 637—Rutland Vermont Sanatorium	TB	State	75			63	70	
Proctor 2515—Rutland Proctor Hospital	Gen	Indus	33	7	38	10	340	388
Randolph 1957—Orange Gifford Memorial Hospital	Gen	Indep	50	10	38	24	691	
Rutland 17351—Rutland Brightview Private Hosp	Gen	Indiv	12	7	52	3	83	
Rutland Hospital	Gen	Indep	110	16	188	62	2 037	1 221
St Albans 8020—Franklin St Albans Hospital	Gen	Indep	45	5	93	35	1 140	
Sherwood Sanitarium	Gen	Indiv	10		15	5	75	
St Johnsbury 7920—Caledonia Brightlook Hospital	Gen	Indep	30	10	80	32	822	54
St Johnsbury Hospital	Gen	Chrch	70			7	183	
Springfield 4943—Windor Springfield Hospital	Gen	Indep	30	6	8	14	388	204
Waterbury 1776—Washington Vermont State Hospital for the Insane	Gen	State	1 000			968	318	
Winook 5308—Chittenden Fanny Allen Hospital	Gen	Chrch	70	18	115	60	1 015	
Related Institutions								
Bennington 7390—Bennington Vermont Soldiers Home	Inst	State	32			2	20	
Brandon 2691—Rutland Brandon State School	MeDe	State	300			279	22	

Key to symbols and abbreviations is on page 1021

VERMONT—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Bassinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Littford 637—Rutland County Preventorium	TB	Indep	47		41	79		
Windsor 3689—Windor Vermont State Prison Hosp	In t	State	8		1	31		
Summary for Vermont								
Hospitals and sanatoriums			Number	Beds	Average Patients	In tients Admitted		
Related Institutions			4	2,049	2,176	21,967		
Totals			7	2,057	2,187	22,124		
Refused registration			0					

VIRGINIA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Bassinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Abingdon 2877—Washington Memorial Hospital	Cen	Indep	60	5	1	708	21	21
Alexandria 24149—Arlington Alexandria Hospital	Cen	Indep	60	12	10	2,119	1	1
Appalachia 7593—Wise Appalachian Masonic Hosp	Cen	Inst	12	2	16	72		
Bristol 8840—Washington King Mountain Memorial Hospital	Cen	Indep	50	8	116	1	7	7
St Ann's Hospital	Cen	Indiv	10			8		
Brook Hill 18—Henrico Line Camp Hospital	TB	City	214		1	1	4	4
Purkeville 70—Nettowsy Piedmont Sanatorium (col)	TB	State	100		1	21		
Catawba Sanatorium—Roanoke Catawba Sanatorium	TB	State	100		66	19		
Charlottesville 1721—Albemarle Blue Ridge Sanatorium	TB	State	100		7	327		
Martha Jefferson Hospital and Sanitarium	Cen	Indep	50	10	10	1	7	7
Christiansburg 1000—Montgomery New Altamont Hospital	Cen	Indep	10	6	9	4	1	10
Clifton Forge 689—Allegheny Cheapeake and Ohio Railway Ho pital	Cen	Indus	100		1	2,018		
Clintonwood 729—Dickenson Dickinson County Ho pital	Cen	Indiv	20	6	99	1	9	1,700
Coburn 784—Wise Coburn Ho pital	Cen	Indep	10		7	2,6		
Dante 811—Russell Clinchfield Hospital	Cen	Indus	20	4	8	14	429	
Danville 22247—Pittsylvania Hilltop Sanatorium	TB	Indep	60		7	110	72	
Memorial Hospital	Gen	Indep	100	10	228	40	2,220	4
Farmville 3123—Prince Edward Southside Community Hosp	Gen	Indep	50	10	1	17	782	78
Floyd 400—Floyd De Hart Clinic and Ho p	Gen	Indiv	10	2	6	4	180	
Ft Humphreys—Fairfax Station Hospital	Cen	Army	30		10	10	1	6
Ft Monroe 126—Elizabeth City Station Hospital	Gen	Army	11	6	10	4	1,499	4,129
Ft Myer 100—Arlington Station Hospital	Gen	Army	50		1	944	2,217	
Franklin 200—Southampton Railroad Hospital	Gen	Indiv	22	2	20	8	700	
Fredericksburg 6819—Spotsylvania Mary Washington Hospital	Gen	Indep	70	10	14	47	17	6
Galax 2544—Grayson Galax Hosp and Clinic	Cen	Indep	22	3	11	9	29	
Hampton 682—Elizabeth City Divie Hospital	Cen	Indep	70	8	90	80	214	
Harrisonburg 723—Rockingham Rockingham Memorial Hos pital	Gen	Indep	100	7	70	30		
Hopewell 11327—Prince George Community Hospital	Cen	Indep	28	2	10	6	170	
Hot Springs 1010—Bath Community House	Cen	Indep	13	4	21	4	110	
Hurley 220—Buchanan Knox Creek Ho pital	Cen	Indep	20			10		
Jungle Field—Elizabeth City Station Ho pital	Gen	Army	70		28	1,270	8,400	
Jessburg, 1640—Loudoun Loudoun County Hospital	Cen	Indep	28	7	48	16	620	
Lexington 3752—Rockbridge Stonewall Jackson Memorial Hospital	Gen	Indep	42	8	15	21	90	
Luray 1400—Page Page Memorial Hospital	Gen	Indep	12		10	4	120	
Lynchburg 40661—Campbell Guggenheimer Memorial Hospital (Children's Department of Marshall Lodge Memorial Hospital)	Gen	City	102	10	147	66	2,104	611
Lynchburg General Hosp	Gen	Frnt	130	8	106	106	1,026	
Marshall Lodge Memorial Hospital	Gen	Chrch	109	16	106	28	840	
Virginia Baptist Hosp	Gen	Frnt	130	8	106	106	1,026	
Marion 406—Smith Southwestern State Hosp	Ment	State	1	100	100	303		
Martinsville 70—Henry Shackelford Hospital	Cen	Indiv	12	4	10	22	575	
Nassawadox 475—Northampton Northampton Accoemac Memorial Hospital	Cen	Co	45	5	47	50	671	116
Newport News 4417—Warwick Elizabeth Buxton Hospital	Cen	Indiv	100	10	66	70	1,300	
Riverside Ho pital	Cen	Indep	76	9	180	70	1,200	

VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Bassinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Whittier Memorial Hos pital (col)	Cen	Indep	40	4	10	8	20	
Norfolk 129710—Norfolk Charles R Crandall Sanat	TB	City	80			14	1	
Henry A Wise Hospital for Contagious Diseases	Is	City	17			3	8	
Hospital of St Vincent de Paul	Cen	Chrch	225	22	60	11	3,463	971
Norfolk Memorial Hosp	Cen	Indep	50	8	188	22	1,166	
Norfolk Protestant Ho p	Cen	Chrch	170	20	444	63	3,711	1,471
Sarah Leigh Ho pital	Cen	Indep	70	10	108	8	1,100	
U S Marine Ho pital	Cen	US H	21			217	2,071	1,471
Norton 677—Wise Norton Hospital	Cen	Indep	40	4		11	21	
Pearlburg 68—Hes St Elizabeth Cen Hosp	Gen	Indep	20			8	7	
Pennington Cap 100—Jen General Hospital	Cen	Indep	0	2	1	17	700	
Petersburg 284—Dinwiddle Central State Hospital (col)	Ment	State	2	100	28	7	311	1,300
Medical Center Hospital	(Included in Central State Hospital)							
Petersburg Hospital	Gen	Indep	80		70	20	1,670	
Portsmouth 4701—Norfolk King Daughters Hospital	Gen	Chrch	72	8	167	43	1,331	2,100
Norfolk Naval Hospital	Cen	Navy	970			6,329	4,200	
Warwick Memorial Ho p	Cen	Indep	40	10	10	21	1,050	
Idalski 7188—Idalski Idalski Hospital	Cen	Indep	9	5	10	15	690	70
Radford 620—Montgomery St Albans Sanatorium	N M	Indiv				9	214	
Richlands 1—Tazewell Mattie Williams Hospital	Cen	Indiv	0			13	394	
Richmond 18207—Henrico Clipped Children's Hosp	(Included in Med Coll of Va Hosp Div)							
Douglas Ho pital	(Included in Med Coll of Va Hosp Div)							
Crane Hospital	Cen	Indep	90	8	100	20	2,012	
Johnston Wills Ho pital	Cen	Indep	111	10	10	62	2,000	400
Medical College of Virginia Ho pital Division	Gen	Indep	474	22	41	203	8,000	2,000
Memorial Hospital	(Included in Med Coll of Va Hosp Div)							
Retreat for the Sick	Gen	Indep	10	10	10	37	1	21
St Elizabeth's Ho pital	Cen	Indep	80			1	1,000	1,440
St Luke's Ho pital	Cen	Indep	80	8		4	1,617	
St Philip's Hospital (col)	(Included in Med Coll of Va Hosp Div)							
Shelburn Arms Ho pital	Cen	Indep	80	1	10	1	1,201	
Stuart Circle Hospital	Cen	Indep	10	15	21	49	3,040	60
Tucker Sanatorium	N M	Indep	12			10	200	
Wetbrook Sanatorium	N M	Indep	100			84	2,100	
Roanoke 6800—Roanoke Burrell Memorial Ho pital (col)	Cen	Indep	44	3	20	13	507	404
Cell Memorial Eye Ear and Throat Hospital	N M	Indep	2			4	432	700
Jefferson Ho pital	Cen	Indiv	100	10	20	1	1,616	622
Jewell Gale Ho pital	Cen	Indep	15	6	6	46	1,763	2,161
Roanoke Hospital	Cen	Indep	90	10	180	45	1,471	2,161
Shenandoah Hospital	Cen	Indep	50	10	90	21	1	40
Salem 48—Roanoke Mount Lake Sanatorium	TB	Indep	4			20	4	
Saltville 2064—Smith Mathie on Hospital	Cen	Indus	12	2	14	4	10	70
South Boston 4841—Halifax Haley on Hospital	Cen	Part	10	6	10	6	211	
South Boston Hospital	Cen	Indiv	10	4	10	10	500	
Staunton 11000—Augusta Kings Daughters Hospital	Cen	Indep	76	10	70	2	1,001	
Suffolk 10271—Nansemond Lakeview Hospital	Cen	Indep	10	4	40	20	74	
Lynchburg Central Hospital	Cen	Indep	20	5	20	6	471	
University 112—Albemarle University of Virginia Hos pital	Cen	State	206	2	500	181	611	
Veterans Administration Home	Cen	State	10			731	800	112
Veterans Admin Facility	Cen	Vet	10					
Warrenton 1400—Fauquier Fauquier County Hospital	Cen	Indep	0	4	90	10	700	
Williamsburg 778—James City Fu tura State Hospital	Ment	State	1	400		1	10	88
Winchester 1000—Frederick Winchester Memorial Hosp	Cen	Indep	112	12	137	45	1	72
Related Institutions								
Clifton Station 181—Fairfax Yakota Farms of the National Florence Crittenton Mission	Mat	Indep	60	12		18	70	
Clover 201—Halifax Little Retreat Ho pital	Cen	Indiv	6	3	18	1	4	
Colon 20—Ambler State School for Epileptics and Feeble-minded	McDe	State	90			100	121	
Danville 2224—Pittsylvania Providence Hospital (col)	Gen	Indep	60	1	15	2	444	
Falls Church 2010—Fairfax Cundry Home and Training School for Feeble-minded	McDe	Indiv	100			72	8	
Front Royal 2424—Warren Station Hospital	Cen	Army	8			5	1	9
Lawrenceville 1620—Brunswick Louie Taylor Letcher Memorial Hospital (col)	Inst	Indep	70			4	17	
Lexington 3702—Rockbridge Virginia Military Institute Hospital	In t	State	20			8		

Key to symbols and abbreviations is on page 1021

VIRGINIA—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Malden 21—Couchland Virginia Industrial School for Boys	Inst	State	20			2	571	
Norfolk 17970—Norfolk Children's Clinic of the Kings Daughters	Chil	Indep	96		16	1 947	2 106	
Florence Crittenton Home	Mat	Indep	0	0	16	22	48	
Richmond 18729—Henrico City Home	Inst	City	500	18	87	149	466	
City Tuberculosis Sanat	(Included In City Home)							
Convalescent Home Hosp	Conv	Indiv	40	2	6	23	148	
Ice Camp Soldiers Home Hospital	Inst	State	0			10	20	
Penitentiary Hospital	Inst	State	4			28	462	
State Farm 83—Goochland State Farm Hospital	Inst	State	100			32		
Staunton 11900—Augusta Western State Hospital	West	State	1 000			1 000		
Stonega 201—Wise Stonega Hospital	Indus	Indus	18			4	97	1 014
Sweet Briar 114—Amherst Sweet Briar College Infirmary	Inst	Indep	20			6	224	
Toms Creek, 781—Wise Toms Creek Hospital	Gen	Indus	10		1	4	70	2 000
Summary for Virginia			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums			90	12 300	9 778	101 547		
Related institutions			21	4 444	4 009	17 840		
Totals			111	17 709	13 787	119 387		
Refused registration			3	37				

WASHINGTON

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Aberdeen 21772—Grays Harbor Aberdeen General Hospital	Cen	Indep	92		126	1 149	2 162	
St Joseph's Hospital	Gen	Chrch	6	12	181	46	1 039	12
American Lake—Pierce Veterans Admin Facility	Meat	Vet	6	6		644	236	
Anacortes 6564—Skagit Anacortes Hospital	Gen	Indiv	20	4	24	4	423	
Ansbury 3906—King Owen Laylor Hospital	Gen	Indep	40	6	42	6	298	
Bellingham 30823—Whatcom Bellingham Hospital	Gen	Indiv	17	4	6	3	100	
St Frances Hospital	Gen	Chrch	100	12	190	37	1 101	
St Joseph's Hospital	Gen	Indep	61	8	118	30	1 191	
St Luke's General Hosp	Gen	Indep	40	12	173	18	831	
Bremerton 10170—Kitsap Olympic Hospital	Gen	Navy	11			292	1 164	34
U S Naval Hospital								
Burlington 1407—Skagit Burlington General Hospital	Gen	Indiv	30	7	80	0	210	
Centralia 8080—Lewis St Luke's Hospital	Gen	Indep	44	6	43	10	34	2 000
Chelan 4400—Lewis St Helen's Hospital	Gen	Chrch	3	6	10	9	430	
Chewelah 1315—Stevens St Joseph's Hospital	Gen	Chrch	19	4	2	6	180	
Ch Elum 1000—Kittitas Roslyn Cle Elum Beneficial Company Hospital	Cen	Indus	20	1	3	10	366	1 800
Colfax 278—Whitman St Ignatius Hospital	Gen	Chrch	62	9		30		
Colville 1803—Stevens Mt Carmel Hospital	Cen	Part	31	3	20	10	206	
Ellensburg 4671—Kittitas Ellenburg General Hosp	Cen	Indep	27	10	10	11	451	
Friday Harbor 1745—Craws Harbor Conway Hospital	Gen	Indiv	14	4	4	6	147	
Oakhurst Sanatorium	TB	Co	60		64	103	97	
Everett 2087—Snohomish General Hospital	Gen	Indep	84	16	246	42	1 143	
Providence Hospital	Gen	Chrch	101	16	133	0	1 209	
Ft Lewis 6000—Pierce Station Hospital	Cen	Army	100	4	61	60	1 218	615
Ft Stellaroom—Pierce Western State Hospital	West	State	2 051			1 936	609	
Ft Wordan (Port Townsend P O) 14—Jefferson Station Hospital	O	14—Jefferson	2			6	209	601
Ione 504—Pend Oreille Ione Hospital	Gen	Indiv	11		7	3	88	
Kirkland 1714—King Kirkland Hospital	Gen	Indiv	12	4	22	3	141	
Lakeview 300—Pierce Mountain View Sanatorium	TB	Co	14			140	300	
Leavenworth 1415—Chelan Cascade Sanatorium	Cen	Indep	0	6	68	16	1 260	1 050
Longview 10602—Cowlitz Longview General Hospital	Cen	Indep	20	7	100	10	400	
Longview Memorial Hosp	Gen	Indep	80	16	111	27	1 146	
Medical Lake 1671—Spokane Eastern State Hospital	West	State	1 006			1 409	306	
Monroe 100—Snohomish Monroe General Hospital	Gen	Indiv	16	0	30	6	200	
Mt Vernon 3690—Skagit Mt Vernon General Hosp	Gen	Indiv	0	6	37	12	444	
Newport 1080—Pend Oreille Newport Hospital	Gen	Indep	20	2	19	2	700	
Olympia 11735—Thurston St Peter's Hospital	Cen	Chrch	100	10	122	76	1 077	

WASHINGTON—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Omak 2147—Okanogan Mills Hospital	Gen	Indiv	10	6			3	
Oroville 800—Okanogan Oroville General Hospital	Gen	City	10	6			New	
Pasco 3496—Franklin Our Lady of Lourdes Hos pital	Gen	Chrch	0	11	89	21	690	
Port Angeles 10188—Clallam Port Angeles Hospital	Gen	Indep	80	8	6	74	1 876	1 022
Port Townsend 3979—Jefferson St John's Hospital	Gen	Chrch	9	9	88	38	018	
Puyallup 7094—Pierce Puget Sound Sanatorium	N&M	Indep	32			21	117	
Raymond 3828—Pacific Riverview Hospital	Cen	Indep	2	4	20	9	220	
Renton 4062—King Renton Hospital	Cen	Indiv	0	6	5	5	188	
Richmond Highlands 34—King Highland Sanatorium	Tb	City	2	0		20	401	
Seattle 360583—King Ballard Accident and Gen eral Hospital	Gen	Indep	30	12	55	12	520	
Children's Orthopedic Hos pital	Orth	Indep	12			109	1 288	2 919
Columbus Hospital	Gen	Chrch	200	16	305	74	2 450	
King County Hospital No 1 (Harborview)	Cen	Co	200	51	942	356	9 130	14 001
Laurel Beach Sanatorium	TB	Part	0			30	80	
Maynard Hospital	Gen	Indep	60	18	23	37	1 139	
Meadows Sanatorium	N&M	Indiv	40			17	1.1	
Morningside Sanitarium	TB	Co	100			146	190	
Providence Hospital	Gen	Chrch	30	17	710	148	5 094	
Riverton Sanatorium	TB	Indep	60			44	80	
St Luke's Hospital	Gen	Indep	46	15	16	47	961	
Seattle City Hospital	Gen	City	46			21	1 046	
Seattle General Hospital	Cen	Chrch	100	20	260	47	1 729	
Station Hospital	Gen	Army	0			8	414	1 126
Swedish Hospital	Gen	Indep	19	6	664	107	3 473	
U S Marine Hospital	Gen	USPH	200			187	1 175	2 794
Virginia Mason Hospital	Gen	Indep	100	30	332	70	2 576	
Sedro Woolley 2710—Skagit Memorial Hospital	Gen	Indep	26	7	20	6	220	0
Northern State Hospital	West	State	1,616			1 116	321	
Sequim 581—Clallam Sequim Prairie Hospital	Gen	Indiv	12	5			2	
Shelton 3001—Mason Shelton General Hospital	Gen	Part	34	0	48	12	417	942
Snohomish 2688—Snohomish Aldercrest Sanatorium	TB	Co	40			28	22	
Snohomish General Hospital	Gen	Indiv	16	4	3	6	190	
South Bend 1788—Pacific South Bend General Hosp	Gen	Indiv	0	6	20	8	300	1 0
Spokane 115014—Spokane Deaconess Hospital	Gen	Chrch	227	30	009	92	3 638	
Idgeciff Sanatorium	TB	Co	160			108	105	
Sacred Heart Hospital	Gen	Chrch	300	40	037	185	5 181	
St Luke's Hospital	Gen	Indep	168	24	195	89	2 270	
Shriners Hospital for Crip pled Children	Orth	Frat	20			20	106	100
Station Hospital	Gen	Army	0			11	80	
Sumas 647—Whatcom Merrillyn Cottage Hospital	Gen	Indiv	10	3	18	3	117	
Sumas General Hospital	Gen	Indiv	12	2	6	2	7	
Tacoma 106817—Pierce Northern Pacific Beneficial Association Hospital	Gen	Indep	111	5	18	51	1 910	3 000
Pierce County Hospital	Gen	Co	197	21	417	204	3 224	12 049
St Joseph's Hospital	Gen	Chrch	300	50	517	96	3 263	280
Tacoma General Hospital	Gen	Indep	170	36	458	90	2 799	071
Tacoma Hospital	G&TB	I A	283			263	720	720
Tonasket 513—Okanogan Tonasket Hospital	Gen	Part	10	4	10	4	116	
Toupenish 2774—Yakima Yakima Sanitarium	TB	I A	40			38	177	519
Vancouver 15700—Clark Clark County Hospital	Gen	Co	29	8		19	172	
Clark General Hospital	Gen	Indep	40	12	107	19	807	
St Joseph's Hospital	Gen	Chrch	120	14	86	01	1 000	04
Station Hospital	Gen	Army	65	3	15	02	700	5 012
Walla Walla 10976—Walla Walla St Mary's Hospital	Gen	Chrch	75	12		49	2 100	
Veterans Admin Facility	C&TB	Vet	403			233	80	
Walla Walla Sanitarium and Hospital	Gen	Chrch	0	9	63	33	678	
Wenatchee 11627—Chelan Central Washington Dea cones Hospital	Gen	Chrch	47	10	170	29	1 012	368
St Anthony's Hospital	Gen	Chrch	70	22	224	20	868	
Yakima 22101—Yakima St Elizabeth's Hosp	Gen	Chrch	193	30	043	80	2 949	
Related Institutions								
Chehalis 4907—Lewis State Training School for Boys	Inst	State	20			5	1 820	
Friday Harbor 001—San Juan Friday Harbor Hospital	Gen	Indiv	5	2	5	3	19	
Lakeview, 32—Pierce Sunnyside Sanatorium	N&M	Indiv	10			4	16	
Medical Lake 1671—Spokane State Custodial School	MeDe	State	1 417	9		1 399	191	
Monroe 1070—Snohomish Snohomish County Hospital and Farm	Inst	Co	31	6	23	27	207	

Key to symbols and abbreviations is on page 1021

WASHINGTON—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Bathrooms	Number of Births	Average Patients	Patients Admitted	Outpatients
Mount Vernon, 3 690—Skagit Rowley Hospital	Gen	Indiv	15	6	52	5	78	
Republic 710—Ferry								
Republic Hospital	Gen	Indiv	8	2	22	4	76	
Retsil 659—Kitsap								
Washington Veterans Home and Hospital	Inst	State	120		83	292		
Ritzville 1777—Adams								
Ritzville General Hospital	Gen	Indiv	12	6	16	5	70	
Seattle 365 583—King								
Florence Crittenton Home	Mat	Indep	10	1	6	24	78	
Treedlander's Sanitarium	Conv	Indiv	12			17		
King County Hospital No 2	Inst	Co	275		29	614		
Mason Sanitarium	Inc	Indep	17			10		
Mt Baker Dietetic Boarding Home	Conv	Indiv	10			4		
Rest Haven Sanitarium	Conv	Indiv	11			4		
University of Washington Health Service Infirmary	Inst	State	43			3	704	
Spangle, 218—Spokane								
Spokane County Hospital	Inst	Co	100		90	84		
Spokane 115 514—Spokane								
Florence Crittenton Home	Mat	Indep	16	24	4	14	50	
Rivercrest Hospital	Iso	City	100			9	76	
Salvation Army Women's Hospital and Home	Mat	Chrch	40	28	11	70	176	
Sprague, 639—Lincoln								
Sprague Hospital	Gen	Indiv	10	6	20	2	50	
Stellacoom 722—Pierce								
U S Penitentiary Hospital	Inst	Fed	72		60	835		
Tacoma 106 817—Pierce								
Bellevue Sanatorium	TB	Indiv	12			8	30	
City Contagious Hospital	Iso	City	70			7	110	
White Shield Home	Mat	Indep	20	10	4	14	64	
Tulali 620—Snohomish								
Tulallip Indian School Hosp	Gen	I A	14	4	21	12	79	
Walla Walla 15 976—Walla Walla								
Washington State Penitentiary Hospital	Inst	State	30			15		
Yakima 22 101—Yakima								
Yakima Nursing Home and Hospital	Gen	Indiv	12	10	100	5	182	
Summary for Washington								
Hospitals and sanatoriums			94	13 659		10 308	97 621	
Related institutions			29	2 524		2 127	8 412	
Totals			123	16 223		12 435	106 033	
Refused registration			18	411				

WEST VIRGINIA

Hospitals and Sanatoriums	Type of Service	Control	Beds	Rated Capacity	Bathrooms	Number of Births	Average Patients	Patients Admitted	Outpatients
Beckley 9 357—Raleigh	Gen	Part	175	12	52	63	4 407		
Beckley Hospital	Gen	Indep	57	4	19	26	933	684	
Raleigh General Hospital	TB	State	120		120	100			
Rutherford State Sanit									
Bluefield 19 339—Mercer									
Bluefield Sanitarium	Gen	Indep	100	6	63	46	2 090	5 200	
Brown's Hospital (col)	Gen	Indiv	40	3	50	20	28		
Providence Hospital (col)	Gen	Indiv	25	3	4	4	200	100	
St Luke's Hospital	Gen	Indep	75	8	43	18	903		
Buckhannon 4 374—Upshur									
St Joseph's Hospital	Gen	Chrch	30	6	24	16	627		
Charleston 60 408—Kanawha									
Charleston Gen Hosp	Gen	Indep	160	15	109	82	2 798	3 468	
Hill Crest Sanatorium	TB	Indep	42			38	28		
Kanawha Valley Hospital	Gen	Indep	90	12	50	1 700			
McMillan Hospital	Gen	Indep	60	10	32	32	1 875		
Mountain State Hospital	Gen	Indep	110	12	81	33	833	1 829	
St Francis Hospital	Gen	Chrch	80	10	164	38	2 195		
Salvation Army Hospital	Gen	Chrch	32	4	69	14	640	2 307	
State's Hospital	Gen	Indep	40	4	27	25	934		
Charles Town 2 434—Jefferson									
Charles Town General Hosp	Gen	Indep	25	5	6	5	108		
Clarksburg 28 566—Harrison									
Mason Hospital	Gen	Indep	52	10	66	24	882		
St Mary's Hospital	Gen	Chrch	125	12	63	52	1 830		
Denmar —Pocahontas									
Denmar Sanitarium (col)	TB	State	85			75			
Fiklas 7 340—Randolph									
Davis Memorial Hospital	Gen	Indep	75	6	22	52	1 200	800	
Elkins City Hospital	Gen	Indiv	65	5		33			
Fairmont 23 159—Marion									
Cook Hospital	Gen	Indep	98	12	50	50	1 934		
Fairmont Emergency Hosp	Gen	State	70	6	48	60	1 141	948	
Glen Dale 1 493—Marshall									
Reynolds Memorial Hosp	Gen	Chrch	80	10	33	25	639		
Hinton 6 631—Summers									
Hinton Hospital	Gen	Indep	71	4	23	29	792	1 720	
Holden 2 046—Logan									
Holden Hospital	Gen	Indep	40	2	2	10	600		
Hopemont 60—Preston									
Conley Hospital	(Included in Hopemont Sanitarium)								
Hopemont Sanitarium	TB	State	400			389	476		
Huntington 75 572—Cabell									
Chesapeake and Ohio Rail way Hospital	Gen	Indus	110	20	33	73	1 000	9 460	
Huntington City Hospital	Gen	City	30	4		10			
Huntington Mem Hosp	Gen	Indep	150	6	52	40	1 466	3 993	
Huntington Orthopedic Hospital	Orth	Indep	55			31			

WEST VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds	Rated Capacity	Bathrooms	Number of Births	Average Patients	Patients Admitted	Outpatients
Moore Beckner 1 300—Mar and Throat Hospital	ENT	Indiv	10			1	390		
St Mary's Hospital	Gen	Chrch	80	20	172	50	2 100	498	
Veterans Admin Facility	Gen	Vet	210			20	271	54	
Kenova 3 680—Wayne									
Rife-Ferguson Hospital	Gen	Part	10	2		6			
Keyser 6 248—Mineral									
Potomac Valley Hospital	Gen	Indep	4	5	41	27	867	300	
Lakin —Mason									
Lakin State Hosp (col)	Ment	State	500	6	2	70	50	10	10
Logan 4 06—Logan									
Hatfield Javison Hosp	Gen	Indep	10	6	24	30	1,357	990	
Marlinton 1 586—Pocahontas									
Pocahontas Memorial Hosp	Gen	Co	22	4	9	6	203		
Martinsburg, 14 837—Berkeley									
City Hospital	Gen	Indep	50	8	23	20	620		
Kings Daughters Hosp	Gen	Indep	60	12		20	720		
McKendree 117—Fayette									
McKendree Emerg Hosp	Gen	State	60	8	21	43	2 403	1,829	
Montgomery 2 906—Fayette									
Coal Valley Hospital	Gen	Indep	65	5	29	72	3 190	368	
Morgantown 16 186—Monongalia									
City Hospital	Gen	Indiv	27	6	27	16	524	1 600	
Eastmont Tuberculosis Sanatorium	TB	Indep	70	6			16		
Monongalia County Hosp	Gen	Co	85	10	70	37	1 157		
Moundsville 14 411—Marshall									
Grand View Sanatorium	TB	Co	32			24	47		
Mullens 2 306—Wyoming									
Mullens Hospital	Gen	Indiv	20	2	8	10	200		
New Martinsville 2 814—Wetzel									
Wetzel County Hospital	Gen	Co	20	4		8			
Oak Hill 2 006—Fayette									
Oak Hill Hospital	Gen	Part	50	5	15	17	1 110		
Parkersburg 29 623—Wood									
Camden Clark Mem Hosp	Gen	City	80	12	167	78	1 194		
St Joseph's Hospital	Gen	Chrch	100	10	112	43	1 100		
Princeton 8 905—Mercer									
Mercer Memorial Hospital	Gen	Indep	48	4	14	21	672	720	
Princeton Hospital	Gen	Indep	40	4	17	18	823	923	
Richwood 5 720—Nicholas									
McClung Hospital	Gen	Indep	50	4		10		2 600	
Sacred Heart Hospital	Gen	Chrch	34	6	12	9			
Ronceverte, 2 204—Greenbrier									
Greenbrier Valley Hosp	Gen	Indep	50	4	15	75	761		
Slatersville 3 072—Tyler									
Slatersville General Hosp	Gen	Indep	20	7		10			
South Charleston 1 904—Kanawha									
Dunn Hospital	Gen	Indiv	20	4	10	130	1 500		
Welch 5 376—McDowell									
Crace Hospital	Gen	Indep	50	6	20	20	1 113	1 237	
Stevens Clinic Hospital	Gen	Indep	76	4		26	1 668	2 325	
Welch Emergency Hosp	Gen	State	115	2	22	54	2 890	1 570	
Weston 8 646—Lewis									
General Hospital	Gen	Indiv	20	4	18	17	418	700	
Weston City Hospital	Gen	Part	20	6	70	6	290	600	
Wheeling 61 600—Ohio									
Ohio Valley General Hosp	Gen	Indep	240	30	230	114	7 846	5 661	
Wheeling Hospital	Gen	Chrch	300	20	290	107	2 915	1 600	
Williamson 9 410—Mingo									
Williamson Mem Hosp	Gen	Indep	54	4	20	20	1 000	2 100	
Related Institutions									
Elm Grove —Ohio									
Ohio County Home Hosp	Inst	Co	48			48			
Huntington 75 772—Cabell									
Huntington State Hosp	Ment	State	930			846	246		
Milton 1 300—Cabell									
Morris Memorial Hospital for Crippled Children	Orth	Indep	30			20			
Moundsville 14 411—Marshall									
West Virginia Penitentiary Hospital	Inst	State	73			17	200		
St Mary's 2 182—Pleasants									
West Virginia Training Sch	MeDe	State	80			58	70		
Spencer 2 493—Roane									
Spencer State Hospital	Ment	State	80			80	324		
Weston 8 646—Lewis									
Weston State Hospital	Ment	State	1 600			1 600	600		
Wheeling 61 600—Ohio									
Ohio County Tuberculosis Sanatorium	TB	Co	17			16			
Summary for West Virginia									
Hospitals and sanatoriums			70	5 718		0.11	78 571		
Related institutions			8	3 589		3 460	1 906		
Totals			78	9 307		6 491	80 477		
Refused registration			2	42					

WISCONSIN

Hospitals and Sanatoriums	Type of Service	Control	Beds	Rated Capacity	Bathrooms	Number of Births	Average Patients	Patients Admitted	Outpatients
Algoma 2 202—Kewaunee									
Algoma Hospital	Gen	Indep	10	4	10	3	112		
Amery 1 354—Polk									
Polk County Hospital	Gen	Indep	15	5	20	3	203		
Antigo 8 610—Langlade									
Langlade County Memorial Hospital	Gen	Chrch	40	7	43	New			
Appleton 20 267—Outagamie									
St Elizabeth Hospital	Gen	Chrch	200	50	479	7	2 814		

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Ashland 10 622—Ashland	Gen	Indep	67	8	10	32	97	153
Ashland General Hosp o	Gen	Chrch	13	1	14	70	1 847	
St Joseph's Hospital o	Gen	Chrch	2	8	101	18	0.2	
Baraboo 5 545—Sauk	Gen	Chrch	28	8	110	14	678	
St Mary's Ringling Hosp	Gen	Chrch	80	90	300	38	1 617	
Beaver Dam, 9 867—Dodge	Gen	Chrch	1	6	98	5	187	
Lutheran Deaconess Hosp	Gen	Chrch	92	3	22	7	206	115
Beloit 93 611—Rock	Gen	City	2	10	11	10	468	
Beloit Municipal Hospital	Gen	Indep	163	17	179	74	2,147	
Berlin 4 106—Green Lake	Gen	Chrch	40	5	87	90	460	120
Lates Memorial Hospital	Gen	Part	30	6	3	11	391	
Bo cobe 1,769—Grant	Gen	Indep	24	5	74	13	477	
Brookside Parker Hospital	Gen	Chrch	60	15	90	20	948	
Burlington 4 114—Racine	Gen	Indep	1	16	288	6	2 115	
Burlington Memorial Hosp	Gen	Chrch	178	16	383	98	2 966	
Chippewa Falls 9 539—Chippewa	Gen	Indep	16	6	79	6	277	
St Joseph's Hospital	Gen	Co	37	11	163	28	746	
Columbus 5 514—Columbia	Gen	Chrch	22	9	420	133	4 00	
St Mary's Hospital	Gen	Indiv	1	5	21	4	932	
Cumberland 1 532—Barron	Gen	Indiv	12	5	30	7	318	
Cumberland Hospital	Gen	Indiv	10	4	29	7	220	
Dodgeville 1 937—Iowa	Gen	Chrch	90	10	121	41	1 349	17
Dodgeville General Hosp	Gen	Chrch	120	20	293	42	1 487	600
St Joseph's Hospital	Gen	Chrch	200	23	285	154	5 836	1 900
St Vincent's Hospital	Gen	Chrch	50	8	58	11	388	
Eau Claire 26 287—Iau Claire	Gen	Chrch	130			128	100	
Luther Hospital o	Gen	Indiv	51	6	70	41	832	1 380
St Washington Sanat	Gen	Indiv	50	2	1	70	1 30	
Sacred Heart Hospital	Gen	Indiv	50	2	1	70	1 30	
Edgerton 2 906—Rock	Gen	Indiv	50	2	1	70	1 30	
Edgerton Memorial Hosp	Gen	Indiv	50	2	1	70	1 30	
Elkhorn 2 340—Walworth	Gen	Indiv	50	2	1	70	1 30	
Walworth County Hospital	Gen	Indiv	50	2	1	70	1 30	
Fond du Lac 26 449—Fond du Lac	Gen	Indiv	50	2	1	70	1 30	
St Agnes Hospital o	Gen	Indiv	50	2	1	70	1 30	
Ft Atkinson 5 793—Harrison	Gen	Indiv	50	2	1	70	1 30	
Ft Atkinson General Hosp	Gen	Indiv	50	2	1	70	1 30	
Frederic 680—Polk	Gen	Indiv	50	2	1	70	1 30	
Frederic Hospital	Gen	Indiv	50	2	1	70	1 30	
Grantsburg 777—Burnett	Gen	Indiv	50	2	1	70	1 30	
Community Hospital	Gen	Indiv	50	2	1	70	1 30	
Green Bay 3,415—Brown	Gen	Indiv	50	2	1	70	1 30	
Bella Memorial Hosp o	Gen	Indiv	50	2	1	70	1 30	
St Mary's Hospital o	Gen	Indiv	50	2	1	70	1 30	
St Vincent's Hospital	Gen	Indiv	50	2	1	70	1 30	
Hartford 3,704—Washington	Gen	Indiv	50	2	1	70	1 30	
St Joseph's Hospital	Gen	Indiv	50	2	1	70	1 30	
Hawthorne, 581—Douglas	Gen	Indiv	50	2	1	70	1 30	
Middle River Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Hayward 1 907—Sawyer	Gen	Indiv	50	2	1	70	1 30	
Hayward Indian Hospital	Gen	Indiv	50	2	1	70	1 30	
Hillsboro 973—Vernon	Gen	Indiv	50	2	1	70	1 30	
Hansberry Hospital	Gen	Indiv	50	2	1	70	1 30	
Hudson 2 720—St Croix	Gen	Indiv	50	2	1	70	1 30	
Hudson Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Janesville 21 628—Rock	Gen	Indiv	50	2	1	70	1 30	
Mercy Hospital o	Gen	Indiv	50	2	1	70	1 30	
Pinehurst Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Jefferson 2 639—Jefferson	Gen	Indiv	50	2	1	70	1 30	
Forest Lawn Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Kaukauna 6 81—Outagamie	Gen	Indiv	50	2	1	70	1 30	
Riverview Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Kenosha, 50 262—Kenosha	Gen	Indiv	50	2	1	70	1 30	
Kenosha Hospital	Gen	Indiv	50	2	1	70	1 30	
St Catharine's Hospital	Gen	Indiv	50	2	1	70	1 30	
and Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Wilkesboro Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Keshena 270—Shawano	Gen	Indiv	50	2	1	70	1 30	
Keshena Indian Hospital	Gen	Indiv	50	2	1	70	1 30	
La Crosse 39 614—La Crosse	Gen	Indiv	50	2	1	70	1 30	
Grandview Hospital	Gen	Indiv	50	2	1	70	1 30	
La Crosse Hospital	Gen	Indiv	50	2	1	70	1 30	
La Crosse Lutheran Hosp *	Gen	Indiv	50	2	1	70	1 30	
St Francis Hospital o	Gen	Indiv	50	2	1	70	1 30	
Ladysmith 3 493—Rusk	Gen	Indiv	50	2	1	70	1 30	
St Mary's Hospital	Gen	Indiv	50	2	1	70	1 30	
Lancaster 2 432—Grant	Gen	Indiv	50	2	1	70	1 30	
Doallville Hospital	Gen	Indiv	50	2	1	70	1 30	
Laona 1,00—Forest	Gen	Indiv	50	2	1	70	1 30	
Oritz Hospital	Gen	Indiv	50	2	1	70	1 30	
Madison 57 899—Dane	Gen	Indiv	50	2	1	70	1 30	
Lake View Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Madison General Hosp o	Gen	Indiv	50	2	1	70	1 30	
Methodist Hospital o	Gen	Indiv	50	2	1	70	1 30	
Morningside Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Normandale	Gen	Indiv	50	2	1	70	1 30	
St Mary's Hospital o	Gen	Indiv	50	2	1	70	1 30	
State of Wisconsin General	Gen	Indiv	50	2	1	70	1 30	
Hospital o	Gen	Indiv	50	2	1	70	1 30	
Wisconsin Orthopedic Hos	Gen	Indiv	50	2	1	70	1 30	
pital for Children	Gen	Indiv	50	2	1	70	1 30	
Wisconsin Psychiatric Inst	Gen	Indiv	50	2	1	70	1 30	
Manitowoc 22 962—Manitowoc	Gen	Indiv	50	2	1	70	1 30	
Holy Family Hospital o	Gen	Indiv	50	2	1	70	1 30	
Marquette 13 74—Marquette	Gen	Indiv	50	2	1	70	1 30	
Marquette and Menominee	Gen	Indiv	50	2	1	70	1 30	
Hospital	Gen	Indiv	50	2	1	70	1 30	
Marshfield 8 778—Wood	Gen	Indiv	50	2	1	70	1 30	
St Joseph's Hospital o	Gen	Indiv	50	2	1	70	1 30	
Mauston 2 107—Juneau	Gen	Indiv	50	2	1	70	1 30	
Mauston Hospital	Gen	Indiv	50	2	1	70	1 30	
Medford 1 918—Taylor	Gen	Indiv	50	2	1	70	1 30	
Medford Clinic Hospital	Gen	Indiv	50	2	1	70	1 30	
Mendota 112—Dane	Gen	Indiv	50	2	1	70	1 30	
Wisconsin Memorial Hosp	Gen	Indiv	50	2	1	70	1 30	

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Wisconsin State Hospital	Gen	Indiv	50	2	1	70	1 30	
for Insane	Gen	Indiv	50	2	1	70	1 30	
Menomonie, 5 599—Dunn	Gen	Indiv	50	2	1	70	1 30	
Menomonie City Hospital	Gen	Indiv	50	2	1	70	1 30	
Merill 8 458—Lincoln	Gen	Indiv	50	2	1	70	1 30	
Holy Cross Hospital	Gen	Indiv	50	2	1	70	1 30	
Lincoln County Hospital	Gen	Indiv	50	2	1	70	1 30	
Milwaukee 578 249—Milwaukee	Gen	Indiv	50	2	1	70	1 30	
Columbia Hospital o	Gen	Indiv	50	2	1	70	1 30	
Evangelical Deaconess Hos	Gen	Indiv	50	2	1	70	1 30	
pital o	Gen	Indiv	50	2	1	70	1 30	
Johnston Emergency Hos	Gen	Indiv	50	2	1	70	1 30	
pital o	Gen	Indiv	50	2	1	70	1 30	
Dr Lynch's Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Milwaukee Children's Hos	Gen	Indiv	50	2	1	70	1 30	
pital o	Gen	Indiv	50	2	1	70	1 30	
Milwaukee Co Gen Hosp	Gen	Indiv	50	2	1	70	1 30	
Dispensary Emerg Unit	Gen	Indiv	50	2	1	70	1 30	
Milwaukee General Hosp o	Gen	Indiv	50	2	1	70	1 30	
Milwaukee Hospital, The	Gen	Indiv	50	2	1	70	1 30	
Passavant o	Gen	Indiv	50	2	1	70	1 30	
Misericordia Hospital o	Gen	Indiv	50	2	1	70	1 30	
Mt Sinai Hospital o	Gen	Indiv	50	2	1	70	1 30	
Roger Williams Hospital	Gen	Indiv	50	2	1	70	1 30	
Sacred Heart Sanitarium o	Gen	Indiv	50	2	1	70	1 30	
St Anthony's Hospital	Gen	Indiv	50	2	1	70	1 30	
St Joseph's Hospital o	Gen	Indiv	50	2	1	70	1 30	
St Luke's Hospital *	Gen	Indiv	50	2	1	70	1 30	
St Mary's Hill Sanitarium	Gen	Indiv	50	2	1	70	1 30	
St Mary's Hospital o	Gen	Indiv	50	2	1	70	1 30	
Shorewood Hospital Sanit	Gen	Indiv	50	2	1	70	1 30	
South Side Hospital	Gen	Indiv	50	2	1	70	1 30	
South View Hospital	Gen	Indiv	50	2	1	70	1 30	
Veterans Adm'n Facility	Gen	Indiv	50	2	1	70	1 30	
West Side Hospital	Gen	Indiv	50	2	1	70	1 30	
Monroe 1 010—Green	Gen	Indiv	50	2	1	70	1 30	
Evangelical Deaconess Hosp	Gen	Indiv	50	2	1	70	1 30	
Mt Horeb 1 420—Dane	Gen	Indiv	50	2	1	70	1 30	
Buckner Hospital	Gen	Indiv	50	2	1	70	1 30	
Neenah 9 101—Winnebago	Gen	Indiv	50	2	1	70	1 30	
Theda Clark Mem Hosp o	Gen	Indiv	50	2	1	70	1 30	
New London 4 661—Waupaca	Gen	Indiv	50	2	1	70	1 30	
Community Hospital	Gen	Indiv	50	2	1	70	1 30	
Memorial Hospital	Gen	Indiv	50	2	1	70	1 30	
Niagara 2 093—Marquette	Gen	Indiv	50	2	1	70	1 30	
Niagara Hospital	Gen	Indiv	50	2	1	70	1 30	
Oconomowoc 4 190—Waukesha	Gen	Indiv	50	2	1	70	1 30	
Oconomowoc Health Resor	Gen	Indiv	50	2	1	70	1 30	
Oconto o 680—Oconto	Gen	Indiv	50	2	1	70	1 30	
Oconto County and City	Gen	Indiv	50	2	1	70	1 30	
Hospital	Gen	Indiv	50	2	1	70	1 30	
Oconto Falls 1 921—Oconto	Gen	Indiv	50	2	1	70	1 30	
Oconto Falls Hospital	Gen	Indiv	50	2	1	70	1 30	
Onalaska 1 40—La Crosse	Gen	Indiv	50	2	1	70	1 30	
Oak Forest Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Oshkosh 40 108—Winnebago	Gen	Indiv	50	2	1	70	1 30	
Mercy and St Mary's Hos	Gen	Indiv	50	2	1	70	1 30	
pitals o	Gen	Indiv	50	2	1	70	1 30	
Park Falls 3 036—Price	Gen	Indiv	50	2	1	70	1 30	
Park Falls Hospital	Gen	Indiv	50	2	1	70	1 30	
Pewaukee 1 067—Waukesha	Gen	Indiv	50	2	1	70	1 30	
Oak Sanatorium	Gen	Indiv	50	2	1	70	1 30	
Platteville 4 047—Grant	Gen	Indiv	50	2	1	70	1 30	
Andrew Hospital	Gen	Indiv	50	2	1	70	1 30	
Wilson Cunningham Hosp	Gen	Indiv	50	2	1	70	1 30	
Phymouth 3 882—Sheboygan	Gen	Indiv	50	2	1	70	1 30	

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
South Milwaukee 1076—Milwaukee								
South Milwaukee Hospital	Gen	Indiv	14	6	29	1	103	
Sparta 4010—Monroe								
St. Mary's Hospital	Gen	Chrch	50	11	188	34	120	
Stanley 1988—Chippewa								
Victory Hospital	Gen	Indep	16	4	42	4	236	
Staten 90—Waukesha								
Wisconsin State Sanat +	TB	State	233			217	177	
Stevens Point, 13 62—Portage								
River Pines Sanatorium	FB	Indep	62			2	43	
St. Michael's Hospital	Gen	Chrch	70	10	14	48	1462	4
Stoughton 4497—Dane								
Stoughton Community Hos- pital	Gen	Indep	17	8		10	455	
Sturgeon Bay, 4987—Door								
Ugeland Hospital	Gen	Indiv	20	5	20	8	26	
Uenosum Hospital	Gen	Indiv	10	4	30	10	30	
Superior 36113—Douglas								
Good Samaritan Hospital	Gen	Chrch	12	8	83	7	240	
St. Francis Hospital	Gen	Chrch	50	10	69	21	510	10
St. Mary's Hospital	Gen	Chrch	108	15	10	62	176	1357
Tomahawk 2919—Iowa								
Sacred Heart Hospital	Gen	Chrch	17	6	10	12	360	40
Two Rivers 10087—Manitowoc								
Two Rivers Municipal Hosp	Gen	City	34	10	101	10	743	
Washburn 2238—Bayfield								
Washburn Hospital	Gen	Indep	14	5	10	5	110	
Watertown 10613—Jefferson								
St. Mary's Hospital	Gen	Chrch	0	9	118	21	96	
Waukesha 17176—Waukesha								
The Spa	Int Med	Indiv	70			20	590	25
Waukesha Municipal Hosp	Gen	City	60	18	26	4	120	4
Waukesha Springs Sanit	N & M	Indep	50			20		
Waupaca 3131—Waupaca								
Waupaca Community Hosp	Gen	Indep	12			New		
Waupun 5768—Fond du Lac								
Central State Hospital for Insane	Ment	State	201			266	60	
Wausau 23738—Marathon								
Mount View Sanatorium	TB	Co	67			42	67	
St. Mary's Hospital	Gen	Chrch	100	14	216	61	918	680
Wausau Memorial Hosp	Gen	Indep	9	10	18	44	1480	
Wausau 21194—Milwaukee								
Milwaukee County General Hospital	Ment	Co	1479			1410	184	
Milwaukee County General Hospital	Gen	Co	1000	7	1852	78	1474	934
Milwaukee Hospital for Men- tal Diseases	Ment	Co	767			80	517	
Milwaukee Sanitarium	N & M	Indep	170			118	140	
Muirdale Sanatorium	TB	Co	574			40	617	1100
West Bend 4760—Washington								
St. Joseph's Community Hospital	Gen	Chrch	20	7	70	12	73	77
West De Pere 4300—Brown								
Hickory Grove Sanat	TB	Co	90			80	66	
Whitehall 915—Trempealeau								
Whitehall Community Hosp	Gen	Indep	30	4	46	13	605	
Whitewater 209—Manitowoc								
Maple Crest Sanatorium	TB	Co	50			47	50	
Winnebago 1120—Winnebago								
Northern Hospital for the Insane	Ment	State	600			877	87	
Sunny View Sanatorium	TB	Co	91			81	102	
Wisconsin Rapids 8726—Wood								
Riverview Hospital	Gen	Indep	30	10	112	18	776	
Related Institutions								
Appleton 20267—Outagamie								
Outagamie County Asylum for Chronic Insane	Ment	Co	185			144	24	
Chippewa Falls 9539—Chippewa								
Chippewa County Chronic Insane Asylum	Ment	Co	273			264	20	
Northern Wisconsin Colony and Training School	MeDe	State	1501			1448	221	
Dodgeville 1937—Iowa								
Iowa County Insane Asylum	Ment	Co	140			135	157	
Dousman, 206—Waukesha								
Wisconsin Masonic Home and O F S Hospital	Inst	Frat	18			8	21	
Eau Claire 26287—Eau Claire								
Eau Claire County Insane Asylum	Ment	Co	200			198	18	
Elkhorn 2340—Walworth								
Walworth County Hosp	Ment	Co	100			110		
Ellsworth 1124—Pierce								
Ellsworth Hospital	Gen	Indiv	8	4	28	5	148	
Fond du Lac 2644—Fond du Lac								
Fond du Lac County Insane Asylum	Ment	Co	260			26	20	
Green Bay 37415—Brown								
Brown Co Insane Asylum	Ment	Co	179			160	31	
Wisconsin State Reforma- tory Hospital	Inst	State	21			6	312	
Itasca 315—Douglas								
Douglas County Asylum Home and Sanatorium	Ment	Co	240			231	26	
Janesville 21628—Rock								
Detention Hospital	Inst	City	10				4	
Rock County Hospital	Ment	Co	200	6	3	130		
Jefferson 2639—Jefferson								
Jefferson County Asylum for Chronic Insane	Ment	Co	189			190	15	

WISCONSIN—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Tuneau 1114—Dodge								
Dodge County Insane Asy- lum and Poor House	Ment	Co	190				156	
Jewaukee 2409—Jewaukee								
Dana and Dockery Hosp	Gen	Part	10	4			3	63
Lake Geneva 907—Walworth								
Crane Farms Sanatorium	Conv	Indus	10				4	61
Lake Tomahawk 10—Oneida								
Lake Tomahawk State Camp	FB	State	40				41	91
Janesville 2412—Grant								
Codfrey Hospital	Gen	Part	7	2			4	
Grant County Asylum	Ment	Co	24				210	20
Madison 57819—Dane								
East Washington Hosp	Inst	City	40				7	
Manitowoc 2208—Manitowoc								
Manitowoc County Insane Asylum	Ment	Co	200				197	13
Marshfield 8778—Wood								
Wood County Asylum for Chronic Insane	Ment	Co	222				220	10
Minomonie 5790—Dunn								
Dunn County Asylum	Ment	Co	17				149	20
Milwaukee 37849—Milwaukee								
Mayton Home	Inst	Chrch	2				23	13
Marquette University Eye Ear Nose and Throat Hospital	Inst	Indep	4				12	1101
Mondovi 1123—Buffalo								
Mondovi Hospital	Gen	Indiv	0				1	
Monroe 01—Green								
Green County Asylum	Ment	Co	202				169	40
New Richmond 2112—St. Croix								
St. Croix County Asylum for Chronic Insane	Ment	Co	160				148	
Oconomowoc 607—Iolk								
Island Memorial Hospital	Gen	Indiv	10	2	24		0	129
Oshkosh 40108—Winnebago								
McLean Brothers Hospi- tal	N & M	Chrch	8				0	69
Owen 1102—Clark								
Clark County Asylum	Ment	Co	30				370	310
Peshigo 1070—Marquette								
Marquette County Insane Asylum	Ment	Co	240				10	31
Platteville 4017—Grant								
Schilling Residence Hosp	Gen	Indiv	8	2	6	4	17	
Racine 1742—Racine								
Lincoln Memorial Hospital for Communicable Dis- eases	Ther	City	40	3	1	12	181	
Racine County Asylum	Ment	Co	206				200	40
Ridgely 2967—Sauk								
Sauk County Asylum	Ment	Co	271				150	20
Richland Center 62—Richland								
Richland County Asylum for Chronic Insane	Ment	Co	142				115	96
Shawano 4188—Shawano								
Shawano County Insane Asylum	Ment	Co	100				103	17
Sheboygan 9971—Sheboygan								
Sheboygan County Asylum for Chronic Insane	Ment	Co	206				202	
Sparta 4049—Monroe								
Monroe County Insane Asy- lum	Ment	Co	114				102	12
Wausau 1460—Fond du Lac								
Wisconsin Industrial Home for Women	Inst	State	8				1	64
Tomah 3034—Monroe								
Tomah Indian Hospital	Gen	IA	42	5			New	
Union Grove 705—Racine								
Southern Wisconsin Colony and Training School	MeDe	State	738				670	
Vernon 400—Dane								
Dane County Asylum for Chronic Insane	Ment	Co	281				274	18
Viroqua 2792—Vernon								
Vernon County Asylum	Ment	Co	120				130	11
Wabeno 2168—Forest								
Wabeno Sperton Hosp	Gen	Indiv	8	1	19	2	120	
Watertown 10613—Jefferson								
Bethesda Lutheran Home for Feeble-minded and Epi- leptics	MeDe	Chrch	30				360	
Waukesha 17176—Waukesha								
Waukesha County Asylum for Chronic Insane	Ment	Co	216				200	
Wisconsin Industrial School for Boys	Inst	State	17				3	200
Waupun 5768—Fond du Lac								
Drs. Clark and Swartz Hos- pital	Gen	Part	8	4	22	6	139	
Wisconsin State Prison Hos- pital	Inst	State	20				14	290
Wausau 23738—Marathon								
Marathon County Asylum for Chronic Insane	Ment	Co	189				189	20
Marathon County Home and Hospital	Inst	Co	45				40	100
Wauwatosa 21194—Milwaukee								
Blue Mound Preventorium (Included in Muirdale Sanatorium)								
Milwaukee County Home for Children	Inst	Co	60				47	804

Key to symbols and abbreviations is on page 1021

WISCONSIN—Continued

Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
St Camillus Hospital	Inc	Chrch	60					
Salvation Army Martin Washington Women's Home and Hospital	Mat	Chrch	9	3	123	5	14	
West Bend 4,760—Washington Washington County Asylum for Chronic Insane	Ment	Co	170			14	1	
West Salem 1011—J. A. Croese La Croese County Asylum for Insane	Ment	Co	20			2.0	31	
Werauwega 1067—Waupaca Waupaca County Insane Asylum	Ment	Co	17			16	20	
Whitehall 915—Trempealeau Trempealeau County Asylum for Chronic Insane	Ment	Co	140			12	17	
Winnebago 1120—Winnebago Winnebago County Asylum	Ment	Co	240			2.0	24	
Wisconsin Veterans Home 117—Waupaca Grand Army Home for Veterans	Inst	State	400			1.0	4	
Wiscowa, 490—Columbia Columbia County Asylum	Ment	Co	210			140	43	
Summary for Wisconsin								
Hospitals and sanatoriums	Number		Beds			Average Patients	Patients Admitted	
Related institutions	1,096		15,970			13.881	1,7781	
	64		10,812			9.40	7,363	
Totals	22		9,412			22,846	151,744	
Refused registration	10		1,54					

WYOMING

Hospitals and Sanatoriums	Type of Service	Control	Beds	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Basin 90—Big Horn Basin Hospital	Gen	Indep	15	2	11	2	74	
Wyoming Tuberculosis Sanatorium	TB	State	2			70	24	
Burns 216—Laramie Burns Hospital	Gen	Part	10	5	24	4	189	
Casper 17619—Natrona Memorial Hospital of Natrona County	Gen	Co	67	9	191	41	1,909	
Cheyenne 1761—Laramie Memorial Hospital of Laramie County	Gen	Co	117	1	195	4	1,432	
Douglas 1017—Converse Douglas Hospital	Gen	Indiv	17	4	20	6	240	
Frankton 3000—Uinta Wyoming State Hospital	Ment	State	510			470	103	
Ft Warren 27—Laramie Station Hospital	Gen	Army	114	6	7	60	144	2,940
Ft Washakie 62—Fremont Shoshone Indian Hospital	Gen	IA	30	4	35	1	400	800
Gebo 894—Hot Springs Gebo Hospital	Gen	Indep	12	4		6	60	
Hanna 1481—Carbon Hanna Hospital	Gen	Indus	20	3		5		
Jackson 53—Teton St John's Hospital	Gen	Chrch	20	4	12	5	2,000	
Kearney 1884—Lincoln Lincoln County Miner's Hospital	Gen	Indep	20	5	20	13	445	
Lander 1876—Fremont Bishop Randall Hospital	Gen	Chrch	20	6	23	6	273	
Midwest 2122—Natrona Midwest Hospital	Gen	Indus	20	3	64	6	243	7,020
Powell 1156—Park Whitlock Hospital	Gen	Indep	20	4	16	5	2,1	
Rock Spring 8440—Sweetwater Wyoming General Hospital	Gen	State	90	7	101	40	1,59	
Sheridan 8536—Sheridan Sheridan County Memorial Hospital	Gen	Co	6	12		42	1,210	
Veterans Admin Facility	Ment	Vet	466			470	84	
Wheatland 1997—Platte Wheatland General Hosp	Gen	Indep	27	7	57	26	1,20	1,520
Worland 1461—Washakie Dr Gray's Hospital	Gen	Indiv	10	2	14	2	45	
Related Institutions								
Cheyenne 1761—Laramie Laramie County Isolation Hospital	I-o	Co	14			2	8	
Gillette 1740—Campbell Rooney Hospital	Gen	Indiv	14	8	30	7	300	
Greybull 1806—Big Horn St Luke's Hospital	Gen	Indiv	8	2	10	2	78	
Lander 1826—Fremont Wyoming State Training School	Med	State	200			203	43	
Lovell 1857—Big Horn Lovell Hospital	Gen	Indiv	6	2	19	2	101	
Summary for Wyoming								
Hospitals and sanatoriums	Number		Beds			Average Patients	Patients Admitted	
Related institutions	2		1,721			12.4	100.6	
	6		30			245	540	
Totals	28		2,021			1,502	10,616	
Refused registration	3		100					

ALASKA

Hospitals Sanatoriums and Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Alak 215 U S Hospital for Natives	Gen	Fed	12	2				
Anchorage 2277 Anchorage Base Hospital	Gen	Fed	35	6	73	11	803	1,263
Cordova 980 Cordova General Hospital	Gen	Indiv	20	4	16	6	246	
Fairbanks 2101 St Joseph's Hospital	Gen	Chrch	29	3		12		
Ft Yukon 304 Hudson Stuck Memorial Hospital	Gen	Chrch	40	2	8	18	134	738
Haines 344 Station Hospital	Gen	Army	12	2	12	6	177	57
Juneau 4043 St Ann's Hospital	Gen	Chrch	60	8	60	2	73	
U S Hospital for Natives	Gen	Fed	52	4	3	4	344	
Kanakaanak 177 Kanakaanak Native Hospital	Gen	Fed	10	1		4	100	874
Kennecott 217 Kennecott Copper Corporation Hospital	Gen	Indus	12	3		5		
Ketchikan, 3796 Ketchikan General Hospital	Gen	Chrch	45	10	67	7	57	40
Nome 1213 Maynard Columbus Hosp	Gen	Chrch	20			7		
Petersburg 1202 Petersburg General Hosp	Gen	City	10	2	10	3	11	
Point Barrow 82 Presbyterian Hospital	Gen	Chrch	12	4		10		
Seward 830 Seward General Hospital	Gen	Chrch	24	3	16	10	27	100
Sitka 1056 Alaska Pioneers Home	Inst	Ter	85			22	81	
Tanana 180 Tanana Hospital	Gen	Fed	20	3		12		
Wrangell 948 Wrangell General Hospital	Gen	Chrch	20	4		9		
Summary for Alaska								
Hospitals sanatoriums and related institutions	Number		Beds			Average Patients	Patients Admitted	
	18		518			213	41	

CANAL ZONE

Hospitals and Sanatoriums	Type of Service	Control	Beds	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Ancon 1620 Ancon Hospital	Gen	Fed	80	24	315	40	11,400	
Balboa 3199 Palo Seco Leprosy Colony	Lepro	Fed	110			10	10	
Station Hospital	Gen	Army	30					
Corozal 1640 Corozal Hospital	Ment	Fed	340			71	2,020	1,100
Station Hospital	Gen	Army	51			24	2,020	1,100
Cristobal 644 Colon Hospital	Gen	Fed	120	15	47	84	7673	
Ft Randolph (Coco Solo P O) 670 Station Hospital	Gen	Army	12			17	50	1,000
Ft Sherman 766 Station Hospital	Gen	Army	50			27	820	74
France Field 842 Station Hospital	Gen	Army	14			8		
Ganton 2,338 Station Hospital	Gen	Army	60			61	3,200	
Summary for Canal Zone								
Hospitals sanatoriums and related institutions	Number		Beds			Average Patients	Patients Admitted	
	10		1,657			739	22,100	

GUAM

Hospitals and Sanatoriums	Type of Service	Control	Beds	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Agaña Susana Hosp for Natives	(Included in U S Naval Hospital)							
U S Naval Hospital	Gen	Navy	120		12	106	340	
Summary for Guam								
Hospitals sanatoriums and related institutions	Number		Beds			Average Patients	Patients Admitted	
	1		120			106	340	

HAWAII

Hospitals and Sanatoriums	Type of Service	Control	Beds	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Alca 3021—Honolulu Honolulu Plantation Hosp	Gen	Indus	30	4	4	15	600	4,000
Eleele 312—Kauai McBryde Sugar Company Hospital	Gen	Indus	40	3	14	22	700	1,745
Hakalau 525—Hawaii Hakalau Hospital	Gen	Indus	20	2	11	9	70	1,146
Hilo 10468—Hawaii Hilo Memorial Hospital	Gen	Co	127	13	105	81	1,446	
Puunahale Home for Tuberc	TB	Ter	100			77		
Honokaa 1069—Hawaii Honokaa Sugar Company and Pacific Sugar Mill Plantation Hospital	Indus	Indus	40			10		
Honolulu 15782—Honolulu Japanese Hospital	Gen	Indep	120	10		76		
Kalihi Receiving Station	Lepro	Ter	200			143		
Kapiolani Maternity and Gynecological Hospital	Mat	Indep	50	32	780	20	1,168	
Kaulaolani Children's Hosp	Chil	Indep	60			40	1,84	
Leahi Home	TB	Indep	440			409	24	342

HAWAII—Continued

Hospitals Sanatoriums and Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Queen's Hospital*	Gen	Indep	264	18	553	140	6 014	
St. Francis Hospital	Gen	Chrch	49	6	79	30	1 903	
Shriners Hospital for Crippled Children	Orth	Frat	28			28	87	1 068
Tripler General Hospital	Gen	Army	300	8	100	172	3 013	9 822
Hooilehua—Maui								
Robert W. Shingle Jr., Memorial Hospital	Gen	Chrch	12	4	10	3	98	213
Kahuku 150—Honolulu								
Kahuku Plantation Company's Hospital	Gen	Indus	28	3	78	17	743	4 163
Kalaupapa—Kalaupapa								
Kalaupapa Hospital	LeproTer		50	12		28	192	
Kapoho (Heela P. O.) 112—Honolulu	Territorial	N. A. M. Ter	718			402	226	
Kealahou 300—Hawaii								
Kona County Hospital	Gen	Co	28	3		10		
Keala, 100—Kauai								
Mahee Sugar Company Hospital	Gen	Indus	26	3	29	11	483	2 412
Samuel Mahelona Memorial Hospital	TB	Co	100			90		
Kilauea 1232—Kauai								
Kilauea Sugar Plantation Hospital	Gen	Indus	20	3	28	8	470	
Kohala 720—Hawaii								
Kohala Hospital	Gen	Co	34	2		14		
Kolon 1844—Kauai								
Kolon Sugar Company's Hospital	Gen	Indus	30	3	22	12	300	1 821
Kula (Waiakoa P. O.) Maui								
Maui County Farm and Sanitarium	TB	Co	276	4	10	100	560	
Lahaina 2730—Maui								
Pioneer Mill Company's Hospital	Gen	Indus	57	9	90	42	1 603	4 912
Lihue 2399—Kauai								
Lihue Hospital	Gen	Indus	40	6	14	24	1 047	4 812
Makaweli 974—Kauai								
Hawaiian Sugar Company's Hospital	Gen	Indus	30	6	26	19	616	4 003
Olaa 597—Hawaii								
Olaa Hospital	Gen	Indus	36		8	20	88	4 800
Ookala 526—Hawaii								
Hospital of Kuliwili Sugar Company	Indus	Indus	12		4	36	300	
Paaubau 536—Hawaii								
Paaubau Plantation Company Ltd Hospital	Indus	Indus	12			0		
Paaubau 1233—Hawaii								
Paaubau Hospital	Indus	Indus	12		5	0	500	
Pahala 290—Hawaii								
Hawaiian Agricultural Company Hospital	Gen	Indus	22	6	02	10	021	2 021
Pala 4171—Maui								
Maui Agricultural Company's Pala Hospital	Gen	Indus	103	10	208	08	2 000	
Pearl City 1071—Honolulu								
Waimano Home for Feeble-minded Persons	McDe Ter		217			210	27	
Pearl Harbor 200—Honolulu								
U. S. Naval Hospital	Gen	Navy	238			105	1 703	
Pepeekeo 530—Hawaii								
Pepeekeo Central Hospital	Gen	Indus	34	6	91	23	876	4 763
Pukoo 50—Maui								
Ualapue Hospital	Gen	Co	20	2		5		
Puunene 4 080—Maui								
Puunene Hospital	Gen	Indus	120	6	336	66	3 311	6 488
Schofield Barracks (Honolulu P. O.) 4 200—Honolulu	Gen	Army	300	12	100	248	6 066	10 900
Station Hospital								
Wailua 4 511—Honolulu								
Wailua Agricultural Company Ltd Hospital	Gen	Indus	36	5	03	13	630	4 310
Wailuku 6 998—Maui								
Malulan Hospital	Gen	Co	90	11	113	68		
Waiohinu 100—Hawaii								
Kauhane Memorial Hospital	Gen	Co	20	2		6		
Waiapahu 5 874—Honolulu								
Oahu Sugar Company Ltd Hospital	Gen	Indus	00	8	43	43	1 148	4 800

Summary for Hawaii

Hospitals sanatoriums and related institutions	Number	Beds	Average Patients	Patients Admitted
	40	4 702	3 411	38 408

PHILIPPINE ISLANDS

Bacolod 19 350—Occidental Negros				
Occidental Negros Provincial Hospital	Gen	Gov t	60	4
Provincial Maternity and Children's Hospital	MatCh	Gov t	60	18
Bagulo 5 464—Benguet				
Bagulo Hospital	Gen	Gov t	67	
Station Hospital	Gen	Army	50	
Barill 33 481—Cebu				
Hospital de San Jose	Inc	Gov t	25	
Batangas 41 182—Batangas				
Batangas Provincial Hosp	Gen	Gov t	30	5
Bayombong 5 580—Nueva Vizcaya				
Bayombong Hospital	Gen	Gov t	20	

PHILIPPINE ISLANDS—Continued

Hospitals Sanatoriums and Related Institutions	Type of Service	Control	Beds Rated Capacity	Basinets	Number of Births	Average Patients	Patients Admitted	Outpatients
Binalbagan 8 892—Occidental Negros								
Binalbagan 1 State Hospital	Gen	Indus	10	2	3	4	50	
Bontoc 609—Mountain								
Bontoc Hospital	Gen	Gov t	30	0	20	30	1 026	5 340
Butuan, 9 700—Agusan								
Butuan Public Hospital	Gen	Gov t	44		10	20	967	3 044
Cabanatuan 15 282—Nueva Feija								
Nueva Feija Provincial Hospital	Gen	Gov t	00	4	32	31	1 079	9 940
Cagayan, 28 161—Misamis Oriental								
Cagayan Mission Hospital	Gen	Chrch	60	6	27	15	601	
Misamis Oriental Provincial Hospital	Gen	Gov t	20	2	27	9	000	9 071
Calamba 18 002—Luzon								
Calamba Sugar State Hospital	Gen	Indus	20	1	28	20	504	
Capiz 13 980—Capiz								
Capiz Provincial Hospital	Gen	Gov t	70				23	
Capiz 21 096—Capiz								
Emmanuel Hospital	Gen	Chrch	60	5	20	70	1 007	600
Cavite 22 107—Cavite								
Station Hospital	Gen	Army	100	8	131	64	1 797	9 500
U. S. Naval Hospital	Gen	Navy	100				104	
Cebu 60 000—Cebu								
Cebu Maternity Hospital	Mat	Indep	00	27	06	11	583	9 091
Chong Hou Chinese Hosp	Gen	Indep	18			12		
Southern Islands Hosp	Gen	Gov t	00	6	8	54	2 116	4 000
Cotabato 010—Cotabato								
Cotabato Public Hospital	Gen	Gov t	40			33		
Cullion 4 800—Palawan								
Cullion 1 Upper Colony Hospital	Gen	Lepro	Gov t	00	10	77	009	2 061
Cuyo 14 706—Palawan								
Cuyo Hospital	Gen	Gov t	0			7		
Dakupan 22 612—Pangasinan								
Pangasinan Provincial Hosp	Gen	Gov t	0			51		
Davao 10 000—Davao								
Davao Public Hospital	Gen	Gov t	00			30		
Dapitan 10 000—Zamboanga								
Rizal Memorial Hospital	Gen	Gov t	00			7		
Davao 13 046—Davao								
Davao Mission Hospital	Gen	Chrch	00		39	19	1 160	2 000
Davao Public Hospital	Gen	Gov t	60			44		
Del Carmen—Pampanga								
Del Carmen Hospital	Gen	Indus	07	3	26	10	610	
Dipolog 15 000—Zamboanga								
Dipolog Emergency Hosp	Gen	Gov t	12			6		
Dumaguete 6 207—Oriental Negros								
Dumaguete Mission Hosp	Gen	Chrch	60		00	27	1 040	1 997
Fabrica—Occidental Negros								
Iloilo Hospital	Gen	Indus	00		14	14	553	
It Stotsenburg—Pampanga								
Station Hospital	Gen	Army	00	3	143	50	1 610	4 900
Guadalupe—Rizal								
Station Hospital	Gen	Army	220			78		
Guinayangan 4 000—Tayabas								
Philippine Lumber Company Hospital	Indus	Indus	20			7		
Iloilo 40 114—Iloilo								
Iloilo Mission Hospital	Gen	Chrch	00	12	104	2	1 494	0 07
St. Paul's Mission Hospital	Gen	Chrch	100					
Isabela 2 281—Zamboanga								
Basilan Lumber Hospital	Indus	Indus	24			5		
Iloilo 5 700—Iloilo								
Sulu Public Hospital	Gen	Gov t	46			16		
Kabasalan—Zamboanga								
Pathfinder Estate Hospital	Gen	Indus	28		23	8	260	004
Klanan 276—Iligan								
Klangan Hospital	Gen	Gov t	15			12		
Kolambagan 1 200—Lanao								
Kolambagan Hospital	Gen	Indus	24	2	5	11	3 486	0 016
Laong 38 469—Ilocos Norte								
Sanlle Long Road Memorial Hospital	Gen	Chrch	40	2		10		
Legaspi 62 756—Albay								
Albay Provincial Hospital	Gen	Gov t	30	7		28		
Milwaukee Hospital	Gen	Chrch	29	6		6		
Lubugan 226—Kalinga								
Lubugan Public Hospital	Gen	Gov t	8			5		
Luzon 11 939—Tayabas								
Tayabas Provincial Hosp	Gen	Gov t	00	3	70	59	2 107	0 006
Makati 12 470—Rizal								
City Sanatorium	Mat	City	204			220		
Malaybalay 9 868—Bukidnon								
Bukidnon Public Hospital	Gen	Gov t	14		6	10	371	1 100
Mandaue 21 464—Cebu								
Eversley Childs Treatment Station	Lepro	Gov t	780		13	598	491	
Manila 280 306—Rizal								
Bilibid Hospital	Inst	Gov t	000			980		
Chinese General Hospital	Gen	Indep	100			27		
Mary Chiles Hospital	Gen	Chrch	100			62		
Mary J. Johnston Memorial Hospital	Gen	Chrch	90	24	85	80	1 221	
Maternity and Children's Hospital	MatCh	Gov t	84	40	1 434	59	2 700	6 000
Philippine General Hosp *	Gen	Gov t	668	02	2 760	479	15 086	60 901
St. Joseph's Hospital	Gen	Indv	70	14		3		
St. Luke's Hospital	Gen	Chrch	120	10	100	60	2 230	0 034
St. Paul's Hospital	Gen	Chrch	100	12	88	60	1 487	0 034
St. Theresa's Hospital	Gen	Indv	60	10		32		
San Juan de Dios Hospital	Gen	Chrch	230	20		214		
San Lazaro Hospital	TB	Gov t	1 016			911	5 711	4 706
Sternberg General Hospital	Gen	Army	300	8	65	170	2 600	9 068

Key to symbols and abbreviations is on page 1021

PHILIPPINE ISLANDS—Continued

Hospitals Sanatoriums and Related Institutions	Type of Service	Control	Beds, Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Margosatubig—Zamboanga Margosatubig Emergency Hospital	Gen	Gov t	18			6		
Mati 440—Davao Mati Emergency Hospital	Gen	Gov t	6		1	1	2	747
Naga—Camarines Sur Naga Provincial Hospital	Gen	Gov t	22			10		
Olongapo 130—Zamboanga Camilla Simpson Hosp	Gen	Indep	17	8				
Pasay 1883—Rizal Mercy Hospital	Gen	Indiv	2	10	102	0	782	
Puerto Princesa 5827—Palawan Puerto Princesa Hospital	Gen	Gov t	22			6		
Sagada 167—Mountain Mission Hospital of St Mary the Virgin	Gen	Chrch	28	6	7	16	703	
Bethany Hospital	Gen	Chrch	24	4	4	19	946	366
San Fernando, 1988—La Union Bethany Hospital	Gen	Chrch	74	4	4	19	946	366
San Fernando, 1909—Pampanga Pampanga Provincial Hosp	Gen	Gov t	50		60	20	808	
San Jose—Antique Antique Provincial Hospital	Gen	Gov t	12	6	5	7	210	1076
San Juan del Monte 114—Rizal Manila Heights Hospital	Gen	Indiv	100					
San Pablo 31214—Laguna San Pablo Hospital	Gen	City	20			1		
San Pedro 4184—Rizal Hospital Espanol de San tiago	Gen	Indep	40	10				
San Roque—Cavite San Ramon Maternity and Children's Hospital	MatCh	Indiv	14	10	80	6	191	
Santa Barbara 30913—Iloilo Western Visayas Treatment Station	Lepro	Gov t	200			16	163	
Santa Cruz 14151—Laguna Laguna Provincial Hosp	Gen	Gov t	5			17		
Santol—Rizal Santol Tuberculosis Sanatorium	TB	Indep	220			100	664	
Silay 2006—Occidental Negros Silay Maternity and Children's Hospital	Gen	City	21	6	50	10	370	7048
Tacloban, 15478—Leyte Bethany Hospital	Gen	Chrch	2	2	8	7	338	2026
Leyte Provincial Hospital Tagbilaran 1900—Bohol Bohol Provincial Hospital	Gen	Gov t	21	2		9		
Presbyterian Mission Hospital	Gen	Gov t	5	1	1	6	275	3222
Tanauan 19014—Leyte Maternity Hospital	Gen	Chrch	2	2	19	9	81	238
Tarlac 23886—Tarlac Tarlac Provincial Hospital	Gen	Indep	20		4	7	289	624
Vigan 17764—Ilocos Sur Ilocos Sur Provincial Hosp	Gen	Gov t	30			27		
Philippine Christian Institute Hospital	Gen	Gov t	9			4		
Zamboanga 30793—Zamboanga Brent Hospital	Gen	Chrch	30	5		11		
San Ramon Penal Colony Hospital	Inst	Gov t	30	3	12	8	337	291
Station Hospital	Gen	Army	23			5		
Zamboanga General Hospital	Gen	Gov t	50	8		62		
Summary for Philippine Islands								
Hospitals sanatoriums and related institutions	Number	Beds	Average Patients	Patients Admitted				
	8	8497	5797	67322				

PORTO RICO

Aguadilla 1002—Aguadilla Hospital Municipal	Gen	City	24	4		20		
Anasco 3064—Aguadilla Municipal Hospital of Anasco	Gen	City	16	3		9		
Arecibo 12863—Arecibo Clinica de Arecibo	Gen	Indiv	10			4		
Bayamon 1296—San Juan Hospital Municipal de Bayamon	Gen	City	50			40		
Cabo Rojo 460—Mayaguez Hospital Municipal	Gen	City	16			12		
Carrey 593—Guayama Clinica Dr Villeneuve	Gen	Indiv	18	6		8		
Cardo 7322—Humacao Julio Manuel Cintrón Hosp	Gen	CyCo	34			70		

PORTO RICO—Continued

Hospitals Sanatoriums and Related Institutions	Type of Service	Control	Beds, Rated Capacity	Basins	Number of Births	Average Patients	Patients Admitted	Outpatients
Gurabo 3468—Humacao Municipal Hospital	Gen	City	25	2	60	20	1000	
Hato Rey—San Juan Clinica Dr M Julia	N&M	Indiv	100			70	40	36
Humacao 7937—Humacao Ryder Memorial Hospital	Gen	Chrch	46	8	91	30	1,500	
Juana Diaz 2466—Ponce Hospital Municipal	Gen	City	30			48	11	416
Juncos 5297—Humacao Hospital Municipal	Gen	City	20				15	
Lares 3049—Aguadilla Clinica San Jose	Gen	Part	5	2	9	2	47	218
Hospital Municipal de Lares	Gen	City	18	2		15		
Las Piedras 1333—Humacao Las Piedras Municipal Hosp	Gen	City	16				8	
Lolza 1606—Humacao Lolza Municipal Hospital	Gen	City	21			60	11	500
Manati, 7449—Arecibo Hospital Municipal Manati	Gen	City	2				20	
Maunabo, 1117—Guayama Hospital San Jose	Gen	City	9	2	16	8	72	1460
Mayaguez 37060—Mayaguez Mayaguez and Western Polliclinic	Gen	Indiv	80				60	
Mayaguez Sanatorium	Gen	Part	30				20	
Naguabo 4057—Humacao Hospital Municipal de Naguabo	Gen	City	15				6	
Ponce 53470—Ponce St Luke's Memorial Hosp	Gen	Chrch	65	6	41	30	1305	
Santo Domingo de Damas Hosp	Gen	Chrch	110					
Tricoche Municipal Hosp	Gen	City	110	100			75	
Quebradillas 1755—Aguadilla Hospital Municipal de Quebradillas	Gen	City	8				5	
Rio Piedras 13408—San Juan Insular Leper Colony	Lepro	Gov t	60					
Psychiatric Hospital of Puerto Rico	Ment	Gov t	1000				952	
Sanatorio de La Sociedad Espanola de Auxilio Mutuo y Beneficencia de Puerto Rico	Gen	Indep	150	20	53	88	1540	
Salleas 2232—Guayama Hospital de Salleas	Gen	City	60	6			20	
San Juan 114715—San Juan Capital City Hospitals	Gen	City	300	50	1800	165	6000	
Hospital de la Penitencia	G&TB	Gov t	38	20				
Porto Rico Sanatorium	Gen	Indep	16				6	
Presbyterian Hospital	Gen	Chrch	70	7	146	68	1361	
Quarantine Hospital	Iso	Gov t	40					
Station Hospital	Gen	Army	166	10	36	35	1013	1327
University Hospital of the School of Tropical Medicine	Gen	Gov t	52	3	3	23	411	1003
Santurce—San Juan San a Rosa Clinic	Gen	Indep	15	2				
Vega Baja 4794—Arecibo Vega Baja Municipal Hosp	Gen	City	30	6	21	22	246	
Yabucoa 3841—Humacao Yabucoa City Hospital	Gen	City	24	2			12	
Yauco 8607—Mayaguez Clinica El Amparo	Gen	Indiv	2				2	
Yauco Hospital	Gen	City	0					
Summary for Puerto Rico								
Hospitals sanatoriums and related institutions	Number	Beds	Average Patients	Patients Admitted				
	41	2978	1927	15461				

VIRGIN ISLANDS

Christiansted 3767—St Croix Island Christiansted Municipal Hospital	Gen	City	50	6	56	40	918	
Virgin Islands Insane Asylum	Ment	City	5			44	14	
Virgin Islands Leper Asylum	Lepro	City	90					
Frederiksted 2698—St Croix Island Frederiksted Municipal Hosp	Gen	City	35	6	35	25	659	
St Thomas 7036—St Thomas Island Municipal Hospital	Gen	City	92	12				
Summary for Virgin Islands								
Hospitals sanatoriums and related institutions	Number	Beds	Average Patients	Patients Admitted				
	5	322	200	166				

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SATURDAY, MARCH 31, 1934

HOSPITALS IN 1933

The total patient days in all hospitals in the United States in 1933 was approximately 296 million. There were 173 million patient days in mental hospitals, 85 million in general hospitals, 22 million in tuberculosis sanatoriums and around 16 million in other special hospitals. The popularity of the use of hospitals in childbirth is attested by 709,276 births in hospitals last year. One tenth of these were in maternity hospitals. Outpatient departments served nearly 14 million persons, who made close to 33 million calls at these departments. These figures attest the vastness of growth in this phase of medical practice.

The fact that 2,878 hospitals have their clinical laboratories directed by pathologists or, at least by physicians establishes a figure from which to measure future progress. The remaining 1,089 hospitals that have laboratories failed to report regarding their medical supervision. Radiologists or other physicians are reported in charge of 3,487 roentgen-ray departments while 892 departments reported lay directors or failed to specify.

Further evidence of the growing extent of medical practice in hospitals is contained in the names of 126,261 physicians having hospital connection, duplicates eliminated. Of these, 113,631 are on regular, consulting and other staff lists, 2,312 are physician superintendents, 2,348 are resident physicians and 7,970 are interns. The number would seem to represent well nigh all the qualified physicians in active practice. There are, however, still problems of local distribution, both as to physicians and as to hospitals.

The list published on pages 1021 to 1083 in this issue contains the names of 6,437 registered hospitals together with the capacity, the ownership or control, the type of service rendered, location and other important data. The total capacity of all hospitals is 1,027,046 beds and 52,464 bassinets. There are 576 institutions which, after investigation, were refused registration. The total capacity of those refused, however, is only 1.6 per cent of the capacity of all hospitals.

Special symbols show 677 hospitals approved for internships, 370 for residencies in specialties and 1,760 operating state accredited schools of nursing. The special recognition given to hospitals, as well as their registration and classification, is based on inspection wherever possible. Several hundred additional hospitals are visited each year. However, whether a hospital is inspected or not, reports are obtained from superintendents, intern committees, and others who are in best position to know conditions.

The privately supported hospitals and in the main private general hospitals have been most hard hit by the depression. General hospitals, most of which are wholly or partially dependent on pay or part-pay patients, have not participated in the increase of thirty million patient days for 1933 over those of 1929. That increase went to the mental hospitals, most of which are supported by state governments. Furthermore, the general hospitals of the country carried a burden of idle beds, averaging 155,000, equal to the number of general hospital patients in the entire United States west of Pittsburgh. The resulting loss of revenue, plus the actual cost of maintaining these idle beds, is sufficient to place nearly all such hospitals in a precarious financial condition.

Still another drop in the revenue of general and some other hospitals has been due to the reduction in the length of time that patients have spent in hospitals. The average length of stay in all general hospitals in 1933 was fourteen days. That of many individual institutions ran as low as six or eight days. Such a record, although excellent for the reputation of the institution, is not so favorable to its finances.

Private hospitals have seen a considerable proportion of their paying patronage reduced to such financial straits as to be forced to enter the tax-supported institutions. At the same time the amount of charity work, non-pay hospitalization and delinquency in payments have materially increased.

This condition has forced hospitals to invent new ways of carrying on their struggle for existence. There may be some compensation and consolation for hospitals in that their experiences during these years have resulted in some improvement of methods and in the discovery of economies, some of which might well be adopted permanently. There is room for every consideration and all possible support that can be given to deserving hospitals by the medical profession as well as by the public.

It would seem that the nation as a whole is oversupplied with general hospitals and other types of institutions excepting those for mental diseases and tuberculosis. These two types of institutions, especially many of the large state mental hospitals, are indeed crowded. With regard to other than mental and tuberculosis hospitals however, there are, in some places, large and costly investments in idle beds. The question of overbuilding is one that in the last analysis is the

special problem of each individual community. Therefore, in the contemplation of additional hospital facilities, the community should study carefully (1) the adequacy of existing hospital facilities and (2) future needs. Competitive building will hinder rather than help. A hospital building project to sell real estate or to expand the sale of equipment should be deprecated. Plans for the future should be based on reasonably expected growth, not on the present abnormal situation and certainly not adopted as a financial promotion primarily.

CERTIFICATION OF SPECIALISTS

At the last annual session of the American Medical Association a resolution was adopted authorizing the Council on Medical Education and Hospitals to express its approval of such special examining boards as conform to standards of administration formulated by the Council and urging the Board of Trustees to use the machinery of the American Medical Association, including the publication of the Directory, in furthering the work of such examining boards as may be accredited by the Council. Pursuant to that action, the Council is beginning with its task of designating and classifying the specialists of the United States. Arrangements have been made in the publication of the next edition of the American Medical Directory to indicate those physicians who hold the certificates of some of the boards already established, and also to describe the nature of the boards which will be considered acceptable by the Council. Already certifying boards have been established in the fields of ophthalmology, otolaryngology, dermatology, and gynecology and obstetrics and boards are said to be forming in the fields of roentgenology and orthopedic surgery. Moreover, there is some evidence of a desire to establish a special board in the field of general surgery, a board in which the section of the American Medical Association and representatives of the leading surgical associations should have a part.

In the meantime, as a result no doubt of suggestions made at a hearing before the reference committee of the House of Delegates at the meeting in Milwaukee the certifying boards already established have organized among themselves an advisory board which it is presumed, will serve to coordinate the activities of the several boards, standardizing their methods of work and advising with them in their operation. The functions of this coordinating board are clearly to aid in the practical operation of the boards rather than to define their methods of work or to sit in judgment on the results of their operations. That clearly according to the resolution adopted by the House of Delegates of the American Medical Association, is to be the function of the Council on Medical Education and Hospitals. As an independent body the purpose of which will be to maintain the operation of the certifying boards in the specialties at a high level both as to standards

adopted and as to conduct the Council on Medical Education and Hospitals could hold no representation on this coordinating board. It may, of course, advise with the coordinating board at such times as its advice may be sought. It would hardly be in order for a body sitting in judgment to hold membership on a board whose work it was expected to judge.

The machinery of the American Medical Association in support of the work of the certifying boards has already begun to function to some extent. The mere description of the boards in the American Medical Directory and the listing of those who hold the certificates is in itself a vital step in making effective the advancement of the specialties concerned. Beyond this, however, the American Medical Association has broadcast over the radio, through newspapers and to some extent through its periodical *Hygeia* a description of the certifying boards and a statement as to the significance of their certificates. As information concerning the work of these boards becomes more widely disseminated among both the medical profession and the public, their prestige must grow. Eventually the young man who wishes to make for himself a place in any of these specialties will consider the securing of a certificate by a council-recognized certifying board as the first step in such a procedure. Hospitals will also do well to be guided in their staff appointments by similar qualifications.

Movements of this type necessarily develop and advance slowly. However, with the qualifications and restrictions that have been outlined, there is reason to believe that the certifying boards will do much to advance the quality of specialistic service available to the people and to the profession of our country.

RESPONSE OF THE COLON TO CATHARTICS

Probably no part of the physiology of the body impresses itself more persistently on the consciousness than activity of the large intestine. Whether the contents collect and remain too long or whether the organ is prone to empty too rapidly, the individual is aware of the situation. Consequently, this organ is the object of the greatest amount of self medication. And although various other functions have been demonstrated, the activity of the large intestine in absorbing water from its contents and propelling the feces thus formed toward the anus still seems to be its characteristic if not its most important purpose. In an effort to elucidate certain of the details of the action of cathartics on the colon, Larson and Borgen¹ of the Mayo Clinic recently examined the question of the production of mucus and its response to certain drugs under experimental conditions (isolated loop of colon). The function of the mucus secreted seems to be to lubricate the fecal mass, the amount is fairly constant

¹ Larson, L. M. and Borgen, J. A. Action of Cathartics on Isolated Dog's Colon. Arch. Surg. 27: 1120, 1130 (Dec.) 1933.

and tends to be less the quieter the animal. Ten or fifteen minutes after defecation there was an increase, which lasts for about an hour. In pregnancy the amount of colonic secretion is higher than before, and the response to defecation, whether normal or after catharsis, is augmented. Diarrhea of unknown cause was accompanied by an elevated secretion of mucus.

When cathartics were given there was no increase in the production of the secretion of the colonic loop until defecation occurred. With phenolphthalein, senna and rhubarb there was a marked rise in mucus production and a rapid fall to the control level. Although the obvious effects produced by castor oil were no different than those brought about by the foregoing cathartics the secretion into the loop continued at an elevated rate for about four hours. Colocynth induced a prompt and marked rise in secretion and an immediate fall. In contrast to these observations, the results after administration of the saline cathartics and after an enema of water were little different than in the control experiments. The Rochester investigators do not believe that the increase in intra-abdominal pressure incident to defecation serves to force out mucus already secreted in the colonic loop. Close observation of an area of exteriorized mucosa showed an actual increase in the mucus production at the time of defecation. Furthermore, when the act of defecation was interrupted, the production of secretion was only slightly above the control level. It appears that the muscles of the wall of the large intestine are involved in a nervous reflex, thereby contracting and "resulting secondarily in stimulation of secretion of its goblet cells."

A correlated study of the motor activity of the large intestine after the administration of cathartics was carried out on the isolated loop by the balloon method. At rest there were demonstrated continued rapid contractions in the cecal portion of the isolated loop, whereas the distal part was usually quiescent. Respiration had little effect on the movement in the cecum. During normal defecation, the movements of the loop were unchanged until straining occurred, then movement in the cecal portion largely ceased for a time and a wave of contraction passed over the distal segment and activity in this part lasted from fifteen to twenty minutes. With the saline cathartics the motor response was not unusual, the persistence of activity in the distal colon was greater with phenolphthalein and rhubarb, movement lasted still longer after defecation when mild mercurous chloride and senna were administered, and following castor oil it was many hours before the distal segment of the colonic loop was normally quiescent. In general it was observed that, after the use of cathartics, the movements of the isolated loop were of a peristaltic nature.

These observations are in general agreement with those of Raiford and Mulinos² on a section of exteri-

orized colon. By suitable means changes in transverse as well as in longitudinal dimension were recorded. A stimulation of the mucosa causes the longitudinal muscles to contract below the stimulus, enlarging the lumen of the intestine, no contraction occurs above the stimulus. But the circular muscles contract above the stimulus narrowing the lumen and forcing the bolus into the enlarged portion. The repetition of a series of such reflexes gives the appearance of peristalsis. In general, it appears that the so-called myenteric reflex still is an important if not the chief factor in moving the contents of the large intestine in a posterior direction.

Current Comment

ARTIFICIALLY INDUCED LEUKEMIA

In an extensive investigation particularly of susceptibility to cancer, to which reference was recently made in these columns,¹ a study was made of the results of the continued administration to mice of indole, the indirect tumefacient effects of which had been already established by a number of other workers. This study, by Bungeler² in the laboratory of Fischer-Wasels, indicates that with this substance metabolic changes occur similar to those observed after prolonged administration of arsenic or application of coal tar—a shift of metabolism from the normally oxidative type to the fermentative type identified by Warburg with tumor metabolism. A by-product of this work is of special interest. The original repeated administration of indole in rather large doses caused in the mice a high proportion of deaths from general intoxication, while in others it produced a hemolytic anemia with leukopenia and hemorrhage and necrosis in the bone marrow. The dosage, in smaller amount was continued, and animals so treated showed atrophy of the medullary blood-forming centers. Continuation with still smaller doses led to the appearance of regenerative changes in the hematopoietic organs, accompanied by increase of the white cells in the circulation. The anemia however, developed progressively. After eight months of indole administration several animals showed an aleukemic lymphadenosis, several the more usual type of lymphadenosis, one a typical lymphsarcoma, several typical myeloid leukemia and a number aleukemic myelosis. In all, 17.5 per cent of the surviving animals showed what Bungeler regards as apparently neoplastic changes of the blood-forming organs. Of the remaining animals a great majority showed regenerative changes in these organs, with in part the appearance of extramedullary centers of hematopoiesis. A smaller portion showed marked degenerative changes—fibrosis and amyloid degeneration of the marrow, spleen and liver. That these conditions are not of spontaneous origin is indicated by the fact that all intermediate changes were observed between the regenerative and the apparently

¹ The Origin of Cancer, editorial J. A. M. A. 102:214 (Jan. 20) 1934.

² Raiford, T. S. and Mulinos, M. G. Proc. Soc. Exper. Biol. & Med. 31:346, 1933.

² Bungeler, Walter. Die experimentelle Erzeugung von Leukämie, aleukämischen Myelosen, Lymphadenosen und Lymphosarkom. Klin. Wochenschr. 11:1982 (Nov. 26) 1932.

neoplastic lesions. Also, with sufficiently continued indole intoxication, all the animals showed changes of some type in the hematopoietic system. In a large stock of white mice observed over the same period, but used in other experiments, spontaneous lymphadenosis was seen only twice. That such disease is not common in mice is indicated by statistics from Maud Slye's laboratory, which show that its total natural incidence in 15,000 mice was 1.4 per cent. The development of these lesions in animals under conditions known definitely to predispose to tumor development, and the additional fact that organs infiltrated with myeloid or lymphocytic elements showed the metabolic change to aerobic fermentation characteristic of malignant tumors, would seem to place this group of hematopoietic diseases decisively in the category of neoplasms—a grouping that has long been suspected. The fact that a diversity of changes was observed serves also to clear up at least in part a feature of embarrassment in the classification of these diseases, in which cases of atypical or intermediate character have clouded a conception already sufficiently complicated.

Medical Economics

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**Birdsell Loan and Finance Co., Inc., Fools
Professional Men**

The Birdsell Loan and Finance Co., Inc., of Evanston, Ill., is engaged in the general collection business. It is reported that Mr. A. E. Birdsell, president of the company, stated that the company had also been engaged in financing past due accounts. The company was apparently chartered in December 1929 with an authorized capitalization of \$20,000, consisting of 1,200 shares of stock with no par value. We are informed that it began operation with offices in Jacksonville, Ill., where it was located for about two years, then moved to Rock Island, Ill., where it was located for about two years, and that the offices were finally moved to Evanston in September 1933.

The contract provisions of this company contain many clauses against which physicians have been warned in the columns of *THE JOURNAL* and *The Bulletin*. The physician who places his accounts in the hands of the Birdsell Loan and Finance Co., Inc., assigns and sells his accounts to the company subject to the company's discretion in settlement. He authorizes the company to take notes from debtors payable to the company and he further agrees "to receipt in full any account on which the company accepts note in lieu of cash after commissions have been deducted" and he has received the amount due him on the account. The physician constitutes, empowers and authorizes the company his sole agent for the purpose of negotiating any or all settlements of accounts listed with the company and he also constitutes, empowers and authorizes the company his sole agent and attorney in fact for the purpose of endorsing all papers of any kind or nature that may come into the company's possession. Furthermore, the physician agrees not to accept settlements or payments on any of the accounts listed with the company without forwarding the full amount of said payment to the company the day settlement or payment is made.

These citations to the contract provisions to which the physician subscribes when placing accounts with the Birdsell Loan and Finance Co., Inc., are sufficient to show that the contract is drawn largely in favor of the company and completely removes from the control of the physician the methods to be used in making collections. Moreover, it places the company in complete control of all moneys and papers.

Other organizations besides the American Medical Association have received numerous complaints from clients who allege

that they cannot obtain the moneys collected for them by this company. In this connection a printed article which appeared in "The Report of the Chicago Better Business Bureau," Feb. 22, 1934, is of interest.

'PROFESSIONAL MEN FOOLED BY BIRDSSELL COLLECTION DEAL

"Men are not born successful. Success is the outcome of achievement." These are the words of A. E. Birdsell, as quoted in *Buffalo Saturday Night* many years ago.

As for Mr. Birdsell's own achievements, he has recently been successful in fooling a multitude of business and professional men through his Birdsell Loan and Finance Company, Inc., now operating from 1513 Sherman Avenue, Evanston, Illinois, as a collection agency.

The Birdsell contract by means of which complainants feel they have been deceived is not exactly what it seems. The business or professional man, first of all, does not merely turn over his accounts to Birdsell's agency for collection. He assigns and sells them subject to the company's discretion in settlement.

The commissions demanded for the collection of delinquent accounts appear to be very moderate on first reading of the contract—only 25 or 30 per cent. However, the business man frequently fails to grasp the meaning of the word aggregate as used in the contract, which says that the company's commission is 25 per cent of the aggregate amount listed. Birdsell interprets this as meaning that if the client assigns accounts totaling \$2,000 for collection, and the company collects less than \$500, the entire amount collected is retained by the company as its commission. Many collection agencies have advised the Bureau that according to their experience seldom more than 25 per cent of the aggregate amount listed ever is collected by an agency on accounts of this nature.

Practically speaking, the business man who assigns his delinquent accounts to Birdsell's concern is saying, "These people owe me \$2,000. You may do with them as you wish—I have nothing to say about it. You can endorse checks and notes made payable to me, negotiate settlements and act as my sole agent in return for which you are to keep the first \$500 you take in. Until this \$500 has been collected by you, any money I may personally collect on these accounts is yours. After that anything realized over and above \$500 should be mine."

Business men who have complained to the Bureau have stated that the salesman represented that the company would mail to the client 75 per cent of all money collected as it came in. They have failed to grasp the significance of the word assigns.

Birdsell's concern formerly operated from Rock Island, Illinois. In 1932 a doctor in New York realized that he had been deceived and advised his debtors to pay the Birdsell company nothing. Birdsell wrote the following to one of the debtors: "If Dr. ———— thinks he is running our business, he is sadly mistaken, and if you use Dr. ————'s services in the future, I want you to bear in mind that he has not carried out his contract with us. We don't trust him and you are to judge whether or not you should."

The doctor took his complaint to his local Better Business Bureau and Birdsell's letter to the Bureau states: "I have no confidence in any Better Business Bureau which is indicated by the letter I am enclosing for your perusal, a copy of which I am enclosing to the clients. The letter enclosed was a malicious attack on Better Business Bureaus by J. L. Foreman of Foreman's National Detective Agency, Denver, Colorado, which has since been revealed as a local unit of ex-convict Logan Billingsley's anti-Better Business Bureau organization. (This organization included questionable investment operators, promoters, loan sharks, fraudulent users of the mails, and others who had reason to dislike Bureaus.)"

A letter of endorsement from Foreman and another from the "A. M. A. Detective Bureau" of Birdsell's own creation appear in the sales kit solicitors for the present enterprise have shown to prospects. One solicitor is said to have carried a letter of endorsement from the Chicago Better Business Bureau. The only letters the Chicago Bureau has addressed to Birdsell have been in connection with inquiries and complaints with the exception of one written in answer to Birdsell's refusal to provide the Bureau with information to be used in handling inquiries regarding his concern.

The Bureau's investigation of Birdsell's past activities indicates that in 1922 he formed the A. E. Birdsell Company, Inc., operating at 46 Builders Exchange, Buffalo, N. Y. On February 3, 1923, the *Buffalo Express* published a news article in which it was stated that he had left the concern with liabilities of \$91,000. This was evidently intended as a cooperative venture giving stockholders the right to buy coal and ice at a discount.

In 1927 Birdsell was employed by the United States National Adjustment Company, 3408 South Michigan Avenue, Chicago, another agency which has been generally complained against.

The Better Business Bureau, Inc., of Indianapolis reported a few months ago (December 1933) that it had received some serious complaints relative to this organization, all based on the company's high pressure methods of obtaining collection accounts and the methods used in making collections and handling the accounts.

The secretary of a state medical society in a Midwestern state reported that a representative of the Birdsell Company, soliciting business in other parts of the state, had showed a copy of a telegram supposed to be an endorsement of the company by the secretary of the state medical society. According to the secretary of the state medical society, the telegram was a complete forgery.

It is also stated by the same state medical society secretary that the Birdsell Company has practiced some peculiar methods in financing medical accounts, it is alleged that after securing a note for the amount of the medical account, signed by husband and wife, the company would then pay the physician 75 per cent of the amount of the note at once, but if the company failed to collect the note, the physician was required to refund to the company not the 75 per cent of the face value that was advanced to him, but the entire face value, in order to take up the notes

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, LICENSURE AND HOSPITALS

Thirtieth Annual Meeting held in Chicago Feb. 12 and 13, 1934

DR. RAY LYMAN WILBUR, Stanford University, Calif.,
in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 13—MORNING

Review of the Accomplishments of the Council on Medical Education and Hospitals

DR. RAY LYMAN WILBUR, Stanford University, Calif. The impact of the laboratory on American medical education began to effect significant changes about the time the American Medical Association brought the Council on Medical Education and Hospitals into being. The Council has seen the continuous battle of the science of medicine with the practice of the art of medicine; the application of a myriad of new facts in the everyday life of the physician; the lengthening and strengthening of the medical course; the acceptance of the professional schools of medicine by many universities; the building of research institutions, medical schools and capricious hospitals; and a nation accepting the principle of preventive medicine and inaugurating public health measures based on controlled experiments and experience rather than on traditions and prejudices. The records of the Council show a revolution in method, organization and administration carried on with the help of the organized medical profession. The laboratory began to knock at the door of every institution. It meant trained men, expensive instruments, adequate equipment, a lengthened curriculum. The American Medical Association, through THE JOURNAL under the leadership of Dr. George A. Simmons, began to print educational numbers. It presented facts. With the assistance of the Council a complete survey of medical education was made. The idea of classifying medical schools on a merit basis was brought forward.

A review of the accomplishments of the Council emphasizes certain outstanding inadequacies in present medical education. Medicine has kept up to date with scientific advance but is behind in response to the social changes brought about by industry and the application of science to all phases of social and governmental relationships. The American medical school and its associated hospitals have now reached the stage where a new national survey is required. Every institution should be again studied. A higher level has been reached. There is as great a gap between the best A schools and the weakest A schools as there was between the best and the worst of thirty years ago. This survey must include the following considerations: 1. A better development of graduate instruction so that all physicians may have available opportunity of keeping themselves up to date. 2. We must rid ourselves of the antique, the obsolete, and the unimportant in our medical courses. The curriculum must be stripped of all that is not essential. Our aim must be to train men how to practice medicine rather than to load them with great masses of information. 3. The newer social concepts for the care of the sick and particularly the significance of preventive medicine must be emphasized in the medical school. 4. There must be more adequate study of the normal with its many variations. 5. The teaching of obstetrics must go far beyond the ordinary techniques and include the care of the mother for months before

delivery. 6. The relationships of dentistry and of the nursing profession to medical education must be worked out. 7. Perhaps most significant of all is the need for dealing with psychology and aberrations of the mind from entirely new points of view. 8. Most careful study will be required of the relationships of the hospital to the medical school. The doctor of tomorrow will know the physiology of the normal human body will be alert to changes that may take place and will think in terms of keeping men well and efficient rather than in terms of treating a patient during the progress of disease.

The Philosophy of Professional Licensure

JUSTIN MILLER, J.D., Durham, N.C. The purpose of professional licensure is to secure to society the benefits that come from the services of a highly skilled group and on the other hand to protect society from those who are not highly skilled yet profess to be, or from those who, being highly skilled, are nevertheless so unprincipled as to misuse their superior knowledge to the disadvantage of the people. For the present at least society seems willing to permit the medical and legal professions to work out their own destinies and to use the method of licensure for further building up and strengthening our traditions of self government and public service. How long this attitude of society may prevail will undoubtedly depend on how convincing shall be our demonstration of willingness to render the highest degree of service.

The nature of professional service requires the existence of a relationship of trust and confidence. A professional man cannot treat such a relationship in a casual way, and the methods of licensure must be such as to insure the constant recruiting of men who are adequately trained to render skilled service and alert to accept the responsibility of protecting those whom they serve against spoliation. It is generally recognized as an obligation of a profession that it should render needed service to persons too poor to pay fees. In spite of the indifference of those professionals who are concerned solely with rendering service to paying patients, it is obvious that in the performance of the functions mentioned it is to be found a safeguard for the future of our professions. So long as the public is convinced that the members of a profession will make available to it at the earliest moment consistent with safety, every new discovery the public will give its loyal support. Whenever the public suspects laziness, incompetence or apparent unwillingness to assume responsibility for problems that have theretofore been assumed to lie within the field of a particular profession it will look to others for help. Thus may be developed a new skilled service or the public be despoiled by fakers. One of the greatest trials of the medical profession results from the encroachment of miracle working religionists and psychic and psychologic charlatans. And yet although it is generally known that many medical cases are mental rather than purely physical in character and although it is authoritatively stated that over 50 per cent of hospital beds are devoted to mental and nervous cases in some medical schools is found a strange resistance to the experimental work of psychology and stupid unwillingness to develop the field of psychiatry. Failure to do so is unfair to the public and to the profession.

With their backs to the wall the lawyers too are now using the method which the church once used to protect their borders—namely laws prohibiting others than licensed practitioners from practicing law. These unlawful practice acts have been passed in a number of states. In some states they have been decisively defeated, a clear indication of loss of public esteem and evidence of lack of that faith which is necessary to guarantee popular support of a profession. Professions like armies succeed by using militant offensive tactics. Many of the teachers in professional schools today are men entirely lacking in the practical experience that comes from actual contact with the world outside of university communities. Some are frankly disinterested in the relation of their professions to society and are even disinterested in the practitioners themselves.

It is quite possible for us in the educational group not merely to discover for those in the licensure group ability of the type which has been tested in the past but to answer almost any question one cares to ask concerning these neophytes who are in our care. With the backing which well regulated licensure gives we can establish such standards of education as licensure

requires The important question is whether those of us in whose hands now rests the destiny of the professions are really interested in the underlying philosophy of licensure and willing to establish the necessary procedures for properly determining, by adequate training and selection, those who are to follow us

DISCUSSION

ALPHONSE M. SCHWITALLA, SJ St Louis Any governmental authority necessarily labors under a series of all but prohibitive incapacities in fixing basic standards of selection for a profession The governmental authority is at times vastly remote not only from professional idealism but all too often even from that professional service which licensure by its very concept is intended chiefly to promote foster and develop for the public's welfare The governmental authority is subject to the vacillation arising from political favor and disfavor It is vested, and necessarily so, all too frequently in persons whose appreciation of professional life is limited to casual contact with members of the profession and among these all too frequently with the least representative members or at least with the less alert, less progressive and less capable members of the profession Governmental authority moreover, is concerned largely with the problems of integration of the claims and rights of one profession with those of another and even with the claims and rights of a profession with reference to the claims and rights of nonprofessional groups and while these conflicting claims and rights must be recognized by the state it can happen all too frequently that the safeguards for professional integrity may be jeopardized while the governmental authority under a temporary pressure is forced to give recognition to the nonprofessional interests Corollaries without number but with enormous significance for a professional life follow from such conflicts In general I believe, it would be quite fully recognized that while the abstract right to establish standards of selection must be granted to a governmental agency there will also be wide agreement on the principle that the state in establishing its basic standard of selection should not as a matter of prudence and as an evidence of its solicitude for the public welfare retain for itself the establishment of the criteria for licensure

What should be the relation between the governmental authority and the members of the profession in laying down the basic standards for licensure? Have we reached a time when we are prepared to accept the principle that the standards for licensure should under the delegated authority of the government be formulated by and even administered by the foremost members of the profession? In medicine we have already recognized the National Board of Medical Examiners as a professional agency whose disinterestedness and idealism are so obvious that many of the state boards have taken success in passing these examinations as *prima facie* evidence of a marked eligibility for licensure Graduation from an approved school of medicine has been suggested by some as a sufficiently effective selective procedure for establishing the qualifications for licensure This suggestion is somewhat premature The chief difficulties with this policy arise from the fact that even approved schools of medicine cannot or, at least do not universally take the position that the medical curriculum is necessarily an educational agent for such professional development of the prospective physician as will entitle him to the rights and privileges of medical practice within a given state Professional practice implies more than intellectual ability Serious questions have been raised as to the value of merely intellectual achievement as a preparation for the art of medicine I note that Dean Miller is at serious pains to show us that at Duke University the curriculum in law implies tests of character traits and moral fitness Much more is the medical curriculum interpretable as a testing agency of character traits social traits and moral traits But the difficulties arise when we are confronted with the necessity of using such information as we have about a student What school if the truth must be told has the courage to withhold its final approval of a student who after successfully passing through his examinations is still found to lack those traits of character which we all desire in our own personal physician? Is there not and will there not ever remain an extensive disagreement on the content of professional ideals and objectives? If the medical schools which are in intimate touch with a student throughout

the years of his preparation find it difficult to pronounce on the eligibility of a student for practice, how much more difficult must it not be for a state board to determine such eligibility The solution of this dilemma must ultimately lie in our basic philosophy of medical education A school of medicine must clarify for itself its own ideals and objectives It must submit these ideals and objectives to the public judgment so that the public may be aware of the school's claims The school must be held responsible for putting into its curriculum as well as into its extracurricular influence that measure of educative pressure which will mold the plastic individuals subjected to it into ever stronger and better men who will carry the overpowering burden of responsibility for the nation's welfare It would seem that the state board criteria for the eligibility for practice should contain not only the intellectual element which is tested so rigorously by the schools of medicine and by the state boards themselves but also a moral element for which the tests are still to be developed or which, if tests cannot be developed, must be taken for granted If the state boards do not exercise firmly disinterestedly and vigorously the power that has been vested in them in favor of or against those candidates whose eligibility or noneligibility has become apparent from such tests as are at our disposal, then all the refinements of modern psychology, of educational psychology, of vocational guidance, of confidential direction, are worse than useless The state board must in the last analysis be made up of such men as are able to carry the public responsibility imposed on them

Medical Education and Its Relationship to Society as a Whole

ROBERT G. SPROUL, LL.D., Berkeley, Calif It seems to be the accepted conclusion that there is today an oversupply of physicians in the United States In any profession an oversupply of practitioners means a powerful temptation to low ethical standards induced by desperation The law, encumbered with twice as many lawyers as are needed, has felt these effects, and on the commonwealth the effects have been disastrous Medicine has not come through unscathed Overcrowding has increased fee splitting the promotion of unnecessary services or of necessary services in an unnecessary expensive fashion, illegal operations, the employment of "runners," and other sordid by-products of a noble profession In combating these forces, far-reaching steps have been taken during the past quarter century The number of medical schools has been reduced from 160 with 64 graduates per hundred thousand of population to 66 schools with 36 graduates per hundred thousand of population The number of physicians trained has been reduced by 20 per cent although the contemporary increase in population has been 50 per cent, and the average age of the beginning practitioner has been raised from 22 to 28 years Nevertheless the supply still far outstrips the demand There is a strong movement deliberately planned, to realize more fully the advantages of restriction Studies are being made to show the number of physicians actually required to care adequately for our population Plans are on foot when these data are available to decrease the number trained and licensed to practice medicine to the point at which supply and demand are reasonably equalized In medicine, as in other fields, steps are being taken to limit the professional group, on the ground that discriminative selection is socially beneficial and that the individual is and ought to be of secondary consideration

These developments are counter to the democratic ideal which has hitherto controlled in the United States They will not be accepted without question by the American people With 16,000 eligible candidates clamoring this year to enter the medical schools of this country and Canada, and the doors closed arbitrarily in the faces of all but 6,200, plans to exclude still more so as to train and license only as many as may find employment will not, we may be sure prove acceptable to fond and irrational American parents We Americans have believed so thoroughly that all men are created equal that we attempt to keep them so throughout their lives and are actually in grave danger of making mediocrity the national ideal With such bases of selection as we now possess, we cannot be sure that our conclusions are not subversive of the best interests of society because they may exclude very good prospects and welcome rather ordinary ones What are we going to do about it? In

the first place certain natural checks are already beginning to be operative. Few things more helpful to professional education could be done than to determine the approximate needs of the state respecting each profession, disseminate this information widely and thereby, so far as possible, attain voluntary limitation of the numbers of candidates for professional work and a voluntary sorting of such candidates among the various professions. For all citizens up to a certain age level there should be a general training designed to raise the level of intelligence and to prepare them for living and making a living. This is the highly important task of the elementary and secondary schools including the junior colleges. The university and the four year college should be for those who are attracted to and show proficiency in scholarship, either for itself or as preparation for a profession. Here the people should be satisfied with nothing less than the best attainable institutions and the best attainable students. A university's first duty in the professional field is to select and educate those who give promise of becoming the ethical and scholarly leaders. The training of adequate numbers must always be an important but secondary obligation. The general acceptance of these simple principles by the American people would save ages of time and fortunes of money without weakening the foundations of democracy. The second step should be in the direction of adjusting the distribution of medical service, in order that it may meet more fully the health needs of the public before further limitation of the number of medical school entrants or graduates is undertaken.

Some grumbling has been heard concerning the advanced age of medical graduates, but this seems to me inevitable if not desirable. The overwhelming majority of medical graduates will practice the art rather than the science of medicine. They will need for success and happiness not only knowledge of the fundamental principles of science and of their application to other branches of knowledge but also a taste for history, philosophy, literature and art that will stamp them as cultured gentlemen. More physicians are failing because they are not the kind of person one wants to have around than because of a lack of technical skill.

There is imperative need for the reversal of the recent trends that have been separating the doctor from the individual and the family and have been bringing on medicine the criticism of treating diseases rather than human beings. Concentration on pathologic conditions has tended too much to obscure the normal human being and the preservation of the normal state of health. A general practitioner should be competent to take the complete responsibility for perhaps 90 per cent of all his practice. The University of California is placing special emphasis on the instruction of medical students in the normal physiology and biochemistry of the body. Our students are being taught to recognize health before sickness and to realize the interrelationship of the body's organs, especially those delicate balances of the life processes that exist between the nervous and the mental, in one scale, and the physical, in the other. Only when they have become well acquainted with health are students introduced to those deviations from the normal which produce sickness. To facilitate this manner of approach fourth and fifth year students are obliged to assume entire responsibility for patients. Instead of looking on while their instructors make decisions, they are required to make the decisions themselves. Students are discouraged from too early specialization. They are encouraged instead to learn to use specialists in connection with a general practice. In the coming era, doctors must face social responsibility for the community and act as trustees for society in planning their objectives. Thus will medicine be strengthened and extended and implemented to serve a larger constituency on a basis that will yield adequate returns to its practitioners.

All the sciences are leading up to a better understanding of the laws of life and a consequent improvement of the physical, mental and moral powers of man. Medicine, preventive and curative, promises to do more and more for human welfare. If legislation and civil administration will keep up with science, if knowledge can be controlled by ethical standards and applied with temperance, if the organizations and attitudes that you and I represent can be given support, encouragement and opportunity there is no reason why the community of tomorrow may not be altogether free from most of the foes which in this and former generations have slain their tens of thousands.

DISCUSSION

DR E P LYON, Minneapolis. I was struck by the discussion of the alleged right of the student to pursue a medical course or any other course. I could make a strong case for denying this right, on the basis of social rights generally, but I prefer to make the claim that no student has a right to this on the same basis as automobiles or trips to Europe. No student has a right to something more than half the expense of which rests on the public. I think there is need for a great deal more clarity as to what our rights of education are. Those rights are of recent origin. I may look on any public thing and say "I partly own this fire station. I partly own this army camp," but to go into that fire station or army camp and use the facilities there is not my right. It is the right of people chosen to use them. I think that principle will hold in regard to a hospital and its facilities and opportunities for education. I think every dern here will say his chief business is the training of general practitioners. But if it is implied that the education of specialists of public health people, of researchers should be a separate function then I wish to demur. I think the education of specialists with general practitioners is a good thing and I can demonstrate it from experience. I am sure that the carrying on of research as a part of the program of a medical school and as accessory to its teaching is what gives spirit and gives something more than the application of the so called practical to the man who goes out.

The Restoration of the General Practitioner

DR DRAY LEWIS, Baltimore. This article appears in full in this issue page 977.

DISCUSSION

DR JAMES B. HERRICK, Chicago. The general practitioner of the old type cannot and will not be put back and I do not think the old type practitioner should be put back in the present condition of medical knowledge. The general practitioner of the old type has passed very largely and he had to pass. The mass of medical knowledge that came on the world a few decades ago was so huge that it made it impossible for any one mind to grasp it all or to practice in accordance with that knowledge. The day, in other words, of the know all doctor and the do all doctor has passed. There is another reason why the old type medical practitioner cannot be reestablished. People have become health conscious, they know a great deal more about medicine than they formerly did and they are demanding not an average type of medical service but the best. They go where they think they get it. They are apt to go to the specialist, and the good roads, the telephone and the automobile make it a simple thing for them to do that. I object as Dr Lewis does to the term "general practitioner." We cannot restore by resolution a practitioner to his former position. He must restore himself, and he is doing it. There is developing a new type of family doctor and that type is going to succeed if he is qualified and only if he is qualified. The qualities that are going to count are character, energy and personality. The other qualification is that he must possess knowledge that he gets by study, by the guidance of teachers in college, during his internship and what so many practitioners forget, by studying long and hard through the years of practice. There is a good deal of overstandardization in medical schools. Dr Lewis is right when he says that there are a great many unnecessary non-essentials that are dwelt on. Teachers should stress more the essentials and fundamentals. Somewhere in the undergraduate course there should be not an opportunity for a man to do intensive work on some one subject, but he should be compelled to do it. Many medical graduates do not know the meaning of the word 'thorough' but when a man has gotten away from his textbooks and has been forced to look at monographs and original articles and to look in the laboratory at the section under the microscope and to attend the postmortem and has gone as deeply into the subject as the time and opportunity will permit, he is a far safer man in the community than the man that we have to dub 'mediocre' who is versed simply in the essentials. I know of no more dangerous man in the community than the mediocre practitioner who does not know his own limitations who does not know the limitations of method, the dangers and limitations of an operation. The third requirement is that the practitioner should be qualified in the art of medicine.

his ability to apply knowledge, which he learns by experience at the bedside. I have no quarrel with the research man, but practitioners are not going to learn how to practice in the research laboratory or in the library. The best textbook for the practitioner of medicine is the patient. Albert said that practitioners are made at the bedside. Neisser said that pathology is the mistress of us all. Osler said: To study the phenomena of disease without books is to sail an uncharted sea, while to study book without patients is not to go to sea at all."

(To be continued)

MEDICAL BROADCASTS

National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15 Central standard time (5 o'clock Eastern standard time, 3 o'clock Mountain standard time, and 2 o'clock Pacific standard time).

The next three broadcasts will be as follows:

- April 2 What Is Health? W. W. Bauer, M.D.
- April 9 Peculiar Accidents W. W. Bauer, M.D.
- April 16 Bird with a White Breast, W. W. Bauer, M.D.

Columbia Broadcasting System

The Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Central standard time. The next three broadcasts will be as follows:

- April 5 Smog W. W. Bauer, M.D.
- April 12 Pretty Polly W. W. Bauer, M.D.
- April 19 More Health Delusions W. W. Bauer, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

State Medical Meeting at Birmingham, April 17-19—The sixty-seventh annual session of the Medical Association of the State of Alabama will be held in Birmingham April 17-19, under the presidency of Dr. James R. Garber, Birmingham, and with the Jefferson County Medical Society as host. A pre-convention meeting will be held in Tuscaloosa April 16 under the auspices of the Tuscaloosa County Medical Society. The following symposiums are included on the program of the regular meeting:

- BRONCHIECTASIS**
 - Dr. Allan W. Blair, Tuscaloosa
 - Dr. Edgar G. Givhan, Jr., Birmingham
- ANEMIAS OF EARLY INFANCY**
 - Dr. George S. Graham, Birmingham
 - Dr. Benjamin Hughes Kennedy, Jr., Birmingham
 - Dr. Charles E. Abbott, Jr., Tuscaloosa
- STOMACH AND DUODENAL ULCER**
 - Dr. Edward S. Sledge, Mobile
 - Dr. Isaac M. Gravlee, Mobile
 - Dr. Lloyd Noland, Fairfield
 - Dr. Seale Harris, Birmingham
- CANCER**
 - Dr. Karl F. Kesmodel, Birmingham
 - Dr. Marion Toulmin Gaines, Mobile
 - Dr. Joseph Alston Maxwell, Tuscaloosa
 - Dr. Neal E. Sellers, Anniston
- MEDICAL ECONOMICS**
 - Dr. Bert W. Caldwell, Chicago
 - Dr. Roscoe G. Leland, Chicago

Other guest speakers will include Drs. Jay Arthur Myers, Minneapolis, on 'Diagnosis, Treatment and Prevention of Tuberculosis'; James R. McCord, Atlanta, Ga., 'Syphilis and Pregnancy'; Russell L. Cecil, New York, who will give the Jerome Cochran Lecture on 'The Present Trend in the Study of Arthritis and Rheumatic Diseases'; and Morris Fishbein, editor of THE JOURNAL, Chicago, who will address a public meeting Wednesday evening on 'The Trend of the Times.' Other speakers will include Dr. James P. Collier, Birmingham, on 'Common Indications for Splenectomy,' and James G. McAlpin, Ph.D., Montgomery, 'Undulant Fever.' The title

of Dr. Garber's presidential address is "The Physician as Scholar and Statesman." The presentation at the Birmingham Little Theater of a three act play, "Men in White," with the compliments of the Jefferson County Medical Society, will conclude the session.

CALIFORNIA

Dr. Moodie Dies—Roy Lee Moodie, Ph.D., anatomist and paleontologist, died in Hollywood Hospital, February 16, following a fall on a cement floor. Born in Kentucky in 1880, he received his bachelor's degree at the University of Kansas in 1905 and the degree of doctor of philosophy from the University of Chicago in 1908. He held teaching positions in biology and zoology from 1908 to 1913, in which year he became professor of anatomy at Baylor University, Dallas, Texas. He was identified with the University of Illinois College of Medicine from 1914 until 1923, first as instructor in anatomy and finally as associate professor. Following a sabbatical year spent in research in southern California, he continued with the University of Illinois as associate professor of anatomy and research librarian until 1928, when he became professor of paleontology at the University of Southern California College of Dentistry. He had written several volumes on his specialty.

Health Insurance Proprietor Sentenced—Harry Kramer, head of five racketeering health insurance associations, must serve from one to two years in San Quentin Prison, according to newspaper reports. Sentence was passed, March 3, by Superior Judge Fred V. Wood of Alameda County. In addition, Kramer was fined \$5,000. E. L. Knotts, one of his salesmen, who had also pleaded guilty, was fined \$200 and sentenced to serve ten months in the county jail. Harry Blankenstein, another salesman, went on trial, March 20, following his plea of not guilty. Sixteen other alleged agents are fugitives under indictment, the report stated. Kramer admitted that during three years' operations of his companies only \$71.05 was paid out in health and accident claims. He also admitted that he had no reserve fund from which to pay claims. During ten months of 1933, he collected \$8,934 from clients. An article describing some of the California health insurance schemes appeared in THE JOURNAL, March 24, page 935.

DELAWARE

Bill Introduced—H. 124 X proposes that both parties to a prospective marriage as a condition precedent to the issue of a license to wed, must present to the official authorized to issue such a license a certificate from a licensed physician that both parties are free from syphilis, gonorrhea and tuberculosis.

Society News—Dr. Robert F. Ridpath, Philadelphia, discussed sinusitis before the New Castle County Medical Society, March 20. The society was also addressed by Drs. Ira Burns on 'Atelectasis and Collapse of the Lungs' and Robert W. Tomlinson, Wilmington, 'Galactose and Levulose in Liver Function.' Dr. Ralph M. Tyson, Philadelphia, spoke, February 20, on 'Infant Feeding and Nutrition.'

DISTRICT OF COLUMBIA

University News—Dr. Edward Francis of the National Institute of Health gave the February lecture in the Smith-Reed-Russell series at George Washington University School of Medicine, on "Study and Control of Tularemia." Dr. John M. Wheeler, New York, delivered the March lecture, on 'Exophthalmos.' Dr. Elliott P. Joslin, Boston, addressed the students, February 12, on diabetes.

Personal—Dr. William P. Herbst, Jr., has been appointed professor of clinical urology at Georgetown University School of Medicine and chief of the Georgetown urologic service of the Gallinger Municipal Hospital. Dr. Herbst graduated at Georgetown in 1915. He was formerly associated with the University of Minnesota School of Medicine.—Dr. Daniel J. Finucane has been appointed superintendent of the new Children's Tuberculosis Sanatorium being erected near Glendale, Md.—Dr. Joseph L. Gilbert was recently appointed alienist of the District of Columbia.

Health at Washington—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million for the week ended March 17, indicate that the highest mortality rate (21.6) appears for Washington, and the rate for the group of cities as a whole was 12.6. The mortality rate for the corresponding period last year for Washington was 15.6 and for the group of cities as a whole, 12.1. The annual rate for eighty-six cities for the eleven weeks of 1932 was 12.7 as against a rate of 12.4 for the corresponding period of the previous year. Caution should be used in the

interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

ILLINOIS

Society News—Dr Geza de Takats, Chicago spoke before the Sangamon County Medical Society, March 1 on 'Diagnosis and Management of Peripheral Vascular Disease'. At a meeting of the McLean County Medical Society in Bloomington March 14, Dr Dean Lewis, Baltimore President, American Medical Association discussed 'Differential Diagnosis of Tumors of the Breast'. A discussion of pneumonia was presented at the meeting of the LaSalle County Medical Society, February 23, by Drs William S Middleton and Joseph W Gale, Madison, Wis. Speakers before the Madison County Medical Society in Highland March 2 were Drs Duff S Allen and Julius Jensen, St Louis on 'Thyroidectomy in Decompensated Heart Disease' and 'The Thyroid as the Regulator of the Circulatory System' respectively. Dr Frank Smithies, Chicago addressed the Mason County Medical Society, Decatur February 23 on 'mebrasis'. At a meeting of the Will-Grundy County Medical Society March 21 Dr Oscar T Schultz Evanston spoke on 'Agranulocytosis'. The Fulton County Medical Society was addressed at Canton March 21 by Dr Robert W Kecton Chicago on 'diabetes'. Dr James A Warner St Louis discussed 'bacterial diseases before the Williamson County Medical Society in Herrin March 13.

Chicago

Society News—The Chicago Urological Society was addressed, March 22, by Drs Robert H Herbst and George O Baumrucker, among others on a colorimetric test for renal function. Speakers before the Chicago Society of Internal Medicine, March 26 included Dr M Herbert Barker on 'Alveolar Oxygen Saturation by Nasal Catheter and Tent Administration'.

INDIANA

Society News—At a meeting of the Tippecanoe County Medical Society Lafayette March 8, Dr Howard C Billenger Chicago spoke on the ear, nose and throat in general medicine. Speakers before the Jay County Medical Society in Portland March 2, were Drs James M Pierce and Carl A Koch Cincinnati, on 'Postpartum Care and Postnatal Care and Birth Injuries'. Dr Herman L Kretschmer Chicago discussed 'Changing Trends in the Treatment of Bladder-Neck Obstruction' before the St Joseph County Medical Society in South Bend February 21. Dr Harry O Jones, Berne, talked on obstetrics before the Adams County Medical Society February 24. At a meeting of the Vermillion County Medical Society, February 21, Dr Gordon W Batman Indianapolis, spoke on 'Fractures and Dislocations'. Dr George A Collett Crawfordsville spoke before the Fountain Warren County Medical Society in Hillsboro February 1, on 'Early Diagnosis of Acute Appendicitis'. At a meeting of the Jasper Newton County Medical Society in Morocco, January 26 Dr Benjamin H Orndoff, Chicago discussed radiation therapy with special reference to cancer of the breast. Dr Joseph L Baer Chicago addressed the Elkhart County Medical Society in Elkhart February 8 on 'Normal Obstetrics in General Practice'. Speakers before the Shelby County Medical Society March 7 were Drs Alois B Graham and Joseph W Ricketts, both of Indianapolis on 'Carc of Rectal Diseases by the General Practitioner' and 'Cancer of the Rectum' respectively. Dr William H Olmstead St Louis discussed 'Early Changes of Arteriosclerosis in the Human Body' before the Vanderburgh County Medical Association, February 13.

IOWA

Society News—Dr Frank M Conlin, Omaha addressed the Woodbury County Medical Society February 15 in Sioux City, on 'A Statistical Study of 616 Cases of Diabetes, with Particular Reference to Surgical Complications'. Dr Leo G Rigler, Minneapolis addressed the Cerro Gordo County Medical Society, February 20 on 'Benign and Malignant Tumors of the Stomach from the X-Ray Standpoint'. At a meeting of the Clinton County Medical Society in Clinton, March 1 Dr Clifford J Barborka Chicago, spoke on 'The Present Conception of the Relation of Diet to Health and Disease'. Dr Nathaniel G Alcock Iowa City spoke before the Black Hawk County Medical Society March 20, on renal malignancies. Dr John H Musser New Orleans will address the Linn County Medical Society April 13 on 'treatment of the anemias'.

KANSAS

Dr Scammon Gives Porter Lectures—Richard E Scammon, Ph D, dean of medical sciences, University of Minnesota School of Medicine, Minneapolis, will deliver the Porter lectures of the University of Kansas School of Medicine, April 2-3. One lecture will be given at Lawrence and the other two at Kansas City. The lecture at Lawrence is to be of a semi-popular nature, the other two more technical. The titles are 'The Plague in Western Europe' (Kansas City), 'The Guild of Medicine' (Lawrence), and 'How Measurement Came Into Medicine' (Kansas City). In 1918 the late Dr Joseph L. Porter Paola, bequeathed to the school about \$30,000 to found a fellowship and for such other purposes as the medical faculty recommended. A portion of the income of this fund has been used to support an annual series of lectures, known as the Porter Lectureship in Medicine. The first course was given in 1930 by Dr Jewell G Barker Baltimore the second by Dr Joseph Collins New York and the third by Dr John Shelton Horsley, Richmond Va.

KENTUCKY

Bills Enacted—The following bills have become law with out the governor's approval. H 388 forbidding the possession or sale of marihuana except on the prescription of a licensed physician, dentist or veterinarian and H 662, the uniform narcotic drug act.

Extension Lectures—Dr Joseph Garland Sherrill and Philip I Barbours, Louisville gave a group of extension lectures in the series sponsored by the Kentucky State Medical Association at Greenville February 1. Dr Sherrill discussed cancer of the breast, peptic ulcer complications of gallbladder disease and appendicitis. Dr Barbours, eczema and asthma relation of chorea to rheumatism juvenile tuberculosis and problems of adolescence.

MARYLAND

Personal—Associates of Dr Harry Friedenwald emeritus professor of ophthalmology, University of Maryland School of Medicine, Baltimore, gave a surprise dinner in his honor, February 3. About forty physicians were present including members of the staff of the Baltimore Eye, Ear and Throat Hospital where Dr Friedenwald has been associated for thirty six years.

Baltimore Health Record—The year 1933 achieved the lowest death rate Baltimore has known 1305 as against 1313 in 1932. A new record of 606 was also established for infant mortality as compared with 62 for 1932. Smallpox has been absent from Baltimore for the last four years. The year also marked new low death rates for diphtheria (0.7 per hundred thousand of population) and typhoid (0.36). The tuberculosis death rate was 78.2 as compared with an earlier rate of 86.2. The six leading causes of death in the city for 1933 were heart disease, chronic nephritis, cancer, pneumonia, cerebral hemorrhage and tuberculosis.

MICHIGAN

Personal—Dr James T Redwine was recently appointed superintendent of the Michigan Farm Colony for Epileptics at Wahyamega. Dr John W Handy, Flint, was guest of honor at a dinner given by the Genesee County Medical Society, February 14, in observance of his completion of fifty years in the practice of medicine. Speakers included Drs Walter H Winchester, Charles H O Neil Ray S Morrish and Dr Handy. Dr James A Olson has been named school physician of Flint succeeding Dr Stephen M Gclenger, who has resigned to accept a position with the Herman Kiefer Hospital, Detroit. Dr Augustine T Holcomb Novi, recently completed fifty years as a practicing physician.

MINNESOTA

Hospital News—A sanatorium for tuberculosis patients to cost \$250,000 will soon be constructed by the federal government on a site of forty acres near Walker. The property was recently deeded to the government, it is reported.

Symposium on Cancer—The occurrence of cancer in private practice and the available means of treatment will be the theme of the annual symposium on cancer of the Minneapolis Surgical Society in the Hennepin County Medical Society Auditorium Minneapolis, April 5. Introductory remarks will be offered by Drs Kenneth Bulkley, president and James Frank Corbett. Dr Ivar Sivertsen will present a report of the survey of the incidence of cancer in Minneapolis and of cases treated in private practice. Reports of roentgen therapy

as an adjunct to surgery and of facilities for high voltage roentgen therapy in Minneapolis will be presented by Dr Arthur A Zierold in collaboration with Drs Russell W Morse Walter H Ude, Gustaf T Nordin and Robert G Allison Dr Martin Nordland will present the report on the use of radium as an adjunct to surgery and of facilities for radium therapy in Minneapolis, with the following collaborators Drs William T Peyton, Lawrence M Larson, Charles R Drake, Aloysius S Fleming and Samuel L Sweitzer Concluding the program will be an open forum report of five year cases by members of the society, only patients free from signs or symptoms five years after removal of a malignant growth to be included

MISSISSIPPI

Bill Enacted—H 553 has become a law, authorizing the board of supervisors of Harrison County to make a general levy, not to exceed one half of one mill, on all the taxable property in the county, to provide funds for charitable hospital purposes

NEVADA

Society News—A symposium on cancer of the breast constituted the meeting of the Washoe County Medical Society in Reno, February 13, speakers included Drs Lawrence Parsons, George Stevenson Sharp, Pasadena Calif, and Alson R Kilgore San Francisco January speakers were Drs Alfred W Macpherson, Sparks and Albert R Da Costa Jr, Reno on 'Spinal Anesthesia' and 'Ideal General Anesthesia' respectively

NEW JERSEY

Bill Enacted—A 132 has been enacted as Chapter 40 Laws 1934, providing that nothing in the state emergency act shall be construed to prohibit or limit any licensed physician occupying a position as a state, county, municipal or school physician from being compensated by the state for the care and treatment of emergency relief patients

Record Low Death Rate—New Jersey attained the lowest death rate in the history of the health department in 1933 10.03 per thousand of population The rate for diphtheria, 12 per hundred thousand, and that for tuberculosis 54.9 were the lowest ever reached for those diseases Infant mortality was 46.5 per thousand live births, the lowest rate ever reached Cancer deaths occurred at a rate of 115.8 per hundred thousand of population, and deaths from automobile accidents increased from 115.8 in 1932 to 1,207 in 1933

Bills Introduced—S 207, to supplement the medical practice act, proposes to require the board of medical examiners to examine for a license to practice medicine and surgery without restriction any holder of a limited license 'who shall have heretofore completed a four year high school course of study or its equivalent and shall have heretofore studied in a legal sized incorporated college or colleges during at least two different calendar years the subjects of physics chemistry (organic and inorganic, including laboratory work in both) pathological chemistry, English composition and literature American and European history, bacteriology (both in class and laboratory), psychology and sociology, and who shall have heretofore for a period of not less than five years studied under the supervision of and consulted with a graduate medical doctor holding the degree of M.D. A 373 proposes to appropriate \$10,000 to the state department of health for the purchase of diphtheria toxoid and/or toxin or antitoxin and smallpox vaccine The department is to distribute these antitoxins and vaccines free in accordance with its rules and regulations

NEW YORK

Bills Passed—A 1377 has passed the assembly proposing to prohibit a corporation from using the word Doctor or Dr as a part of its corporate name S 348 has passed the senate proposing to make it unlawful for any person to give any false call for a physician or hospital

Bills Introduced—S 1377 and A 1873 to amend the workmen's compensation act propose to authorize the industrial commissioner to establish a schedule of charges and fees for medical treatment and care rendered injured employees This schedule is to be prepared by the commissioner on the recommendations of the state medical society but he is to give consideration also to the opinions of other interested parties A 1858 and S 1376 propose to create a state commission to consist of two members of the senate two members of the assembly and two members to be appointed by the governor to make a comprehensive study of the narcotic habit-forming drug problem and of the federal and state laws relative to narcotic drugs S 903 to amend the public health law in relation to

sanitary regulations and amendments to the sanitary code proposes that except in case of a public emergency no sanitary regulation shall be adopted by the public health council or by the commissioner of health which shall in any way curtail or limit the sale of milk or cream because such milk or cream is obtained from cows suffering from Bang abortion disease until such time as provision has been made for the disposal or destruction of such cattle and the payment of indemnity therefor to the owners thereof A 1357 proposes to make it a felony for any physician, by operation or otherwise, to change willfully the markings of a finger or thumb of any person so as to affect such person's finger prints This proposed law, however is not to apply to cases in which an operation is necessary to repair a deformity caused by congenital malformation disease or accident A 1719 proposes that no nurse employed in any state county or city hospital or in any hospital supported in whole or in part by public funds shall be allowed to work more than eight hours in any one day, and eight consecutive hours of work in any twenty-four hours is to constitute a legal day's work for any such nurse S 1375 and A 1824 to amend the law relating to registered nurses propose to require applicants for such registration to be citizens of the United States

New York City

Anesthetists Honor Dr Matas—The American Society of Regional Anesthesia celebrated its tenth anniversary, February 27 with a meeting in honor of Dr Rudolph Matas New Orleans a pioneer in the introduction and advancement of modern nerve block technique Dr Matas addressed the society on 'Local and Regional Anesthesia A Retrospect and Prospect'

University News—Dr Jean R Oliver, professor of pathology Long Island College of Medicine has received a grant of \$1,000 from the Josiah Macy Jr, Foundation for continued studies on the pathology of Bright's disease—A plaque of the late Dr Virgil P Gibney made by one of his former patients was presented to the College of Physicians and Surgeons Columbia University, December 9 by the class of 1898 Dr Gibney was a member of the faculty from 1890 to 1917—Robert Thorne, president of the Neurological Institute since 1924, died of pneumonia, March 6 aged 69 Mr Thorne, an attorney directed a campaign in 1927 to raise funds for the new building which is now a part of the Columbia University-Presbyterian Medical Center

Memorial to Dr Salmon—A bas relief portrait of the late Dr Thomas W Salmon was presented to the New York Psychiatric Institute and Hospital Columbia-Presbyterian Medical Center January 27, by the Thomas William Salmon Memorial Committee Dr Clarence O Cheney director of the institute presided at the ceremony, Dr William L Russell, professor of psychiatry, Cornell University Medical College made the presentation, and Dr Frederick W Parsons, Albany, commissioner of the state department of mental hygiene, accepted the memorial in the name of the state Governor Lehman sent a message pointing out that it was largely through Dr Salmon's efforts that the state and the university joined forces to establish the institute On the memorial tablet is the following inscription

Professor of Psychiatry Columbia University 1921-1927 Beloved Physician Teacher Mental Hygiene Leader Whose Vision Guided the State and the University in Placing Here This Psychiatric Institute and Hospital

NORTH CAROLINA

Hospital News—A twenty bed hospital, equipped for general medical and surgical treatment, was opened, Nov 16, 1933, at Murphy by Dr Robert W Petrie

Professor Appointed—Dr Raymond S Crispell Kingston N Y, has been appointed associate professor of neuropsychiatry at Duke University School of Medicine, Durham A graduate of Cornell University Medical School in 1920 Dr Crispell has served on the staff of Bloomingdale Hospital White Plains, N Y, Bellevue Hospital, New York City, and as medical director of Sahler Sanitarium Kingston

Society News—Dr H Kennon Dunham Cincinnati addressed the Mecklenburg County Medical Society, Charlotte February 6, on 'Clinical Aspects of Pulmonary Emphysema' Dr Clyde M Gilmore Greensboro was the guest speaker January 16 on 'The Present Conception of Coronary Disease'—Dr Alva B Craddock discussed amebic dysentery at the meeting of the Buncombe County Medical Society, Asheville February 5 The speaker, January 15 was Dr Joseph B Greene on cancer of the larynx—Dr Addison G Brenner, Charlotte was guest speaker before the Guilford County Medical Society Greensboro January 3 on 'Anastomosis of the Gastro-Intestinal Tract with the Use of the Pile Clamp'

OHIO

Dr Sollmann Honored—The staff of Western Reserve University School of Medicine, Cleveland, gave a luncheon in honor of the sixtieth birthday of Dr Torald H Sollmann, dean of the medical school, February 10, at the Cleveland Club. A decorated parchment manuscript in a pinseal folder hand tooled in gold was presented to Dr Sollmann, inscribed with a tribute written by Dr Howard T Karsner and signed by his associates. Dr Sollmann, a native of Germany, was graduated from Western Reserve in medicine in 1896 and has served as a member of the staff continuously. He was made professor of pharmacology in 1904 and dean in 1928.

New Health Commissioners—Dr Hazel L Sproull, West Union, has been appointed health commissioner of Adams County, succeeding Dr Samuel J Ellison, who had served fourteen years.—Dr Charles E Thompson Mingo, has been appointed health officer of Champaign County after a lapse of several months in which the county was without a health head because of lack of funds.—Dr Francis M Teeple, Fremont has been named health officer of Sandusky County.—Dr James B Naylor, Malta, recently resigned as health officer of Morgan County and was succeeded by Dr Arnold O Abraham McConnellsville.—Dr Frederick S McGee was appointed health commissioner of Marietta in January.—Dr Frank R Dew, Barnesville, health officer of Belmont County for eleven years, has retired from the office.—Dr William L Faul, Russellville, has succeeded Dr John G Anderson, Fayetteville, as health officer of Brown County.

OREGON

Physician Sentenced—Dr Richard Neubauer Portland was sentenced recently to seven years in the United States Penitentiary, McNeil Island, Wash, for violation of the Harrison Narcotic Act.

State Board of Health Elects—Officers of the state board of health elected in Portland in February are Drs Albert Mount, Oregon City, president, Joseph P Brennan Pendleton vice president, and Frederick D Stricker, Portland, secretary.

Society News—Dr Salvatore P Lucia, San Francisco addressed the Portland Academy of Medicine, February 8, on "Diagnosis of Conditions Presenting Enlargement of the Spleen"—Drs Emil D Furrer and Arthur F Barnett, Eugene, addressed the Central Willamette Medical Society, Eugene, February 1, on 'Present Day Uses of Vaccines and Serums' and "X-Ray and Radium Therapy in Malignancy," respectively.

PENNSYLVANIA

False Claim of Graduation—It is reported that a man named Andrew A Stamatiades claiming to be a graduate of Columbia University College of Physicians and Surgeons has been serving as intern at a hospital in Pennsylvania. Inquiry of the university revealed that a man by that name had taken several courses there in 1929 and failed in them all. It was reported in 1931 that he returned to the medical school and attended classes for a time without being registered, when this was discovered, doormen were ordered not to admit him.

Anthrax in Delaware County—Several cases of anthrax occurred in the mill village of Sackville, Delaware County, within the past year. The state health department reports that all the cases were contracted within the mill or its immediate environs. About half the 200 inhabitants of Sackville worked in the woolen mill. The first case of anthrax, which occurred in March 1933 was fatal, and the six persons infected since that time have recovered. Antitoxin was given in all cases, extra large doses being given in the six later cases. All cases were in mill workers except two in children who were found to have played about the mill in spots where waste had been incompletely incinerated. Through the cooperation of the state department of labor and industry, safety appliances in the mill were reviewed and necessary improvements were made.

Philadelphia

Interns' Night—The Philadelphia County Medical Society designated its meeting, March 14, as "interns' night, intended as a stimulus to and appreciation of all interns." From the Philadelphia General Hospital, speakers were Drs Albert Behrend, on "Pneumothorax in Pneumonia", John L Armbruster, 'Diabetes The Patient, Physician and Hospital', James Greenwood, Jr, 'Hypoglycemia as a Cause of Mental Symptoms,' and Jack W P Love, "Preliminary Report of the Clinical Application of Bacteriophage." From the Episcopal Hospital, Dr Webster H Brown spoke on "Treatment of Fractures of the Lower Third of the Leg" and from Pennsylvania Hospital, Dr John C Ullery, on 'Favism'.

RHODE ISLAND

Record Low Mortality Rate—Rhode Island's death rate in 1933 was 11.1 per thousand of population the lowest ever recorded since reliable statistics have been kept, the state public health commission reports. Similarly the infant mortality rate, 55.9 per thousand live births, and the birth rate, 14.4 per thousand of population, were the lowest ever known. For the first time since 1879, no deaths from measles were reported in 1933.

Bills Introduced—S 177, to amend the medical practice act, proposes that in an appeal from an order of the board of medical examiners refusing to issue or revoking a license to practice medicine, the supreme court may review the evidence presented before the board and may in its discretion affirm, overrule or modify the order of the board but the order shall remain in full force and effect during the pendency of the appeal. H 816 and S 141 propose to give to every hospital supported in whole or in part by charitable contributions or endowments, which cares for a person injured through the negligence of another a lien on all claims, rights of actions, judgments settlements or compromises accruing to such person by reason of his injuries.

SOUTH CAROLINA

Bill Passed—S 1698 has passed the senate authorizing the sexual sterilization of inmates of state institutions who are afflicted with any hereditary form of insanity that is recurrent idiocy, imbecility feeble-mindedness or epilepsy.

TENNESSEE

State Meeting at Chattanooga, April 10-12—The annual meeting of the Tennessee State Medical Association will be held in Chattanooga April 10-12, under the presidency of Dr Hiram B Everett, Memphis. A feature of the meeting will be a symposium on management of common traumatic cases in which participants will be Drs William Battle Malone, Memphis, Edward T Newell, Chattanooga, Duncan Ewe, Jr, Nashville, and Edgar F Fincher, Atlanta, Ga. Guest speakers in addition to Dr Fincher will be Drs Rosco G Leland, director Bureau of Medical Economics American Medical Association, Chicago on "Causes of Professional Unrest," Fred W Rankin, Lexington, Ky, 'Diagnosis and Prognosis Following Treatment of Cancer of the Rectum' and Henry F Vaughan, Dr P H, Detroit, 'Preventive Medicine from the Family Physician.' Among Tennessee physicians listed on the tentative program are:

Dr Frank Alloway, Kingsport Peroral Endoscopy and Gastroscopy
Dr Cassius W Friberg, Johnson City Fetal Indications for Termination of Pregnancy
Dr Oliver W Hill, Knoxville Purulent Pleuritis in Children
Dr Marcus G Spingarn, Memphis Perinephritic Abscess
Dr James W McClaran, Jackson Postoperative Pulmonary Complications
Review of the Literature
Dr George R Livermore, Memphis Abdominal Pain A Symptom Often Referable to the Kidney
Dr Joseph P Gilbert, Nashville Psychopathic Personalities and the Law
Dr William C Dixon, Nashville Surgical Treatment of Uterine Prolapse

The Tennessee State Pediatric Association and the Tennessee Academy of Ophthalmology and Otolaryngology will hold their annual meetings, Monday, April 9. The annual banquet will be at the Hotel Patten, Wednesday evening, April 11.

TEXAS

New Societies Organized—Physicians of Cass and Marion counties recently organized the Cass-Marion Counties Medical Society to take the place of the Cass County society. Meetings will be held alternately in Linden and Jefferson. Dr Charles E Davis, Linden, was elected president and Dr Joe D Nichols, Atlanta, secretary.—The Scurry Dickens Kent Counties Medical Society at a meeting in Snyder, January 11, voted to surrender its charter and ask for a charter embracing in addition Borden, Garza, King and Stonewall counties. Dr William R Johnson, Snyder, was elected president and Dr Harry E Rosser, Snyder secretary.—The Tom Green County Medical Society voted at a meeting in San Angelo Dec 19 1933, to surrender its charter and petition the state association for a charter embracing the counties of Tom Green, Coke, Crockett, Concho, Irion, Sterling, Sutton and Schleicher. The new society, to be known as the Tom Green Eight County Medical Society has as president Dr Washington B Everitt, Sterling City, and as secretary, Dr Wilson D Anderson, Sanatorium.

WEST VIRGINIA

Society News—Drs George H Barksdale and Robert K Buford, Charleston, addressed the Greenbrier Valley Medical Society, Lewisburg, January 23, on digitalis in treatment of heart disease and thyroid disease, respectively—Dr John A Kolmer, Philadelphia, addressed the Academy of Medicine of Parkersburg, March 1, on specific treatment of pneumonia—Drs James S Klumpp and Frank C Hodges addressed the Cabell County Medical Society, Huntington, February 8 on early diagnosis of cancer—Dr Sam M E Simon, Huntington, presented a paper on recent advances in diagnosis and treatment of tuberculosis before the Raleigh County Medical Society, Beckley, February 1—A symposium on cancer was presented before the Kanawha County Medical Society, Charleston, February 27, by Drs John E Cunnaday, McLeod Gillies, Rome H Walker, B H Swint and J Ross Hunter—Dr Archer A Wilson, Charleston, read a paper on Aids in the Diagnosis in Certain Neuropsychiatric Conditions Met in Private Practice before the Marion County Medical Society, January 3—Dr Russell B Builey, Wheeling, addressed the Marshall County Medical Society, Moundsville, January 24 on cancer of the breast—Dr Irvin Stein, Baltimore, addressed the Ohio County Medical Society, Wheeling, March 2, on 'Calcification Studies in Monkey and Man and Their Clinical Application'—Dr Roy R Snowden, Pittsburgh, was the speaker, February 16, on treatment of hyperthyroidism—Drs Albert H Hoge and Richard O Rogers, addressed the Mercer County Medical Society, Bluefield, January 23, on 'Dietetic Management and Diabetes' and 'Diabetic Coma and Treatment,' respectively

GENERAL

Another New Journal—The first issue of the *Review of Gastroenterology*, official organ of the Society for the Advancement of Gastroenterology, appeared in March. The first issue contains nearly 100 pages and the contents include original articles, abstracts of current literature and book reviews. Dr Samuel Weiss, New York, is editor.

Society News—Dr William D Haggard, Nashville, was chosen president elect of the Southeastern Surgical Congress at its annual meeting in Nashville, March 5. Dr Gerry R Holden, Jacksonville, Fla, became president. Dr James R Young, Anderson, S C, was made vice president and Dr Benjamin T Beasley, Atlanta, reelected secretary. Next year's meeting will be held in Jacksonville—The American Nurses' Association will hold its biennial convention in Washington D C, April 22-27, the general subject of discussion will be 'The Changing Order and the Profession of Nursing'.

Carlos Finlay's Centennial—The centennial of the birthday of Dr Carlos J Finlay, who first advanced the theory that mosquitoes were carriers of yellow fever, was observed in several places throughout the world, it is reported. Squares or streets were named in his honor in several cities, including Mexico, Tampico, Guatemala and Paris. A bust was unveiled at Bogota. Books were published in his honor in Mexico and Guatemala, and the Pan American Conference at Montevideo passed a resolution recognizing his achievements. Special commemorative exercises were held December 3, by the Washington, D C chapter of the Pan American Medical Association.

Pacific Coast Surgeons' Meeting—Dr Edward Clarence Moore, Los Angeles, was elected president of the Pacific Coast Surgical Association at its ninth annual meeting in Portland and Gearhart Ore, February 21-24. Drs Park W Willis, Seattle and Le Roy B Sherry, Pasadena, were elected vice presidents and Dr Edgar L Gilcreest, San Francisco, was reelected secretary. Los Angeles was chosen for the 1935 convention. Among speakers on the program were

Dr Casper W Sharples, Seattle, Liver Deaths Following Operation on the Biliary Tract
Dr Verne C Hunt, Los Angeles, Operability of Gastric Lesions
Dr Curle Latimer Callander, San Francisco, Left Duodenal Hernia Its Mechanism
Drs Albert J Scholl Jr and John C Ruddock, Los Angeles, Peritoneoscopy
Dr Raymond E Watkins, Portland Ore, Carcinoma of the Female Genital Organs

Dental Education—Eight schools of dentistry in the East and Middle West have recently formed the Association for the Advancement of University Education in Dentistry. The newly formed body announces as its aims the fostering of the rational integration of dental with medical education, development of science of dentistry and mutual improvement of the subscribing schools. It advocates two years of pre-dental education and four of professional training and its membership is restricted to schools now operating under that plan or those that have

publicly announced the adoption of the two-four year plan and the approximate date when it will be put in operation. Members of the association are University of Buffalo School of Dentistry, Columbia University School of Dental and Oral Surgery, Harvard University Dental School, University of Illinois College of Dentistry, Ohio State University College of Dentistry, Thomas W Evans Museum and Dental Institute, School of Dentistry, University of Pennsylvania, Tufts College Dental School and Western Reserve University School of Dentistry.

Medical Bills in Congress—*Changes in Status* S 2455, to increase the efficiency of the Medical Corps of the Regular Army has been reported to the Senate with amendment (S Rept 510). It provides that for purposes of promotion there shall be credited to the officers of the Medical Corps all active service as officers of the Medical Reserve Corps rendered by them between April 23, 1908, and April 6, 1917. S 2526, to pay an annuity to Frances Agramonte, the widow of Dr Aristides Agramonte, a member of the yellow fever commission, has passed the Senate. S 2571, authorizing the Secretary of the Interior to arrange with the states for the education medical attention relief of distress and social welfare of Indians has been reported to the Senate, with an amendment (S Rept 511). S 2660 has been reported to the House, with amendments (H Rept 1037). This bill, which has already passed the Senate, proposes to regulate broadcasting from a studio located in the United States through a radio station in a foreign country whose "emissions" are received consistently in the United States.

Bequests and Donations—The following bequests and donations have recently been announced:

Menorah Hospital, Kansas City Mo., \$25,000 given by Mr Edgar L Berkley in memory of his parents.

Presbyterian Hospital, New York, \$30,000 by the will of Mrs Lucy W Denny.

Mount Sinai Hospital, New York, \$2,500 from the estate of the late Dr Alexis V Moschowitz, also his books and instruments.

Children's Hospital, Boston, \$10,000 by the will of Irving Richardson, Brookline, Mass.

St Vincent's and Presbyterian hospitals, New York, \$10,000 and \$7,000 respectively under the will of the late Walter J M Donovan.

United Hospital, Port Chester N Y, \$5,000 by the will of the late W M Craft, White Plains.

New York Homeopathic Medical College, \$15,000 by the will of the late Frances Ogden Jones.

Temple University Hospital, Philadelphia, will receive \$350,000 left by Mrs Etta Mellier.

Jefferson Medical College, Philadelphia, received a bequest of \$25,000 contingent on the death of four heirs from the estate of Mrs Frederick A Hoffman as a memorial to her husband the late Dr Clarence Hoffman who was associated with the college for twenty-five years.

Philadelphia Institute for Medical Research, \$15,000 for study of nervous and mental disease. Jefferson Hospital, \$5,000 for a free bed and Philadelphia Home for Incurables, \$2,000 under the will of the late Mrs Kate Rambo.

Jasper County Hospital, Rensselaer, Ind, \$5,000 by the will of W B Austin.

William S Major Hospital, Shelbyville, Ind, \$100,000 under the will of John A Tindall.

Stuyvesant Square and St Luke's hospitals, New York, \$10,000 each under the will of the late Mrs Mary Helena Tompkins. St Luke's will also receive the residue of the estate.

Mount Sinai Hospital, \$5,000. Montefiore Hospital, \$3,000. New York Eye and Ear Infirmary and Hospital for Joint Diseases, \$2,000 each by the will of the late Richard Sidenberg.

Hospital for Ruptured and Crippled, \$25,000 under the will of the late Mrs Velma B Woolworth.

New York Hospital, \$100,000 by the will of Edward W Sheldon.

Caledonia Hospital, Brooklyn, \$25,000 by the will of the late Alexander Walker.

American College of Physicians—The eighteenth annual clinical session of the American College of Physicians will be held in Chicago, April 16-20, with headquarters at the Palmer House. General sessions at which more than sixty formal papers will be read are scheduled for each afternoon and Monday and Tuesday evenings. The annual convocation will be held Wednesday evening, April 18, when Dr George Morris Piersol, Philadelphia, will deliver the presidential address and Dr Albert Grant Fleming, director of the department of public health and preventive medicine of McGill University, Montreal, Que, will give an address on 'The Medical Aspects of National Health Insurance'. Beginning Tuesday, mornings will be devoted to clinics at the following hospitals: Albert Merritt Billings, Children's Memorial, Cook County, Mercy, Michael Reese, St Luke's, Passavant Memorial and Presbyterian hospitals, the Municipal Tuberculosis Sanitarium and the Veterans Administration Facility, Hines Ill. Sessions will also be held at the University of Illinois, Loyola University, Northwestern University and the University of Chicago. The annual banquet will be given Thursday evening, with Dr James B Herrick as toastmaster. Glenn Frank, LL D, president, University of Wisconsin, will deliver an address on 'The Renewal of America'. The annual smoker will be held Monday evening after the scientific meeting. Dr Herrick, general chairman for

the session, Dr Austin A. Hayden, president Chicago Medical Society, and Dr Irving S. Cutter, dean, Northwestern University School of Medicine, will deliver addresses of welcome at the opening session. Special emphasis is to be laid on the following subjects in the scientific program: cardiovascular disease, infectious diseases, metabolic diseases, nervous diseases, hematology, gastro enterology, tuberculosis, pulmonary diseases and pediatrics.

FOREIGN

New Professorship—The *British Medical Journal* announces that a new chair for racial hygiene has been founded in Berlin, with Prof Fritz Lenz of Munich as its first occupant. Professor Lenz has also been appointed departmental director for racial hygiene and eugenics at the Kaiser Wilhelm Institute for Anthropology in Berlin.

Cholera Decreased in 1933—The incidence of cholera in India during the years 1932 and 1933 was lower than at any time in the last sixty years with the possible exception of 1923, according to provisional figures issued by the Health Section of the League of Nations. The provisional number of cases in 1932 was about 70,000 and up to November had not exceeded 80,000 for 1933. Last year the disease actually disappeared from Madras Presidency, where it had been considered generally endemic. In contrast to the severe epidemic of 1932, the incidence of cholera in China was low in 1933. An epidemic has prevailed in the Philippines since 1930, confined to the central archipelago. Provisional figures for 1933 showed that 1,820 cases with 1,238 deaths were recorded from January 1 to December 2.

Health Project in China Schools—A grant of \$12,000 Chinese currency has been made to the Hunan Yale Medical School by the Hunan provincial government to carry on a public health program in the schools of Changsha. Sixteen schools have been chosen as a starting point and it is estimated that 6,000 students will be reached. Health education through lectures, lantern slides, exhibits and habit training classes will be for the students while additional material will be presented to cooperating parents. There will be an annual physical examination of all students, with a monthly checkup in weight and height, a weekly clinic for correction of defects, as far as possible, inspection for infectious diseases and preventive inoculation. Two physicians and four public health nurses will be assigned to the work. The Hunan-Yale Medical School was started in 1914 as a joint enterprise between the Hunan provincial government and Yale in China. The Hunan-Yale Hospital now has 180 beds with a special children's ward, and is equipped to carry on the treatments that may be needed for conditions found in the health examinations.

Personal—Knighthood was conferred on Dr Robert Muir, professor of pathology, University of Glasgow, among the New Year honors bestowed by the king of England.—Dr Henry Albert Harris, professor of clinical anatomy, University College, London, has been appointed professor of anatomy to succeed Prof James T. Wilson, who will retire next October.—Lieut. General Sir Harold B. Fawcett has retired as director general, British Army Medical Service, and has been appointed director general of the British Red Cross Society. The new director general of the Army Medical Service is Major General James A. Hartigan, formerly deputy director of medical services, Aldershot Command.—Dr Walter J. Turrell of the electrotherapeutic department, Radcliffe Infirmary, Oxford, England, recently received the "golden key" awarded by the American Congress of Physical Therapy at its 1933 session, in recognition of his work in electrotherapy. The key was presented by Dr Norman E. Titus, New York, now on a visit to England at a dinner given in honor of Dr Titus by Dr Francis Howard Humphris.—Dr G. P. Wright, lecturer in morbid anatomy and curator of the Museum at University College Hospital Medical School, has been appointed to the Sir William Dunn chair of pathology tenable at Guy's Hospital Medical School.

CORRECTION

Pimento Peppers—In a query and minor note published in *THE JOURNAL*, March 10, page 790 on Pimento Peppers, the second paragraph should read as follows: Pimenton is large pepper, otherwise Cayenne or red pepper. Pimenta is 'pepper' specifically black pepper. Pimiento is 'capsicum or pepper'—as the fruit of the pepper. In view of the confusion between pimento (allspice) and pimiento (sweet pepper) it makes for clarity to designate the Spanish sweet pepper as the pimiento pepper or 'pimento pepper'. From a practical horticultural point of view.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 3, 1934

The Increase of Deaths from Tuberculosis in Young Women

While a great decrease of tuberculosis has taken place in the general population, an increase in deaths from the disease has recently been observed among young women. Various explanations have been suggested. Dr F. J. Bentley, divisional medical officer in the public health department of the London County Council, who has been conducting research into the subject, gives as the chief cause the racket of modern life and the increased strain that young women and girls are called on to bear. Practically the whole increase has been in single women. Dr Bentley's inquiry related to the habits of females from 15 to 25 years of age who were having residential treatment under the council's tuberculosis scheme. He sent a questionnaire to 100 young women who were consumptive and to the same number of healthy young women of the same ages and occupations. On an average the girls in each group did nine hours of work a day and had eight and one half hours in bed, while in the matter of food the consumptives had the advantage. Forty-two per cent of the healthy were smokers, but only twenty-nine of the consumptive. No doubt the difference was due to the advice given to persons with coughs to stop smoking. The prevalent desire for a slim figure among young women has led to the suggestion that reducing is a contributory cause of consumption. Dr Bentley concludes that it is impossible to attribute the increased mortality to any single factor. But who will deny that the stress and strain of modern life have seriously increased during this century? This Dr Bentley thinks has seriously tipped the scales of tuberculosis against young women, always critically balanced and especially susceptible to this disease. One form of stress not mentioned by Dr Bentley, but suggested by previous investigators, is too much devotion to amusements such as the cinema and dances after a hard day's work.

Traffic Accidents in Eight Years

In the house of commons the home secretary gave appalling figures for traffic accidents in the last eight years, during which the number of persons killed was 50,837 and injured 1,421,083. The following is the complete table of accidents circulated.

Year	Killed	Injured	Total
1926	4,686	133,888	138,574
1927	5,790	145,571	151,361
1928	6,198	164,838	171,036
1929	6,696	170,917	177,613
1930	7,301	177,891	185,192
1931	6,691	202,110	208,801
1932	6,667	204,410	211,077
1933	7,120	216,401	223,521
Total	50,837	1,421,083	1,471,920

The Pedestrians Association has sent a memorandum on road safety to the minister of transport, stating that the high speed of automobiles is the main cause of traffic accidents. The association suggests that all vehicles subject to speed limits should be fitted with a device visible to any passer by, which either records the actual speed at any moment or gives audible or visible notice when the limit is exceeded. It has been shown that the majority of fatal accidents take place in built up areas, and the association therefore asks for a speed limit applicable to towns and villages. All negligence resulting in death or serious injury should be punishable. Every new applicant for a license to drive should pass a test for physical fitness, mechanical competence and knowledge of road signs and rules, and

every driver responsible for an accident should be submitted to these tests so that gradually unfit drivers might be eliminated. The association strongly urges that the government take steps to mitigate the hardships suffered by many of the injured in traffic accidents and by the families of the killed, by giving effect to the representations of the committee of the house of lords that an injured person not traveling in an automobile be relieved from the onus of proving negligence on the part of the driver and that more adequate means be provided for securing payment of compensation to the victims of accidents.

A Debate on Silicosis

An important debate on the cause of silicosis took place at the Institution of Mining and Metallurgy. A mineralogist, W. R. Jones, D.Sc., of the geological department of the Royal School of Mines described his investigations of mineral residues from twenty nine lungs of persons whose death had been certified as due to silicosis. Five lungs were from workmen in the pottery industry and twenty one from workers in coal mines. He found that the dust in all cases consisted of minute acicular fibers of sericite (hydrated silicate of aluminum and potassium, which is also called secondary or white mica). The mineral was abundant in all the rocks and materials that gave rise to the dust inhaled. He also found silica in the uncombined state, that is, quartz, but in much smaller quantity than the sericite. He concluded that uncombined silica was not the chief cause of silicosis but that fibrous minerals, chiefly sericite during the operations of drilling, blasting or crushing were set free in the atmosphere as individual fibers and were inhaled in the course of time in sufficient quantity to cause the disease. Whether they acted by mechanical irritation, causing the growth of fibrous tissue or induced chemical changes was a pathologic question outside his province.

Prof. I. S. Haldane dissented. He held that there was clear evidence which incriminated uncombined silica. This never depended on the nature of the dust found in the lungs but on the history of prolonged exposure to dust containing a high proportion of uncombined silica. The danger of crushing pure quartz without precaution against inhaling the dust had long been known. As a physiologist he protested against the idea that the lungs might be regarded as a sort of geological dust trap. By means of the phagocytes and ciliary action dust was continuously removed from every part of the lungs but in the case of pure silica this process failed and at the same time the lungs became susceptible to tuberculous infection. Other speakers supported Professor Haldane's view. Sir John Flett, director of the geological survey who is also a physician considered finely divided silica a highly dangerous substance.

PARIS

(From Our Regular Correspondent)

Feb. 21, 1934

Foreign Medical Students and Practitioners

In view of protests from the medical syndicates, the Conseil supérieur de l'Instruction publique is apparently shelving for the time being, the provisions that the minister of public instruction proposed to control the number of foreign practitioners of medicine. Heretofore such control was based on the Herriot decree and the Armbruster law. The Herriot decree requires naturalization for the transformation of a university doctor's diploma into a government diploma which alone confers the right to practice medicine in France. The Armbruster law requires naturalization before an applicant can practice in France but permits foreigners to take the government examination for the doctor's degree. The minister regarding the provisions of the Armbruster law sufficient was considering the revocation of the Herriot decree but the syndicates quickly discovered what would happen. For the government examina-

tion, wide facilities are accorded. The required period of preparatory study is two years instead of five. Only the final examination is required. If the provisions of the Armbruster law alone were applicable, foreigners holding a university doctor's diploma, and having secured through diplomatic representations its transformation into a government diploma, would wait until they are 30 years old before becoming naturalized. For, after 30, military service is not required of naturalized citizens, and not after 28 if an applicant has children. Attention has been called to the large number of German refugees who are matriculating at the university. After three years of study and having secured the transformation of their university diploma, they need only wait until they are 30 years old to have the right to practice in France, which will give them an advantage over French students, as they will not lose the year devoted to military service. France has already many physicians who can no longer make a living. Nevertheless, the Conseil supérieur has refused to do anything to modify the situation and the number of university diplomas being issued by the faculties of medicine is constantly increasing. Their total has reached 2,616 (1,243 in Paris alone). Of this number, 166 graduates secured later a transformation into a government diploma.

Postdiabetic Insulinemia

Mr. Rathery reported to the Academy of Medicine a typical case of hyperinsulinemia, a syndrome that may be spontaneous, attended with hypoglycemia, and characterized by asthenia, hypothymic manifestations, a sensation of hunger, a feeling of corpulence and the like. Mr. Rathery's patient had been diabetic for nine years but had ceased to be a diabetic for the previous year and could tolerate large amounts of starchy food. For some time past he had presented a condition of spontaneous hyperinsulinism and his blood sugar sometimes dropped to 0.65 Gm. His complete recovery (without insulin) from ordinary diabetes is not exceptional, but the existence of a syndrome just the opposite of diabetes, in a person formerly diabetic but now cured is rare.

Contamination of Rivers by Lead Arsenate

The newspapers have contained accounts of dead fish observed in certain rivers of southern France. On investigation it was found that the action of waste waters from adjacent factories on the river banks could be eliminated, for several of the rivers had no factories on their banks. Mr. Vincent Richard, a chemist in the department of Ain, conceived the idea that the poisonings were due to lead arsenate, traces of which he found in these waters. Lead arsenate forms the base of various products widely used in agricultural regions to combat the animal and vegetable parasites that infest grapevines and fruit trees. The surface waters carry off considerable quantities of lead arsenate, thereby introducing the poisonous substance into the springs and the rivers. Furthermore when the lead arsenate is applied after the blossom of the grape has appeared it penetrates the grape and can be found in the wine, which itself becomes a menace. Mr. Richard reported to the prefect of Ain the results of his observations and added that he had seen cattle die in Morocco that had eaten, along with pasture grass, locusts poisoned by arsenates. He stated also that birds die in large numbers after eating insects poisoned by products with an arsenic base, and that likewise arsenized wheat for the destruction of rats is extremely dangerous. The Comité supérieur d'hygiène publique has been asked to look into this question. The Academy of Medicine has inquired into the matter at various times and has passed a resolution that agriculturists be prohibited from using arsenical products as insecticides. The agriculturists allege that there are no other substances quite so effective and so cheap for this purpose. The resolutions of the academy have consequently been ignored.

BERLIN

(From Our Regular Correspondent)

Feb 5, 1934

Tuberculosis Among the Personnel of Hospitals

Dr Dornedden has obtained data, through an inquiry instituted by the federal bureau of health, on the status of tuberculosis among the personnel of 2,113 hospitals and 716 aid centers for the tuberculous, including more than 80,000 persons from Dec 1, 1928 to Nov 30, 1931. 6,607 persons of these groups (82 per cent) reported sick. Of these cases, 76.8 per cent were with certainty, and a further 14.5 per cent were in all probability, tuberculous. Of the sure cases 89 per cent were active and 42.7 per cent were healed infections. 48.4 per cent of the cases were quiescent. If one considers the large number of quiescent and cured cases, the morbidity incidence of 82 per cent is not particularly high. In the group of physicians examined by specialists and roentgenologists, the percentage of morbidity was 128 or 117 in those more than 50 years of age and in women physicians under 50 years old. 68. The percentage of morbidity in the group composed of the whole personnel (examined in the same manner and comprising 3,682 persons) was 12.33. The morbidity among the personnel of the tuberculosis sanatoriums was the highest but in the group that took care of tuberculous patients in the hospitals and infirmaries it was above the average. It should be considered that tuberculous persons often accept positions in tuberculosis departments. No relative difference in the morbidity could be discovered in keeping with the length of service in such institutions. However the conclusion appears justified that limitations of the working hours and elimination of the more weakly attendants should be instituted. Comparing these with former statistics, it appears that the formerly excessive morbidity of the care-taking personnel, owing to the protective and control measures and the regulation of the working hours has been reduced and now but slightly exceeds the average morbidity of the population as a whole.

Oral Focal Infection

The fact that the majority of the German people are suffering from odontogenous foci furnished the occasion for a recent address by Dr Netter, before the Breslau Medical Society, on oral focal infection in its relation to the whole organism. Oral focal infections may be associated not only with the teeth but also with the tonsils. Infection of the tonsils is frequently the secondary stage of a chronic infection whereas the primary focus lies in the teeth. The tooth is not merely a hard formation that is easily detached from the body but, viewed biologically and genetically, is the nucleus of an organic unit of a higher order. The enamel and dentin and the "tooth bed" form a compact tissue complex, which is attached to the jaw base without demonstrable border. By reason of the close connection of each tooth with the whole organism, pathologic processes of the pulp or the gum line find easy entrance to the body. If inflammation extends from the pulp through the apical foramen into the jaw, it commonly brings about an apical osteitis due mostly to streptococci and less frequently to pneumococci along with other bacteria. The defense forces of the body are often called into action for years and are unable to reach and eliminate the infective agents coming from the frequently symptomless necrotic dental root. Granulomas sterilized by the defense forces of the body are frequently reinfected from the root canal system. Netter has observed 200 cases over a period of eight years, in which, after treatment of the dental foci, in combination with general and special treatment, the organic disturbances (heart, joints, neuralgias, sciatica, and the like) disappeared. Furthermore there disappeared, in numerous cases also acne, herpes labialis and the previous

tendency to colds. Odontogenous focal infections deserve, therefore, in view of the vast number of persons affected, careful attention by those who are endeavoring to raise the general standard of public health.

The Geographic Origin of Professors in Medical Schools

Dr Kivser-Petersen of Jena has completed an inquiry to determine the place of birth, the institution of first habilitation and the present activity of the occupants of chairs of medicine. He reports that of the 390 head professors who are members of medical faculties in Germany, 66 per cent began their academic careers in the city of their birth and 46 per cent in the land in which they were born (Prussia, Bavaria or elsewhere). 38 per cent are at present engaged in their native city and 45 per cent in the land of their birth whereas 84 per cent were born in foreign countries. In the city of their first habilitation there are 22 per cent, some of them having taught elsewhere for a time and then accepted a call to return as occupant of a chair. There are 45 per cent in the land of their first habilitation, whereas 35 per cent began their teaching in a foreign country. The number of professors who habilitated in their native city and are still so located is comparatively small (21 per cent), although 28 per cent are still teaching in the same land in which they were born and in which they habilitated.

Study of Criminal Tendencies in Twins

With the aid of the Bavarian ministry of justice Prof Johannes Lange ordinarium in psychiatry at the University of Breslau was able to investigate the personal histories of more than thirty pairs of twins confined in the Straubing penitentiary. There were thirteen pairs of enzygotic and seventeen pairs of dizygotic twins. Of the thirteen pairs of enzygotic twins, both twins had in ten cases received prison sentences. In fifteen of the seventeen pairs of dizygotic twins only one of the twins had received a prison sentence. Especial interest attaches to the fact that in the case of the enzygotic twins the same kind of crime was committed, while the time the crime was perpetrated was the same for the two twins. A study of their private lives before and during the stay in prison revealed the same habits. In the dizygotic twins, on the other hand, there were fundamental differences.

Instillation of Silver Nitrate Solution

The Prussian minister of the interior has announced that while it may be safe for institutions that use large amounts to keep in bottles a supply of silver nitrate solution for instillation into the eyes of the new-born (Crede method), experience has shown that it is not feasible for the use of midwives, in addition to the menace of contamination there is danger of a stronger solution developing as a result of evaporation, and also a possibility of decomposition. For obstetric use by midwives, outside of hospitals, solutions kept in ampules are advisable. One should see to it that there is no danger of bits of glass entering the eye of the new-born, and that the fluid can be properly dropped, lest too large a quantity be instilled into the eyes.

Professor Doderlein Dispensed from Lecturing

The eminent gynecologist Prof Albert Doderlein, who at the age of 73 is still lecturing in the fulness of his vigor at the University of Munich, obtained his doctor's degree in medicine at that university fifty years ago. Doderlein has been a pioneer in three fields. He was the creator of gynecologic bacteriology. He has developed the gynecologic operative technique to such an extent that he has achieved some of the best results in the operative treatment of cancer. He was one of the first to study in microscopic preparations the action of rays on the cell. He came to abandon almost completely the operative treat-

ment of uterine cancer and confined himself to radiologic treatment. His results have been extraordinary. From April 1 on at his request he has been relieved from the obligation of holding lectures.

ITALY

(From Our Regular Correspondent)

JUN 15, 1934

The Congress of Surgery

At the fourteenth Congress of Surgery, held at Pavia under the chairmanship of Prof. Gaetano Fichera, the first topic, "Drainage of the Biliary Tracts," was presented by Professor Uffreduzzi of Turin. Although drainage of the biliary tracts has been done for many years, knowledge of the actual influence that it may exert on the liver is still obscure in some respects. The bile is carried through the biliary tracts under a low pressure, usually estimated at about 20 cm. of water but somewhat variable depending on the condition of Oddi's sphincter. By drainage of the biliary passages is meant an intervention capable of abolishing all tension, both normal and pathologic. One makes a distinction between medical and surgical drainage. Medical drainage may render excellent service but cannot be regarded as a true drainage of the biliary passages, since it has the effect of increasing therein the pressure and induces a marked contraction of the gallbladder, and also of the biliary passages, above the obstruction, if any.

Surgical drainage may be external or internal, depending on whether the bile is carried outside the organism or is conducted to the intestine by a different route than normally.

Internal drainage includes cholecystogastrostomy, cholecystoduodenostomy and cholecystojejunostomy.

Indications for the operation are found in cases with obstruction and increased tension in the biliary passages, usually accompanied by icterus, cases of angiocholitis, without appreciable obstruction of the choledochus, and cases of so-called catarrhal icterus.

The general discussion was participated in, among others, by Professor Alessandri of Rome, who brought out that cholecystostomy does not constitute the ideal form of drainage of the biliary passages, except in emergency cases. In grave infections he prefers cholecystectomy and drainage of the hepatic duct by the Kehr method. Calabresi and Donati pointed out that medical drainage is an excellent method for preparing patients for a surgical intervention.

CONDITIONS DUE TO LESIONS OF THE PARATHYROID

The second topic, "Diseases Due to Lesions of the Parathyroids" was discussed at a joint session with the Società di medicina, by Professor Sisto of Modena and Professor Donati of Milan.

Sisto pointed out that formerly the basis of research in changes in the parathyroids was clinical and anatomopathologic whereas today it is essentially biochemical. The conceptions with regard to hypoparathyroidism have changed, as a rule one no longer assumes that disorders characterized by neuromuscular hyperexcitability, such as chorea, gravidic eclampsia and myoclonia, are ascribable thereto. Tetany is certainly a consequence of suppression of the parathyroids in cases in which these are removed or damaged during operations on the thyroid. There are, however, many cases of tetany in which such conditions do not exist, for example, in tetany of infancy, in posttraumatic tetany, in the idiopathic types of adults or in the types due to hyperventilation, to bicarbonates and to phosphates. In all cases of tetany one encounters alkalosis of the blood, which in parathyroid types is associated with hypocalcemia and an increase of inorganic phosphates. Such alkalosis is today regarded as the fundamental cause of tetany and may or may not be produced by deficiency in parathyroid functioning. Likewise guanidinic toxicosis concerning which there has been much

discussion in recent years, cannot be identified with parathyroprival tetany. The result of the treatment confirms these modern views.

Hyperparathyroidism has become a live topic in recent months. However, it also must be deprived of certain syndromes that are not justly ascribable to it. Experimentally an attempt has been made to produce hyperparathyroidism—first with grafts and more recently by the administration of extracts of the parathyroid glands. But neither grafts nor extracts can completely produce a syndrome of true hyperparathyroidism.

Vitamin D and, in a measure, exposure to ultraviolet rays produce effects similar to those of parathyroid extract. Their use often results in improvement or a disappearance of parathyroprival tetany. Not all the effects of the various preparations of vitamin D (for example, the toxic effects and the metastatic calcifications) are attributable to the vitamin D, for also the secondary products of irradiation of ergosterol come into play.

Recklinghausen's disease occupies at present the first place among the hyperparathyroidal syndromes. This morbid syndrome is recognized today as due to hyperfunctioning of the parathyroids, brought about ordinarily by an adenoma or by hyperplasia of these glands. In every case reported, surgical intervention improved the symptoms but did not effect a complete cure. Sometimes deep irradiation of the region of the neck has been found useful. In the group of hyperthyroidal syndromes some authors have included, of late, morbid types such as chronic ankylotic rheumatism. The symptoms on which these authors base their conceptions is the increase of calcium in the blood serum. But their conception will probably be revised.

Professor Donati presented a paper, divided into ten subtitles, on the surgical side of the topic. He stated that parathyroidal osteodystrophia coincides almost completely with Recklinghausen's disease. In certain osteodystrophias, changes of metabolism of alimentary origin, various toxic factors of exogenic origin, and excessive losses of calcium act as pathogenic factors. These conditions are associated with secondary parathyroid hyperplasias, as distinguished from the parathyroid adenoma of osteodystrophia fibrosocistica, they have to do with secondary processes, probably referable to an acidotic factor involving the whole parathyroid apparatus. These factors awaken the suspicion that with the osteodystrophias are associated sometimes changes in other glands of internal secretion, besides the parathyroids. Osteomalacia probably does not have a parathyroid pathogenesis. There may be secondary hyperplasias of the parathyroids that will impose an osteodystrophia fibrosa on the picture of osteomalacia.

The relation between parathyroid osteodystrophia and Paget's disease is not clear. In tuberculosis of the bones, no signs of parathyroid disturbances and in fractures no constant changes in the blood calcium have been revealed. It must be that there is a local mobilization of calcium instead of changes in the general metabolism of calcium. These have been encountered, however, in certain cases of heterotopic calcifications. A study of the relations between the sympathicus and the parathyroids leads to the conception that the regulation of the calcium equilibrium is not associated solely with the functioning of the parathyroids but is of a neuro-endocrine nature.

Fifty-six cases of parathyroid adenomectomy in persons affected with osteodystrophia have been reported. In spite of the existence of such morbid types also in persons that do not have changes of the skeleton, the relation between adenoma and Recklinghausen's disease may be regarded as fully demonstrated. The removal of the tumor in such cases is the proper treatment.

The parathyroid transplant, formerly much used in post-operative parathyroprival tetany, has lost its importance either

because of the more perfect technic of goster operations or because of the possibility of using calcium-vitamin therapy.

Other communications on the subject were presented. Maragliano explained the effect of partial parathyroidectomy on some types of ankylosis polyarthritidis. Alessandri spoke on the results of parathyroidectomy that he observed in fifteen cases. When one does not succeed in separating the individual parathyroids, he advises resorting to regional ligation of the arteries.

BELGRADE

(From Our Regular Correspondent)

Feb 7, 1934

The First National Health Exhibition

The first national health exhibition was held in Belgrade Aug 19-Sept 20 1933 by the Yugoslav Association for the Protection of the Nation's Health assisted by all state hygienic institutes and by numerous private organizations. The exhibition was visited by a large number of individuals and by schools and similar organizations. Reduced rates were allowed by the railways. The exhibition was divided into two main parts: the first popular and instructive and the second commercial. The following sections were organized: antialcoholic, climatic and bathing resorts, hygiene of mothers and children, the protection of school children, tuberculosis and venereal diseases and malaria and infectious diseases. A special section was devoted to a model hygienic hospital or sanatorium and to showing what private homes, sleeping rooms, kitchens and privies ought to be like. Special attention was devoted to the hygiene of foodstuffs, clothing, places for working and personal hygiene. Finally there was a practical presentation of different kinds of sport and physical training. In the commercial part were exhibited articles needed for personal hygiene: foods, drugs, articles used in dining rooms and a great number of labor saving appliances used in housekeeping. The visitors were so numerous that it was necessary to keep the exhibition open from the early morning until 10 at night. The exhibition board intends to organize a permanent health exhibition.

The Fourth Balkan Medical Week

There are six independent states in the Balkans: Albania, Bulgaria, Greece, Rumania, Turkey and Yugoslavia. Since 1910 Balkan medical weeks have been held each year in a different Balkan state. The first conference was held in Athens, Greece; the second in Istanbul, Turkey; and the third in Bucharest, Rumania. The fourth medical week was held in Belgrade, Sept 11-13, 1933. The subjects on the program were the role of physicians in the Balkan states, the hygiene of children and the sanitary conditions of villages. The largest number of physicians including the vice president of the Union of Balkanic Physicians, Dr. Petre Topa, and the general secretary, Dr. Popescu-Buzen, came from Rumania. Turkey was represented by Professor Dr. Achill Muktar. Dr. Nuretin and Professor Suchelil from Greece; there were Professor Dr. Vladimir Benzis and Dr. Peter Scaramanga, Surgeon General Dr. Ceda Djurdjevic of Belgrade, Dr. Glatzi of Rumania, Dr. Benzie of Greece and Dr. Achill Muktar of Turkey read papers on the role of physicians in the Balkan union. On the hygiene of children there were communications by Professor Ambrozitch of Yugoslavia, Dr. Achill Muktar of Turkey and Dr. Simlja Kostitch of Yugoslavia. On sanitation in Balkan villages a conference was given by Dr. Bojan Pirc of the Central Hygienic Institute of Belgrade. Malaria was discussed by Dr. Ceda Simitch of Yugoslavia, Dr. Achill Muktar of Turkey, Professor Suchelil of Turkey and Drs. Martinescu, Angelescu and Vajanosa of Rumania. The antituberculous campaign in the Balkans was treated by Dr. Trinescu of Rumania and Professor Radosavl-

jevitch of Yugoslavia. The prophylaxis of venereal disease was discussed by Dr. Kitchevatz of Yugoslavia, Dr. Martinescu of Rumania and Dr. Achill Muktar of Turkey. A conference on mental hygiene was held by Dr. Bogitch of Yugoslavia. The Balkan medical weeks not only serve for scientific discussions but have the happy result of creating a friendly atmosphere, which will undoubtedly have a good effect on political relations.

An Expedition to Remote Communities

For the last three years Prof. Dr. George Georgevitch and his co-workers, aided by a private fund, have made during their vacations medical expeditions into different parts of Yugoslavia, especially districts remote from railways or other means of communication. This work is interesting and the number of volunteer physicians is growing every year. This year Professor Dr. Georgevitch has awakened the interest also of professors of history, geology, mineralogy, botany, zoology, archeology and others. Nearly the whole faculty of the university of Belgrade took part in a six weeks' scientific expedition to a mountain district in Montenegro. Cases of chronic diseases, never seen in clinics, were here examined by modern diagnostic methods. The population, having confidence in the well known names of the physicians present, came in large numbers to be examined and to profit by such a rare occasion. The professors and their assistants, although overworked every day, were pleased at having found material which it is impossible for them to see in large hospitals and clinics. An extensive publication will shortly appear on this work. The state is willing to allocate sufficient funds to permit the organization of such medical expeditions every summer.

Death of the Minister of Health

One of the most eminent physicians, formerly minister of health, Dr. Cheda Mihailovitch, has died in Paris of anthrax. He was born in Belgrade sixty-four years ago and was brought up in France. He was one of the first Serbian physicians to study in France, in whose footsteps the new generations have followed. Beloved among physicians, he was an excellent organizer who knew how to gain the sympathies of everybody. He was appointed during the World War as head of all the foreign medical missions working in Serbia. Since 1920 he has many times been sent on delicate official missions to different parts of Europe and even to the United States. It was during one of these official missions to Poland that he contracted anthrax.

Marriages

GLORIA HAMPTON GARMAN, Chattanooga, Tenn., to Miss Alice Harriette Heibek, at Shepherd Hills, February 6.

EDWARD MARVIN MANN, Mavock, N. C., to Miss Ethelyn Anderson Thompson of Summit, Miss., Dec. 23, 1933.

WILLIAM MAXWELL HITZIG to Miss Candis Hall, both of New York, at New Rochelle, N. Y., March 9.

HELEN HARRISON GIBSON, Akron, Ohio, to Miss Anne Richardson of Sharon, Pa., February 16.

JEFFERSON BIVINS HEIMS to Miss Doris McCollum, both of Morganton, N. C., Dec. 23, 1933.

SILVSTER BERNARD HEWIC to Mrs. Hazel Broderick, both of St. Louis, February 10.

EARLE E. HENSON, Princeville, Ill., to Miss Florence Cummings of Peoria, January 17.

FRANK D. RICHARDS, Dewitt, Mich., to Miss Ruth A. Bleil of Belleville, January 26.

SAMUEL JOSEPH ZAKON to Miss Dorothy Gaylin, both of Chicago, March 11.

CLARA HYMAN to Mrs. Rose Sagner Sachs, both of Baltimore, March 20.

Deaths

Walter Earnest Bates, Davis, Calif., University of California Medical Department, 1881 member of the California Medical Association, past president of the Yolo County Medical Society and Northern California Medical Association, formerly lecturer in hygiene at the branch of the college of agriculture, University of California, resident physician in charge of the campus infirmary, 1908-1932, for five years president of the county board of health, for two years superintendent of St. Luke's Hospital, San Francisco, aged 73, died, February 2, of coronary thrombosis.

Edith Rogers Spaulding, New York, Tufts College Medical School, Boston, 1909, member of the American Psychiatric Association, New England Society of Psychiatry, Association for Research in Nervous and Mental Diseases, American Psychopathological Association and the American Orthopsychiatric Association, for many years affiliated with the psychiatric division of St. Luke's Hospital and the Vanderbilt Clinic, aged 52, died, February 23, of coronary thrombosis.

Harold Wilson, Detroit, University of Michigan Homeopathic Medical School, Ann Arbor, 1886, fellow of the American College of Surgeons, past president of the Wayne County Medical Society, at one time associate professor of ophthalmology and otolaryngology, Detroit College of Medicine and Surgery, for many years on the staff of the Grace Hospital, aged 73, died suddenly February 16, in Birmingham, Mich., of acute dilatation of the heart, following an automobile accident.

Raymond John Sisson, Detroit, Syracuse (N. Y.) University College of Medicine, 1922, member of the American Academy of Ophthalmology and Oto-Laryngology, fellow of the American College of Surgeons, served during the World War, on the staffs of the Harper Hospital Children's Hospital of Michigan and St. Mary's Hospital, aged 36, died, February 23, in the Massachusetts General Hospital, Boston, of pneumonia, following an operation on the kidney.

James Thomas Watkins, San Francisco, College of Physicians and Surgeons in the City of New York, medical department of Columbia University, 1894, member and past president of the American Orthopedic Association, fellow of the American College of Surgeons, lecturer on orthopedic surgery, University of California Medical School, orthopedic surgeon to the Hospital for Children and the Southern Pacific General Hospital, aged 62, died, February 18.

Lizzie Maud Carvill, Boston, Tufts College Medical School, Boston, 1905, member of the American Academy of Ophthalmology and Oto-Laryngology, American Ophthalmological Society and the New England Ophthalmological Society, fellow of the American College of Surgeons, consulting ophthalmologist to the New England Hospital for Women and Children and assistant surgeon to the Massachusetts Eye and Ear Infirmary, aged 60, died, February 25.

William Howe Merrill, Lawrence, Mass., Medical School of Maine, Portland, 1888, member of the American Academy of Ophthalmology and Oto-Laryngology, New England Ophthalmological Society and the New England Otolaryngological and Laryngological Society, fellow of the American College of Surgeons, ophthalmic and aural surgeon to the Lawrence General Hospital, aged 69, died, February 18, of angina pectoris.

Henry Weitzell Wandless, New York, College of Physicians and Surgeons, Baltimore, 1885, at one time clinical professor of ophthalmology, University and Bellevue Hospital Medical College, served during the World War, formerly consulting ophthalmologist to the Mercy Hospital, Hempstead, N. Y., died, February 17, at Garden City, N. Y., of carcinoma of the stomach.

John Holbrook Shaw, Plymouth, Mass., Harvard University Medical School, Boston, 1892, past president of the Plymouth County Medical Society, served during the World War for many years physician to the public schools of Plymouth, formerly on the staffs of the Jordan Hospital, aged 64, died, February 13, of coronary sclerosis.

Benjamin H. Swain, Ballston, Va., George Washington University Medical School, Washington, D. C., 1906, for many years secretary of the Arlington County Medical Society, county coroner, aged 74, died January 30, in the Alexandria (Va.) Hospital, of complications that followed appendicitis.

Thomas R. Pettway, Austin, Texas, Hospital College of Medicine, Louisville, Ky., 1875, member of the State Medical

Association of Texas, formerly a druggist, past president of the Travis County Medical Society, for fifteen years member of the school board, aged 83, died, Dec. 12, 1933, of pneumonia.

Leon Van Horn, Philadelphia, Jefferson Medical College of Philadelphia, 1896, served during the World War, surgeon to the U. S. Public Health Service, in charge of the immigration health work at Gloucester, N. J., station, aged 67, died, February 21, in St. Agnes Hospital, of Ludwig's angina.

Floyd Patrick Smith, Trenton, Tenn., University of Tennessee College of Medicine, Memphis, 1929, assistant director of the health department of Gibson County, served during the World War, aged 39, died, February 24, in the Methodist Episcopal Hospital, Memphis, of cerebral hemorrhage.

Jeffrey James Walsh, Providence, R. I., Tufts College Medical School, Boston, 1918, also a pharmacist and dentist, formerly member of the city council, aged 51, on the staffs of the Rhode Island State Hospital and St. Joseph's Hospital, where he died, February 14, of pneumonia.

George Xavier Roberts, Chester, Vt., University of Vermont College of Medicine, Burlington, 1896, member of the Vermont State Medical Society, served during the World War, aged 65, died, Dec. 18, 1933, of coronary thrombosis.

James Monroe Wicks, Jamaica, N. Y., Cornell University Medical College, New York, 1905, on the staff of the Jamaica Hospital, Richmond Hill, aged 50, died, January 29, in Miami, Fla., of aplastic anemia.

John Schorb Meyer, Caldwell, Idaho, Central Medical College of St. Joseph, Mo., 1897, member of the Idaho State Medical Association, aged 77, died, January 27, of septicemia, following prostatectomy.

Henry Wilderman, Philadelphia, Medico-Chirurgical College of Philadelphia, 1916, aged 42, died Dec. 20, 1933, of coronary thrombosis, at Bern, Switzerland, while abroad doing graduate work.

John Henry Hedley Scudder, Oakland, Calif., Jefferson Medical College of Philadelphia, 1910, aged 50, died, January 25, of hypertrophy of the heart and sclerosis of the coronary arteries.

Edward Temple Willson, Winter Haven, Fla., Columbia University College of Physicians and Surgeons, New York, 1896, aged 68, died February 21, of coronary sclerosis and arteriosclerosis.

Robert Harold Donnell, San Diego, Calif., Medical School of Maine, Portland, 1901, aged 55, died, January 26, in the Mercy Hospital, of acute toxic polyneuritis and hypertension.

Henry Solomon Stark, New York, College of Physicians and Surgeons in the City of New York, medical department of Columbia College, 1886, aged 71, died, January 31, of heart disease.

Roland Aretus Welch, Bellevue, Mich., University of Illinois College of Medicine, Chicago, 1915, formerly a medical missionary, aged 49, died February 25, of cerebral hemorrhage.

Harold Van Cott, Salt Lake City, Utah, Rush Medical College, Chicago, 1903, member of the Utah State Medical Association, aged 60, died, February 15, of heart disease.

Samuel Wesley Thomas, Melcher, Iowa, Kentucky School of Medicine, Louisville, 1880, member of the Iowa State Medical Society, aged 85, died March 6, of arteriosclerosis.

Mary Lane Mansur, Pasadena, Calif., Hahnemann Medical College and Hospital, Chicago, 1899, aged 77, died, January 12, of coronary occlusion and arteriosclerosis.

John J. Peckham, Los Angeles, Hahnemann Medical College of Philadelphia, 1874, aged 83, died January 19, of arteriosclerosis and hypertrophy of the prostate.

Neil Charles McKinnon, Brougham, Ont., Canada, Victoria University Medical Department, Coburg, 1885, L.R.C.S., Edinburgh, Scotland, 1885, died, January 16.

Constantine I. Sotel, Los Angeles, American University of Beirut School of Medicine, Beirut, Lebanon, Syria, 1911, aged 45, died, January 23.

Benjamin E. Thompson, Stoney Creek, Ont., Canada, University of Toronto Faculty of Medicine, 1891, formerly coroner, died, January 8.

James Bates Bennett, Baltimore, Baltimore Medical College, 1889, aged 65, died January 21, of lobar pneumonia and chronic arthritis.

Edwin F. Guyon, Montpelier, Idaho, Medical College of Ohio, Cincinnati, 1891, aged 80, died in January, at Pocatello, of senility.

Bureau of Investigation

JAD SALTS

Once Sold as a Kidney Cure, Now Advertised to the Obese

When one buys a "patent medicine" one buys a name and not a thing. The thing itself can change overnight, it is the name that remains a fixed quantity. Instance after instance could be cited to show how "patent medicines," while retaining the same name, have completely changed in composition. It is the name of a "patent medicine" on which the property value is built, a name that is invariably protected by a trade mark which gives to the owner what is essentially a perpetual monopoly on it.

'Jad Salts' is a good example of the way in which nostrum-makers either change the composition of their products or change the alleged therapeutic virtues to suit the exigencies of

FAT

people
wanted

To Reduce by Quick, New
JAD Method for 2¢ a Day

Now if you are fat you can eat your fill and yet grow thin—by the new JAD Method of reducing. Indeed, you can lose as much as seven full pounds the first week and look pounds lighter from the very first day.

Just take a little new *Condensed JAD Salts* in a glass of water before breakfast and make two small changes in your diet as explained in the folder that comes with the *Condensed JAD Salts* package. Now try this quick, easy way of taking off fat. **YOU'LL SAY IT'S WONDERFUL.** 30-day supply costs only 60¢ at all druggists. Remember—*Condensed JAD Salts* is urged as a poison banishing agent—to eliminate body moisture and unhealthy bloating—not as a reducing one.

A photographic facsimile greatly reduced of a typical Jad Salts advertisement appealing to the obese. The obvious intent is to make the careless reader—and most advertisements are read carelessly—believe that Jad Salts will reduce weight. A careful reading, however, of the last sentence in the advertisement repudiates that idea.

trade—or both. The Bureau of Investigation gets many letters inquiring about Jad Salts. To quote from typical ones: A woman in New York City writes:

Will you please advise me whether *Condensed Jad Salts* which is advertised on the radio as a safe preparation for weight reduction is harmless?

A physician in Iowa writes:

I have a patient using Jad Salts to reduce and wishes to know the merits or demerits of the same.

From Wisconsin a woman wrote:

Would you please let me know whether Jad Salts are harmful to a healthy person?

For many years Jad Salts was advertised as a cure for kidney disease, and three times the product was declared misbranded under the National Food and Drugs Act because of the false and fraudulent claims made for it. This was in 1923. The government chemists reported at the time that analysis showed Jad Salts to consist essentially of a mixture of sodium

phosphate, baking soda, citric and tartaric acids, with traces of lithium carbonate, potassium bicarbonate and hexamethylenamine. Part of the earlier advertising campaign for Jad Salts attempted to convince the public that meat was the "cause of kidney trouble." Some of the claims made in the older advertising were:

Eating meat regularly eventually produces kidney trouble in some form or other.

Meat Cause Of Kidney Trouble
Meat Injurious to the Kidneys'

We are a nation of meat eaters and our blood is filled with uric acid.

Later the exploiters of Jad Salts dropped their references to meat but continued to advertise the nostrum as a treatment for kidney trouble.

Somewhere around 1930 there must have been a serious slump in the kidney-cure game for about that time the entire advertising appeal was changed and Jad Salts then began to be advertised to the obese. The trend of the new advertising was to give the impression superficially that Jad Salts was an obesity cure. Yet the manufacturers had buried in their advertising, the statement that *The salts are urged purely as a poison banishing agent—not as a reducing.* The change in food does the work." If one analyzes the present Jad Salts advertising it declares in effect that it is quite unnecessary to buy Jad Salts in order to reduce—which, of course, is a fact—but that any reduction must be brought about by cutting down on the food intake. While this is the technical thesis of Jad Salts advertising the obvious intent seems to be to make the public believe that Jad Salts is an obesity cure. In other words while the advertising, in screaming headlines and pictures, puts over the idea that Jad Salts is a reducing remedy, the same copy, *sotto voce*, declares that it is the dieting and not the "patent medicine" that brings about any reduction that may occur. Thus advertisements picturing grossly fat women reduced to sylphlike proportions carry such headings, in large black faced type as:

New Way to Lose Pound of Fat a Day

Look Pounds Lighter in an Hour

'Now Take Off Fat a Pound a Day on a Full Stomach'

With the change of appeal, apparently there went a change in composition. The Jad Salts trade package has long carried what purports to be a qualitative statement regarding the alleged ingredients. Comparing the old with the new we find that the only alleged difference between the Jad Salts of today sold for obesity and the Jad Salts sold a few years ago for 'kidney trouble' is that the trace of hexamethylenamine that they used to have in it has been dropped, as has also the baking soda. Otherwise if the trade package is to be believed, the composition is the same. Thus:

FOR KIDNEY DISEASE

Tartaric Acid
Citric Acid
Lithium Carbonate
Sodium Phosphate
Potassium Bicarbonate
Table Salt
Baking Soda
Hexamethylenamine

FOR OBESITY

Tartaric Acid
Citric Acid
Lithium Carbonate
Sodium Phosphate
Potassium Bicarbonate
Table Salt

Still more recently the Jad Salts concern has put out a product that it calls 'Condensed Jad Salts.' According to the trade package, this contains the following substances:

Tartaric Acid
Citric Acid
Sodium Phosphate

Glauber's Salt
Magnesium Carbonate
Baking Soda

Here, then, we see, sold under what is essentially one name, three different products. It seems evident that the regular Jad Salts now being advertised to the obese, while a saline laxative, is an extremely mild one. The *Condensed Jad Salts*, by the addition of Glauber's Salt, is presumably more drastic.

One may assume that if the exigencies of the "patent medicine" business require further changes, we may find Jad Salts undergoing still a further transfiguration both in composition and in therapeutic claims and find it advertised for pathologic states not yet thought of. When one buys a "patent medicine" one buys a name—not a thing.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

HYPERSENSITIVENESS TO LIGHT

To the Editor—I am attempting to treat a chronic skin disorder that is apparently an allergic manifestation of purely physical origin. The patient a man of 54 has suffered with an eczematoid eruption involving only the exposed surfaces of his body for eight years. The lines of demarcation between the affected and the normal skin are clear cut at the collar level on the neck and at the cuff level on the wrists. He is much worse during the summer months than during the winter and even a short exposure to the sun produces an intense itchy reaction. He is fairly comfortable on dark, cloudy days; his skin will blister readily on a few minutes' play of the sun but without typical sunburn. He has been studied minutely and exhaustively, including cutaneous tests with food and contact proteins. There is no suggestion of pellagra. He has tried numerous diets. Dermatologists have treated him with ultraviolet radiation which invariably makes him worse. That he is sensitive to such rays I have proved by mild exposure of a small area of uninvolved skin and I believe that the ultraviolet rays of the sunlight are the essential offending factor. The difficulties of treatment are obvious. It is not practical to keep him in a darkened room the remainder of his life and gradual exposures to the light seem to effect no tolerance whatever. I am wondering whether there is some substance which when incorporated in a simple base and applied as an ointment might remove the penetration of the ultraviolet rays mindful that even the milder ointments irritate his skin. The only benefit noticed from local applications has been transient relief of the intense pruritus. Please omit name.

M D Georgia

ANSWER—This is an undoubted instance of hypersensitivity to light, of which several reports have been recently made by Duke, Sellen, Weiss and others under the designations of urticaria solare, eczema solare, prurigo solaris and light allergy. In the older literature the cases of light sensitivity are described under the two most common terms of summer prurigo and hydroa vacciniforme, the former being used to designate the milder cases of eczematoid and urticarial reaction and the latter for instances associated with vesicles and bullae.

It is interesting to know that as far back as 1862 Bazin described cutaneous reactions due to light sensitivity. For many years it has been known that hematoporphyrin is frequently found in cases of hydroa vacciniforme. Ehrmann (*Arch f Dermat u Syph* 97 75 1909) suggested that this chemical acts as a sensitizing substance and is the cause of the skin eruptions. In 1911 Hausmann (*Biochem Ztschr* 30 276 1911) injected white mice with hematoporphyrin hydrochloride and found that on exposure to sunlight they scratched themselves and their skins became red and edematous. Meyer-Betz (*Deutsches Arch f klin Med* 112 476, 1917) injected himself with hematoporphyrin, with resulting marked sensitivity to light. H L Smith (Buckwheat Poisoning, *Arch Int Med* 3 350 [May] 1909), in discussing a case of buckwheat allergy in man, refers to the general problem of buckwheat poisoning in animals. He says that only white or white spotted animals are affected. If they are kept in the dark no poisoning results. If they are artificially blackened, they escape symptoms. He concludes that sunlight is the exciting cause. He calls attention to the fact that buckwheat contains phytoporphyrin, a derivative of chlorophyll which closely resembles, chemically, hematoporphyrin and mesoporphyrin. Low (Anaphylaxis and Sensitization, Edinburgh, W Green and Son, 1924) says that a substance similar to the phytoporphyrin found in buckwheat may occur in ordinary wheat or oatmeal and may be responsible for some cases of light dermatitis. Among other conditions that are apt to cause hematoporphyrinuria are sulphonal ingestion, liver insufficiency, particularly due to syphilis or alcohol, congenital functional or organic defects of the liver, and lead poisoning. Some doubt has been thrown on the incrimination of porphyrin as a cause of light sensitivity by the experiments of Templeton and Lunsford (*Eczema Solare and Porphyrin* *Arch Dermat & Syph* 25 691 [April] 1932). Following the finding of porphyrin in two cases of eczema solare, these authors exposed eleven non-light-sensitive individuals to ultraviolet irradiation and were able to demonstrate porphyrinuria in all of them. They are of the opinion, therefore, that porphyria is probably a result rather than a cause of dermal sensitization. The internal administration of quinine acriflavine hydrochloride and other fluorescent substances has been reported to increase the sensitivity to light.

It is suggested that the patient be examined for hematoporphyrin and if it is found a search for the possible etiologic factors suggested be made with particular reference to sulpho-

nal, lead poisoning, liver insufficiency and buckwheat ingestion. If this is of no avail, the use of hydrochloric acid orally as suggested by Barber and Howitt may be tried. To diminish the penetration of ultraviolet rays, several substances have been suggested for local use. Disodium naphthol sulphate probably offers the greatest possibility of success along this line. This may be incorporated in an ointment base to the extent of 5 per cent. If an ointment is undesirable, a 5 per cent solution in alcohol may be used locally.

WASSERMANN FAST SYPHILIS IN PREGNANCY

To the Editor—For the past six years I have been treating a woman now 30 years old for syphilis intensively in 1928 1930—with mercury and nearsphenamine. In 1931 I gave her six injections of arsphenamine. Her veins got so bad that I had to finish up with nearsphenamine. I continued during 1931 1933 with nearsphenamine bismuth salicylate and mercury with rest periods of from six weeks to three months. I gave her twenty-eight injections of iodobismutol but cannot seem to get the blood Wassermann reaction below 2 plus. Finally a spinal fluid examination revealed a slight increase of globulin (Pandy Noguchi) 9 cells per cubic millimeter and a colloidal gold curve of 2322210000. The spinal fluid gives a negative Kolmer Wassermann reaction. From the report may I assume that my patient is Wassermann fast that the spinal fluid is normal that the cell count and colloidal gold curve can be accounted for by the use of iodobismutol that she can go ahead and become pregnant without fear of syphilitic offspring and that she needs no more antisyphilitic treatment? May I have your views on the matter?

M D Michigan

ANSWER—The first assumption is correct. The patient is Wassermann fast. The other assumptions are false. The iodobismutol cannot be held responsible for the slight increase of globulin, the abnormal cell count and the weak colloidal gold reaction. They indicate an infection of the central nervous system. An examination of the spinal fluid earlier in the course of the disease would in all probability have given a more decided reaction. The patient needs more treatment, courses of foreign protein therapy of some sort and trypanamide being alternated with the ordinary antisyphilitic remedies. The iodides should not be omitted.

After the spinal fluid and blood serum reactions have become wholly negative the treatment can be decreased gradually, but a little treatment should be given each year for a long time, with serologic and clinical examinations at regular intervals with special attention to nervous symptoms or signs.

The danger of infection of the fetus in so old a case after so much treatment is slight, but treatment should be given in all pregnancies for fear of one of the unexpected recurrences that are sometimes encountered. According to eminent authority, pregnancy should be a benefit to the patient in overcoming the syphilitic infection. J H Stokes (Clinical Syphilology, Philadelphia W B Saunders Company, 1926, p 24) writes: "So influential is pregnancy and lactation in reducing the severity of syphilis in women that one might almost speak of the bearing of children as a part of the treatment of the disease." Before deciding on the pregnancy, it would be wise to test the efficiency of the kidneys. Spinal puncture should not be made during pregnancy.

LEAD POISONING

To the Editor—I should like to know whether a man working with sheet lead in the following ways is subject to lead poisoning or to any other industrial disease: 1 Hand forming of bowls and other utensils from sheet lead of the common variety and also sheet lead with 6 per cent antimony. 2 Polishing the same types of lead with steel wool by hand. 3 Lacquering these articles by brushing and by dipping which includes certain fumes caused by a low temperature drying bin. Any information you can give me regarding precautions to be taken in this type of work will be appreciated. Please omit name.

M D New York

ANSWER—1 Probably not. The handling of lead in the form of sheets or ingots rarely leads to lead poisoning. The presence of 6 per cent antimony with the lead is also unlikely to make antimony poisoning probable or to increase the likelihood of lead poisoning.

2 Yes. Polishing lead sheets with steel wool will generate some lead and antimony dusts. Lead poisoning is a reasonable expectancy. Practical protection may be secured by the consistent wearing of a respirator of suitable type. As one example of practical respirators for this operation, mention is made of the Willson No 3 felt bag type.

3 The extent of danger from lacquer vapors primarily depends on the constituents of the lacquer. Rarely are these exactly the same for any two brands of lacquer. At present the most used substances in lacquer are not highly toxic but may cause moderate irritation of the respiratory tract, dermatitis and other ailments. Ordinarily, protection may be secured by the installation of an exhaust system in the drying room.

SODIUM THIOSULPHATE NOT RECOMMENDED IN MERCURIC CHLORIDE POISONING

To the Editor—I am writing for an opinion as to the merits contra indications, if any and any other information as to the use of sodium thiosulphate in cases of corrosive mercuric chloride poisoning. A month ago I was called on to treat a young woman who in a fit of despondency took by mouth two tablets of corrosive mercuric chloride. By the time I could reach her bedside three hours had elapsed and she was in a condition of shock and vomited almost continuously. I washed the stomach with weak soda water, beat up the whites of six eggs into 8 ounces of milk and she succeeded in retaining nearly all of it. I then gave her intravenously $15\frac{1}{2}$ grains (1 Gm.) of sodium thiosulphate, advised that she be kept warm and urged that she be taken to a hospital as soon as possible which would be in the early morning. This was not done because she felt considerably better. The following morning she had a mild diarrhea which cleared up. Do you think the thiosulphate could have accomplished these remarkable results? If so how? What chemical action took place? Last night I was called on to treat a second case of corrosive mercuric chloride poisoning in my office. This patient took one tablet, or $7\frac{3}{4}$ grains (5 Gm.) and I instituted the same treatment within half an hour from the time she took it. She also was in shock and vomiting. Please give me your prognosis. Please omit name and address. M D Louisiana

ANSWER—While sodium thiosulphate is a powerful reducing agent, precipitating, in the test tube, the mercury from a mercuric chloride solution first as mercurous chloride and then reducing it to metallic mercury, no such reaction occurs in a solution of mercury albuminate. In controlled animal experiments on mercurial poisoning, sodium thiosulphate proved of no value as an antidote for mercury that has gained entrance into the circulation (Haskell C C, Henderson, W C and Hamilton, J R. Sodium Thiosulphate in Mercurial Poisoning. *THE JOURNAL* Dec 5 1925 p 1808). The probabilities are that the vomiting saved the patients.

NONSPECIFIC ERUPTION IN SYPHILIS

To the Editor—A man aged 30 presented himself Oct 4 1933 complaining of a rash on the abdomen and thighs. Examination revealed a macular rash quite typical of secondary syphilis. There was no history of a primary lesion. Physical examination was essentially negative with the exception of the rash. The Wassermann and Kahn tests were reported 3+. Treatment consisted of eight doses of neoarsphenamine 0.6 Gm. each with but little effect. Sulpharsphenamine bismuth 0.2 Gm. was then given for ten doses. Following the first few injections there was a decided improvement but after the sixth dose the rash again appeared and began to spread. I then changed to arsphenamine 0.4 Gm. doses of which he has now had three injections with but little effect. The rash now involves the trunk and both thighs. The Wassermann and Kahn tests are now reported 4+. Treatment is well tolerated. I would greatly appreciate any suggestions you can make regarding treatment. Kindly omit name. M D Michigan

ANSWER—It is a not infrequent occurrence that an individual with a positive Wassermann reaction of long standing may develop a cutaneous eruption that is not syphilitic. A macular rash in the absence of a history of a recent primary lesion is probably not syphilitic. From the data at hand and especially the failure of vigorous antisyphilitic therapy to cause the rash to disappear, one must think of other macular eruptions, such as pityriasis rosea, pityriasis lichenoides, chronic dermatitis medicamentosa or toxic erythema. A biopsy would assist in establishing the macules as syphilis histologically. In view of the questionable character of the eruption it would appear to be safer to withhold further antisyphilitic treatment until the correctness of the diagnosis has been established. Some nonsyphilitic macular eruptions such as pityriasis rosea will disappear spontaneously in the course of a few weeks and are only slightly influenced by treatment. Mild doses of ultraviolet radiation might be of assistance.

INSULIN HYPOGLYCEMIA

To the Editor—Will you kindly give me the main facts on the toxicity of insulin? Is insulin shock with the coma and hypoglycemia resulting from administration of insulin without food intake often fatal? If so in what dosage? Please omit name. M D Washington

ANSWER—Hypoglycemia due to insulin ("insulin shock") is rarely fatal. A fatal case is news, thus one such was reported in the daily press from Russia. In all perhaps only ten cases have been reported despite the fact that insulin is often used carelessly. One patient while in "insulin shock" but mistaken for diabetic coma, was given 30 units of insulin and shortly after another 30 units and died a few hours later. A child seen in insulin shock, likewise thought to be in diabetic coma was given 200 units of insulin and died the next day. In disease of the myocardium a low blood sugar is supposed to be harmful and may induce an attack of angina pectoris, and it is possible that smaller doses than those mentioned may have caused fatalities. Proof of this is generally unsatisfactory and one

need not fear trouble but, indeed, may secure benefit, if insulin with sufficient carbohydrate is conservatively employed in the treatment of heart disease.

One should distinguish between the toxic effect due to hypoglycemia and that brought about by an interaction between insulin and hypersensitive tissues. The latter results in local redness, swelling, and occasionally urticarial wheals. Such tissue responses have been described by F N Allan and L R Scherer (Insulin Resistance Due to Allergy, *Am J M Sc* 185 815 [June] 1933, Insulin Allergy, *Endocrinology* 16 417 [July Aug] 1932). There are few, if any, fatal cases on record.

SECONDARY PAPULOPUSTULAR SYPHILID

To the Editor—A man aged 35 had a penile chancre six weeks ago and a positive Wassermann reaction. He had one intramuscular injection of a bismuth preparation and one intravenous injection of neoarsphenamine. The injections were given by another physician. About a week later the patient noticed a breaking out of body eruptions appearing first on the scalp then on the arms and legs then on the body, and finally on the face which have persisted. These eruptions are papular and pustular, but mostly pustular and caly. There is no itching. What was the cause of the condition? What to do? Please omit name and address. M D Chicago

ANSWER—This patient has a secondary papulopustular syphilid. He should be vigorously treated with bismuth compounds and neoarsphenamine along the established lines of treatment for early syphilis. One of the following books may be consulted for the clinical manifestations of syphilis and its treatment: *Clinical Syphilology* by Stokes, *Treatment of Syphilis* by Schramberg and Wright, or any of the standard textbooks on dermatology.

EFFECTS OF SODIUM MORRHUATE IN VARICOSE VEINS

To the Editor—Within the last four months I have made use of your lending library files on the subject of treatment of varicose veins by the injection method with special interest in the use of sodium morrhuate. From the library I was unable to obtain the following information: 1. The action of sodium morrhuate as an obliterating agent whether on the vein or on the contained blood. 2. Is the factor in the production of the sclerosis the unsaturated fatty acids in the sodium morrhuate? Please omit name. M D Pennsylvania

ANSWER—1. The action of sodium morrhuate as an obliterating agent is both on the intima of the vein and on the contained blood. Injury to the endothelial cells lining the vein is the first factor needed in the production of any thrombosis. 2. In the case of sodium morrhuate it is supposed that this action is produced by the unsaturated fatty acids present plus the alkaline reaction produced by the hydrolytic action on the blood and tissue fluids.

TOXINS FROM CARCINOMATOUS GROWTHS

To the Editor—Would you kindly inform me on how I may secure information as to whether or not toxins have been produced by malignant tumors grown outside the body? If so have the toxins been analyzed from a chemical standpoint? ISADORE GIVNER M D New York

ANSWER—There is little positive information concerning this subject available in the literature. An excellent presentation can be found in Ewing's *Neoplastic Diseases*.

FIBROSIS UTERI

To the Editor—In *Queries and Minor Notes* in *THE JOURNAL* February 24 page 639 Dr Lawrence Parsons of Reno Nev. inquired as to the pathology of fibrosis uteri. Permit me to state that in the experience of the laboratory of the Long Island College of Medicine the specimens universally show adenomyosis interna. In the larger uteri this is especially pronounced in the smaller uteri the basal layer of endometrium is seen encroaching on the underlying muscle fasciculi. A review of the older specimens in our museum collection previously designated as fibrosis has confirmed this finding. The clinical symptom of bleeding is the result of these pathologic changes probably initiated by a disturbance in the pituitary-ovarian relationship. SAMUEL A WOLFE M D Brooklyn

RICE FEVER

To the Editor—In *Queries and Minor Notes* in *THE JOURNAL*, March 3 page 716 there was an inquiry from Dr Milosh Kasich of New York regarding rice fever. The answer suggests malaria as the disease referred to but Duglison's Medical Dictionary revised edition (1866) gives rice disease as a synonym for cholera. As cholera swept China around 1820 (if my memory is not too far off) it would be reasonable to suppose that cholera was the disease referred to instead of malaria. EDWIN M JAMESON M D Saratoga Lake N Y

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY *Written*
Examinations will be held in various cities April 30 *Oral* Cleveland
June 11 12 Sec Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written (Group
B Candidates)* The examinations will be held in various cities of the
United States and Canada April 7 *Oral* (all candidates) Cleveland
June 12 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY Cleveland June 11 and Butte
Mont July 16 *Application must be filed at least 60 days prior to date
of examination* Sec Dr William H Wilder 122 S Michigan Blvd
Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Cleveland June 11 Sec
Dr W P Wherry 1500 Medical Arts Bldg Omaha

ARKANSAS *Basic Science* Little Rock May 7 Sec, Mr Louis E
Gebauer 701 Main St Little Rock *Regular* Little Rock May 14 15
Sec Dr A S Buchanan Prescott *Homeopathic* Little Rock May 8
Sec Dr Allison A Pringle Eureka Springs *Eclectic* Little Rock
May 8 Sec Dr L L Marshall 820 W 14th St Little Rock

CALIFORNIA *Reciprocity* San Francisco May 16 Sec Dr Charles
B Pinkham 420 State Office Bldg Sacramento

COLORADO Denver April 3 Sec Dr William Whitridge Williams
423 State Office Bldg Denver

IDaho Boise April 3 Commissioner of Law Enforcement Hon
Emmitt Post 205 State House Boise

ILLINOIS Chicago April 10 12 Supt of Regis Dept of Regis and
Edu Mr Eugene R Schwartz Springfield

MINNESOTA *Basic Science* Minneapolis April 3 4 Sec Dr J
Charnley McKinley 126 Millard Hall University of Minnesota Minne-
apolis *Medical* Minneapolis April 17 19 Sec Dr E J Engberg
350 St Peter St St Paul

MONTANA Helena April 3 Sec Dr S A Cooney 7 W 6th Ave
Helena

NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in
Parts I and II will be held at centers in the United States where there
are five or more candidates, May 7 9 (limited to a few centers) June
25 27 and Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th
St Philadelphia

NEBRASKA *Basic Science* Omaha May 12 Dir Bureau of
Examining Boards Mrs Clark Perkins State House Lincoln

NEVADA Carson City May 7 Sec Dr Edward E Hamer Carson
City

NEW MEXICO Santa Fe April 9 10 Sec Dr P G Cornish Jr
221 W Central Ave Albuquerque

RHODE ISLAND Providence April 5 6 Dir Dr Lester A Round
19 State Office Bldg Providence

WISCONSIN *Reciprocity* Milwaukee April 5 Sec Dr Robert E
Flynn 401 Main Street LaCrosse

Michigan October Examination

Dr J Earl McIntyre, secretary, Michigan State Board of
Registration in Medicine, reports the written examination held
in Lansing, Oct 10-12, 1933. The examination covered 9 sub-
jects and included 60 questions. An average of 75 per cent
was required to pass. Ten candidates were examined all of
whom passed. The following schools were represented:

School	PASSED	Year Grad	Number Passed
Rush Medical College	(1932)	(1933 4)*	5
Detroit College of Medicine and Surgery		(1933)*	1
University of Michigan Medical School		(1932)	1
New York University and Bellevue Hospital Medical College		(1928)	1
University of Pennsylvania School of Medicine		(1933)†	1
University of Western Ontario Medical School		(1932)†	1

* These applicants have completed their medical course and will receive
their M.D. degree and Michigan license on completion of internship.

† License has not been issued.

Indiana Reciprocity Report

Dr William R Davidson secretary Indiana State Board of
Medical Registration and Examination, reports 27 physicians
licensed by reciprocity during 1933. The following schools
were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity
University of Arkansas School of Medicine	(1929)	(1932)	Arkansas
College of Medical Evangelists		(1925)	California
Colorado School of Medicine		(1906)	Iowa
Emory University School of Medicine		(1926)	Georgia
Northwestern University Medical School		(1930)	Utah
Indiana University School of Medicine		(1932)	Michigan
State University of Iowa College of Medicine		(1931)	Iowa
University of Louisville School of Medicine	(1926)	(1928)	
(1931) (1932) Kentucky			
University of Michigan Medical School		(1929)	Michigan
St. Louis University School of Medicine		(1931)	Missouri
Washington University School of Medicine		(1926)	Missouri
Columbia Univ. College of Physicians and Surgeons		(1927)	New York
New York University and Bellevue Hospi- tal Medical College		(1931)	New York

Medical College of Ohio	(1890)	Kentucky
Ohio State University College of Medicine	(1931)	Ohio
Western Reserve University School of Medicine	(1926)	Ohio
Jefferson Medical College of Philadelphia	(1913)	Penna
Meharry Medical College	(1931)	Tennessee
University of Texas School of Medicine	(1913)	Texas
Albert Ludwigs Universität Medizinische Fakultät Germany	(1922)	Ohio
Faculteit der Geneeskunde der Rijks Universiteit te Leiden Netherlands	(1908)*	California
University of Edinburgh Faculty of Medicine	(1919)	Nebraska

* Verification of graduation in process

Book Notices

Benign Tumors in the Third Ventricle of the Brain. Diagnosis and Treatment. By Walter E Dandy M.D. Adjunct Professor of Surgery the Johns Hopkins University. Cloth Price \$5. Pp 171 with 120 illustrations. Springfield & Baltimore Charles C Thomas 1933.

This interesting monograph presents a series of twenty-one cases chiefly tumors in the region of the third ventricle, which are a tribute to the courage and surgical expertness of the author. Considering the nature of these tumors, the mortality (33 per cent) has been reasonable and the postoperative results in the survivors must be a source of great satisfaction. One cannot help but wonder at the author's enthusiasm for ventriculography and surgical intervention when, in speaking of these tumors, he states that "their removal by surgical treatment is relatively simple and affords a permanent cure" and, later, "in every case the diagnosis and localization of the tumor can be made with precision and without risk by ventriculography." One remembers the author's own operative mortality, the realization by every neurosurgeon that tumors within this region constitute some of the most difficult cases, that ventriculograms are notoriously difficult of interpretation when the third ventricle is concerned, and that ventriculography is in nobody's hands entirely free from danger.

There are probably few monographs as carelessly written as the present one. Minor errors abound. For instance, on page 12 a previous operation is described as a "cerebral exploration" while on page 16 it is illustrated and described as a "cerebellar incision [sic]. On page 18, figure 14 illustrates a ventriculogram in which both lateral ventricles are outlined by air with the explanatory note that the opposite (left) ventricle was filled by a second injection made on that side, whereas on page 19 it is stated that "it was not necessary to inject the opposite (left) lateral ventricle." On page 29 is the statement that "the lateral ventricle occupied the midline (figure 23)," but reference to this illustration clearly reveals the ventricle to one side of the midline. On page 152 is the incorrect statement "It is generally accepted that the external geniculate bodies are the way stations in the pathways for hearing." And on page 130 one finds "middle" where the "anterior" cerebral artery seems intended.

It would hardly seem necessary to record the numerous other errors of like character. However, one other tendency of the author merits comment. Throughout the book he constantly shifts back and forth between the present, past and past perfect tenses. At times this shift is from paragraph to paragraph, at other times from sentence to sentence. For the most part roentgenograms have been extremely well reproduced, but the frequent retouching and covering up of the interesting parts with lines and lettering makes it impossible for the reader to interpret them.

The discussion of the cases from the ventriculographic and surgical aspects is excellent but some statements may be challenged. For example, on page 154 the statement "Among the cases collected in the literature none were localized during life and none, therefore, were found at operation" is obviously incorrect. The presentation of the histories and neurologic observations contributes little or nothing to existing knowledge and ignores some well established facts, while the discussion of the pathologic nature of the tumors displays a profound ignorance of the microscopic character of the tumors with which the surgeon is dealing. On page 50 is a photomicrograph of a tumor designated an "ependymal glioma." This tumor bears not the slightest resemblance to either normal ependyma or the ependymomas well known to neuropathologists. On page 166 it is apparent that the author is aware

of this fact, but no reason for his obviously erroneous designation is given. In at least one instance (case 2, group II, pp 47 and 161) the author has made a diagnosis of "ependymal glioma" in which the specimen was lost and apparently no microscopic sections were ever prepared. It is always regrettable when a leader in one field, in this instance neurosurgery, attempts to set himself up as an authority in another (neuropathology) about which he obviously knows so little.

There is a brief and incomplete bibliography of the literature. There is no index. The book presents an attractive appearance. All the illustrations have been well reproduced and the typography is clear and pleasing.

Medizinische Praxis. Sammlung für ärztliche Fortbildung. Herausgegeben von Prof. Dr. L. R. Grote, Chefarzt der inneren Abteilung des staatlichen Krankenhauses Zwickau; Prof. Dr. A. Fromme, Direktor der chirurgischen Abteilung des Stadtkrankenhauses Dresden-Friedrichstadt; und Prof. Dr. K. Warnekros, Direktor der staatlichen Frauenklinik zu Dresden. Band VIII. Die Lungentuberkulose. Eine Einführung in ihre Entstehung, ihre Entwicklung und ihre Verlaufsarten. Von Prof. Dr. Hans Dieffen, Leitender Arzt der inneren Abteilung des Landeskrankenhauses des Saargebietes in Homburg. Paper. Price 8 marks. Pp 142 with 1 illustration. Dresden & Leipzig: Theodor Steinkopff, 1931.

This little book has the special merit of bringing together in brief form the numerous German theories on the origin of chronic pulmonary tuberculosis of adults. The multiplicity of these views and the lengthy arguments of German physiologists over complex details have created much confusion in the minds of American readers. Whether this confusion can be allayed even by such carefully compiled summaries as this one is doubtful. The author attempts the almost hopeless task of distinguishing, through a sufficiently comprehensive terminology, the wide variety of forms of tuberculosis of varying progression, on the basis of hematogenous reinfection from lesions of first infection, exogenous reinfection from without, and combinations of these two processes. The numerous interesting, concisely recorded case histories themselves bear witness to the difficulties in determining the origin of the process in individual cases. Yet the work will repay careful reading for the analyses the author has attempted. He devotes a short section to the treatment of pulmonary tuberculosis but, while intending the book for physicians, he is more concerned with presenting the pathologic background.

Operating Room Procedure for Nurses and Internes. By Henry C. Falk, M.D. F.A.C.S. Clinical Professor of Gynecology, New York University and Bellevue Hospital Medical College. With a foreword by Eugene H. Pool, M.D. Second edition. Cloth. Price \$3. Pp 413 with 328 illustrations. New York & London: G. P. Putnam's Sons, 1934.

This should serve as an excellent manual for nurses in training for the operating room service. It likewise may be used as a reference textbook in their graduate duties. The material is well organized in a logical sequence. Starting from the simple arrangement of the operating room, it gives the nurse some understanding of the more common operations. The author has included more recent advances in surgical technique, especially that related to spinal anesthesia and to blood transfusion. The second part considers the various operative procedures in detail sufficient to enable the average nurse to follow the technique of the surgeon. This book also serves the purpose of instructing interns in operating room procedures.

Determination of the Sensitiveness of the Eye to Differences in the Saturation of Colours. By L. C. Martin, F. L. Warburton and W. J. Morgan. XIII Reports of the Committee Upon the Physiology of Vision. Medical Research Council Special Report Series No 188. Paper. Price 1s. Pp 42 with 19 illustrations. London: His Majesty's Stationery Office, 1933.

The most significant result of the work described in this paper is that the existence of white is definable in terms of visual capacity rather than esthetic judgment. White is the sensation corresponding to the stimulus from which the least discriminable steps in purity tend at first to increase in mixtures from white toward color, reaching a maximum and then decreasing as pure spectral colors are approached. In the experiments that were done the maximum discriminable step was reached half way between white and pure color, regardless of the number of steps. Any increase of retinal pigmentation interferes slightly with the results in the cases of blue and purple. In comparing complementary spectral colors representing the least perceptible steps from white toward color

under equally bright conditions, the points obtained could be found to lie on an ellipse with white as its center. The apparatus used in this work is essentially a trichromatic colorimeter described by W. D. Wright, with modifications by the authors. This article is rather technical and is of particular interest to the physicist or physiologist rather than the clinician.

Food Borne Infections and Intoxications. By Fred Wilbur Tanner, B.S. M.S. Ph.D. Professor of Bacteriology and Head of the Department of Pathology, University of Illinois. Cloth. Price, \$5.50. Pp 439. Champaign: Twin City Printing Company, 1933.

Most of the material in this book is covered in books on the same subject by Savage, Jordan and others. No new point of view is presented, but an attempt is apparently made to bring together a large number of bibliographic references. Few if any topics, however, are treated with real bibliographic completeness, and the inadequacy of the index detracts somewhat from the value of the compilation. A few definite criticisms may be made. The author apparently favors a general examination of food handlers in large cities, although the general trend of opinion is against this, as an impossible task. In the chapter on the Salmonella group, the studies of White and of Kauffman on classification might have been profitably included. The style in which the book is written is not very careful or discriminating. "Cases," "et," relative pronouns refer to what they will, and loose phrases, such as "some considerable time" (p 60) are not uncommon. Proof reading should have been better; there are two obvious misprints in the two stage "prefatory statement", proper names are too often misspelled, once at least on the same page (p 121) with the correct spelling, on page 308 the typhoid bacillus is referred to as "Shigella typhi". The verdict must be perhaps useful but not indispensable.

Chirurgie plastique des seins. Par le Docteur Montant et le Docteur F. Dubois. Paper. Pp 43 with illustrations. Paris: Maloine, 1933.

The authors point out that surgery of pendulous breasts exacts not only thorough technical skill but also a certain esthetic sense. Such artistry cannot be acquired from text books but issues from an innate and cultivated talent. The authors believe that necrosis of the nipples may be avoided in many cases by paying due attention to the perimammary vascularization. These operations are exacting and time consuming. Careful dissection, meticulous hemostasis, thorough mobilization and the avoidance of shock must be aimed at. The brochure comprises twenty pages of text, the rest being allotted to pen drawings illustrating the technique of the operation for the relief of mammary pendulosity. The authors offer nothing new. The descriptive matter is a reiteration of the classic Morestin-Passot operation. There are no original thoughts or improvements introduced, unless one considers a pair of large scissors for the removal of fat a contribution to a surgical procedure that was standardized many years ago. The authors suggest two surgeons operating simultaneously, one taking care of one breast and the other working on the opposite side. This seems cumbersome and unnecessary. A two-stage procedure serves the interest of the patient best. Keloid formation is still the *bête noire* of plastic operations on the breasts. It is noted with regret that the authors accord chloroform first place on the list of anesthetics. The work is divided into a foreword, indications for operation, points of technique, and a description of the surgical displacement of the nipple. All in all, the booklet offers nothing new that has not been repeatedly described in standard works on the subject. No credit is given to the numerous surgeons who pioneered in this field.

La durée de la grossesse et ses anomalies. Par Henri Vignes, professeur agrégé à la Faculté. Paper. Price 15 francs. Pp 96. Paris: Masson & Cie, 1933.

This monograph, which is one of a series on practical medical and surgical subjects, deals with the duration of pregnancy and its anomalies. Vignes discusses the known facts and the numerous theories concerning the beginning of gestation, the causes of labor, the signs of fetal maturity, the usual length of pregnancy, premature labor and prolonged pregnancy. He has analyzed the French, German, British and American literature on this subject with his customary care, and for this reason the monograph will prove to be useful as a source of information.

Medicolegal

Unborn Child Entitled to Necessaries of Life—An information was filed against Sianes charging him with violation of section 270 of the California Penal Code, which requires the father of a minor child to furnish necessary food, clothing, shelter and medical attendance. The section, as amended in 1923, provides that "a child conceived but not yet born is to be deemed an existing person in so far as this section is concerned." A demurrer filed on Sianes' behalf was sustained by the trial court, and the state appealed to the district court of appeal, fourth district, California. One of the questions raised by the demurrer was whether a man could be compelled to provide for an unborn child indirectly, when it was impossible to do so directly. The appellate court gave an affirmative answer, quoting with approval *People v Yates*, 114 Calif App (Supp) 782, 298 P 961, in part as follows:

It is obvious that food clothing and shelter cannot be furnished directly to an unborn child. The same is true of medical attendance and other remedial care. Consequently we cannot limit the meaning of necessities in the case of an unborn child to those which can be directly furnished to it, for to do so would deprive the addition made to the section in that respect in 1923 of any meaning or effect—a result which is to be avoided, if possible in construing statutes. [Citations omitted.] We must therefore hold that as to unborn children, the statute contemplates indirect necessities or those which are to be furnished through the mother.

The appellate court, however, because of a defect in the information, reversed the order of the trial court sustaining the demurrer and instructed the trial court to give permission to amend the information so as to correct the fault—*People v Sianes* (Calif.), 25 P (2d) 487.

Malpractice Unsuccessful Treatment as Evidence of Negligence—Ordinarily, no presumption of want of skill or care arises from the fact that treatment by a physician is unsuccessful. There are exceptional cases, however, in which the result of an operation, if unexplained, may warrant an inference of negligence and be a circumstance entitled to consideration by the jury, when coupled with the other evidence. The fact, said the Court of Appeals of the District of Columbia, that treatment of a fracture of the plaintiff's leg was unsuccessful is a circumstance, when considered in connection with the other evidence in the case, tending to show want of skill on the part of the defendant and established a case for consideration by the jury. The trial court erred, therefore, in directing a verdict for the defendant—*Crist v White* (District of Columbia), 66 F (2d) 705.

Workmen's Compensation Acts Death Following Appendectomy Performed Incidental to Herniotomy—The employee sustained a right inguinal hernia from an accident arising out of and in the course of his employment. A herniotomy was performed under local anesthesia, during the course of which the appendix appeared through the incision. The operating physician, who was provided by the employer, informed the employee that the removal of the appendix was a proper and usual procedure under the circumstances. With the patient's consent, the appendix was removed. As the result of the operation, the employee died of acute nephritis and peritonitis. The widow of the employee was awarded compensation for the death of her husband, and the employer and insurance carrier appealed to the Supreme Judicial Court of Maine.

The employer contended that this case is governed by *Dulac* case, 120 Me 324, 114 A 293. In that case, the deceased employee received an epigastric hernia from an industrial accident. He had suffered for some time from an inguinal hernia and decided to have both of these corrected at the same time. With the surgeon who was to operate to correct the condition caused by the accident, he made an independent contract for a new consideration for an operation for the inguinal hernia. As a result of the surgery, death ensued. It was impossible to determine whether one or the other operation or the combination of the two caused the death. Under those circumstances the Supreme Judicial Court of Maine held that it was a matter of conjecture whether the accident was the cause of death, and compensation was denied. These facts, continued the court are different from those involved in the present case.

In the *Dulac* case there were two distinct operations, and two separate incisions were necessary. In the present case, the removal of the appendix was an incident of the hernia operation. The employee had the right to rely on the judgment of the physician and, even though the removal of the appendix may have been unwarranted and a contributing cause of the death, the employer is nevertheless liable. The accident, in spite of the error of the physician, would still be the proximate cause of the death. The appeal of the employer and insurance carrier was therefore dismissed—*Gauvin's Case* (Me), 167 A 860.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of Birmingham April 17 19 Dr D L Cannon 519 Dexter Avenue Montgomery, Secretary
American Association of Genito Urinary Surgeons Hot Springs Va, May 14 16 Dr Henry L Sanford, 1621 Euclid Avenue Cleveland, Secretary
American Association on Mental Deficiency, New York May 26 29 Dr Groves B Smith Beverly Farms Godfrey Ill Secretary
American Clinical and Climatological Association Toronto Canada May 21 23 Dr Francis M Rackemann, 263 Beacon Street Boston, Secretary
American College of Physicians Chicago April 16 20 Mr E R Love land 133 South 36th Street Philadelphia Executive Secretary
American Gastro-Enterological Association, Atlantic City April 30 May 1 Dr Russell S Boles, The Rittenhouse Plaza Philadelphia Secretary
American Gynecological Society White Sulphur Springs W Va, May 21 23 Dr Otto H Schwarz 630 South Kingshighway, St Louis Secretary
American Laryngological Rhinological and Otological Society Charleston S C, April 35 Dr Robert L Loughran Bridgewater Conn Secretary
American Otolological Society Atlantic City April 6 7 Dr Thomas J Harris, 104 East 40th Street New York Secretary
American Society for Clinical Investigation Atlantic City April 30 Dr H L Blumgart 330 Brookline Avenue Boston Secretary
American Urological Association Atlantic City May 22 24 Dr Gilbert J Thomas 1009 Nicollet Avenue Minneapolis Secretary
Arkansas Medical Society Little Rock April 16-18 Dr W R Brooks 602 Garrison Avenue, Fort Smith Secretary
Association of American Physicians Atlantic City May 12 Dr James H Means Massachusetts General Hospital Boston Secretary
California Medical Association Riverside April 30 May 3 Dr Emma W Pope 450 Sutter Street, San Francisco Secretary
Connecticut State Medical Society Bridgeport May 23 24 Dr Charles W Comfort Jr 27 Elm Street New Haven Secretary
District of Columbia Medical Society of the Washington May 2 Dr C B Conklin 1718 M Street NW Washington Secretary
Florida Medical Association Jacksonville April 30 May 2 Dr Shaler Richardson 111 West Adams Street Jacksonville Secretary
Georgia, Medical Association of Augusta May 8 11 Dr Allen H Bunce 139 Forrest Avenue NE Atlanta Secretary
Illinois State Medical Society Springfield May 15 17 Dr Harold M Camp Lahl Building Monmouth, Secretary
Iowa State Medical Society Des Moines May 9 11 Dr Robert L Parker 3510 Sixth Avenue Des Moines Secretary
Kansas Medical Society Wichita May 9 11 Dr J F Hassig 804 Huron Building Kansas City Secretary
Louisiana State Medical Society Shreveport April 9 12 Dr P T Talbot 1430 Tulane Avenue New Orleans Secretary
Maryland Medical and Chirurgical Faculty of Baltimore April 24 26 Dr Walter Dent Wise, 1211 Cathedral Street Baltimore Secretary
Medical Library Association Baltimore May 21 23 Miss Marjorie J Darrah 645 Mullett Street Detroit Secretary
Mississippi State Medical Association Natchez May 8 10 Dr T M Dye McWilliams Building, Clarksdale Secretary
Missouri State Medical Association St Joseph May 7 10 Dr E J Goodwin 634 North Grand Boulevard St Louis Secretary
National Tuberculosis Association Cincinnati May 14 17 Dr Charles J Hatfield Henry Phipps Institute Philadelphia Secretary
Nebraska State Medical Association Lincoln May 22 24 Dr R B Adams Center McKinley Building Lincoln Secretary
New Hampshire Medical Society Manchester May 15 16 Dr C R Metcalf 5 South State Street Concord Secretary
New York Medical Society of the State of Utica May 14 16 Dr D S Dougherty 2 East 103d Street New York Secretary
North Carolina Medical Society of the State of Pinehurst April 30 May 2 Dr L B McBraver Southern Pines Secretary
Northern Tri State Medical Association Flint Mich, April 10 Dr Herbert E Randall 503 South Saginaw Street Flint, Mich, Secretary
Oklahoma State Medical Association Tulsa May 21 23 Dr L S Willour Ainsworth Building McAlester Secretary
South Carolina Medical Association Charleston May 13 Dr E A Hines Seneca Secretary
South Dakota State Medical Association Mitchell, May 14 16 Dr John F Cook Langford Secretary
Tennessee State Medical Association Chattanooga April 10 12 Dr H H Shoulters 706 Church Street Nashville Secretary
Texas State Medical Association of San Antonio May 7 10 Dr Holman Taylor Medical Arts Building Fort Worth Secretary
Western Branch Society American Urological Association Los Angeles April 27 29 Dr George W Hartman 999 Sutter Street San Francisco Secretary
West Virginia State Medical Association Huntington May 14 16 Mr Joe W Savage Public Library Building Charleston Executive Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

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- Study of Metabolic Activity of the Pancreas E U Still A L Bennett and V B Scott Chicago—p 509
- Factors Which Determine Renal Weight V Relation Between Vitamin B (Old Terminology) and Protein Intakes E M Michay La Jolla Calif—p 571
- Role of Extremities in Dissipation of Heat W G Maddock and F A Collier Ann Arbor Mich—p 589
- Studies on Coronary Circulation II Systolic and Diastolic Flow Through the Coronary Vessels C J Wiggers and F S Cotton Cleveland—p 597
- Disturbances of Reproduction and Ovarian Changes in the Guinea Pig in Relation to Vitamin C Deficiency M M Kramer Mary T Harman and Alice K Brill Manhattan Kan—p 611
- Function of Nonmyelinated Fibers of the Dorsal Roots C H Bishop P Heinbecker and J L O'Leary St Louis—p 647
- Possible Mechanisms of Contracting and Raising Oxygen Debt and the Role of Lactic Acid in Muscular Contraction R Margaria H T Edwards and D B Dill Boston—p 689
- Lactation in Diabetes I L Chaikoff and W R Ivons Berkeley Calif—p 716
- Hyperguanidemia Associated with Dehydration in Normal and in Parathyroidectomized Dogs W R Bryan A S Minot and L L Chastain Nashville Tenn—p 738

Annals of Surgery, Philadelphia

98 961 1130 (Dec) 1933

- *Subphrenic Abscess. Analysis of Three Thousand Three Hundred and Seventy Two Collected and Personal Cases A Ochsner and A M Graves New Orleans—p 961
- *Injury as Causative Factor in Development of Malignant Tumors W B Coley and N L Higinbotham New York—p 991
- Surgical Operations in Addison's Disease. Successful Epididymectomy and Orchidectomy for Tuberculosis C H Greene W Walters and L G Rowntree Rochester Minn—p 1013
- Spontaneous Pneumothorax G P Muller and F Mogavero Philadelphia—p 1018
- Lateral Aberrant Thyroid Glands J A Lazarus and A A Rosenthal New York—p 1023
- Prolapse of the Rectum F W Rankin and J T Priestley Rochester Minn—p 1030
- Pruritus Ani Its Etiology and Treatment R A Scarborough San Francisco—p 1039
- Nonspecific Granulomas of Intestines Inflammatory Tumors and Strictures of the Bowel L Gunzburg and G D Oppenheimer New York—p 1046
- Enterostomy in Ileus R Colp New York—p 1063
- Intussusception Due to Invaginated Meckel's Diverticulum Report of Two Cases with a Study of One Hundred and Sixty Cases Collected from the Literature H N Harkins Chicago—p 1070
- Synovectomy of the Knee Joint in Chronic Arthritis M A Bernstein Chicago—p 1096
- Situs Transversus Viscerum Report of Case with Cholelithiasis J M Troutt Hot Springs National Park Ark—p 1109

Subphrenic Abscess—The technic of Ochsner and Graves of the "retroperitoneal operation" is in part as follows. Under paravertebral block analgesia an incision is made over and parallel to the twelfth rib. The entire twelfth rib is resected subperiosteally. The erector spinae mass of muscles is retracted medially and a transverse incision is made at right angles to the spine across the bed of the resected rib at the level of the spinous process of the first lumbar vertebra. This incision passes through the bed of the twelfth rib and the attachment of the diaphragm. After the diaphragm has been incised, the renal fascia is encountered. This is continuous above and anteriorly with the posterior parietal peritoneum. The kidney is displaced downward by means of the index finger and the infrahepatic space is palpated. In those cases in which an abscess of the right posterior superior space is suspected the peritoneum on the undersurface of the diaphragm can be

separated from the diaphragm by means of the finger. This separation may be carried upward as far as the dome of the liver and should be extended until the abscess is reached. By means of the mobilizing finger the abscess cavity is opened by plunging the finger through the abscess wall which is adherent to the mobilized parietal peritoneum. Large, soft, fenestrated rubber tubes are introduced into the abscess cavity and brought out through the wound. Through this incision, adequate evacuation of abscesses located in the right posterior superior, right extraperitoneal, right inferior, and even occasionally right anterior superior spaces may be accomplished without traversing or contaminating either the pleural or peritoneal cavities. Abscesses located in the right anterior superior, right inferior, left anterior inferior and left superior spaces can be drained extraperitoneally through the anterior abdominal wall. Abscesses of the right inferior space can be drained by the retroperitoneal approach. In those cases in which there are abscesses above the liver, the suppurative process can be approached and drained extraperitoneally without contaminating uninvolved pleura or peritoneum by employing an approach suggested by Chirromont. The authors exemplify the technic of the retroperitoneal operation by the low mortality rate (97 per cent) obtained following its use in thirty-one cases in which they operated. In their analysis of 3,322 cases of subphrenic abscess collected from the literature and fifty personal cases, the authors found that the incidence is higher in men than in women. They give the mortality rates in the personal and collected cases and state that in order to decrease the mortality it is necessary to avoid contamination of uninvolved portions of the pleura and peritoneum during drainage. This can be accomplished best by draining the abscess extraperitoneally.

Injury as Cause of Malignant Tumors—After a study of their 205 cases, Coley and Higinbotham conclude that 1 A single local trauma may be an important factor, probably the determining factor in the development of malignant tumors of all types. 2 Trauma is a causative factor in a larger proportion of cases of sarcoma than of carcinoma, and in a larger proportion of bone sarcomas than of soft-part sarcomas. 3 The interval of time elapsing between the injury and the appearance of the tumor is often much shorter than is recognized by most writers. In the majority of cases the tumor develops within the first month or six weeks of the injury, but in a considerable number of cases it may develop within one or two weeks. The latter cases justify the classification of acute traumatic malignant conditions originally suggested by the English surgeons. The foregoing examples furnish convincing evidence of the actuality of such a condition. 4 While courts and compensation bureaus both in this country and in Europe have generally recognized single trauma as a competent producing cause of all types of malignant tumors, it is only fair to the insurance carriers that each case be studied and judged on its own merits. 5 If the case in question fulfils all the conditions laid down by Segond, a causal relationship between the injury and the tumor must be admitted.

Laryngoscope, St Louis

13 955 1022 (Dec) 1933

- Nasal Deformities and Their Repair V H Krzyzjan Boston—p 955
- Bovine Cartilage in Correction of Nasal Deformities P S Stout Philadelphia—p 976
- Parapharyngeal Abscess Following Tonsillectomy Extreme Hyperpyrexia Operation and Recovery J G Gilbert Brooklyn—p 980
- Electrical Disturbances in the Cochlea Produced by Sound J Gutman New York—p 983
- The Hard of Hearing School Teacher H Newhart Minneapolis—p 986
- Icterosy of the Eye Ear Nose and Throat T J Pinkerton Honolulu, Hawaii—p 991
- Double Brain Abscess Case H D Newkirk Anaheim Calif—p 1002
- Intracranial Complications Appearing During Treatment of Ear and Nose Diseases E Reeves Passaic N J—p 1010

Maine Medical Journal, Portland

24 229 246 (Dec) 1933

- The Abused Ovary A H McQuillan Waterville—p 230
- Gutter in Dentistry W D Anderson Portland—p 234

Medical Annals of District of Columbia, Washington

2 277 308 (Dec) 1933

Thorotrast Encephalography by Cisterna Puncture Preliminary Report of Experimental Studies F O Coe L S Otell and O F Hedley Washington—p 277

*Ventriculography and Encephalography by Means of Thorium Dioxide Sol H H Schoenfeld and W Freeman Washington—p 279
Pregnancy in Heart Disease W B Daniels Washington—p 282
Fundamentals of Internal Medicine Diseases of the Heart W M Yater, Washington—p 291

Encephalography by Means of Thorium Dioxide Sol—Schoenfeld and Freeman present two cases of encephalography in which thorium dioxide sol was used. The great theoretical advantages of colloidal thorium dioxide, in their opinion, are that its use in encephalography does not deprive the brain of its buoyant cushion of fluid, and that its greater specific gravity brings the contrast medium into the most dependent portions of the ventricular system, such as the temporal horns and the floor of the third ventricle, locations that are difficult to demonstrate in cerebral pneumography. These dependent portions also are nearer the sensitized film and are therefore delineated more sharply. The opaque medium escapes along the lymphatic pathways, clearly outlining the roots and peripheral nerves, and is carried eventually to the regional lymph nodes and into the general circulation. When injected into the cisterna magna of animals the cisterns and fluid pathways are plainly demonstrated, and the material is carried off both by the blood stream and along the lymph canals that accompany the olfactory and optic nerves. The material is still visualized in the arachnoid meshes after two months, but in small quantities, and that which was introduced into the ventricles disappears in a few days, only a small amount remaining in the most dependent portions. Animals tolerate the injections well. The authors used about 5 cc of thorium dioxide sol, mixed it intimately with cerebrospinal fluid and then injected it in one case into the left lateral ventricle and in the other into the subarachnoid space over the occipital pole.

Michigan State M Society Journal, Grand Rapids

32 637 688 (Dec) 1933

*Abscess of Lung J Alexander and C Haight Ann Arbor—p 637
Varicose Veins E A Osius Detroit—p 641
Incidence and Prophylaxis of Epidermophytosis in School Children L W Shaffer and W R Cary Jr Detroit—p 648
Acute Cerebral Injuries H E Randall Flint—p 652
Preface to Endocrine Therapy N F Miller Ann Arbor—p 655
Ovarian Disease Especially in Relation to the Painful Breast J E Rosenfeld Battle Creek—p 656
Commercial Exploitation of Vitamin D H R Roehm Birmingham—p 659
Green Pastures Nearer Home W J Stapleton Jr Detroit—p 661
Bant's Disease in a Fifteen Year Old Girl Case O A Brines Detroit—p 665

Abscess of Lung—Alexander and Haight point out that abscess of the lung following operations about the upper respiratory passages can be frequently prevented by the preoperative correction of poor oral hygiene, by the use of a light anesthesia and a 15 degree Trendelenburg position to prevent aspiration of oral secretions during operation, and finally by the post-operative use of carbon dioxide inhalations and the encouragement of expectoration of any secretions that may have gained entrance to the lower respiratory tract. The frequency with which pulmonary abscess develops after the aspiration of foreign bodies demands that any case of foreign body or of a suspected foreign body that is nonopaque to the x-rays should be treated immediately by bronchoscopy in order to prevent the sequelae that invariably follow delayed removal. In elderly persons with an impaired cough mechanism pulmonary abscess may result from the retention of infected secretions that have been aspirated during sleep. For this reason it is important that faulty oral hygiene should be corrected promptly. Pulmonary abscess may be caused by a variety of organisms, most important of which are the spirochetes and fusiform bacilli of the mouth.

Missouri State Medical Assn Journal, St Louis

30 467 518 (Dec) 1933

Diagnosis of Acute Intestinal Obstruction T G Orr Kansas City Kan—p 467
Gastric and Duodenal Ulcer Principles of Medical and Surgical Management J W Thompson and H W Soper St Louis—p 470
Certain Disorders of the Colon H G Bristow St Louis—p 476

Transurethral Prostatectomy Indications and Limitations J H Sanford St Louis—p 479
*Schilling Differential in Infections and in Hypertrophic (Degenerative) Arthritis C L Steinberg Rochester N Y—p 485
Ultimate Results in Thyroidectomy for Thyrotoxicosis J C Lyter, St Louis—p 487
Uses of Elastic Adhesive Bandage W J Gallagher St Louis—p 490
Congenital Duodenal Ulcer with Perforation Report of Case E Moody, Joplin and W M Howard Carthage—p 494
Method of Skeletal Traction for Neck Extension B L Neubeiser, St Charles—p 495

Schilling Differential Blood Count in Arthritis—In a group of 150 cases under observation or treatment for arthritis, Steinberg selected twenty-six for Schilling differential blood count studies because of definite organic observations in the points. Of the twenty-six patients, seven presented hypertrophic arthritis and eighteen infectious arthritis. One patient gave a mixed picture of infectious and hypertrophic arthritis. The youngest member in the hypertrophic group was 53 and the oldest 72 years of age, and in the atrophic group the youngest patient was 21 and the oldest 66. The average age was 38.2 years. The organism was fairly definitely established in seven cases of the latter group. Three were gonorrheal in nature and in four the hemolytic streptococcus was present in the tonsil or in the joint. In the rest the organism was not isolated. The author's results agree with the current literature that there is a definite shift to the left in the Schilling differential blood count in cases of infectious arthritis as compared with hypertrophic arthritis.

New England Journal of Medicine, Boston

209 1137 1190 (Dec 7) 1933

Prevention and Control of Tuberculosis in Commonwealth of Massachusetts with Especial Reference to Institutional Care and Early Diagnosis F T Lord Boston—p 1137
Treatment of Commuted Colles Fracture in Elderly Patients G E Haggart Boston—p 1140
Second Primary Cancer in Cases of Cancer of the Buccal Mucosa Mathematical Study of Susceptibility to Cancer C C Lund, Boston—p 1144
Methylene Blue in Treatment of Urinary Tuberculosis B E Greenberg and M L Brodny Boston—p 1153
Studies of Reproduction in the Rat II Effect of Changes in Energy Production on Fertility Pregnancy and Lactation D Macomber Boston—p 1160
Progress in Laryngology L A Schall Boston—p 1162
Fatal Case of Amebic Dysentery Preliminary Report D D Scannell, Boston—p 1171

New Orleans Medical and Surgical Journal

86 355 436 (Dec) 1933

Heart Disease Incidence Cause and Treatment of Some of the Common Types L W Brock McComb Miss—p 355
Some Considerations of Several Important Etiologic Types of Heart Disease J H Musser New Orleans—p 356
Prognosis in Coronary Disease L J Clark Vicksburg Miss—p 365
Contagion in Heart Disease G C Terrell Prentiss Miss—p 370
Stab Wound of the Heart P D Abramson Shreveport La—p 376
Evaluation of Symptoms of Chronic Aural Suppuration J R Hume New Orleans—p 380
Acute Sinusitis L S Gaudet Natchez Miss—p 383
Spontaneous Epistaxis D C Montgomery Greenville Miss—p 387
Treatment of Chronic Osteomyelitis with Live Maggots R J Field and S E Field Centerville Miss—p 392

Pennsylvania Medical Journal, Harrisburg

37 199 278 (Dec) 1933

Bright's Disease Newer Orientation Regarding Classification, Pathogenesis and Treatment W S McCann Rochester N Y—p 199
Widening Field of Radiology H K Pancoast Philadelphia—p 206
Vaginal Discharges and Their Treatment R W Mohler, Philadelphia—p 210
Diagnosis and Treatment of Sterility in Women B M Anspach, Philadelphia—p 214
Three Hundred Consecutive Eye Injuries J J Monahan Shenandoah—p 219
Symptomatology Diagnosis and Treatment of Nephropotosis J C Birdsall Philadelphia—p 223
Nutrition in Children From the Standpoint of a Medical Adviser of the State Emergency Relief Committee H T Price Pittsburgh—p 227
Effect of Economic Crisis on Nutrition of School Children A M Kerr Pittsburgh—p 232
Diseases of the Chest and of the Abdomen Their Mimicry of Each Other D Riesman Philadelphia—p 234
Conditions That Require Nephrectomy W L Estes Jr Bethlehem—p 237
Cure of Inguinal Hernia C F Nassau Philadelphia—p 242

Southern Medical Journal, Birmingham, Ala

26 1013 1098 (Dec) 1933

- J Marion Sims An Appreciation I Abell Louisville Ky—p 1013
 Rationale of Surgery of Sympathetic System E P Lehman, University Va—p 1019
 Hyperinsulinism and Epilepsy Presentation of Patients and Case Reports S Harris Birmingham Ala—p 1026
 Hydropneumopericardium Report of Case with Summary of Recent Literature G W Parson Texarkana Texas—p 1034
 Some Observations on Eczematous Reaction Evoked by Skin Diseases A L Glaze Birmingham, Ala—p 1036
 Paroxysmal Hemoglobinuria Case Report S I Rosen Savannah Ga—p 1038
 Urologic Clinic N F Ockerblad Kansas City Mo R R Callaway C W Shropshire W F Scott and J P Robinson Birmingham Ala—p 1044
 Roentgenologic Findings in Metastatic Staphylococcal Infections of the Kidney and Perinephrium C H Heacock Memphis Tenn—p 1051
 Treatment of Fractures in the Lower Third of the Leg W B Carrell Dallas Texas—p 1054
 Personal Futile Attempts to Prove Infectious Origin of Chronic Arthritis J A Key St Louis—p 1059
 Dietary Errors in Southern States F Wilkerson Montgomery Ala—p 1062
 Relation of Problem of Mental Disease and Mental Deficiency to Society W D Partlow Tuscaloosa Ala—p 1066
 *Erysiploid Occurring Among Workers in a Bone Button Factory G B Lawson Roanoke Va and M S Stinnett Buchanan Va—p 1068
 Long Standing Fever Proved to Be Malta Fever Case R Bryne Selma Ala—p 1070
 The New Era in Prescribing H L Dwyer Kansas City Mo—p 1071
 Student Preceptor System in Clinical Clerkship Work J W Moore Louisville Ky—p 1074

Erysiploid Occurring in Bone Button Factory Workers—Lawson and Stinnett describe a condition of erysiploid that occurred among workers in a bone button factory at Buchanan, Va. The bones used are cattle bones obtained from slaughter houses from South America, Europe and Chicago. The factory employs from 150 to 210 workers, including the women sorters and packers. Since the beginning of operations in the factory in Buchanan from late November 1930 to Dec 20, 1931, there have been 210 cases of erysiploid under observation, mostly among the men sawing the bones or cutting out the buttons from the sawed slabs. The infection has started only after some skin injury. A man not associated with the factory became infected through abrasions on the back of his hand while putting bone meal on his yard. An infection occurred on the knee after it had been bruised against a machine, another on the foot from a cut due to a piece of sharp bone that dropped and pierced the shoe. All the others occurred on the hands, except eight further cases, five of which involved the eyes and three the bronchial tubes. After the initial injury the infection as a rule, is apparent on the third or fourth day and may last from fourteen to twenty-one days. A few of the milder cases clear up in nine days. From the point of injury the inflammation gradually spreads, eventually taking in a large part of the hand. Its edges generally are well defined. Sometimes it may clear up in a finger originally infected and then spread down another, in a few cases the process has even gone back down the finger that had previously cleared up. The parts involved are swollen, rather immobile, tender and feverish, and there is much local pain. There seems to be no permanent general immunity nor any permanent local immunity. Many have had repeated attacks in the same hand or even in the same finger. The swelling rarely goes above the wrist. Sometimes there is lymphatic streaking and occasionally enlargement of the epitrochlear, rarely of the axillary, nodes. Some of the patients complained of severe pain in the shoulder on the involved side. A 10 per cent salicylic acid ointment as recommended by Gilchrist seems to help a great deal.

West Virginia Medical Journal, Charleston

29 497 544 (Dec) 1933

- The Surgeon of the Future Oration on Surgery W S Fulton Wheeling—p 497
 Surgery for Cancer of Stomach Notes F W Rankin Lexington Ky—p 502
 Practical Points in Obstetrics H G Steele Bluefield—p 508
 Causes and Treatment of Uterine Bleeding W Neill Jr Baltimore—p 514
 Some Trends in Medical Economics R G Leland Chicago—p 519
 Fractures of the Mandible C B Wright Huntington—p 525
 Cancer of Buccal Mucous Membrane and the Jaw J E Hubbard, Huntington—p 527
 A Voice from Contract Practice H R Hicks Killarney—p 530

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

8 367 434 (Dec) 1933

- Studies in Anemias of Infancy and Early Childhood Part IX. Anemia and Reticulo-Endotheliosis R Gittins—p 367
 Ispidol in Diagnosis of Congenital Esophageal Atresia C F Brockington and R Lightwood—p 397
 Double Aortic Arch C E Snelling and I H Erb—p 401
 Incidence of Sugars in Urine of Infants and Children M Fikri and M A El Syed—p 409
 Infantile Sepsis and Its Nutritional Effects A G Ogilvie—p 413
 *Nutritional Disease of Childhood Associated with a Maize Diet Cicely D Williams—p 423

Nutritional Disease of Childhood Associated with a Maize Diet—Williams describes a disease occurring in the Gold Coast Colony in children of either sex between the ages of 1 and 4 years. The disease appears to take from four to twelve months to declare itself. There is a history of deficient breast feeding, and the only supplementary food used is a preparation of maize. The lesions of the skin are extensive, well marked and characteristic. They may be accompanied by slight edema of the extremities. The mucous membranes are often inflamed and ulcerated and the saliva is frequently acid. In the late stages, corneal ulcers are often present. The nervous system shows persistent irritability, but the reflexes are normal. The temperature is irregular and the pulse is rapid. There is no great anemia, and the blood shows no leukocytosis. The Wassermann reaction is negative, and no parasites are to be found in the blood except when there is associated malaria. There is a tendency to vomiting, and in chronic cases wasting may be severe. Diarrhea occurs and becomes persistent in the later stages. The stools show undigested food but no ova or parasites. The liver and spleen may be enlarged. The respiratory system is not necessarily affected. The urine may show a trace of albumin. At postmortem examination nothing characteristic is found except a fatty, almost diffusely liver. There may be some degeneration of the kidneys. The treatment consists in the administration of an adequate diet rich in accessory substances.

Bristol Medico-Chirurgical Journal

50 201 306 (Winter) 1933

- Recent Advances in the Etiology, Diagnosis and Treatment of Cancer C A Joll—p 201
 Present Position of Radium Therapy Sylvia B Wigoder—p 233
 Bacillus Coli Infections of Female Urinary Tract H J D Smythe—p 243
 Use of Ventral Position in Treatment of Tuberculous Disease of Spine in Children K H Pridie—p 261

British Journal of Children's Diseases, London

30 249 334 (Oct-Dec) 1933

- *Congenital Syphilis in Low Grade Mentally Defective Children K C L Paddle—p 249
 An English Case of Pellagra L Cole—p 262
 Sublingual Ulcer with Especial Reference to Rigas Disease A Moncrieff—p 268
 Laternal Tilt of Pelvis in Children E Crixas—p 274

Congenital Syphilis in Mentally Defective Children—Paddle examined the blood and cerebrospinal fluid of 402 mostly low-grade mentally defective children. The Wassermann reaction and Memcke macroclarification reaction were done on the blood serum and the Wassermann reaction, the colloidal gold test, the Pandy test and cell estimations were done on the cerebrospinal fluid. Forty-six cases gave various reactions in the blood or cerebrospinal fluid, and 356 were serologically negative. Of the forty-six, thirty-five were considered to harbor congenital syphilis. Two of the 356 cases were, on clinical grounds, also considered congenitally syphilitic, giving a total of thirty-seven cases of hereditary syphilis, or an incidence of 9.2 per cent. The Wassermann reaction in the blood of these children was, in the majority of instances, much more sensitive than the Memcke macroclarification reaction. The reverse appears to be the case in adults. In the group of congenital syphilis twelve children presented abnormal cerebrospinal fluids. The cerebrospinal fluid of five gave strong paretic types of curve, associated with positive Wassermann reactions, increase of cells and protein, but none of these cases

could on clinical grounds be regarded as juvenile dementia paralytica. The cerebrospinal fluid of twenty nine mongols failed to give any type of curve with the colloidal gold reaction. In 60 per cent of the congenitally syphilitic boy defectives there was a marked retardation in the descent of the testicles. This contrasts with 39 per cent in a comparable group of nonsyphilitic subjects.

British Medical Journal, London

2 1057 1102 (Dec 9) 1933

- Eugenics—and the Doctor Horder—p 1057
Late Surgical Complications of Fracture of the Mandible H Gillies and A H McIndoe—p 1060
*Cronin Lowe Serum Reaction for Malignancy Jocelyn Patterson and J Adler—p 1063
Simple Achlorhydric Anemia in Adult Males F P Weber and W Weisswange—p 1066
Seasonal Incidence of Eclampsia in Hong Kong R E Tottenham—p 1067
Hormones and Genetics Being a Consideration of Some of the Factors Concerned in Response Made by Certain Tissue Cells to Hormonic Influences C J Bond—p 1085

Cronin Lowe Serum Reaction for Malignant Conditions—Patterson and Adler used Lowe's reaction for malignant conditions in a series of fifty-nine cases, of which twenty were definitely malignant and thirty-five were nonmalignant but pathologic, while four cases remain unclassified because the presence or absence of a malignant condition could not be decided on with certainty. The reaction, according to their observations, was capable of providing the correct result in only twenty-two cases, or 60 per cent.

Indian Medical Gazette, Calcutta

68 665 724 (Dec) 1933

- Some Country Beers of India R N Chopra and G S Chopra—p 665
Pseudarthrosis of Humerus H R Rishworth—p 676
Volvulus of the Sigmoid P Banerjee—p 677
Complete Transposition of the Viscera T Seshachalam and K K Rao—p 680
Pruritus Condition Due to Vitamin Deficiency L Nicholls—p 681
Value of Asceitic Fluid for the Wassermann Reaction and Agglutination Tests with Dysentery Organisms Note M V Rao—p 687
Cause of Damage to Optical Glass in the Tropics H W Acton—p 688
Anemia of Leishmania Infected Hamster I F Napier and L R Sharma—p 690

Journal of Physiology, London

80 113 220 (Dec 5) 1933

- Carbonic Anhydrase Its Preparation and Properties N U Meldrum and F J W Roughton—p 113
The State of Carbon Dioxide in Blood N U Meldrum and F J W Roughton—p 143
Occurrence of Carbonic Anhydrase in Lower Marine Animals R Brinkman—p 171
Growth and Regression of Follicles in Estrous Rabbit Margaret Hill and W E White—p 174
Respiratory Quotient Oxygen Consumption and Glycogen Content of Mammalian Heart in Aglycemia E W H Cruickshank and C W Startup—p 179
*Relation of Pituitary Gland to Action of Insulin and Adrenalin A B Corkill H P Marks and W E White—p 193
Comparison of Fetal and Maternal Hemoglobins in the Goat E F McCarthy—p 206
Effect of Muscle Length on Energy for Maintenance of Tension W O Fenn and W B Litchford—p 213

Relation of Pituitary Gland to Action of Insulin and Epinephrine—Corkill and his associates state that rabbits from which the pituitary has been removed become abnormally sensitive to the hypoglycemic action of insulin and may even develop a spontaneous hypoglycemia, especially when deprived of food for several hours. In animals that exhibit spontaneous hypoglycemia the glycogen reserves are found to be depleted, and this lack of available carbohydrate may be a contributory cause to the fall in blood sugar. The lack of carbohydrate is not responsible for the increased response to insulin, for the latter is observed in animals that have ample reserves of liver glycogen. The increased insulin response is characterized by delay in the return of the blood sugar to the normal level. The hypoglycemic symptoms are usually severe and are relieved only with great difficulty. Injections of epinephrine or of ampoules of pitressin that will usually relieve insulin hypoglycemia in the normal animal have little or no effect in the animal deprived of its pituitary. Animals that are abnormally sensitive to insulin usually exhibit a diminished response to

epinephrine and an increased sugar tolerance. It is suggested that an abnormal resistance of the glycogen reserves to the mobilizing action of epinephrine is a factor in the increased sensitiveness to insulin. The possibility that this stabilization of liver glycogen is consequent on the thyroid degeneration observed after the removal of the pituitary body is being investigated. Young rabbits, which normally deposit liver glycogen as a result of insulin injection, fail to do so when deprived of the pituitary.

Journal of Tropical Medicine and Hygiene, London

36 361 376 (Dec. 1) 1933

- Natural Occurrence of Flagellates of Subgenus *Strigomonas* M and A Iwoff in Gut of *Tabanus Africanus* from Nyassaland and *Lucilia Sericata* in England J G Thomson—p 361
Resistance of *Trypano* *oma* *Rhodesiense* to Normal Human Blood Serum in Relation to Cyclic Passage Through Tsetse Flies J F Corson—p 365
Further Observations on Rhinosporidiosis A J Noronha—p 368

Lancet, London

2 1301 1354 (Dec 9) 1933

- Epithelioma Primary in Renal Pelvis Report of Forty Five Cases H Cabot and R B Allen—p 1301
Ward and Dormitory Infections J C Spence—p 1306
Use of X Rays in Investigation of Varicose Veins D H Patey, R C Tatham and F G Nicholas—p 1309
Formation and Treatment of Cavities in the Lung A. Morland—p 1311
*Nutritive Value of Boiled and Raw Milk in Infant Feeding N Morris and S Graham—p 1314

Boiled and Raw Milk in Infant Feeding—In order to determine the nutritive value of raw and boiled milk, Morris and Graham fed two apparently healthy infants, aged 8 months and 7 months, on an adequate measured amount of boiled cow's milk for from ten to fourteen days, on the last seven of which the excreta were collected. Thereafter the same amounts of raw milk obtained from the same source were given for a fortnight, the excreta as before being collected on the last seven days. Aliquot samples of the milk were collected for analysis each day during the metabolism periods. The intake and output of nitrogen, fat, calcium and phosphorus in each of the seven-day periods were determined and the retention of each was calculated. The results show lower retentions of nitrogen, calcium and phosphorus during the raw milk period than during the period when boiled milk was given. While one subject was retaining a large amount of mineral during both periods, the retention in the other subjects was practically nil. Nevertheless, even in this subject the substitution of raw milk for boiled milk over a period of a fortnight did not improve the mineral retention as one might have expected, if it is true that raw milk possesses a superior nutritive value. This metabolic picture is one that is presented by the early stages of rickets in infants. The retention of fat was almost the same in the two types of feeding. These observations afford no evidence that the absorption of nitrogenous substances, fat and minerals is diminished by the boiling of milk. As far as these results go there is no evidence to support the idea that the boiling of milk interferes with its usefulness as a food for infants.

Practitioner, London

131 533 628 (Nov) 1933

- Stone in the Ureter W I de C Wheeler—p 533
Toxic Idiosyncrasies Asthma Urticaria Hay Fever Group (Frequently, But Loosely, Called Allergic), with Especial Reference to Treatment J Freeman—p 546
Delayed Treatment of Peritonitis Complicating Appendicitis J M Melly—p 569
Treatment of Sciatica G Slot—p 581
Injuries to Knee Joints W E Tucker—p 585
Chronic Skin Troubles of Toxic Origin A C Jordan—p 593
Otosclerosis Its Etiology and Treatment. M Yearsley—p 606

South African Medical Journal, Cape Town

7 779 810 (Dec 9) 1933

- Studies on Nature of Antidiphtheritic Immunity Among South African Bantu by Means of Schick Test and Antitoxin Titrations E Grasset in collaboration with A Perret Gentil J Friedman and I Groen—p 779
Artificial Pneumothorax Therapy B M Clark—p 785
Fever of East Central Africa Some Points in Diagnosis H V R Mostert—p 789
The Panel C M Lundie—p 792
Dysentery Case M M Poel—p 794

Presse Medicale, Paris

42 145 168 (Jan 27) 1934

- *Prethoracic Esophagoplasty in Incurable Stenoses of Esophagus R Gregoire —p 145
- Bacteriologic Diagnosis of Infantile Tuberculosis by Guinea Pig Inoculation of Gastric Contents L Saye Rita Shelton and J D Alsinn —p 148
- *Treatment of Some Delayed Unions by Perforation of Fragments (Beck Method) M Boppe —p 151
- Liquidography in Man Encephalography by Suboccipital Injection of Thorium Dioxide A Radovici and O Meller —p 153
- Larynx Forms of External Displacement of Astragalus in Malleolar Fractures R M D Aubigne and W Smets —p 157
- Gold Therapy and Sanatorium Treatment H Nouvion Mlle Prou and H Rothenstein —p 162
- Pea in Bronchus Iodized Poppy Seed Oil Diagnosis Morphine Expulsion C Mantoux and R Castelnau —p 165
- Compressions of Ureter in Gynecologic Disorders O Francke and G Gatoski —p 166

Prethoracic Esophagoplasty—Gregoire describes the successful performance of an esophagoplasty in a youth who had an incurable esophageal stenosis. Twelve operative procedures extending over a year were required to accomplish the satisfactory result. The new esophagus was made up of the cervical esophagus, a cutaneous tube and a loop of small intestine. The procedure could be divided into five parts. The cutaneous tube was fashioned from the skin of the thorax, leaving part of the blood supply intact. The second procedure consisted in isolating a loop of small intestine high up pulling this through an incision in the mesocolon, attaching one end to the stomach by a side to end anastomosis and drawing the other as high up the thorax as possible. The continuity of the intestine was restored by end to end anastomosis. The cervical esophagus was freed from its attachments and brought out to the skin of the neck. The upper end of the mediastinal esophagus was closed. About seven weeks later, anastomosis of the cervical esophagus with the cutaneous tube was made. The last procedure, which involved the greatest difficulty, consisted in anastomosis of the cutaneous tube with the upper end of the loop of small intestine previously connected to the stomach. The greatest sources of danger lay in peritonitis and infection of the mediastinum. The eventual functional outcome was good and the lack of peristalsis in the cutaneous tube portion of the neo-esophagus proved to be only a temporary and minor disadvantage. The author feels that the results were so good that risk is sometimes well worth while.

Treatment of Delayed Unions by Perforation of Fragments—Boppe reports three cases (with roentgenograms) in which there was delayed union following fracture of the tibia and fibula. After several months during which good callus formation failed to occur these patients were treated with the electric needle perforation described by Beck. Under local or spinal anesthesia, small fanlike perforations were made into the fragments of ununited bone. Six weeks after the parts had been replaced in plaster casts good callus formation had occurred. The hypothesis is that these perforations form good canaliculi for the ingrowth of new blood vessels. The author feels that this method is often superior to open operation in cases of delayed bony union.

42 169 184 (Jan 31) 1934

- Present Status of Problem of Osteogenesis R Leriche and A Policard —p 169
- Dietetic Value of Sorbite in Treatment of Diabetes Mellitus A Rybaud and Andree Roche —p 172
- *Hemorrhagic Diathesis in Course of Purpura Haemorrhagica A Landau and W Heyman —p 174

Hemorrhagic Diathesis in Course of Purpura Haemorrhagica—Landau and Heyman describe a case of chronic purpura haemorrhagica (Werlhof's disease) observed in the hospital for three months. The platelet count was at all times low but fell at times practically to zero. In spite of this fact there was no correlation between the signs of active diathesis (purpura and mucosal hemorrhages), the platelet count and the bleeding time. An unusual complication occurred in the form of hemorrhagic encephalitis apparently due to small cerebral hemorrhages. The authors believe that it is the variation in contractility of the blood vessels that compensates for the thrombopenia and causes the hemorrhagic diathesis to become latent.

Schweizerische medizinische Wochenschrift, Basel

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- Adhesive Pericarditis and Surgical Treatment F de Quervain and A Schupbach —p 93
- Surgery of So Called Hiatus Hernias of Diaphragm F Jakob —p 104
- *Duodenocholangitis and Lamblia Intestinalis H Stalder —p 106
- Treatment of Migraine W K Frankel —p 109

Duodenocholangitis and Lamblia Intestinalis—Stalder reports the history of a woman, aged 28, who four years previously had complained of an indefinite stomach ache. She had never been in tropical countries, had never had diarrhea, and had never passed blood or mucus. Recently she again had frequent attacks of stomach ache. Pains in the epigastrium occurred independently of the food intake and were cramplike. Examination revealed a slight sensitivity to pressure in the region of the gallbladder. The patient appeared pale, in spite of the fact that the hemoglobin was 89 per cent. Examination of the feces revealed a normal decomposition of fats and carbohydrates, a negative benzidine test, but a considerable number of cysts of lamblia. Withdrawal of gastric and duodenal contents revealed hypacidity of the gastric juice, and the duodenal secretion and the A bile contained masses of vegetative, highly motile lamblia and a few leukocytes. The B bile likewise contained motile lamblia but in much smaller numbers. In two weeks, withdrawal of the duodenal contents was repeated five times, always with the same result. The duodenal tube was used also to introduce a saturated solution of magnesium sulphate and a 0.5 per cent solution of chinoson. The therapeutic results were slight but severe symptoms remained absent for five months. After that the severe epigastric pains recurred and the examination of the duodenal contents revealed that the A bile was free from lamblia but the B and C bile contained large amounts of vegetative lamblia. The treatment was limited to the administration of hydrochloric acid and liquid petrolatum. With this treatment the patient felt comparatively well and was able to work. The author thinks that this case without an exact laboratory examination might have been diagnosed as a functional nervous disorder. He is in sympathy with the efforts of von Bergmann who stresses that the 'perplexity diagnosis' of functional or nervous disorder will become less frequent with more exact organic examination. He assumes that the patient's stomach cramps were the manifestations of a cholecystopathy which according to several investigators are caused by lamblia. He thinks that thorough examinations in patients with symptoms similar to those described will reveal the presence of lamblia in the duodenal secretion or of cysts in the feces more often than is generally assumed.

Polichinico, Rome

11 123 162 (Jan 29) 1934 Practical Section

- Problem of Chronic Appendicitis D Taddei —p 123
- *Variations of Alcaligenes Melitensis in Undulant Fever Case A de Antoni —p 131
- First Results of Treatment of Laryngeal Tuberculosis with Thyroid Extracts D Bettini —p 135
- Contribution to Knowledge of Rheumatic Apoplexy N G Fanelli —p 137

Variations of Alcaligenes Melitensis—De Antoni describes a case of undulant fever with interesting bacteriologic observations. During the first stage the form R (paramelittensis) of Alcaligenes was isolated, probably through dissociation in the organism of the patient owing to the action of quinine. When the administration of quinine was suspended there was an apparently spontaneous reversion of the bacilli to the S form (melittensis), corroborated by a successful blood culture and by culture from a splenic puncture. During the first stage there was scarcely any specific but a marked indirect agglutination, while during the second stage the specific agglutination was poor. In the third stage Alcaligenes showed complete specific and no indirect agglutination. The author found that paramelittensis is extremely sensitive to indirect agglutination due to heat peptone lactic acid or acriflavine hydrochloride to which melittensis is constantly insensitive. Such substances as lead acetate, pure alcohol, tannic acid in distilled aqueous solution and saturated solutions of magnesium sulphate and of ammonia, which coagulate mucin, have a specific agglutinating action on the paramelittensis. The R form of the bacillus does not remain stable. Sometimes after cessation of

the quinine treatment it becomes apparent that not all the strains of melitensis are transformable into paramelitensis. There is, however, a gradual progressive return of the micro organism to the S form. This return is marked by a proportionate increase of the antimelitensis agglutinating rate of the blood serum. The author has shown in his experiments that the rapidity of the transformation of melitensis into paramelitensis is always directly proportional to the degree of virulence of the culture. In the author's blood culture, the serum of the patient containing agglutinin is found in strong concentration (10 cc of blood in 50 cc of broth). Of three blood cultures made in one patient, the micro organisms have been dissociated only in the one in which the blood was least rich in agglutinins. The rate of agglutination was 1:200 at the time of the first blood culture, 1:800 at the time of the second, and from 1:800 to 1:1,600 at the time of the splenic culture.

Prensa Medica Argentina, Buenos Aires

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- *Insufficiency of the Suprarenals Caused by Emotion C Bonorino Udaondo and G P Gonalons—p 1
- Syringomyelia Caused by Diffuse Medullary Glycosis Case M Alurralde B B Spota and G O Gutusso—p 10
- Röntgen Examination of Proximal Colon in Dextroflexion and Sinistrotflexion M Estiu and V Nacif—p 20
- Syndrome of Atelectasis Caused by Neoplastic Bronchostenosis of Upper Lobe of Left Lung Case J J Beretervide and G L Heidenreich—p 30

Insufficiency of Suprarenals Caused by Emotion— Bonorino Udaondo and Gonalons say that the study of emotion as an etiopathogenic factor of several diseases has been neglected. Emotion has been considered the cause of mental diseases since olden times. There are also some cases reported in which emotion was the cause of cardiac disturbances and skin diseases. The authors describe a syndrome of insufficiency of the suprarenals caused by emotion of either intense and unexpected or depressive, slow and continuous type. They have observed the syndrome in about fifty adult patients of both sexes. The syndrome is characterized by pigmentation of the skin, melanoderma and cardiac, digestive, thermoregulatory and kinesthetic disturbances. The administration of extract of the suprarenal cortex has always been followed by the disappearance of the syndrome.

Deutsche medizinische Wochenschrift, Leipzig

60 81 122 (Jan 19) 1934

- Development of Chemotherapy with Especial Consideration of Modern Treatment with Arsenic and Antimony P Uhlenhuth—p 81
- Hereditary Prognosis O F von Verschuer—p 88
- Biologic and Traditional Heritage G Roesler—p 92
- *Diagnosis of Syphilis from Dried Drop of Blood P Dahr—p 94
- Fundamentals of Treatment with Moor and Mud H Vogt—p 96
- Indications for Treatment in German Seashore Resorts C Haeblerlin—p 98
- Pathogenesis and Course of Ankylopoietic Spondylitis (Bechterew) W Krebs and O Vontz—p 100
- Climatic Health Resorts Bieling—p 102
- Graphic Demonstration of Red Blood Picture J Strasburger—p 105
- *Influenzal Pericollitis H Winternitz—p 106

Diagnosis of Syphilis from Dried Drop of Blood— Dahr employed Cheviak's method with 600 specimens. A drop of blood is put on a slide stirred for one minute and thus defibrinated, then exposed to the air and dried. It is best to examine the specimen immediately after it has dried but it is still suitable for the test several days later. To the dried drop 0.015 cc of a solution containing 35 per cent of sodium chloride and 0.3 per cent of sodium carbonate is added. The blood is diluted by stirring with this solution and is placed in a paraffin ring (15 cm in diameter) on another slide. Then 0.03 cc of a dilution of the Meinicke clarification extract made with the aforementioned freshly prepared salt solution in a ratio of 1:10 is added. Before use, the extract and diluting fluid are heated separately for eight minutes in the water bath at 56°C (132.8°F), and, after being mixed the solution remains two minutes longer in the water bath. The slide is shaken for about three minutes and kept for thirty minutes in the moist chamber at room temperature, when the reaction can be read. In negative tests the microscope reveals brown granules, but the positive reaction is indicated by black floccules and clots

in the reddish brown fluid. The author calls attention to several sources of error and thinks it advisable to run a known positive and a negative specimen with the sample to be tested, but a negative control is sufficient. The 600 specimens examined by the author were controlled by the Kahn, Meinicke clarification and Wassermann tests. The results harmonized in over 98 per cent. The author thinks that this method is of great value for the general practitioner. The easy method of blood withdrawal is helpful particularly in tests on children and obese persons. The use of the dried drop of whole blood and the fact that the specimen can be kept for several days before it is examined make the method suitable for use in colonial countries and where laboratory service is obtainable only at great distances.

Influenzal Pericollitis—Winternitz observed occasionally pericollitis in influenza patients. In most cases it presents the aspects of perityphlitis, but in a number of patients it appeared as a pericollitis of the descending or transverse colon. If the descending colon and the sigmoid are involved, palpation generally reveals the condition but involvement of the transverse colon is more difficult to detect. The inflammation may persist for several days, and it is accompanied by high temperatures. The symptoms of peritoneal inflammation predominate, while the signs of involvement of the mucous membrane of the colon, particularly discharge of mucus, are slight. In spite of this, it cannot be doubted that the pericollitis is usually accompanied by a colitis.

Medizinische Klinik, Berlin

30 113 148 (Jan 26) 1934 Partial Index

- Disease as Experience and Its Meaning K Holle—p 113
- Deforming Spondylosis K Gaugele—p 116
- Practical Evaluation of Complement Fixation Reaction for Tuberculosis in Ophthalmology W Rohrschneider—p 120
- *Crossed Hypersusceptibility Reaction in Lymphogranuloma Inguinale and Urethritis of Waelsch R Bezecky—p 121
- Diabetic Herpes Zoster and Diabetic Neuritis Without Glycosuria S Plaschkes—p 122
- *Syndrome of Agranulocytosis I Vonkennel—p 123
- Remarks on Diphtheria Epidemic in Alsterdorf E Martini—p 128
- Oral Calcium Therapy with Calcium Citrate K Jungmann and K Bergl—p 130
- Traumatic Parkinsonism G Anton—p 132

Crossed Hypersusceptibility in Lymphogranuloma Inguinale and Urethritis of Waelsch—Bezecky calls attention to a report by Frei and his associates, which indicated the possibility of a connection between urethritis of Waelsch and lymphogranuloma inguinale. He observed a patient for years who had suffered from urethritis of Waelsch. The urethral secretion of this patient was tested on five patients with lymphogranuloma inguinale and four of them gave a positive reaction, while twelve controls gave negative reactions. In the patient in whom the reaction was negative, the lymphogranuloma was new, and even Frei's antigen gave an extremely weak reaction. The patient with urethritis gave strongly positive reactions with various lymphogranuloma antigens. The anamnesis of this patient revealed nothing that was indicative of a former lymphogranuloma, and the presence of an intra-urethral primary focus of lymphogranuloma could be excluded. The author further mentions several other cases of urethritis of Waelsch, the urethral secretion of all of which yielded an antigen that produced positive reactions in patients with lymphogranuloma. In view of the possibility of relations between the two conditions, it was decided to try the application of convalescent serum from patients with lymphogranuloma in the patients with urethritis, for this treatment had proved effective in patients with lymphogranuloma. The patient received 30 cc of convalescent serum, but no change was noticed. Since from 60 to 80 cc is required in patients with lymphogranuloma, it cannot be asserted that the treatment was a failure. However, as all the available convalescent serum was required for patients with lymphogranuloma, the patient with urethritis was given no further injections of this serum. The author thinks that there is sufficient evidence not to consider the positive reaction with the urethritis antigen in lymphogranuloma as merely a nonspecific reaction. He admits that Frei's transmission experiments in monkeys proved negative and that observations so far do not permit a definite solution of the relationship, but he is

convinced that the crossed hypersusceptibility of the two disorders is worthy of note

Agranulocytosis—Vonkennel states that local infectious processes, the toxic action of which leads to an impairment of the bone marrow, dominate in the development of the disorder. The disappearance of the granulocytes is the first symptom and provides the way for secondary infections. The point of attack for the agranulocytosis is the bone marrow, and this leads under certain conditions to an involvement of the erythropoietic apparatus, to hemorrhagic aleukia and to panmyelophthisis. Complications that resemble agranulocytosis may develop in the course of antisyphilitic treatment with mercury compounds, arsphenamine, bismuth compounds, gold and malaria. This form has been designated symptomatic agranulocytosis, but just as in true agranulocytosis the bone marrow becomes impaired as the result of the toxic action of a chronic infectious process or of the repeated administration of chemotherapeutic substances. The author observed an agranulocytic blood picture in a syphilitic patient who was treated with a gold oil, but otherwise the patient was entirely free from the symptoms of agranulocytosis. The manifestations of the skin and the mucous membranes are of secondary importance, the disappearance of the granulocytes being the primary factor. Intense itching may be a premonitory symptom of granulocytosis. He emphasizes the necessity of frequent examinations of the blood picture in the course of antisyphilitic treatment. If the hemogram reveals an agranulocytic tendency, the chemotherapeutic treatment should be discontinued at once, for, if this is done, there is a possibility of spontaneous cure. In an agranulocytosis that developed in the course of malariatherapy of neurosyphilis, the author obtained favorable results with intravenous injections of dextrose and with intramuscular injections of small amounts of blood.

Sovetskaya Khirurgiya, Moscow

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- Liver Stones I. G. Rufanov—p. 121
- Treatment and Prognosis of Perforative Peritonitis in Typhoid B. N. Postnikov—p. 136
- Abscess in Pouch of Douglas of Appendiceal Origin S. B. Budzin skaya Sokolova—p. 150
- *Intestinal Obstruction in Childhood M. N. Anisimova and A. E. Mangeym—p. 159
- *Venography in Clinical Study of Varicose Veins of Lower Extremity S. P. Khodkevich A. A. Laskarev and V. G. Kolbasov—p. 171
- Determination of Blood Supply in Vascular Diseases of Lower Extremity L. N. Poznyakov—p. 179
- Detection of Latent Syphilis in Donors E. S. Zalkind—p. 185
- Technic of Gastro Intestinal Anastomosis M. A. Stambovskiy—p. 191

Intestinal Obstruction in Childhood—Of nineteen cases of intestinal obstruction observed by Anisimova and Mangeym in the last three years, four were due to congenital atresia, three to Hirschsprung's disease, six to invagination, four to strangulation and two to obturation by worms. The most frequent causes of ileus are congenital atresia and volvulus of the intestine, congenital tumors (teratomas), adhesions resulting from fetal peritonitis, abnormal fixation of the mesentery and of the large intestine, Hirschsprung's disease, invaginations caused by Meckel's diverticulum, inflammatory adhesions, incarceration and worms. The recognition of various forms may be difficult. Atresia comes into consideration only during the first days after birth, invaginations predominate between the fifth and ninth months, while obturation by worms is seen in older children. Vomiting, increased peristalsis, meteorism and failure to pass meconium during the first days suggest atresia of the bowel. Sudden onset of pain, blood in the feces, sausage shaped tumor in the right lower abdominal quadrant, and relaxed sphincter suggest invagination. Long existing constipation, meteorism, periodic distention with symptoms of obstruction, followed by evacuations and the palpation of fecal masses in the large intestine are frequently observed in Hirschsprung's disease. Obstruction resulting from strangulation by Meckel's diverticulum or obturation caused by worms is frequently mistaken for appendicitis. Conservative treatment is indicated only in Hirschsprung's disease and in the first few hours of invagination, in which high enemas and massage sometimes accomplish disinvagination. Early operative intervention constitutes the only effective means in all other instances. Laparotomies and evisceration of the bowel are not well borne by children.

Blood transfusion before and after operation as well as infusions of small amounts of physiologic solution of sodium chloride are indicated.

Venography in Study of Varicose Veins of Lower Extremity—Khodkevich and his associates report the application of venography in a clinical study of varicose veins of the lower extremities. Injections were made in seventeen cases of pronounced varicosity in which the Trendelenburg test was positive. The technic consisted of injecting into a vein 20 cc of a 5 to 10 per cent solution of sodium iodide. Serial roentgenograms were taken after each 5 cc of contrast medium was injected. The study of venograms revealed that the superficial venous system of the lower extremity is represented by two sharply contrasted anatomic types. In the one the great saphenous vein is recognizable as a large trunk running the entire length of the extremity and giving off relatively few branches. The other type is represented by a great saphenous vein which at once divides into numerous large branches so that the main trunk cannot always be told from its branches. In still another modification there exists in about 18 or 20 per cent an accessory saphenous vein which runs parallel to the main trunk. The study of the venograms further demonstrated that the venous flow is centripetal, the contrast medium always spreading in that direction both in the main trunk and in the anastomosing branches. The question of how varicose veins compensate for the hydrostatic pressure appeared to be answered by the presence of numerous anastomatic collaterals which serve to remove excess blood and to divide the hydrostatic pressure among many vessels. Thus they constitute a compensatory mechanism. The authors call attention to the fact that the results of operative treatment of varicose veins as revealed in recent statistics are far from encouraging, there being 30.5 per cent of recurrences. They believe that these results can be improved by proper choice of treatment. In type one, the operations of Trendelenburg, Madelung or Babcock are indicated. In type two operative methods are likely to fail and the injection method is indicated. The sclerosing results of the injection method can be studied by venography.

Ugeskrift for Læger, Copenhagen

66 115 148 (Feb. 1) 1934

- *Orientating Remarks on Ultrashort Wave and Short Wave Therapy C. Vernet—p. 115
- Investigations on Liver Function Before and After Roentgen Examinations of Stomach Usually Applied in Clinic. K. Germer and A. Mellemgaard—p. 124
- *Influence of Mercury Salt on Isohemagglutination E. Madsen—p. 136

Ultrashort Wave Therapy—Vernet states that from his practical experience in more than 300 cases and from a critical study of the material of Schliephage and his assistants his impression is that ultrashort wave therapy in many cases accomplishes more than any other treatment is often effective when other treatment has failed and affords an excellent adjuvant for the surgeon in cases of inflammation, often both before and after operation. The indications for the therapy are not yet clearly defined, and close cooperation between surgeon and internist on the one hand and ultrashort wave therapist on the other is required. Roughly, the indications for ultrashort wave therapy are first of all in localized inflammation, particularly the acute, then in neuralgia, myalgia, chronic localized arthritis and arthritis deformans. An important feature of the treatment is its ability to relieve pain. The author finds that the shortest waves as a rule give by far the best results, yet in some cases refractory to wavelengths of 4 meters particularly favorable results have been obtained at 15 or 30 meters. In the main, harmful effects seem to be excluded if the treatment is so weak that only an agreeable warmth is felt. In treatment of pulmonary disorders a certain danger of hemoptysis must be borne in mind and in patients with deficient sensibility the absence of the heat indicator is to be remembered. A short survey of more than 200 of his cases is given.

Influence of Mercury Salt on Isohemagglutination—Madsen concludes from his experiments that in determinations of human blood types Havem's solution must not be used in preparation of blood corpuscle suspensions.

